

NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

EXPLORING THE PERCEIVED FUTURE OF NAMIBIAN CONSERVATION: A CASE STUDY OF THE ETOSHA WEST AND SOUTH LANDSCAPE

Jeremia Kamutushi-Lysias Amutenya

Dissertation submitted in fulfilment of the requirements for the Doctor of Philosophy in Natural Resources Sciences at the Namibia University of Science and Technology

Supervisor: Prof Morgan Hauptfleisch

Namibia Nature Foundation

Co-Supervisor: Prof Francois Retief

North-West University

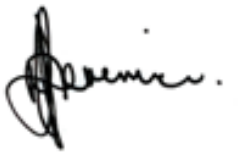
Co-Supervisor: Dr Tendai Mandishona Nzuma

Namibia University of Science and Technology

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Declaration

I, Jeremia Kamutushi-Lysias Amutenya, hereby declare that the work contained in the thesis entitled: Exploring the Perceived Future of Namibian Conservation: A Case Study of the Etosha West and South Landscape is my own original work and that I have not previously in its entirety or in part submitted to any university or higher education institution for the award of a qualification.

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List of Acronyms

BRCP	Black Rhino Custodianship Programme
CA	Concession Areas
CBNRM	Community-Based Natural Resource Management
CF	Community Forests
CC	Communal Conservancies
CBO	Community-Based Organisations
CBD	Convention on Biological Diversity
CMC	Conservancy Management Committee
CSS	Critical Social Science Orientation
ENP	Etosha National Park
EWSL	Etosha West and South Landscape
FT	Futures Thinking
GM	Ground Managers
GR	Game Reserves
GFA	Grootberg Farmers Association
HWC	Human-Wildlife Conflict
MB	Market Biocentrism Orientation
MEFT	Ministry of Environment, Forestry and Tourism
MLF	Mixed Land Use Farmers
NAMPOL	Namibian Police
NBE	Nature-Based Enterprises
NDF	Namibian Defence Force
NC	New Conservation Orientation
NLMS	National Level Ministerial Support
PAN	Protected Areas Network
PA	Protected Area
PES	Payment for Ecosystem Services
SES	Social Ecological Systems
SLF	Single Land Use Farmers
SO	Support Organisations
TC	Traditional Conservation Orientation

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Dedication

"Dedicated to Mia and Aria Amutenya, with hope for our collective growth and a better future".

Abstract

In a rapidly evolving world confronting the fourth industrial revolution, biodiversity governance in Namibia has lagged behind other sectors in adopting progressive philosophies and practices, leaving it increasingly vulnerable to complex, emerging conservation challenges. This study addresses the limited empirical understanding of how stakeholders across different land-use systems perceive, anticipate and envision the future of conservation in Namibia by applying Futures Thinking (FT) as a conceptual and analytical framework to explore conservation across temporal scales (past, present and future) within the Etosha West and South Landscape (EWSL). Using a qualitative research design, 81 stakeholders representing Etosha National Park (ENP), communal conservancies and freehold farms were interviewed using open-ended questions, with data analysed thematically and interpreted through four future conservation orientations, namely Traditional Conservation (TC), New Conservation (NC), Critical Social Science (CSS) and Market Biocentrism (MB).

The Past: Findings reveal that historical policy reforms, particularly the 1967 and 1996 reforms, were instrumental in reshaping Namibia's conservation landscape by devolving wildlife rights and enabling benefit-based conservation models, as reflected in 46% (n = 61) of participants' responses. While these reforms contributed significantly to wildlife recovery and established decentralised wildlife ownership and management as the foundation of contemporary conservation, stakeholders also perceived aspects of the current legislative framework as constraining the adaptability required to address future conservation challenges.

The Present: The complexity and dynamic nature of the EWSL allow for ideological diversity across land-use systems. Within the CBNRM sector, the CSS orientation dominates, accounting for 39% (n=36) of the responses. This reflects a growing dissatisfaction with limited household-level benefits and concerns that the programme expansion has outpaced the economic and institutional capacity of support organisations. In contrast, Etosha National Park (ENP) was strongly aligned with the TC orientation (59%; n = 57), driven largely by the persistent poaching threats that reinforce protectionist strategies, placing considerable pressure on the park's budget and limiting investment in critical routine management activities. The dominant orientation among freehold farms was MB (54%; n = 20), reflecting a management approach that treats biodiversity as an economic asset. This approach, however, is constrained by restrictive legislative frameworks that limit adaptive biodiversity management and constrain farmers' ability to respond effectively to environmental and market-related vulnerabilities.

The Future: Stakeholders across the three land-use systems identified a lack of tangible benefits from conservation (14%; n=72) as the most critical and cross-cutting threat, underpinning a wide range of future risks, including poaching, poverty, and declining support for conservation initiatives. The most probable and idealised futures for both the CBNRM sector (55%, n = 59; 48%, n = 76) and ENP (43%, n = 48; 50%, n = 56) reflected a shift towards the NC orientation, whereas freehold farms consistently favoured futures aligned with the MB orientation (38%, n = 15; 48%, n = 30). The CBNRM sector envisioned a future centred on improved household-level conservation benefits, inclusive governance and livelihood diversification, whereas ENP prioritised stronger collaboration with neighbouring communities and the expansion of concession areas as mechanisms to enhance conservation outcomes and offset HWC for communities adjacent to the park. In contrast, freehold farmers envisioned a future supported by targeted legislative reforms that enable more flexible, market-based conservation approaches to enhance environmental and economic resilience. Together, these findings demonstrate that effective conservation requires context-specific, future-oriented approaches that reflect the priorities of diverse land-use systems. By operationalising Futures Thinking within a real-world conservation landscape, this study advances conservation futures research and proposes a novel hybrid conservation orientation to guide adaptive biodiversity governance and long-term conservation planning in Namibia.

Keywords: Conservancies, Etosha National Park, Futures Thinking, Freehold farms, Landscape, Namibia

Chapter 1: General Introduction

1.1 Background

1.1.1 Conservation in Namibia

Described as the driest country in sub-Saharan Africa (Reid et al., 2011), Namibia is ranked among countries with the most unique desert-adapted biota, high endemism, and a complex Protected Areas Network (PAN) (Ministry of Environment and Tourism, 2010b). Stretching across 824,000 km^2 of wide-open spaces, Namibia possesses spectacular scenery that is sparsely populated (Government of the Republic of Namibia, 2004), facilitating the conservation of 46% (n = 379,040 km2) of the country's terrestrial surface area. Additionally, this is supplemented by 11,000 km^2 of Marine Protected Areas (MPA), stretching 400 km along the southern coastline and extending 30 km offshore into the Exclusive Economic Zone (EEZ), engulfing eleven offshore islands (Findlay, 2020). This expansive conservation network reflects a long-standing national commitment to biodiversity protection, supported by diverse and progressive wildlife institutions, including national parks (NP), communal conservancies (CC), community forests (CF), concession areas (CA), game reserves (GR) and freehold farms (FF) as detailed below.

National Parks

National Parks (NP) are widely recognised as a crucial instrument for biodiversity preservation (Nicholson et al., 2012). Hence, Namibia has established 20 PAs, covering 17% of its surface area (Figure 1). This network of land is scattered across the country and ranges in size from 0.12 km^2 (the smallest, Southwest Nature Reserve) to 49,768 km^2 (Namib-Naukluft Park), the largest conservation area in the country (Barnard et al., 1998b). The most iconic attractions the country has to offer are conserved in the largest park, including the breathtaking soaring dunes of Sossusvlei (Bliss, 2018), the massive canyon at Sesriem (Bliss, 2018), the abundant shipwrecks along the chilly Atlantic coast where the desert meets the sea (Planet et al., 2017), gravel plains covered in lichen fields (Jurgens et al., 2013) and the spectacular UNESCO World Heritage site the Namib Sand Sea (Claudino-Sales, 2019). Protected Areas serve as noble tools for biodiversity conservation; however, they have recently come under intense scrutiny for failing to protect the hotspot of endemism in the unprotected pro-Namib transition zone and adjoining western escarpment (Palmeirim et al., 2023; Mendelsohn et al., 2023).

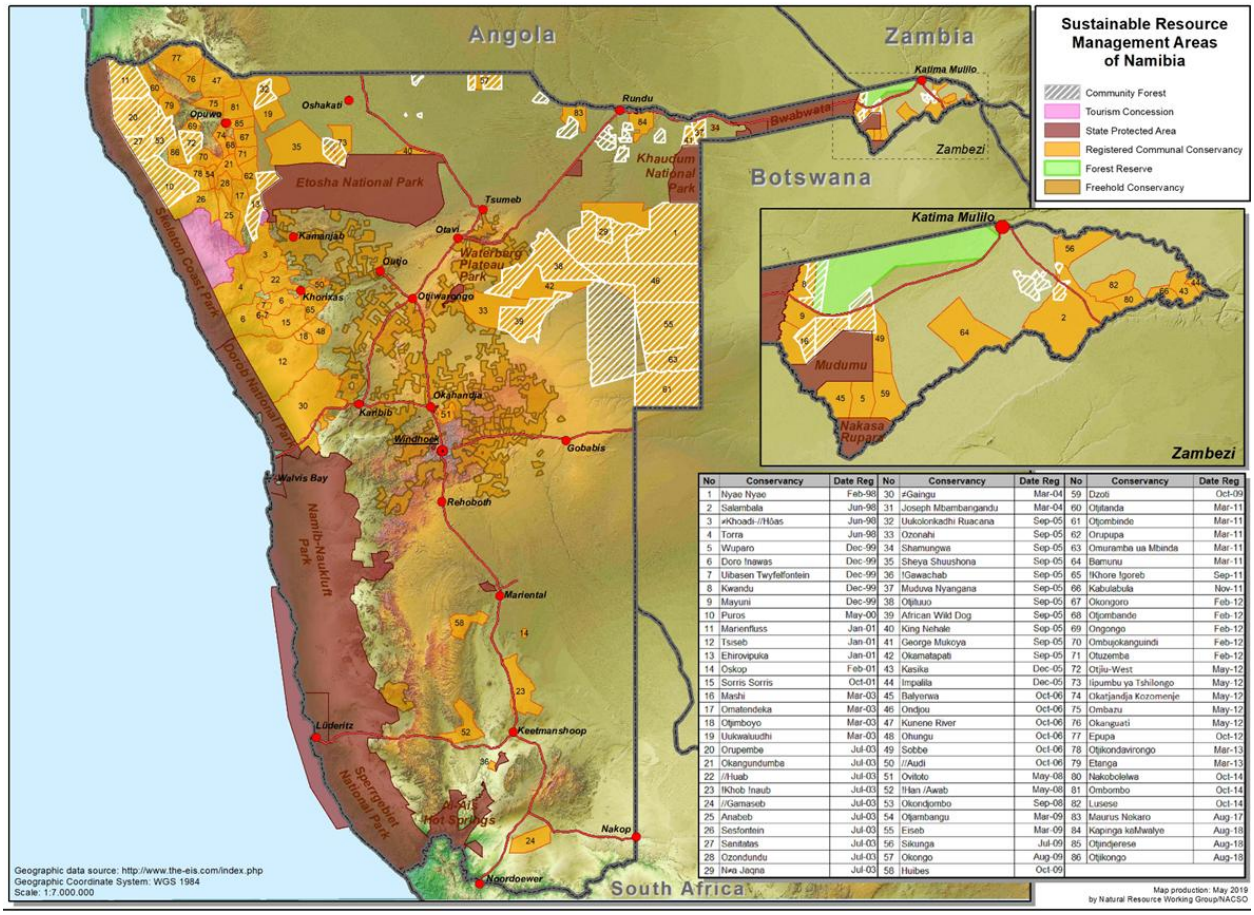
Marine Protected Areas

The Namibian Sea covers over 513 015 km2 (Namibia Statistics Agency, 2018), and the country proclaimed its first Marine Protected Area (MPA), the Namibian Islands Marine Protected Area (NIMPA) in 2009 (Ludynia et al., 2012) (Figure 1), playing its role in contributing to achieving Aichi's Target; 11, which hopes to safeguard 10 % of the world's coastal and marine areas by 2020 (Kirkman et al., 2018). The park hosts important breeding populations of threatened sea birds, including 20% of the African penguins (*Spheniscus demersus*) (Crawford et al., 2011), 7% of the Cape gannets (*Morus capensis*) (Crawford et al., 2007), and more than 70% of the Cape cormorants (*Phalacrocorax capensis*) global breeding populations (Ludynia et al., 2012). Thus, the proclamation of NIMPA ensures the protection of important breeding and foraging areas of those threatened seabirds (Kirkman et al., 2018). Furthermore, it also plays a significant role in preserving the habitats of the rock lobster (*Jasus lalandii*), the southern right whale (*Eubalaena australis*) and Heaviside's dolphin (*Cephalorhynchus heavisidii*) (Findlay, 2020). This noble conservation strategy complements the country's terrestrial conservation efforts, which place the entire 1,570 km of the Namibian coastline under formal protection (Findlay, 2020).

Community-Based Natural Resources Management

The Community-Based Natural Resource Management (CBNRM) programme is widely recognised as an innovative and transformative model that has reshaped conservation in Namibia and southern Africa by integrating biodiversity conservation with rural development beyond state-managed PAs (Figure 1). This programme empowers local communities by decentralising natural resource management and devolving conditional-use rights over wildlife in areas where CC have been established, ensuring that wildlife conservation forms part of rural development and poverty eradication (Barnes et al., 2001; Hoole & Berkes, 2010). A communal conservancy can be defined as a multi-dimensional conservation area established and managed by local inhabitants (Stefanova, 2005), leveraging natural, renewable resources to create economic opportunities that support diversified livelihoods beyond subsistence farming. This conservation model ensures group accountability for the stewardship of renewable natural resources, including their sustainable use, whether consumptive or non-consumptive (Republic of Namibia, 1996). However, implementing this forward-thinking conservation model is constrained by the fragmentation of natural resource governance across different legislative frameworks. To overcome this dilemma, conservancies are now registered as community forests (CFs) to secure use rights over forest products (Forest Amendment Act, 2005), on an equal footing with wildlife, as devolved through the Nature Conservation Amendment Act 5 of 1996 (Republic of Namibia, 1996). In total, 86 CCs and 43 CFs have

been registered countrywide (Figure 6), supporting over 10% (n=238,701) of Namibia's population and covering 21% of the country's total surface area (MEFT/NACSO, 2022).



No	Conservancy	Date Reg	No	Conservancy	Date Reg	No	Conservancy	Date Reg
1	Nyae Nyae	Feb-98	30	#Gaingu	Mar-04	59	Dzoti	Oct-09
2	Salambala	Jun-98	31	Joseph Mbambangandu	Mar-04	60	Otjitanda	Mar-11
3	#Khoadi-//Hôas	Jun-98	32	Uukolonkadhi Ruacana	Sep-05	61	Otjombinde	Mar-11
4	Torra	Jun-98	33	Ozonahi	Sep-05	62	Orupupa	Mar-11
5	Wuparo	Dec-99	34	Shamungwa	Sep-05	63	Omuramba ua Mbinda	Mar-11
6	Doro !nawas	Dec-99	35	Sheya Shuushona	Sep-05	64	Bamunu	Mar-11
7	Uibasen Twyfelfontein	Dec-99	36	!Gawachab	Sep-05	65	!Khore Igoreb	Sep-11
8	Kwandu	Dec-99	37	Muduva Nyangana	Sep-05	66	Kabulabula	Nov-11
9	Mayuni	Dec-99	38	Otjituuo	Sep-05	67	Okongoro	Feb-12
10	Puros	May-00	39	African Wild Dog	Sep-05	68	Otjombande	Feb-12
11	Marienfluss	Jan-01	40	King Nehale	Sep-05	69	Ongongo	Feb-12
12	Tsiseb	Jan-01	41	George Mukoya	Sep-05	70	Ombujokanguindi	Feb-12
13	Ehirovipuka	Jan-01	42	Okamatapati	Sep-05	71	Otuzemba	Feb-12
14	Oskop	Feb-01	43	Kasika	Dec-05	72	Otjiu-West	May-12
15	Sorris Sorris	Oct-01	44	Impalila	Dec-05	73	Iipumbu ya Tshilongo	May-12
16	Marshi	Mar-03	45	Balyerwa	Oct-06	74	Okatjandja Kozomenje	May-12
17	Omatendeka	Mar-03	46	Ondjou	Oct-06	75	Ombazu	May-12
18	Otjimboyo	Mar-03	47	Kunene River	Oct-06	76	Okanguati	May-12
19	Uukwaluudhi	Mar-03	48	Ohungu	Oct-06	77	Epupa	Oct-12
20	Orupembe	Jul-03	49	Sobbe	Oct-06	78	Otjikondavirongo	Mar-13
21	Okangundumbe	Jul-03	50	//Audi	Oct-06	79	Etanga	Mar-13
22	//Huab	Jul-03	51	Ovitoto	May-08	80	Nakobolelwa	Oct-14
23	!Khob !naub	Jul-03	52	!Han /Aweb	May-08	81	Ombombo	Oct-14
24	//Gamaseb	Jul-03	53	Okondjombo	Sep-08	82	Lusese	Oct-14
25	Anabeb	Jul-03	54	Otjambangu	Mar-09	83	Maurus Nekaro	Aug-17
26	Sesfontein	Jul-03	55	Eiseb	Mar-09	84	Kapinga kaMwalye	Aug-18
27	Sanitatas	Jul-03	56	Sikunga	Jul-09	85	Otjinjerese	Aug-18
28	Ozondundu	Jul-03	57	Okongo	Aug-09	86	Otjikongo	Aug-18
29	N≠a Jaqna	Jul-03	58	Huibes	Oct-09			

Figure 1: The distribution and types of conservation areas in Namibia.

To extend the Protected Areas Network (PAN), the government recognised, in the Kunene Region, areas previously designated by traditional authorities as conservation zones before independence, namely Palmwag, Etendeka, and Hobatere (Thouless et al., 2014). These lands were designated as concession areas in 2007 (Figure 1) and managed by the State, without compromising the adjacent conservancies' ability to derive benefits from them. Concession areas represent an alternative, forward-thinking conservation model to the conventional, dated "Yellowstone model," centred on a classic fortress conservation approach that alienates PAs from their surrounding landscapes and prevents adjacent communities from benefiting from natural resources within the parks. The CA are designed to strengthen CC by diversifying income-generating opportunities beyond the conservancies' boundaries, while

protecting the unique biodiversity those areas offer, particularly in the Palmwag concession, which forms the core of the largest free-roaming desert-adapted black rhino population (Thouless et al., 2014).

Freehold Farmers

Namibia has some of the most progressive wildlife institutions worldwide, with freehold farms (commercial farms) a prime example of notable non-State institutions that manage wildlife for various purposes (Jones et al., 2005). Freehold farms are a loose group of privately owned game/livestock farmers, amounting to 12,382 individually fenced-off land units, spreading across 397,283 km^2 (48%) of Namibia's surface area (Namibia Statistics Agency, 2018), predominantly occupied by white farming households (Amoo, 2024). These lands are widely acknowledged as the backbone of biodiversity conservation, hosting 77% of Namibia's wildlife population (Jones et al., 2005), which Brown and Thomson (2024) estimate exceeds 3 million. This was achieved through the amendment of the Nature Conservation Ordinance 31 of 1967 (1967), granting commercial farmers ownership and use privileges over wildlife, converting wildlife on those properties into a valuable economic opportunity and lessening its perceived competition with livestock (Weaver & Petersen, 2008). Commercial farms have played a crucial role in the conservation of rare and endangered species, accommodating large portions of the home ranges of the cheetah (*Acinonyx jubatus*) and black rhino (*Diceros bicornis*) (Nghikembua et al., 2020). This milestone ensures that Namibia is home to the largest free-roaming cheetah population (n=2,500) (Stefanova, 2005) and the largest black rhino population (85% of the entire global population) (Chimes et al., 2022).

Resettlement Farmers

Land-reform matters continue to divide opinions in post-independent Namibia and possess significant economic and political repercussions. To address the land disparities left as a legacy by the "Apartheid" regime, the government has embarked on a market-assisted acquisition scheme of commercial lands based on the "willing seller, willing buyer" principle as stipulated in the *Agricultural (Commercial) Land Reform Act 1995* (1995), which grants the government priority over the sale of any commercial land in the country. Land acquired through the program is subdivided and redistributed to previously disadvantaged or displaced communities or families. To date, the government has acquired a total of 549 farms, spanning 54,911 km^2 (14% of all commercial land) (Namibia Statistics Agency, 2018), for N$1.9 billion, resettling 5,338 beneficiaries (Amoo, 2024). Despite this noble deed, farmers resettled through the programme are underperforming because their ability to diversify their livelihoods is constrained by contractual obligations, which, in turn, pressure them to overutilise biodiversity on those properties.

1.1.2 The Development of Futures Thinking in Namibian Conservation

Namibia possesses a unique conservation heritage spanning centuries and is globally renowned for its extensive and successful conservation practices and policies (Raphaely, 1997; Newsham & Bhagwat, 2015), supported by a complex network of protected areas (PAN). However, decisions taken today will either compromise or amplify this legacy. Over the past 30 years, conservation in Namibia has evolved not only through the adoption of advanced technologies but also through the refinement of techniques and methodologies. Field-based vegetation and wildlife monitoring, once time-intensive and reliant on manual surveys, has increasingly integrated remote sensing technologies (Colditz et al., 2007; Mendelsohn & Haraes, 2018; Hering et al., 2022) such as drones, camera traps, satellite multispectral imagery, and wildlife telemetry tracking collars (Leyequien et al., 2007). Simultaneously, traditional foot patrols and physical monitoring practices have been complemented or replaced by sophisticated closed-circuit television (CCTV) systems (Chen et al., 2019; Young, 2021), and fortress-style conservation has made way for the integration of wildlife and parks into social landscapes, better adapted to achieve socio-economic objectives (Child et al., 2012) and climatic resilience. These technological innovations, guided by FT principles, are adopted from other sectors to inform adaptive decision-making within conservation and have yielded transformative results that improve conservation outcomes. The deliberate integration of those technologies and the evolution of conservation techniques guided by FT principles demonstrate how the FT paradigm can help sustain and strengthen the country's conservation legacy in a dynamically interconnected world (Sitta et al., 2023). Hence, adopting such innovations is not only a response to current needs but also a proactive measure guided by FT to shape a preferable future for conservation nationwide.

1.1.3 The Need for Purposeful Futures Thinking in Namibian Conservation

Namibia possesses a long-standing conservation heritage, recognised globally for its extensive protected areas network (PAN) and progressive biodiversity policies (Raphaely, 1997; Newsham & Bhagwat, 2015). Over the past three decades, conservation practices in the country have evolved significantly, incorporating both technological innovations and methodological refinements. Despite this progress, the biodiversity sector continues to face challenges, with additional uncertainties and complex dynamics still expected to emerge (Maier et al., 2016), primarily driven by a combination of environmental, socio-economic, and anthropogenic factors. The key drivers of uncertainty are climate change (Keja-Kaereho & Tjizu, 2019), overexploitation of natural resources (Melber, 2022), land-use change (Kamwi & Mbidzo, 2022) and land fragmentation (Gilolmo & Lobo, 2016; Weinzierl et al., 2016). Hence, those drivers will

require an adaptive, evidence-based and forward-looking strategy to enable conservation managers to anticipate emerging challenges and develop robust strategies that enhance ecological resilience and long-term sustainability. The paradigm of FT is a transdisciplinary and interdisciplinary approach proposed in this study to address complex challenges and to provide a framework that supports scenario development, stakeholder engagement, and adaptive decision-making to navigate uncertainty and inform long-term conservation strategies (Botha, 2016; Sitta et al., 2023). Operationalising FT in this context involves developing alternative future scenarios, leveraging technological advancement and engaging stakeholders in visioning exercises to capture diverse perspectives on the desired future of conservation. Additionally, we need to bridge the diverse sources of experience and knowledge held by stakeholders in the EWSL area (Pereira et al., 2021) by investigating their perceptions to uncover potential opportunities for sustainable conservation practices (Sitta et al., 2023). This can help guide conservation initiatives and enhance community participation in shaping Namibia's conservation future (Johansson, 2021). Hence, we postulate that the strategic planning and visioning processes of government and non-governmental organisations can benefit significantly from incorporating FT into their planning processes to unlock innovation similar to that of the CBNRM program. However, due to the complex nature of conservation, we must contend with the possibility that the FT paradigm may ultimately prove to be another instrument that falls short of the demands of a complex conservation world.

1.2 Problem Statement

Despite being internationally recognised for its rich biodiversity and progressive conservation policies, Namibia faces increasing pressure to balance socio-economic development with biodiversity conservation (Kariuki et al., 2025). These socio-ecological pressures have intensified over recent decades, with Namibia recognised as one of the most climate-vulnerable countries in sub-Saharan Africa (Angula & Kaundjua, 2016). Climate projections for Namibia indicate increases in mean annual temperatures of approximately 2-6 °C under different greenhouse gas emission scenarios, accompanied by greater rainfall variability and more frequent and severe droughts (Government of the Republic of Namibia (GRN), 2025). These climatic changes threaten rangeland productivity, wildlife distribution and ecosystem resilience, thereby increasing the complexity of conservation planning and natural resource management. At the same time, expanding land-use demands associated with population growth have placed additional pressure on the country's finite natural resources. Namibia's population increased from 2.1 million in 2011 to about 3.0 million in 2023 (Namibia Statistics Agency, 2024), resulting in increased demand for land, water, food and other natural resources, thus contributing to environmental degradation and biodiversity loss

(Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2019; O'Sullivan, 2020). Collectively, these interacting pressures have created an urgent need for conservation leadership to anticipate and respond proactively to emerging threats, uncertainties and competing land-use demands. Although previous studies in Namibia have generated valuable insights into stakeholder attitudes towards wildlife conservation, community-based natural resource management, human-wildlife conflict (HWC) and the distribution of conservation benefits, they have primarily focused on contemporary conservation challenges. Consequently, limited empirical attention has been given to how stakeholders across different land-use systems perceive, anticipate and envision the long-term future of conservation. As a result, there remains insufficient systematic understanding of the aspirations, concerns and preferred conservation futures of stakeholders operating within the Etosha West and South Landscape (EWSL). This represents a significant knowledge gap because conservation policies and management interventions that do not adequately incorporate stakeholders' perceptions, values and priorities may be less responsive to local social-ecological realities and therefore less effective in achieving sustainable conservation outcomes (Villamor et al., 2014). Futures Thinking (FT) thus provides an appropriate framework for addressing this knowledge gap by enabling the systematic exploration of alternative futures, facilitating stakeholder participation, identifying emerging risks and opportunities, and supporting the development of robust long-term conservation strategies (Ednie et al., 2023). Hence, exploring the perceived future of conservation in Namibia is imperative.

1.3 Research Objectives

The main aim of this study was to explore how stakeholders across different land-use types within the Etosha West and South Landscape perceive the future of biodiversity conservation through the interconnected temporal dimensions of the past, present and future. Specifically, the study investigates how historical developments have shaped current conservation orientations and how these, in turn, influence stakeholders' perceptions of the most probable, most feared and idealised conservation futures. To achieve the aim of this study, the following objectives were identified:

1. Explore the extent to which Futures Thinking has been applied to biodiversity conservation and its relevance to the stakeholders within the Etosha West and South Landscape, through a comprehensive review and critical analysis of existing scholarly literature and policy frameworks.
2. Analyse the current conservation orientation of Namibia by examining contemporary management practices shaping conservation approaches across different land-use types within the Etosha West and South Landscape.

3. Examine the critical issues likely to influence biodiversity conservation across different land use types within the Etosha West and South Landscape Area.
4. To analyse the perceived, most likely, feared and idealised future scenario of different land use types within the Etosha West and South Landscape Area.

1.4 Significance of the Study

Exploring the perceived future of Namibian conservation holds significant implications in guiding our efforts to achieve long-term environmental sustainability and socio-economic development. By examining and planning biodiversity management using an innovative FT model, the sector can adopt a forward-thinking, predictive approach to conservation, biodiversity use, and management. It further lays the foundation for accelerating the transition from 20th-century practices, which are relevant but ineffective, and exclusionary conservation hegemony to a landscape management approach better suited to address climate change, biodiversity loss, and ecosystem service degradation in the 21st century. Additionally, this approach allows us to identify potential areas of convergence and divergence among stakeholders, enhancing engagement and participation in conservation initiatives. Through this comprehensive analysis, the study can provide insights that inform strategic planning and policy decisions, ensuring the sustainable and effective preservation of Namibia's unique and valuable ecosystems.

1.5 Theoretical Framework

This study is guided by two complementary theoretical frameworks: the Social-Ecological Systems (SES) Theory developed by Ostrom (2009) and the Conservation Orientations Framework proposed by Sandbrook et al. (2019) and later operationalised through the Future of Conservation survey (Future of Conservation, 2022). Together, these frameworks provide a comprehensive conceptual foundation for examining the interactions between ecological systems and human societies from a futures perspective, thus enabling an understanding of how stakeholders perceive and envision the future of conservation within the EWSL. The SES Theory provides a holistic perspective for understanding the dynamic interactions between ecological systems and human societies. The Social-Ecological Systems (SES) Theory proposes that conservation outcomes emerge from the dynamic interactions among ecological processes, governance arrangements, resource users and institutions, rather than from ecological or social factors operating independently (Partelow et al., 2024). Accordingly, the theory conceptualises biodiversity conservation and human development as interconnected components of a single integrated system, in which ecological processes, governance arrangements, resource users and socio-economic conditions

interact to shape environmental and social outcomes (Ostrom, 2009). To explain these interactions, the theory posits that sustainable natural resource management is shaped by the dynamic relationships among four interconnected subsystems: resource systems, resource units, governance systems, and resource users (Ostrom, 2009). These interactions determine how societies utilise, manage and conserve natural resources under changing environmental and socio-economic conditions (Ostrom, 2009; Partelow, 2018).

The SES Theory was particularly appropriate for this study because the EWSL comprises multiple interconnected land-use systems, including Etosha National Park (ENP), communal conservancies (CC) and freehold commercial farms, each characterised by distinct governance arrangements, management objectives, socio-economic realities and resource-use practices (Hoole, 2008). Accordingly, the SES theory provided a holistic framework for examining how interactions among ecological processes, governance arrangements, institutional processes and socio-economic realities shape stakeholders' perceptions of current conservation practices and their visions of future conservation within the landscape.

While the SES Theory explains how ecological and social systems interact, it does not explicitly explain the different ideological perspectives through which conservation futures are understood and practised. Complementing the SES theory, this study also drew on the Conservation Orientations Framework (COF) as an analytical lens to examine the diverse conservation philosophies shaping contemporary conservation thinking and stakeholders' perceptions of the future of conservation. This framework proposes that contemporary conservation thinking is broadly represented by four major orientations: Traditional Conservation (TC), New Conservation (NC), Critical Social Science (CSS) and Market Biocentrism (MB) (Future of Conservation, 2022). Each orientation represents a distinct conservation philosophy, reflecting different assumptions about the relationship between people and nature, conservation priorities and the governance and management approaches that shape conservation decision-making (Retief et al., 2025). The first orientation (TC) emphasises the intrinsic value of biodiversity and advocates strong protection of ecosystems through protected areas, law enforcement, and the limitation of human impacts on nature (Future of Conservation, 2022). The NC orientation recognises biodiversity conservation and human well-being as complementary objectives, advocating conservation approaches that integrate sustainable resource use, community participation and socio-economic development to achieve mutually beneficial outcomes for people and nature (Kareiva & Marvier, 2012). The CSS orientation emphasises that effective conservation depends on social inclusive frameworks, recognition of power relations, and the fair distribution of conservation costs and benefits

(Future of Conservation, 2022). Furthermore, it argues that conservation initiatives should address historical inequalities, recognise land and resource rights, and promote equitable benefit-sharing among affected communities (Retief et al., 2025). In contrast, the MB orientation advocates market-based approaches, such as wildlife-based enterprises, ecotourism and payments for ecosystem services, to align economic incentives with biodiversity conservation objectives
(Sandbrook et al., 2019). These four conservation orientations served as the principal analytical framework for interpreting stakeholders' perceptions across the different land-use systems. Collectively, the SES theory and the COF provided a coherent theoretical foundation for examining and interpreting stakeholders' perceptions of current and future conservation across the landscape.

1.6 Research Map

Building on the theoretical grounding outlined above, this study developed a conceptual framework to guide the analysis of conservation futures within the EWSL. Figure 2 presents a structured illustration of conservation dynamics across multiple scales, demonstrating the interactions among global, national, and landscape-level influences on social, ecological, and governance systems within the EWSL. The first level (orange outer layer) of structural influences on conservation dynamics occurs globally, where international agreements set the overarching agenda that lays the foundation for a sustainable social-ecological interaction. The most noble and influential agenda in the current century is the Sustainable Development Goals (SDGs) and the Paris Climate Change Agreement (Griggs et al., 2013; Biermann, Kanie & Kim, 2017; Victor et al., 2017). The second level (blue layer) accommodates national influences on the social-ecological dynamics, with key policies (Vision 2030, National Development Plans (NDPs), and the Constitution driving harmonisation at the regional and grassroots levels.

The green inner layer represents the analytical nucleus of this study, with three distinctive subsystems, namely the (i) social system, which represents the user of the resources within the landscape, (ii) the ecological system, which comprises the resource unit and (iii) the resource system, characterised by the landscape subsidiary and their governance system (Ostrom, 2009). These subsystems are coupled, interacting dynamically and nonlinearly through feedback loops. To fully comprehend the subsystems within the landscape, they were exposed to the 7-question methodology, a deliberate strategy to shift the system towards a more desirable conservation future by leveraging stakeholder perceptions of the future of conservation (Government Office for Science, 2017). Hence, this study hypothesises that landscape subsidiaries' strategic planning and visioning processes can benefit significantly from applying

FT in their daily operations processes to unlock the most desired conservation future of the landscape. The output of the desired conservation harmonises conservation objectives (biodiversity resilience and integrated landscape governance) with the socio-economic aspects (social equity and livelihoods) of people within and beyond the landscape at a national level. The final output of the framework is the production of global public goods, resulting from practical conservation efforts, which the country can leverage from the international community through payment for ecosystem services (PES) (Naidoo et al., 2011a) and wildlife and carbon credits (Venter et al., 2009; Durfort et al., 2022).

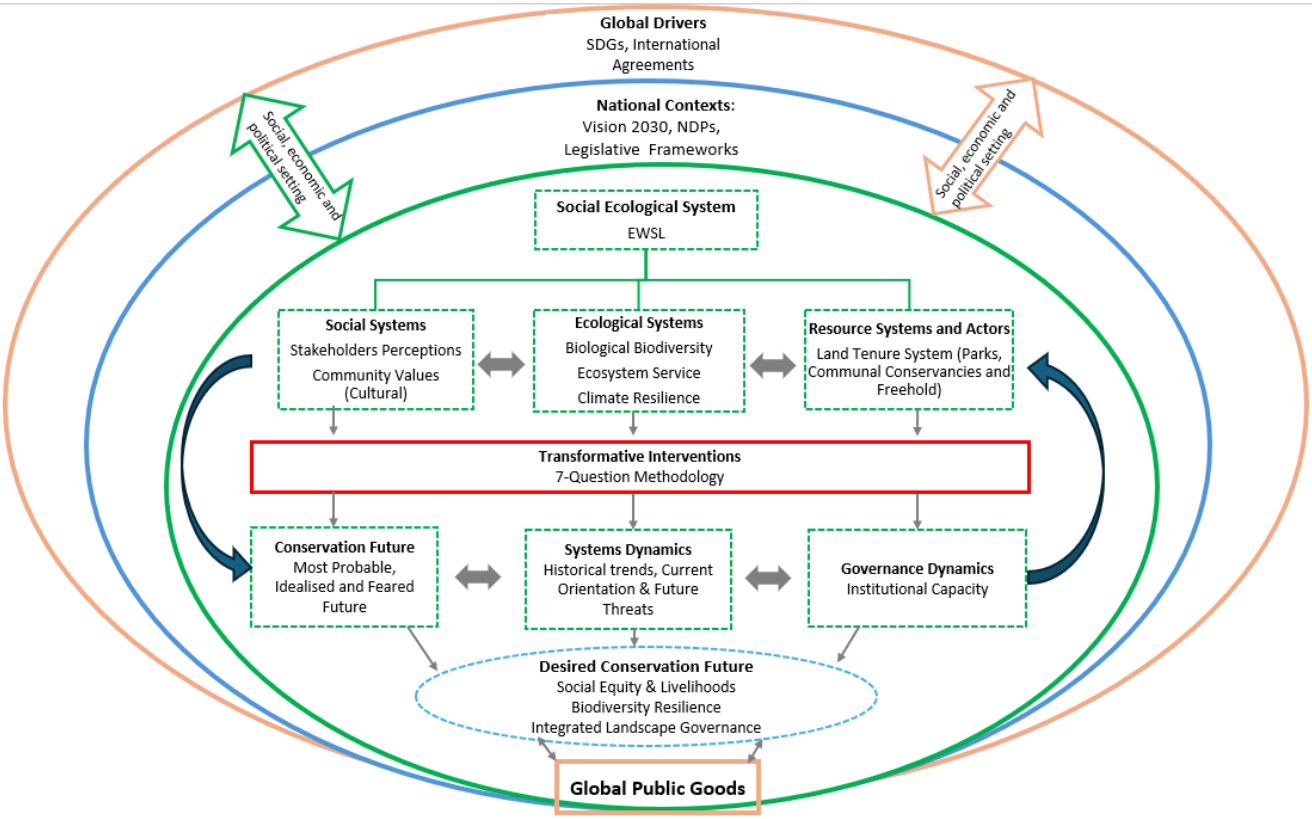


Figure 2: Research map illustrating the conceptual and methodological approach for understanding and guiding conservation futures within the Etosha West and South Landscape (EWSL), grounded in Social-Ecological Systems (SES) and Conservation Orientations Framework (COF) theories.

1.7 Limitations of the Study

One of the main limitations encountered during the study was the reluctance of some freehold farmers to participate. Some farmers declined to be interviewed by the researcher due to prior professional differences stemming from my time at the Ministry of Environment, Forestry, and Tourism (MEFT). To mitigate this quandary, neighbouring farmers were approached to replace those who refused to be interviewed, ensuring continued representation of all areas across the landscape. Following qualitative research best practices in reflexivity and transparency (Creswell, 2018), I systematically reflected on how

my prior experience and knowledge of this landscape might influence data interpretation. During this process, I inadvertently projected personal insights and assumptions onto respondents' narratives during data interpretation and analysis, posing challenges for maintaining analytical neutrality and accurately representing participants' perspectives. The knowledge obtained from years of working within the landscape provided an in-depth contextual understanding of the recorded responses. To minimise the influence of researcher subjectivity, all interpretations and findings were consistently substantiated with verbatim quotations from participants, ensuring that the conclusions presented reflected participants' perspectives and experiences rather than the researcher's views or assumptions. Additionally, my supervisors played an impeccable oversight role, helping to ensure that interpretations remained grounded in participant perspectives rather than reflecting my own knowledge (Creswell, 2018). This approach helped maintain a clear distinction between participant-derived insights and my reflections, thereby strengthening the credibility and trustworthiness of the study's final findings.

1.8 Delimitation of the Study

It is important to acknowledge that the resident community of ENP, the indigenous Hai//om people, were excluded from participating in this study. This represents an important delimitation that may have influenced the study's findings, interpretations and recommendations, as the Hai//om people possess unique conservation knowledge and practices rooted in their longstanding historical, cultural and spiritual connection with ENP and its surrounding landscape. Their inclusion could have provided valuable insights into indigenous conservation knowledge, customary resource governance, historical experiences of conservation, and aspirations for the future management of the landscape. The exclusion of the Hai//om community was not due to the absence of recognised traditional leadership structures. Rather, it resulted from the study's sampling framework, which was intentionally designed to engage stakeholders directly involved in the formal governance and management of biodiversity conservation through established conservation management institutions such as PAs, CCs, and freehold farming systems within the EWSL. Although the Hai//om people have recognised Traditional Authorities (TAs), they do not currently participate in biodiversity conservation through a formally recognised conservancy or an equivalent conservation management institution within the landscape. Consequently, they did not meet the predefined stakeholder selection criteria established for this study. While this delimitation ensured consistency in stakeholder selection across the three land-use systems investigated, it also meant that an important indigenous perspective on biodiversity conservation was not captured. Future research should therefore explicitly include the Hai//om community to understand better how indigenous knowledge

systems, cultural values, and historical experiences can help shape more inclusive and socially just biodiversity conservation strategies and future conservation pathways within the EWSL.

1.9 Thesis outline/Organisation/ Structure

The future of conservation in Namibia is extensively detailed across six chapters, each advancing a nuanced interpretation of conservation in a dynamic, ever-evolving landscape, such as the EWSL area. The structure of the dissertation is as follows:

Chapter 1: Provide an in-depth background regarding the paradigm of FT and its relevance towards biodiversity conservation in Namibia, within the 21st century and beyond. This section outlines the aim, objectives, research questions, the study's significance, and the conceptual framework that underpins it. It lays the foundation for vigorous assessment and comprehensive understanding of the next chapter's thematic focus and empirical grounding.

Chapter 2: Provides a broader understanding of the existing body of knowledge in FT, facilitating the identification of over-the-horizon opportunities that can be beneficial and transformative for biodiversity conservation. This chapter assessed prominent conservation programs, policies, and management plans to determine whether FT has been purposefully applied in Namibian Conservation.

Chapter 3 describes the EWSL area where the study was conducted. This section also expanded on the methodology (7 questions), data collection, and analysis used to determine the perceived future of conservation in Namibia.

Chapter 4 is structured into four subsections that present and discuss the results in relation to the study's overarching objectives.

- **Subsection 4.1** provides a retrospective analysis of how historical trends influence contemporary conservation practices and their role in shaping the desired conservation future.
- **Subsection 4.2** provides an understanding of the dominant conservation orientation within the EWSL.
- **Subsection 4.3** identifies and critically examines potential future threats that may undermine biodiversity conservation efforts within the EWSL area, considering both emerging socio-ecological dynamics and broader environmental uncertainties.

- **Subsection 4.4** details the desired conservation future of the landscape, based on analyses of three distinct future scenarios, namely, the most probable, most feared and the idealised future, developed under the assumption that respondents possess absolute authority and abundant resources.

Chapter 5 is the dissertation's synergistic chapter, critically interpreting and analysing the feedback loops among the subsections of Chapter 4. Additionally, this section articulates and critically contextualises the study's novel contribution to the existing body of knowledge.

Chapter 6 serves as the concluding and recommendations chapter of the dissertation, synthesising the most significant findings and discussing their implications for the future of conservation.

Chapter 2: Literature Review

2.1 Introduction

Anthropogenic activities have accelerated the deterioration of biological systems, despite their critical importance to human well-being and health. Global assessments indicate that ecosystem alteration has reached unprecedented levels, with approximately 75% of the terrestrial surface altered and over 85% of global wetlands lost, resulting in a 20% reduction in the abundance of native species across major terrestrial biomes (IPBES, 2019). The primary drivers of ecosystem alteration include land-use change, habitat fragmentation, and the overexploitation of natural resources, with emerging evidence indicating that climate change is increasingly amplifying these pressures (Tilman et al., 2017). Human activities have caused widespread ecosystem degradation, with approximately 75% of the Earth's terrestrial ecosystems significantly altered and more than 85% of wetlands lost (IPBES, 2019; 2024). This widespread degradation has accelerated biodiversity loss, threatening the ecological processes and ecosystem services that sustain human well-being. Hence, declining species diversity increasingly reduces ecosystems' capacity to provide these essential services, affecting billions of people worldwide who depend on them (Hallaj et al., 2024).

Despite numerous multilateral commitments to conservation, biodiversity loss continues at an alarming rate. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (2019) found that approximately 25% of the assessed plant and animal species are threatened, with an estimated 1 million species at risk of extinction within the coming decades unless the drivers of biodiversity loss are substantially reduced. The degradation of ecosystem services imposes significant economic burdens, as societies are increasingly required to repair or replace these services (de Groot et al., 2012), with global estimates valuing ecosystem services between US$125 -145 trillion per year, which far exceeds the global gross domestic product (GDP) (Costanzaat et al., 2014). Hence, these challenges underscore the need for forward-looking and adaptive approaches such as FT, which provides a framework for anticipating emerging threats, exploring multiple future scenarios, and informing strategic decision-making (Bufford et al., 2024). Futures Thinking is defined as the systematic process of exploring and evaluating plausible, probable and preferable scenarios to enhance anticipatory capacity in conservation planning (Government Office for Science, 2017).

Building on these global trends, conservation in Namibia is best conceptualised as the product of its historical practices, contemporary socio-ecological dynamics, and emerging future uncertainties. The conservation model in Namibia has evolved from exclusionary, fortress approaches rooted in the colonial

era toward a more inclusive and decentralised approach that grants rights over wildlife to local communities, notably through the own-use model for freehold farmers (Weaver & Petersen, 2008) and the Community-Based Natural Resource Management (CBNRM) programme for rural communities (MEFT/NACSO, 2024). This transition was guided by the country's constitutional commitment to equality, environmental protection and sustainable resource use (Republic of Namibia, 1990), while responding to the ongoing loss of biological diversity in communal areas and the widespread ecosystem degradation (Weaver & Petersen, 2008). This approach is widely recognised for its novelty, integrating rural livelihoods with biodiversity conservation to yield noticeable results (MEFT/NACSO 2023). In the present context, this model operates within a complex social-ecological system characterised by persistent inequalities, increasing human-wildlife conflict (HWC) and intensifying environmental pressures exacerbated by climate variability, land-use change, and rising demands on natural resources, which collectively test the resilience of these systems, particularly across heterogeneous landscapes such as the EWSL area (Hoole, 2008). In contrast, PAs continue to be largely governed by fortress conservation approaches, remaining relatively isolated from the surrounding multi-dynamic land-use types (Hoole & Berkes, 2010), with limited evidence of a transition toward a more inclusive and integrated approach. Future projections of conservation in Namibia are characterised by escalating uncertainty, intensified by the pervasive impacts of climate change (Turner et al., 2022), thereby necessitating a shift from reactive management to anticipatory and adaptive strategies that can buffer conservation efforts under uncertainty. Considering this, examining how conservation futures are conceptualised in the broader literature becomes essential for critically framing the direction of conservation. Given that the overarching aim of this study is to explore the perceived future of conservation in Namibia, the literature review is organised around two complementary theoretical foundations. The first reviews FT as an anticipatory planning paradigm, while the second examines biodiversity conservation as the substantive field within which these future perspectives are explored.

Alternative Futures Approaches

A range of futures-oriented methodologies has been developed to support long-term planning and decision-making under conditions of uncertainty. Among the most widely applied approaches are scenario planning, the Delphi technique, and horizon scanning, each serving distinct purposes depending on the research objectives and decision-making context (Government Office for Science, 2017). Of these, scenario planning has become one of the most widely adopted futures approaches for its ability to systematically explore uncertainty by developing alternative future pathways (Amer et al., 2013). Rather

than predicting a single outcome, this tool enables decision-makers to examine multiple plausible futures and evaluate the implications of different policy and management options (Government Office for Science, 2017). However, scenario planning was not considered for this study because the objective of the research was not to develop formal future scenarios or evaluate management strategies under predefined future conditions. Rather, the study sought to explore how stakeholders perceive biodiversity conservation across the interconnected temporal dimensions of the past, present and future. Unlike Scenario Planning, which centres on developing alternative future scenarios, the Delphi technique adopts a consensus-building approach by drawing on the collective judgement of experts through multiple rounds of anonymous questionnaires and controlled feedback to inform future-oriented decision-making (Government Office for Science, 2017). The method is particularly useful when reliable empirical data are limited and expert judgement is required to anticipate future developments (Mukherjee et al., 2015). However, its emphasis on expert consensus may limit the inclusion of diverse stakeholder perspectives, particularly within socially complex conservation landscapes where multiple stakeholder groups often hold competing values, interests and aspirations. In contrast to the Delphi technique, horizon scanning is a systematic process for identifying emerging trends, drivers, risks and opportunities that may shape future outcomes (Government Office for Science, 2017). Detecting early signals of change before they become significant issues enables decision-makers to develop proactive policies and adaptive management responses (Sutherland et al., 2015). Although horizon scanning is valuable for identifying emerging issues that may influence future decision-making, it does not explicitly examine how stakeholders perceive or respond to alternative futures.

While each of these methodologies offers valuable contributions to futures research, Futures Thinking (FT) was considered the most appropriate approach for this study because it provides a broader conceptual framework for understanding how stakeholders perceive biodiversity conservation across the interconnected temporal dimensions of the past, present and future. Unlike the other methodologies, which each focus on a particular aspect of future inquiry, FT facilitates the exploration of multiple plausible, probable and preferred futures while recognising that stakeholder values, experiences and aspirations are fundamental to shaping future conservation pathways (Inayatullah, 2008; Government Office for Science, 2017). Consequently, FT provided the most appropriate conceptual and methodological foundation for exploring stakeholder perceptions of biodiversity conservation within the EWSL.

2.2 Methodology

An analysis of peer-reviewed literature and relevant policy documents was conducted to contextualise the global use of FT. Articles considered for this review were those that employed qualitative forecasting tools to gather intelligence about the future (Government Office for Science, 2017). This was achieved using Elicit: The AI Research Assistant (Whitfield & Hofmann, 2023) and Google Scholar (Jacsó, 2005) to search for peer-reviewed literature. This is because Google Scholar accounts for 67% of all journal articles searched for, highlighting its effectiveness in providing rapid access to peer-reviewed literature across diverse academic disciplines (Younger, 2010). The Boolean search was utilised to streamline the process and ensure that only articles relevant to the aim of this study were reviewed (Younger, 2010). It uses keywords like 'AND', 'OR' and 'NOT' to restrict the survey, with this study utilising these phrasings: "Futures Thinking" OR "Delphi" OR "Foresight Planning" OR "Seven Questions" OR "Futures Wheels" OR "Scenario Planning" AND "conservation" OR "biodiversity protection" AND "Futures Thinking" AND "qualitative analysis" OR "interviews" OR "thematic analysis". Peer-reviewed articles were restricted to publications published between 1991 and 2023 (the past thirty-two years).

To contextualise the horizon of FT in Namibian conservation, policies and strategies were reviewed, and elements of FT were tested using the six pillars of FT (mapping, anticipation, timing the future, deepening the future, creating alternatives and transforming the future) (Figure 3) proposed by Inayatullah (2008), to determine the degree of futurism within those frameworks. The six pillars were operationalised into measurable dimensions by assigning a tick for each question in each pillar that was answered affirmatively, as detailed in Figure 3. Additional pillar description indicating a direct correspondence between the strategy's objectives and the predefined criteria for that pillar is detailed below:

1. Mapping
    - Focus on identifying the historical footprint of the strategy (Inayatullah, 2008) and its ongoing influence on contemporary conservation practices.
    - During this assessment phase, we try to understand how historical practices influence where we are now.
2. Anticipation
    - Provides an understanding of where new disruptive innovation will originate within conservation (Inayatullah, 2008).
    - The key question under this pillar is whether or not the reviewed framework anticipates future drivers, uncertainties and disruptive forces (Molitor, 2003).

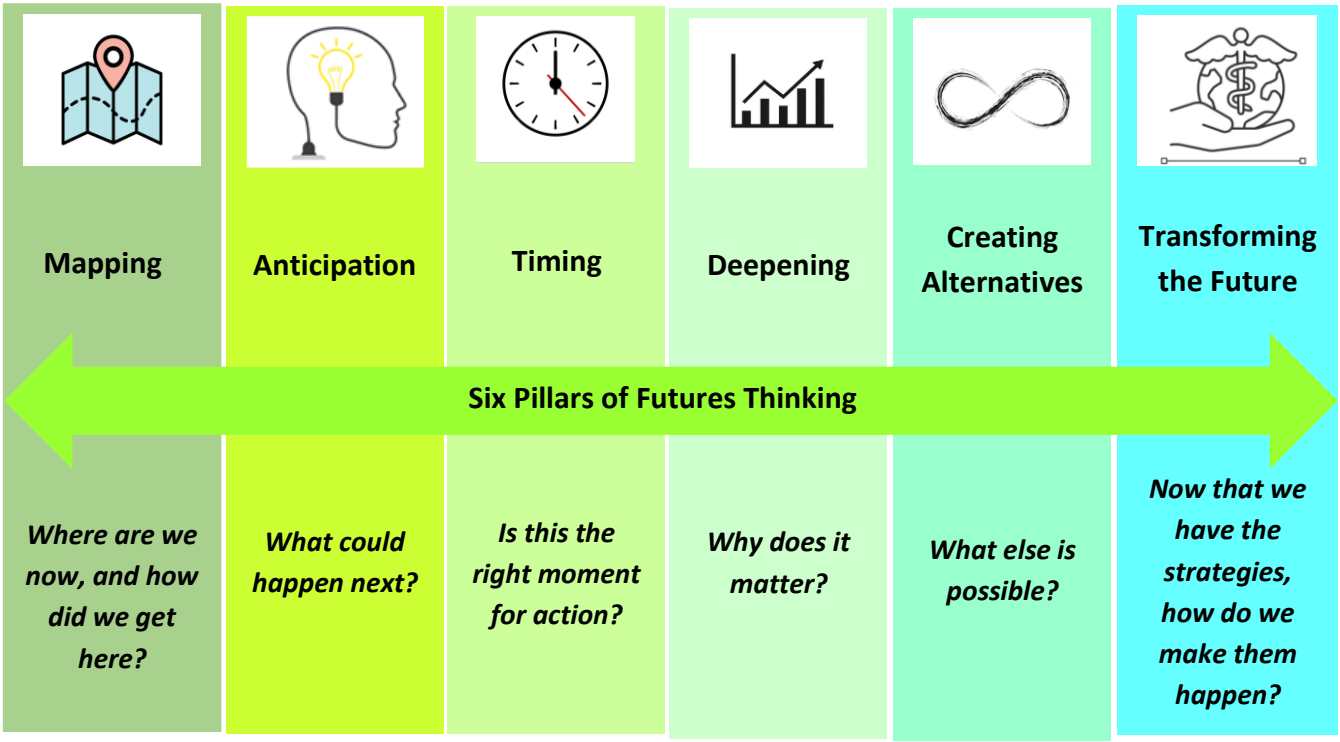


Figure 3: The Six Pillars of Futures Thinking, illustrating the key guiding questions that a strategy must address to align with each respective pillar.

3. Timing
    - This pillar considers the temporal dynamics of intervention, considering when and how measures will be implemented to achieve maximum effectiveness (Kuosa, 2011; Inayatullah, 2013).
    - This pillar ensures that measures are well-timed to leverage current opportunities and respond to immediate threats (Gerling et al., 2023).
4. Deepening
    - Strategies under this pillar should address and mitigate the underlying drivers of biodiversity loss in the country (Inayatullah, 2004; Inayatullah, 2008).
    - The drivers of biodiversity loss are complex, but strategies should be holistic, evidence-based, and adaptive.
5. Creating Alternatives
    - This pillar explores diverse and plausible alternative futures and defines the spectrum of uncertainty (Inayatullah, 2008) when it comes to safeguarding biodiversity.
    - Does the strategy generate multiple possible futures and offer adaptable solutions (Crookes & Blignaut, 2016; Wilson et al., 2022).

6. Transforming the Future
    - Under this pillar, we focus on transformative changes beyond increasing biodiversity by transforming the systems and structures that adequately protect biological diversity (Wilson et al., 2022).

This approach systematically assesses how well Namibia's existing conservation frameworks embody FT principles, identifying their strengths and areas for further improvement. This is on the assumption that strategies with elements of FT are better equipped to protect and promote biodiversity conservation. The review is organised into three distinct parts to assess FT, beginning with a comprehensive overview of notable achievements across various sectors. The second step examined the extent to which the biodiversity conservation sector has applied FT. The third part gauges policies, strategies, management reports, and plans in Namibia that were innovative, effective, and "ahead of their time" in addressing biodiversity conservation challenges. These were qualitatively assessed against the six pillars to determine the extent to which FT was applied.

2.3 Results

This analysis utilised 89 peer-reviewed articles (Appendix 3) from an initial selection of 198 articles, covering sectors such as education and research, business management, urban development and construction, policy and risk analysis, health, technology, and artificial intelligence. Overall, peer-reviewed literature highlights the mesial use of FT internationally in multiple sectors, including education and research, conservation, business management, policy, and risk analysis. However, it remains foreign to biodiversity conservation in Africa.

2.3.1 International Application of Futures Thinking

This review of peer-reviewed literature examining or highlighting FT found that the Education sector was the most prominent user of FT, accounting for 21 articles (Figure 4). The Forum for the Future (2007; 2008) conducted an assessment that examined youth perceptions of the future in the United Kingdom, yielding intriguing results. The study surveyed 54,240 first-time university applicants aged 16-21 to understand their perceptions of their future by 2031/2032. Although the surveys date back 17-18 years, many foresighted trends have since materialised and continue to manifest in the present century, thereby reinforcing the survey's retrospective validity and relevance. The results were consistent with current global development, with 89% envisioning exorbitant oil prices, 52% predicting a war over access to water, 84% projecting that the impacts of climate change will exacerbate, and 80% projecting that the frequency

of natural disasters will increase (Forum for the Future, 2007; 2008). Interestingly, 93% of the students believed that the fight to reduce poverty in Africa would be fruitless by 2031, while 75% believed that inequality between rich and poor countries would continue to grow. From a biodiversity perspective, 70% of respondents envisioned the extinction of tigers in the wild. These outcomes demonstrate the true potential of FT as an innovative tool capable of anticipating over-the-horizon problems and enabling us to address complex problems with solutions (Wyborn et al., 2019).

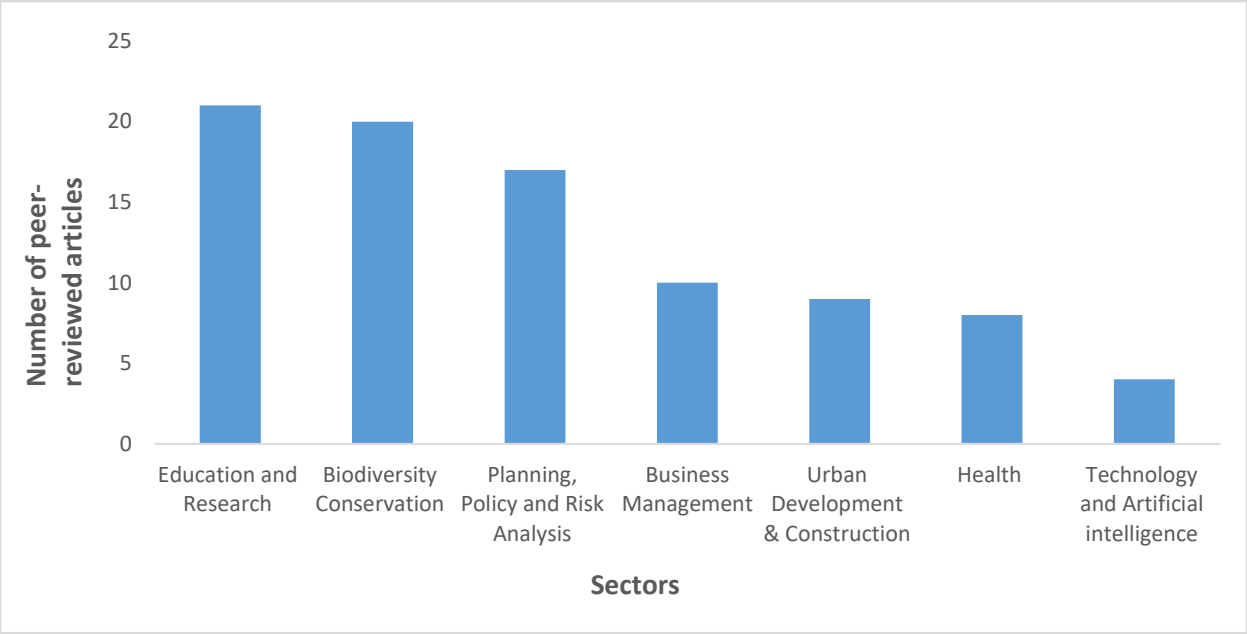


Figure 4: The number of peer-reviewed articles that applied Futures Thinking across multiple sectors.

Staying true to Hicks' (2012) publication, "The future only arrives when things look dangerous," threats posed by COVID-19 transformed the education sector, as evidenced by multiple publications (37% of all reviewed articles) that projected and proposed alternative futures during the pandemic period (2019-2022). Similarly, in the policy and risk analysis sector and biodiversity conservation, the hazards of climate change appeared to drive FT in the latter half of the 20th century, leading to a multitude of intergovernmental accords and policies that influence development practices in the 21st century. The Resolution adopted by the "Earth Summit" in Rio de Janeiro (UNCED, 1992), particularly the concept of "Sustainable Development", continues to influence a multitude of sectors, shaping how development is being executed in the current century. The concept is engineered around strategic growth that guarantees people's quality of life and has been augmented by economic opportunities that align with the environmental limits imposed by supporting ecosystems (Jabareen, 2008). Sustainable development considers the needs of future generations and explicitly looks to the distant future. It does, however, seem

that the theory and practice of FT were not directly applied in the global shift towards pursuing sustainable development, but were driven more by necessity in the face of impending global resource overuse.

The FT paradigm is widely applied in government planning processes across diverse sectors, yielding significant results in Europe, North America, Australia, New Zealand, and Asia (van Rij, 2010). This tool is underutilised in Africa, a continent plagued by environmental degradation, poverty, and inequality, issues that Johansson (2021) concluded the FT paradigm can effectively address and mitigate. This may be due to a perception that FT is a luxury that most poor Africans cannot afford, as the demands of immediate misfortune (addressing inequality and poverty across the continent) outweigh the desire to dream about futurism (Paskins, 1997; Hicks, 2012). Conversely, an interesting initiative regarding FT in Africa was the establishment of the Africa Progress Panel (APP), founded by Kofi Annan in 2007 (Africa Progress Group, 2018). The panel consists of global leaders who are "dreaming" about the future of Africa and providing leadership on strategic issues affecting the continent (Africa Progress Panel, 2013). As this example demonstrates, the FT paradigm centres on storytelling to evoke engaging knowledge that resonates with people on an emotional and personal level (Wyborn et al., 2019).

Despite the relatively low volume of scientific publications in the business sector (n=10) (Figure 4), this sector was one of the first to explore and monetise FT in the early 1980s, improving long-term innovation and strategic style-visioning within the industry (Schoemaker, 1995), which yielded desirable and profitable outcomes. Futures Thinking continues to be used in the business world to ensure adjustments to external factors, such as markets, to choose routes to achieve strategic objectives, to understand the effects of emerging technology on a company's future capabilities and requirements, and to monitor future horizons (Roney, 2010). The role of FT in shaping and transforming businesses is evident, as half of the largest corporations in the United States, ranked by Fortune Magazine (Fortune 500) by revenue, employ this tool (Schoemaker, 1995; Cook et al., 2014). In recent years, future studies seem to have narrowed down increasingly to specialised issues such as technology and artificial intelligence (Jöhnk et al., 2021; Bhatt et al., 2022; Nandutu et al., 2022), cancer research prospects (Li et al., 2021; Gupta et al., 2022; Petinrin et al., 2023) and alternative energy (green hydrogen) (Sarker et al., 2023; Hassan et al., 2023; Li et al., 2023).

2.3.2 Biodiversity Conservation

Biodiversity conservation has become one of the defining environmental priorities of the 21st century, reflecting growing concern over the unprecedented loss of species, ecosystems and ecological processes

that sustain life and human well-being (Millennium Ecosystem Assessment, 2005). This growing concern stems from increasing pressure on biodiversity through habitat loss, land-use change, climate change, pollution, and the unsustainable exploitation of natural resources, all of which continue to accelerate global biodiversity decline (IPBES, 2019). Collectively, these interacting drivers have exposed the limitations of conventional conservation approaches and highlighted the need for more adaptive strategies that safeguard biodiversity while accommodating broader sustainable development objectives. Accordingly, conservation approaches have evolved considerably over time in response to changing environmental challenges and societal expectations. Historically, biodiversity conservation was dominated by the fortress conservation paradigm, which sought to protect biodiversity through the establishment of protected areas (PAs) that were managed as isolated conservation units, separated from their surrounding landscapes and the people who depended on them (Adams & Hutton, 2007; Zvidzai et al., 2025). Despite the significant contribution of fortress conservation to biodiversity conservation, the paradigm has been widely criticised for marginalising local communities, restricting access to natural resources and overlooking indigenous knowledge systems (West et al., 2006). The recognition of these shortcomings has facilitated a gradual shift in conservation thinking from the exclusionary fortress approach towards more integrated approaches (Zvidzai et al., 2025) that recognise biodiversity conservation as inherently embedded within complex social-ecological systems (SESs), where ecological sustainability and human well-being are inextricably linked (Ostrom, 2009). This transition marked a fundamental departure from exclusionary conservation towards approaches that recognise local communities as integral partners in biodiversity conservation, with sustainable resource use, stakeholder participation, and community-based conservation increasingly regarded as prerequisites for achieving long-term conservation objectives (Berkes, 2007; Mace, 2014). While these approaches have strengthened contemporary conservation practice, accelerating environmental change, climate uncertainty, and competing societal demands increasingly require conservation planning to anticipate future challenges and opportunities rather than simply responding to them. Within this context, FT has emerged as an important framework for exploring alternative conservation futures and strengthening long-term conservation planning under conditions of uncertainty (Wyborn et al., 2019; Bufford et al., 2024). Against this backdrop, the following section, therefore, reviews how FT has been applied globally in biodiversity conservation.

2.3.3 Application of Futures Thinking in Biodiversity Conservation

This review found mesial use of FT in the biodiversity conservation sector (n=20) (Figure 4). The study of climate change is one aspect of conservation that has fully adopted FT as a tool to mitigate, predict, and adapt to the adverse consequences of the distant future, accounting for 35% (n=7) of the reviewed articles related to biodiversity conservation. Climate change has direct and indirect adverse effects on biodiversity and ecosystem services and is expected to worsen before the end of the century (Pecl et al., 2017). Over the past few decades, scientists have projected future climate change by simulating and using models tested under different greenhouse gas emission scenarios to illustrate the impacts of a changing climate (Moss et al., 2010; van Vuuren et al., 2011). Their work has influenced policy formulation and has pressured countries worldwide to cooperate in addressing, mitigating and adapting to climate change (Berrang-Ford et al., 2011; Kim et al., 2018).

A crucial contributor to the application of FT in biodiversity conservation is the publication of Sandbrook et al. (2019), which provides one of the most comprehensive empirical assessments of how conservation futures are conceptualised globally. This study sampled 9264 conservationists and researchers from 149 countries, extending their framework beyond ecological protection to examine the ideological perspectives that shape conservation thinking. Their findings demonstrate that, while there is broad consensus on the importance of science-based decision-making, biodiversity protection, and the inclusion of local communities, there is a disparity in how conservation objectives should be pursued. Those disparities are reflected in three dominant ideological positions (people-centred conservation, science-led ecocentrism, and market-oriented conservation), each characterised by distinct assumptions about the role of humans, the prioritisation of economic versus ecological goals, and the governance approaches considered most appropriate for achieving the desired conservation outcomes. Hence, this study has demonstrated that FT in conservation extends beyond predicting the future of conservation to critically examining the differing perspectives shaping conservation strategies. Building on this foundation, The Future of Conservation (2022) survey expands on this work by synthesising these ideological positions into four more refined and analytically distinct conservation futures, namely: Traditional Conservation (TC), New Conservation (NC), Critical Social Science (CSS) and Market Biocentrism (MB). These conservation future orientations provide an alternative analytical framework that explicitly incorporates dimensions of social justice and inequality, which Sandbrook et al. (2019) do not address. The TC orientation emphasises strict protection and biodiversity preservation through exclusionary measures (Retief et al., 2025), while NC promotes integration between conservation and human development (Doak et al., 2014). The CSS

addresses issues of power, equity and justice (Headrick, 2020), while MB advances the role of economic incentives in achieving conservation outcomes. The value of this framework lies in its ability to operationalise FT by providing a structured lens through which different conservation trajectories can be analysed, compared, and debated (Retief et al., 2025).

While these studies represent a significant advancement in the application of FT in conservation, several limitations are evident. Both Sandbrook et al. (2019) and The Future of Conservation (2022) are largely grounded in global datasets, which, although comprehensive, may overlook important regional and local specificities, particularly in contexts such as southern Africa, where conservation is deeply embedded in a complex social-ecological and historical dynamics. Furthermore, these frameworks primarily capture the perspectives of conservation professionals and researchers, with comparatively limited representation of local communities, land users, and other key stakeholders who are directly affected by conservation policies. Collectively, these limitations highlight the need for more context-specific and inclusive applications of FT that incorporate diverse stakeholder perspectives and account for the complex social-ecological realities shaping conservation within the EWSL area.

2.3.4 Futures Thinking in Namibian Conservation

The results demonstrate that FT has not been systematically explored in Namibia's biodiversity conservation sector, with only three policies identified as having elements of FT (Figure 5). This finding aligns with the results of Alberts et al. (2025), who employed a deliberative-Delphi approach to identify national conservation capacity development priorities in Namibia. Their study revealed that although FT was perceived as highly important (n=9 out of 10), it was considered less urgent (n=4 out of 10) compared to other pressing conservation challenges, such as evaluating conservation interventions, understanding ownership and governance implications, managing water governance in conservation, and addressing anthropogenic pressures. This perspective aligns with the arguments advanced by Hicks (2012), who contends that FT is perceived as a luxury that most poor Africans cannot afford, as the demands of immediate misfortune outweigh the desire to dream of the future. Despite the lower urgency ranking, the authors emphasised FT's role as a crucial long-term capacity framework for strengthening adaptive and anticipatory conservation planning. To some extent, this conceptual orientation has already been reflected in existing conservation policies that exhibit elements of FT, which serve as the backbone of effective conservation programs that have yielded notable biodiversity conservation and socioeconomic benefits across the country. Policies with elements of FT comprised of the Community-Based Natural Resources Management policy (NP-CBNRM), the Black Rhino Management Strategy (BRMS) and the

Revised National Strategy on Wildlife Protection and Law Enforcement (RNSWPLE), grounded in all six pillars of FT (Figure 5). Many other policies possess elements of five out of six pillars, including Namibia's Second National Biodiversity Strategy and Action Plan (NSNBSAP), the National Policy on Protected Areas' Neighbours and Resident Communities (NP-PANRC), Vision 2030, Revised National Policy on Human-Wildlife Conflict Management (RNPHWM) and Namibia's Climate Change Policy (NCCP), exemplifying why Namibia is internationally recognised for its novel policies and legislation (Lesser, 2018; Alberts et al., 2025). Notably, Vision 2030 and the NCCP policies are not explicitly anchored within the *Timing* pillar. This is because those policies are structured to prioritise long-term strategic outcomes, which are difficult to measure and are not time-bound. Additionally, the implementation momentum of the NCCP was primarily driven by the initial financial incentives and international funding mechanisms established under the Paris Agreement (UNFCCC, 2015), with this momentum diminishing over time as external financial resources declined. Consequently, while these policies provide critical guidance for sustainable development and climate resilience, they do not incorporate elements central to the timing pillar (Inayatullah, 2008).

The NSNBSAP demonstrates limited alignment with the FT pillar of *Creating Alternatives* (Figure 5), as its primary focus remains on addressing immediate biodiversity challenges and reinforcing existing strategies (Alberts et al., 2025), rather than systematically exploring multiple plausible future scenarios (Inayatullah, 2008). Similarly, the National Policy on Tourism and Wildlife Concessions on State Land (NP-TWCSL), which exhibited the lowest overall alignment with the FT framework, yielded only four of the six pillars. In contrast, this policy was not grounded in the pillars of Anticipation and Creating Alternatives, reflecting a constrained capacity to anticipate over-the-horizon challenges and to explore multiple plausible future scenarios to guide tourism and wildlife concession management (Inayatullah, 2008). This policy primarily aims to regulate tourism and wildlife concessions on state land, emphasising licensing, compliance, and revenue generation for private-public partnerships (PPPs) and communities bordering concession areas and protected areas (PAs). Consequently, while the NP-TWCSL effectively facilitated current operations and collaborative practices within the tourism industry on state land, its limited foresight capabilities restrict its potential to support over-the-horizon identification of new tourism ventures and future-oriented conservation governance strategies within the sector.

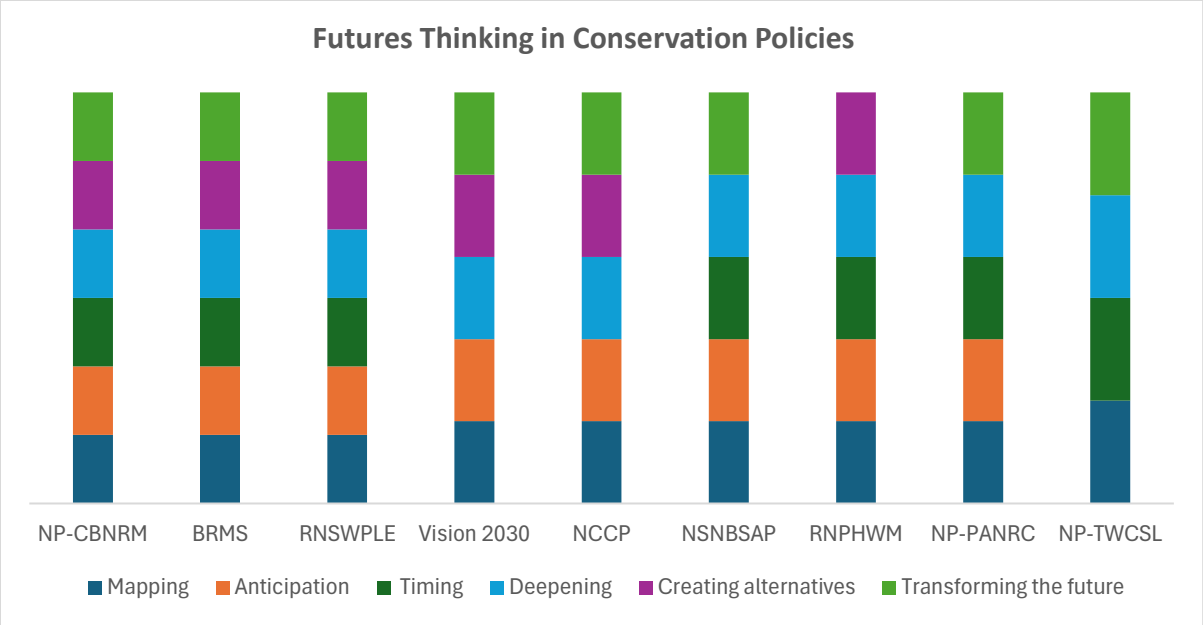


Figure 5: The degree of FT in the reviewed Policies governing biodiversity conservation in Namibia.

Innovative Namibian Conservation Programs with Elements of FT

Since the introduction of sustainable wildlife use through the CBNRM program nearly three decades ago (Weaver & Petersen, 2008) guided by the *Nature Conservation Amendment Act of 1996* (Republic of Namibia, 1996), as well as the implementation of the innovative Black and White Rhino Management Strategy (Jewell et al., 2020), this review found that the legislative framework governing biodiversity in Namibia does not fully incorporate all pillars of FT (Figure 5). Those conservation programmes (CBNRM and Black Rhino Custodian), guided by policies that encompass all six pillars of FT, have unintentionally incorporated FT principles, transforming the country's conservation trajectory. These programs demonstrate how FT can drive significant changes in Namibia's conservation practices, enabling a closer examination of each initiative.

The Community-based Natural Resources Management (CBNRM) programme

Namibia has been globally recognised as a conservation role model for its innovative, forward-thinking legislation and programmes (Child & Barnes, 2010). The CBNRM Programme is a forward-thinking initiative, ahead of its time, that has subsequently changed the conservation landscape at the continental level (Weaver & Petersen, 2008; Owen-Smith, 2011; Bollig, 2016; Bourgeois et al., 2023). Rural communities where conservancies have been established are rewarded for the stewardship of natural resources and entrusted with their sustainable use, both consumptive and non-consumptive (Republic of Namibia, 1996). This management model integrated wildlife conservation into rural development and

poverty eradication efforts (Barnes et al., 2001; Hoole & Berkes, 2010) through the creation of nature-based enterprises. The devolving of rights over the use and management of wildlife in communities was seen as revolutionary by some and foolish by others in the conservation sector at the time (Owen-Smith, 2011). The sudden increase in wildlife numbers and related tourism revenue led to greater tolerance for wildlife on communal land and to enhanced enforcement of anti-poaching measures. Wildlife populations, which had declined to historically low levels by the 1980s, have recovered significantly on communal land, with these areas now supporting approximately 15% of Namibia's total wildlife population, compared to 8% within national parks. This program balances the preservation of biodiversity with ensuring that the populace meets their needs using natural resources (Knight et al., 2019), thereby improving and transforming the quality of life for many rural people (Mufune, 2015). The program supports 10% of Namibia's population (n= 238,701) and conserves 21% of the country's surface area (MEFT/NACSO 2022).

Despite these internationally recognised achievements, scholars, including Silva and Mosimane (2013), Mosimane and Silva (2015), Heffernan (2022; 2022b), and Foyet (2024), have increasingly questioned whether the programme remains sufficiently adaptive to contemporary conservation challenges. Emerging concerns include governance shortcomings, unequal benefit distribution, increasing human-wildlife conflict (Barnes, 2007; Meyer & Börner, 2022), climate variability, declining donor support and changing international attitudes towards trophy hunting (Martin, 2019; Sheikh & Bermejo, 2019; Sullivan, 2023). These developments suggest that while the CBNRM programme remains one of the world's most innovative conservation initiatives, its long-term sustainability will depend on its ability to anticipate and adapt to future socio-ecological change through more systematic application of Futures Thinking.

The Black Rhino Custodianship Programme (BRCP)

We consider the Black Rhino Custodian Programme (BRCP) a forward-thinking innovation that has diverged. Through bilateral agreements with freehold farms and communal conservancies, the government mitigated the risk of poaching by dispersing black rhinos across the country, thereby diversifying tourism opportunities on custodian lands (Jewell et al., 2020). Established in 1993, this programme hosts more than 20% of the country's black rhino population (Jewell et al., 2020) across 35 properties (25 freehold farms and 10 communal conservancies), covering a total area of 3,443,100 hectares. Over the programme's 30 years, it does not seem to have undergone further strategic, vision, or scenario scrutiny. However, significant global and local changes, along with their associated challenges and opportunities, have occurred. The rapid increase in rhino poaching incidents and the associated

security costs required to counter this have exceeded the intangible benefits of hosting the species on custodian properties (Child, 2012; Büscher, 2016a), thereby reducing the appetite for private rhino custodianship. Despite this, the black rhino population growth rate remains at 7.2%, surpassing the growth rates and breeding success of black rhinos in state-owned protected areas and in other African black rhino populations (Kötting, 2019). Although the BRCP has achieved remarkable biological success, relatively little attention has been devoted to examining its long-term resilience under changing political, financial and security conditions. Applying FT provides an opportunity to anticipate emerging risks and explore alternative management pathways that ensure the programme remains effective over the coming decades.

Common elements of FT which enhanced the effectiveness of the two programmes

These programmes were conceived when fortress conservation was the accepted model for wildlife conservation, centred around separating protected areas from adjacent land use and people (Adams & Jeanrenaud, 2008; Hoole, 2008). When considering the six pillars, those two programmes (BRCP and CBNRM) were conceived 25 years ago to address the dwindling wildlife numbers (Dieckmann, 2003) brought on by rampant poaching and unsustainable wildlife use (Weaver & Petersen, 2008; Hübschle, 2018), which occurred during the 1970s -1980s war. Those initiatives have all embraced a people-centred approach to the management of natural resources, in which local communities are empowered to decide on the management, stewardship and benefits derived from renewable natural resources within the borders of their area (Barnes, MacGregor & Weaver, 2001; Child & Barne, 2010; Owen-Smith, 2011; Mufune, 2015). Giving rural communities control over wildlife conservation was considered ludicrous at the time, especially in Africa (Owen-Smith, 2011). Those programs harmonised the socio-economic aspect of the people as hypothesised by the Social Ecological Systems theory, providing economic opportunities for locals through ecotourism and conservation hunting to enhance their livelihoods. Together, these programs illustrate a paradigm shift from fortress conservation to community-empowered, socio-ecologically informed management, demonstrating how local engagement and economic incentives can align with biodiversity conservation objectives.

2.4 Conclusion

A static or predetermined future is not reality, hence, the desired future lies beyond strategy through visionary ideologies and future projections. This is particularly true in the natural resources sector, where climate change, rapid population growth, and associated competition for resources lead to greater extremes and less certainty. Our preliminary analysis revealed that FT is a somewhat overlooked tool in

conservation, which may help explain why the conservation community struggles to halt the ongoing loss of biological diversity and ecosystems. Over the past three decades, Namibian conservation has witnessed groundbreaking innovations (CBNRM and BRCP) that responded to pressing concerns and exhibited distinct FT characteristics, albeit unintentionally. These laudable concepts appear to be reaching their horizons as emerging challenges arise in their future. Complacency about the success of these programmes may stem from the assumption that future horizons will be similar to those at the time they were established. An FT approach integrated into state, private and communal conservation planning, including "over the horizon" scenario planning, is recommended to proactively frame conservation's role into the latter half of the 21st century and beyond. Within this broader context, examining how conservation futures are conceptualised becomes essential for understanding the potential pathways through which conservation strategies may evolve in Namibia.

Chapter 3: Research Methodology

This chapter provides a detailed overview of the study area and the methodology employed to ensure that the study's objectives are achieved. It begins by describing Namibia's broader conservation footprint before focusing on the geographical, ecological and socio-economic characteristics of the Etosha West and South Landscape (EWSL), where the study was conducted. The chapter outlines the research design, sampling strategy, and data collection methods, as well as the analytical procedures applied to interpret the data gathered using the 7-question methodology.

3.1 Study Area

3.1.1 General Description of Etosha West and South Landscape Area

Located in the central north-western part of Namibia, stretching across the Kunene, Oshana and Omusati regions, the Etosha West and South Landscape (EWSL) covers a total area of 26,088 km² and is characterised by multiple land tenure systems (Mannetti et al., 2017), at nearly equal area proportions (Figure 6). Those tenure systems comprise state land (Etosha National Park (ENP)), communal land (administered by traditional authorities under customary law), and freehold farms (privately owned and resettlement farms). This model represents an intricate and dynamic reality of conservation in the 21st century, where landscapes harmonise diverse land uses (Weise et al., 2021). Those multiple-use human systems adjacent to ENP experience varying social and economic circumstances (costs and benefits), providing crucial insight into the complexity of landscape conservation (Turner et al., 2022). Wildlife dispersing from the park forms the backbone of livelihoods in the landscape (Barnes et al., 2001) and has created a resilient community, with a diverse range of livelihoods beyond livestock farming. However, the same wildlife has also exacerbated poverty by causing crop damage, infrastructure destruction and livestock depredation (Mfune, 2006; Barnes, 2007), leading to significant economic losses within the landscape. This phenomenon highlights the complexity of human-wildlife conflict (HWC), which affects multiple land-use systems in Namibia. However, despite the misfortunes caused by HWC, the economic potential of the wildlife industry has incentivised and motivated most landowners to switch from livestock farming to mixed farming (combining livestock and wildlife) or to exclusive wildlife farming over the last two decades (Turner et al., 2022).

The various land tenure systems across the landscape operate at different spatial scales and within different demographics, with land ownership significantly influencing land-use practices. The focus of this study on the EWSL area stems from the diverse range of land use, livelihoods, poverty levels, and cultures,

which make it an interesting area for exploring the concept of FT. This area presents an intriguing interface between communal and commercial, which can be explored to uncover previously untapped opportunities and foster collaboration across different land-use types. Additionally, this area forms a diverse, multi-dynamic landscape, hosting exceptional institutions, including some of the most spectacular wildlife and scenery, resilient communities, the nation's premier park, a veterinary cordon fence, a trailblazing community institute, and a diverse farming institute. This provides a unique context for the meaningful application of the seven-question methodology. To fully understand the dynamics of each socio-ecological system, detailed descriptions of each land-use type are presented in the following section.

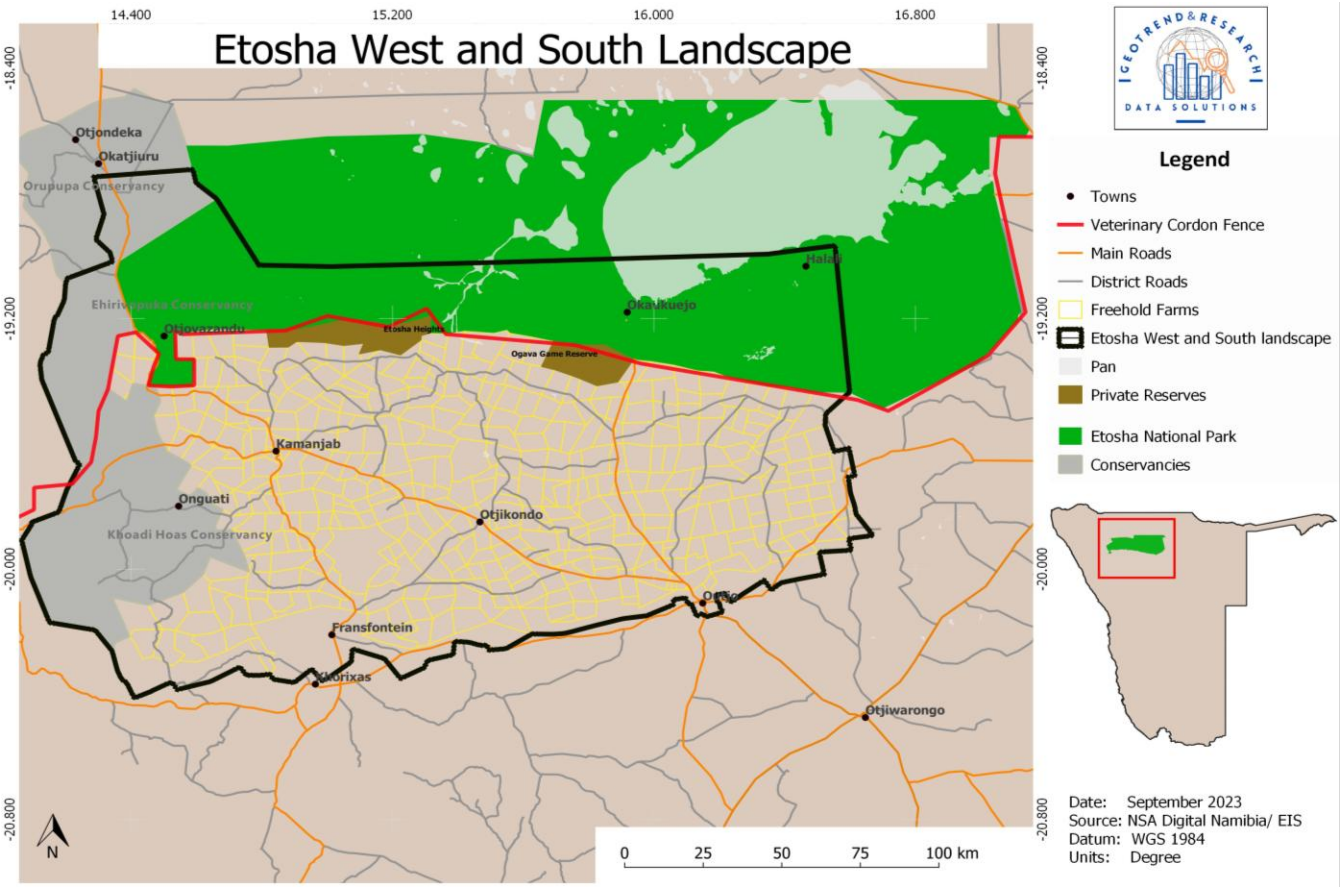


Figure 6: Shows the Geographical location of the Etosha West and South Landscape (EWSL) within Namibia.

3.1.2 Etosha National Park (ENP)

Located in north-central Namibia, approximately 400 km north of Windhoek, the ENP extends across the Kunene, Oshikoto and Oshana regions (Turner et al., 2022). Proclaimed in 1907 as Game Reserve 2, the ENP is one of the largest conservation areas globally and is recognised as Namibia's “flagship park”,

attracting most visitors to the country (Dieckmann, 2003; Hoole, 2008) (Figure 6). Since its proclamation, the boundary of the park has undergone multiple alterations, decreasing in size from the original size of 93,240 km² in 1907 (Dieckmann, 2003) to 55,000 km² in 1958 (Turner et al., 2022) and then, recently in 1970, to its current size (22,941 km²) (Hoole, 2008), however, only 7663 km² forms part of the EWSL area. The previous boundaries then encompassed Kaokoland, stretching from the great Kunene River in the north-west to the Hoarusib River in the south, and bordered the Atlantic Ocean to the west (Hoole, 2008). The park whence its name from the white saline pans, an Oshindonga word “Etotha”, meaning "the great white place" (Ministry of Environment & Tourism, 2007). Multiple saline pans of varying sizes exist in the park, covering approximately 25% of the total park's surface area, with the largest being the Etosha Pan, which occupies 4,812 km² (21%) (Turner et al., 2022).

The park's borders are completely fenced, with the southern boundary forming part of the veterinary cordon fence (Red line) (Figure 6). The red line divides the landscape into two halves (the disease-free zone, south of ENP and the foot and mouth disease (FMD) monitoring zone towards the north), an inherited colonial legacy, described by Miescher (2012), Mannetti et al. (2017), Mannetti et al. (2019) and Turner et al. (2022) as a threat to wildlife conservation, with significant economic ramifications towards the country. At the same time, the existence of the park is consistent with the Constitution of Namibia (Article 95(l), which aims to ensure biodiversity conservation and commitment to multilateral treaties, such as the Convention on Biological Diversity (CBD) (Republic of Namibia, 1990; Ruppel et al., 2011), its effective management remains constrained by several operational challenges including inadequate budgetary allocations for management implementation, insufficient staffing capacity, endemic diseases, uncontrolled late-season fires, escalating human–wildlife conflict (HWC), increasing tourism pressure and unresolved land claims involving the indigenous Hai//om community (Ministry of Environment and Tourism, 2007).

Climate of the Park

The park is primarily shaped by precipitation and soil nutrients (Okitsu, 2005), subsequently influencing vegetation cover and wildlife density. Rainfall across the park is heterogeneous, with the mean annual rainfall ranging between 250 mm towards the south-west and western part of the park and gradually increasing up to 450 mm towards the northeastern part of the park, with rain predominantly falling between September and April (Palmer et al., 2016; Hering et al., 2022). Climate change models have predicted an annual decline in precipitation across the park, with decreases of 10-20% expected (Turner et al., 2022; Kwembeya & Shikangalah, 2023). This phenomenon will shorten the growing season and have

significant ramifications for the park's aridity. Evaporation rates in the southwestern and western parts of the park are 10 times the expected rainfall rate, gradually decreasing to 4 times the expected rainfall rate in the northeastern part of the park (Mendelsohn et al., 2013). The mean annual temperature of ENP is 26 °C (Hering et al., 2022); however, over the past half-century, a rapid increase of 3.2 °C in surface temperature has been reported (Klingbeil, 2013; Engelbrecht et al., 2015). September and October are the hottest months in the landscape, with temperatures reaching an astounding 40 °C, while July is the coldest, with temperatures dropping below freezing (Hering et al., 2022).

Fauna of the Park

The proclamation of ENP was in response to the dwindling wildlife numbers (Dieckmann, 2003), caused by unregulated hunting in the 1800s, subsequently leading to the extinction of the African elephant, black rhino, white rhino and lions within the park, before the gazettement of the park (Turner et al., 2022). Lions returned to the park in 1912, while elephants took longer to recolonise, only establishing themselves in 1946 (Turner et al., 2022). The white rhinos remained extinct until they were reintroduced to the park in early 1990 (Rooikat Trust, 2019). This phenomenon set a management precedent that enabled the successful reintroduction and breeding of rare and endangered species, such as the black-faced impala (introduced from the Kunene region), roan antelope (introduced from Khaudum National Park), and sable antelope (introduced from Bwabwata and Mudumu National Parks), within the park (Ministry of Environment & Tourism, 2007), ensuring the establishment of Kaross.

Etosha National Park is characterised by a diverse assemblage of herbaceous vegetation (Hering et al., 2022), which influences the park's rich wildlife diversity. This area provides a safe refuge and is home to the endemic mountain zebra (*Equus hartmannae*), near-endemic black-faced impala (*Aepyceros melampus petersi*), the rare and endangered black rhino (*Diceros bicornis bicornis*), black-footed cat (*Felis nigripes*), African elephant (*Loxodonta africana*), as well as charismatic large carnivores like lions (*Panthera leo*) and leopards (*Panthera pardus*). The presence of this iconic large species has exacerbated HWC in the surrounding areas, a phenomenon described by Turner et al. (2022) as a serious threat towards wildlife conservation. Livestock depredation by carnivores, crop damage and infrastructure destruction by megaherbivores are common conflicts experienced by the surrounding communities (Mfune et al., 2006; Heydinger, 2021). The large saline pans in the park are recognised as a wetland of international importance (Ramsar site), providing a safe refuge and breeding ground for millions of greater flamingos and lesser flamingos (Hipondoka, Kempf & Jousse, 2013).

Management activities, including fence maintenance, waterhole management, and anti-poaching patrols, have resulted in a significant increase in wildlife numbers beyond the park's carrying capacity. Surplus wildlife is used to re-establish viable populations in communal conservancies (Turner et al., 2022). In 1993, this practice (wildlife translocations) was extended to freehold farms through the Black Rhino Custodian Program (BRCP), by redistributing the charismatic black rhino species from ENP to establish viable populations in areas where it had locally gone extinct. The park is currently facing multiple challenges that threaten biodiversity conservation, the most significant of which is commercial poaching of the charismatic rhino species (Knight et al., 2022). Rhino horn is the most commercially attractive trafficked wildlife product from the park by criminal syndicates (Turner et al., 2022).

Topography and Flora of the Park

The ENP is predominantly a flat landscape influenced by the Central African Plateau, with the underlying Damara Supergroup, covered by aeolian sand in the southwestern and western parts of the park (Mendelsohn et al., 2013). Inselbergs are present in the western and southwestern parts of the park, which are composed of granites, andesites, shales, quartzites, limestones, and dolomite (Ministry of Environment and Tourism, 2007). The dominant soil type in the park is calcareous loamy soils, found towards the east and west of the Etosha Pan, while the northern part of the park is mainly covered with aeolian Kalahari-type sand (Mendelsohn et al., 2002). The park is located within the Tree and Shrub savanna biome and is characterised by heterogeneous vegetation structured primarily by rainfall gradients, soil types, fire regimes and herbivory (Ministry of Environment and Tourism, 2010). Mopane (*Colophospermum mopane*) is the dominant species, growing as both a tree and a shrub, particularly on the heavier loamy soils surrounding the Etosha Pan, forming extensive monospecific stands interspersed with grass-dominated understories (Mendelsohn et al., 2002). Towards the central and northeastern parts of the park, vegetation transitions into mixed broadleaf woodlands dominated by *Terminalia prunioides*, *Combretum* spp., and *Acacia* (*Vachellia*) spp. Grass species such as buffel grass (*Cenchrus ciliaris*), *Stipagrostis* spp. and *Eragrostis* spp. dominate the herbaceous layer and provide critical forage resources for large and small herbivores (Ministry of Environment and Tourism, 2010).

3.1.3 Ehi-rovipuka Conservancy

Situated between 18° 49’ 53” S to 19° 39’58” S and 14° 10’07’’ E to 14° 30’ 09’’ E, the Ehi-rovipuka is located in the north-western part of Namibia, approximately 650 km northwest of Windhoek and shares a border with the ENP towards the east (Lendelvo & Nakanyala, 2012; Palmer et al., 2016) and occupies 1,980 km^2 of the semi-arid Kunene region (Hoole, 2008; Palmer et al., 2016; Powell et al., 2017) (Figure

7). Gazetted in 2001, the conservancy is home to 2,500 inhabitants, of whom 750 are signed-up conservancy members. Kamanjab is the closest town, located approximately 80 km south of the conservancy, and offers limited amenities. In contrast, Opuwo, located 170 km northwest of the conservancy, offers a broader range of amenities (NACSO, 2012a). Most of the population is of Ovahimba descent and predominantly engages in pastoral livestock (cattle) farming with limited crop production. Cattle are a crucial component of the Ovahimba people's way of life, with social status correlated with the number of cattle one possesses (NACSO, 2012a).

The conservancy is divided into five blocks (Ondjo, Ohorongo, Ombo, Ongarangombe, and Ongejama) to ensure effective management, with Ondjo being the largest and serving Otjokaware settlement, the conservancy's biggest village (Figure 7). A management committee, comprising ten people democratically elected by community members and supplemented by two independent members representing traditional authority, oversees the daily operations of the conservancy (Lendelvo & Nakanyala, 2012). To ensure equal representation of community members on the management committee (MC), each block is represented by two members (Bollig, 2016). The conservancy is subdivided into multiple zones, comprising a core wildlife zone where pastoralism is prohibited, a tourist zone, a multiple-use zone, and a single-use zone (Figure 7) (Bollig & Menestrey Schwieger, 2014). Poverty levels within the conservancy are high, primarily due to an unbalanced population structure with a higher proportion of economically inactive individuals than of economically productive ones (Lendelvo & Nakanyala, 2012). Children under 15 and the elderly over 60 who receive government pensions comprise the majority of the conservancy's population.

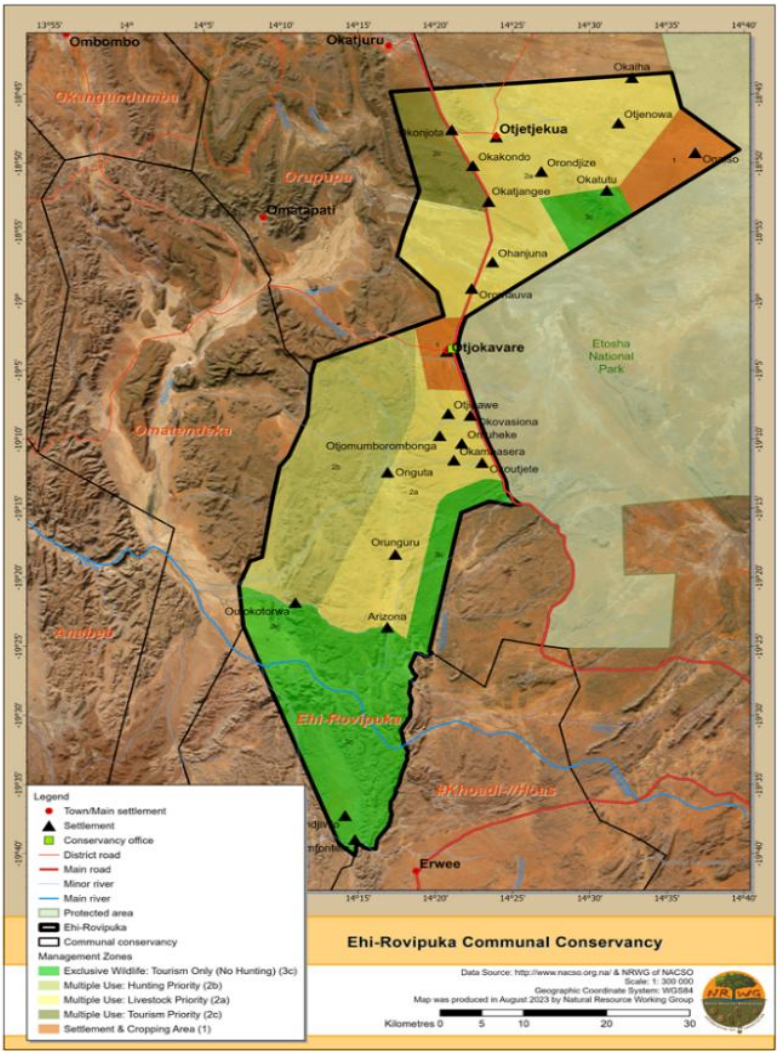


Figure 7: The location of Ehi-rovipuka Conservancy and its different management zones.

Fauna of Ehi-rovipuka Conservancy

The high diversity of resident wildlife within Ehi-Rovipuka conservancy, reflected in its Otjiherero name meaning "place of wildlife", underscores the ecological significance of communal conservancies in restoring and maintaining fauna in former low-density wildlife areas. The rich fauna observed in this area is due to its proximity to the ENP. Large mammalian herbivores documented within the conservancy include the African bush elephant (*Loxodonta africana*), eland (*Taurotragus oryx*), kudu (*Tragelaphus strepsiceros*), gemsbok (*Oryx gazella*), springbok (*Antidorcas marsupialis*), and both Hartmann's mountain zebra (*Equus zebra hartmannae*) and Burchell's zebra (*Equus quagga burchellii*), all of which contribute to the conservancy's ecological functioning and tourism appeal (NACSO, 2012a). Carnivores present include apex predators such as the lion (*Panthera leo*), leopard (*Panthera pardus*), the cheetah (*Acinonyx jubatus*)

and spotted (*Crocuta Crocuta*), alongside mesopredators such as brown hyena (*Hyaena brunnea*), serval (*Leptailurus serval*), and caracal (*Caracal caracal*) (NACSO, 2012a). The unique habitats found within the conservancy provide refuge for near-endemic Namibian birds such as bare-cheeked babbler (*Turdoides gymnogenys*), rosy-faced lovebird (*Agapornis roseicollis*), Rüppell's parrot (*Poicephalus rueppellii*), violet wood hoopoe (*Phoeniculus damarensis*), (Damara red-billed hornbill (*Tockus damarensis*), Herero chat (*Namibornis herero*) and rock runner (*Achaetops pycnopygius*) (NACSO, 2012a).

Climate and Flora of Ehi-rovipuka Conservancy

The Conservancy is located within the Tree and Shrub savanna biome, within the Western Highlands vegetation type, as defined by Mendelsohn et al. (2002). This area has an annual rainfall range of 250-300 mm, with rain predominantly falling between December and April. This area experiences seasonal temperature variability, with mean maximum temperatures during summer (October–March) frequently exceeding 34–36 °C, while during heatwaves, daily temperatures can exceed 40 °C. In contrast, winter months (June–August) are characterised by mild daytime temperatures averaging 20–25 °C, while nighttime temperatures are expected to drop below 5 °C, with sporadic ground frost recorded in low-lying areas. The large differences between day and night temperatures, as well as between seasons, combined with low humidity and high evapotranspiration, strongly influence vegetation growth, surface water availability, and the spatial and temporal movement patterns of wildlife within the conservancy (Mendelsohn et al., 2009). The conservancy is characterised by shallow, sandy, nutrient-poor soils (NACSO, 2012a), which significantly influence vegetation growth in the area. Mopane (*Colophospermum mopane*) dominates the tree and shrub layer across the conservancy, forming extensive monospecific stands interspersed with mixed shrub patches of trumpet thorn (*Catophractes alexandri*) (Wenborn et al., 2025). In the more rugged hills and rocky outcrops, woody vegetation comprises a mosaic of drought-adapted species, including blue-leaved corkwood (*Commiphora glaucescens*), purple-stemmed corkwood (*Commiphora multijuga*), camel thorn (*Vachellia erioloba*), shepherd's tree (*Boscia albitrunca*) and African star chestnut (*Sterculia africana),* reflecting topographically mediated edaphic gradients. The herbaceous layer is dominated by Stipagrostis spp., Eragrostis spp. typical of semi-arid savannas, providing critical forage for both wildlife and pastoral livestock during the brief rainy season (NACSO, 2012a). Riparian corridors associated with ephemeral rivers such as the Ombonde, which is the largest in the conservancy and is a tributary of the Hoanib, support comparatively taller and denser tree growth, including Ficus spp. and other moisture-dependent species (NACSO, 2012a).

3.1.4 ≠Khoadi-//Hôas Conservancy

Gazetted in July 1998, becoming one of the first conservancies (Figure 8) to be registered in the country, ≠Khoadi-//Hôas covers 3364 km^2 of the semi-arid Kaokoland (Taye, 2006; Powell et al., 2017) and is home to 5440 inhabitants, of whom 37% are registered members. Located in the Kunene Region of Namibia, it is approximately 730 km north-west of Windhoek (NACSO, 2012b). The conservancy falls within two constituencies, Sesfontein and Khorixas and is located in the southern part of the Kunene region, surrounded by multiple conservation areas, comprising the Torre Conservancy towards the west, Ehirovipuka Conservancy to the north, the Etendeka Concession Area towards the northwest and the Hobaterre Concession Area towards the northeast (Beytell, 2010). The name ≠Khoadi-//Hôas means "elephant corner," derived from the local Khoekhoegowab language, which is spoken by the majority of the conservancy's population, who are of Damara/Nama descent (Long, 2004). The establishment of the conservancy is rooted in the Grootberg Farmers Association (GFA), a Community-Based Organisation (CBO) founded in the 1970s (Taye, 2006), which pooled resources to mitigate human-wildlife conflict and the increasing effects of drought in the region. These multi-dynamic areas support diverse land uses, including human settlements, livestock farming, crop production, small-scale mining, and wildlife conservation (NACSO, 2012b). Hence, their management philosophies are mainly centred around cultural norms and poverty reduction through the sustainable utilisation of natural resources (Mannetti et al., 2017).

≠Khoadi-//Hôas is one of the few self-sustaining conservancies in the country, with substantial wealth generated by the Grootberg Lodge, the first and only community-owned lodge within Namibia's CBNRM program (Taye, 2006). Constructed with funding from the European Union, Grootberg Lodge is built on basalt ridges atop the Groot-Berg (Pass) Plateau, at 1645 m above sea level, offering breathtaking views of the unique scenery (Lapeyre, 2013), cementing its status as a distinctive landmark of the region. The human population within the conservancy is disproportionately distributed, with most concentrated in Anker and Erwee, the two largest settlements within the conservancy's boundaries (Taye, 2006), each hosting between 800 and 1,500 residents. Eight villages/leagues exist within the conservancy, with each league represented by two members on the Management Committee, supplemented by one representative from the traditional authority (TA). These 17 members manage the day-to-day operations of the conservancy (NACSO, 2012b). The Conservancy is subdivided into five distinctive zones: three Exclusive zones (Photographic Tourism Only, Conservation Hunting Only, and Mixed Wildlife Use), a

multiple-use zone, and a Human Settlement zone, to facilitate effective land use and reduce conflicts between different uses (Figure 8).

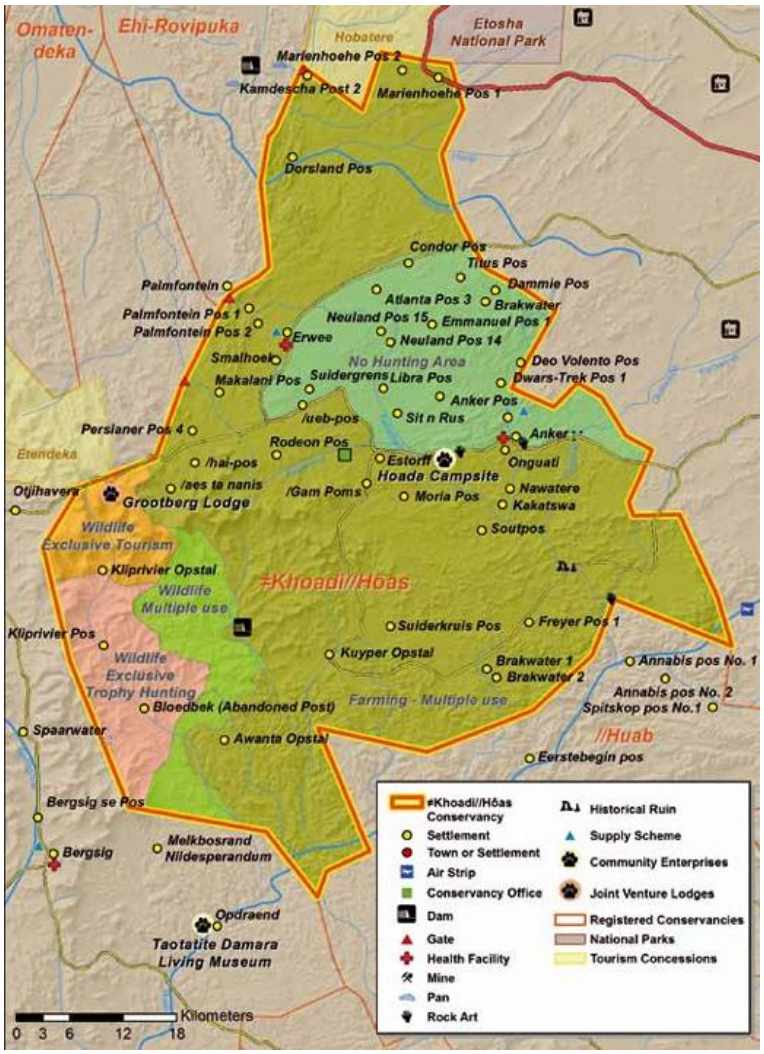


Figure 8: Shows a map of ≠Khoadi-//Hôas, with the different land use demarcations within the Conservancy.

Fauna of ≠Khoadi-//Hôas Conservancy

Strategically located within the Pro-Namib Escarpment, ≠Khoadi-//Hôas offers refuge to a host of endemic and near-endemic species, underscoring its important role in conserving Namibia's unique natural heritage (NACSO, 2012b). The extreme aridity in this area allows a unique and rich biological diversity to flourish, while making it unsuitable for livestock farming (Taye, 2006). Over the years, wildlife has been reintroduced into the conservancy following historical declines caused by unsustainable hunting, drought, and habitat loss (NACSO, 2012b). Large mammals recorded within the conservancy include desert-

adapted African elephant (*Loxodonta africana*), black rhinoceros (*Diceros bicornis*), giraffe (*Giraffa camelopardalis*), eland (*Taurotragus oryx*), kudu (*Tragelaphus strepsiceros*), gemsbok (*Oryx gazella*), springbok (*Antidorcas marsupialis*), steenbok (*Raphicerus campestris*), and mountain zebra (*Equus zebra hartmannae*), along with sizeable ostrich (*Struthio camelus*) populations. Predatory species contribute to the conservancy's trophic complexity, with documented presence of leopard (*Panthera pardus*), cheetah (*Acinonyx jubatus*), lion (*Panthera leo*), spotted and brown hyena (*Crocuta crocuta, Hyaena brunnea*), and black-backed jackal (*Canis mesomelas*) (NACSO, 2012b). Wildlife monitoring efforts, including annual game counts and event book records, indicate stable or increasing populations of species across the conservancy, particularly in core wildlife zones such as the Klip River valley, which are zoned for conservation and tourism (MEFT/NACSO 2023). This demonstrates the importance of conservancies in restoring and maintaining wildlife populations outside formal protected areas in Namibia.

Climate and Flora of ≠Khoadi-//Hôas Conservancy

The vegetation profile of the conservancy reflects the semi-arid conditions it experiences. Located within the Tree and Shrub Savanna and Nama Karoo Biome towards the north-western part of the conservancy, this area is characterised by low and variable rainfall, high evapotranspiration rates, and nutrient-poor soils, which shape plant community structure (Mendelsohn et al., 2002). This area experiences temperature variability, with a mean daily temperature of 35-37 °C during summer months (October–March) and occasional extreme highs exceeding 40 °C. Winter nights can be cold, with minimum temperatures falling below 5 °C during June-July (NACSO, 2022b). Rainfall is expected to fall between November and April, ranging from 250mm in the northeast to 100mm in the southwestern part of the conservancy (NACSO, 2012b). The dominant species in the conservancy is the mopane (*Colophospermum mopane*), which occurs as both a tree and a shrub and is widespread across the plains and gentle slopes, often interspersed with Vachellia spp. shrubs and trees (Wenborn et al., 2025). The mopane is an important species in this area, providing critical browse resources for both wildlife and livestock. On the granite hills, vegetation is more open and sparser, dominated by scattered drought-resistant species such as shepherd's tree (*Boscia albitrunca*), Commiphora spp., and other xerophytic plants adapted to shallow soils and limited water availability (Wenborn et al., 2025). A mixture of *Stipagrostis* spp. and *Eragrostis* spp. forms a discontinuous herbaceous layer that responds rapidly to episodic rainfall, but overall biomass is low. Along the ephemeral rivers (e.g., Hoanib and Huab), a dense assemblage of riparian tree species, including Ficus spp. and anaboom (Faidherbia albida), is observed along the riverbanks, providing critical forage and shelter for both desert-adapted terrestrial and avian wildlife (NACSO, 2012b). The conservancy

comprises flat, sandy highland plains with granite hills rising to 1,000-1,200 m above sea level (Jones, 2006; Ndlovu et al., 2014), supporting mainly small-stock farming (goats and sheep) that can easily access scattered vegetation on the granite hills.

3.1.5 Freehold Farms

The EWSL area comprises 384 farms (Figure 7), according to the Ministry of Agriculture, Water, and Land Reform's Valuation Roll database, and is required to have a minimum size of 1000 ha (Republic of Namibia, 1975). Those farms have three primary land uses: livestock production, wildlife-based land use (both consumptive and non-consumptive), and mixed land use (combining livestock and wildlife). Livestock farming is the dominant land-use practice among freehold farmers across the landscape, despite the high lion density in this area, resulting in livestock depredation (Turner et al., 2022). This land-use practice is persistent due to the lucrative beef prices Namibia fetches on international markets for beef produced south of the veterinary cordon fence (Red line) (Barnes, 2013). The landscape is home to two of Namibia's private nature reserves, Etosha Heights and Ongava. Both reserves border the ENP to the south and provide an important seasonal dispersal landscape for large migratory species (Jones et al., 2005). Ongava covers approximately 300 km² of the Karstveld habitat (Naha et al., 2023), whereas Etosha Heights spans 600 km² of calcrete plains interspersed with limestone and dolomite hills (Berry et al., 2023).

Fauna on Freehold Farms

Land-use practices, including stocking density, predator management, and supplemental water provision, strongly influence wildlife populations on commercial farms. Many farms are transitioning toward mixed land-use systems that integrate livestock production with wildlife conservation and ecotourism, leading to increased wildlife sightings and overall species richness in some areas (Mendelsohn et al., 2009). Almost all farms within the landscape support wildlife species similar to those recorded in the ENP, with seasonal migrations observed between the park and surrounding freehold farms in search of forage and water (Hering et al., 2022). However, farms that engage in trophy hunting have introduced exotic species (blesbok, (*Damaliscus pygargus phillipsi*) and black wildebeest (*Connochaetes gnou*)) and non-native wildlife species, which do not naturally occur in the area (waterbuck, (*Kobus ellipsiprymnus*)), to enhance game diversity and provide a broader hunting experience. The farms within the landscape support the highest density of black rhinoceros (*Diceros bicornis*) and the largest populations of privately owned white rhinoceros (*Ceratotherium simum*), demonstrating the important role they play towards biodiversity conservation in the country (Kötting, 2019).

Climate and Flora of Freehold Farms

Freehold farms south of ENP are located within the Tree and Shrub Savanna Biome, where vegetation patterns are shaped by low and highly variable rainfall, soil texture gradients, and historical livestock grazing pressure (Mendelsohn et al., 2009). The mopane (*Colophospermum mopane*) is the dominant woody species, growing as both a shrub and a tree, while dominant shrubs comprise Grewia spp., water-thorn (*Vachellia nebrownii*), black thorn (*Senegalia mellifera*), sicklebush (*Dichrostachys cinerea*) and trumpet thorn (*Catophractes alexandri*), which contribute to the structural complexity of the shrub layer and provide supplementary browse in areas of reduced grass biomass (Mendelsohn et al., 2009). The herbaceous layer is dominated by a diverse array of grass species, especially your perennial C4 grasses such as *Stipagrostis* spp., *Eragrostis* spp., *Aristida* spp., buffel grass (Cenchrus ciliaris), and bushman grass (*Schmidtia kalahariensis*). Rainfall across the farms is heterogeneous, with the mean annual rainfall ranging between 250 mm towards the south-west and western part of the landscape, gradually increasing up to 450 mm towards the northeastern part of the landscape, with rain predominantly falling between September and April (Palmer et al., 2016; Hering et al., 2022). Evaporation rates on farms in the southwest and western parts of the landscape are extremely high compared to those in the northeastern part (Mendelsohn et al., 2013). The mean annual temperature of the landscape is 26 °C (Hering et al., 2022); however, over the past half-century, a rapid increase of 3.2 °C in surface temperature has been reported (Klingbeil, 2013; Engelbrecht et al., 2015). September and October are the hottest months in the landscape, with temperatures reaching an astounding 40 °C, while July is the coldest, with temperatures dropping below freezing (Hering et al., 2022).

3.2 Data Collection

To gain a comprehensive understanding of the future of Namibian conservation, managers, leaders, and farm owners within the EWSL were interviewed using the seven-question methodology, designed to elicit their perceptions of the country's conservation outlook. The questions were adopted from the Government Office for Science (2017) because they provide a structured yet flexible approach to eliciting stakeholder perspectives on possible, probable, and preferable conservation futures, aligning with the study's objective. Before data collection, the interview questions were validated through consultation with experts and later piloted with nine individuals outside the landscape. The feedback obtained was instrumental in determining the appropriate level of engagement for the research, as individuals without management involvement capacity could not provide meaningful responses aligned with the study's objectives. The semi-structured interview questions adopted to achieve the aims of this study are:

1. What would you identify as critical issues for the future of Etosha NP/ Farm or Conservancy?
2. If things went well, being optimistic but realistic, talk about your desired future for Etosha NP/ Farm or Conservancy.
3. In the worst possible world, what are your greatest fears for achieving your desired future for Etosha NP/ Farm or Conservancy?
4. Looking forward, what needs to change (internal and external factors) if the outcomes for Etosha NP/ Farm or Conservancy are to be realised?
5. Looking back, what would you identify as the significant events that produced the current state of Etosha NP/ Farm or Conservancy?
6. What priority actions need to be implemented soon/immediately to achieve your desired outcome for Etosha NP/ Farm or Conservancy?
7. If you had absolute authority and abundant resources and could do anything without constraints, would you do anything else to ensure a bright future for Etosha NP/ Farm or Conservancy?

These questions were asked in the same chronological order and with similar phrasing (Guest et al., 2006), and interviews were conducted only with managers, owners, and leaders of the different conservation institutes within the landscape. Before the proceedings, the interview consent form was explained and signed by each participant. To ensure speedy data collection, a BellOffice Digital Voice Recorder was used to record the proceedings (audio only). Cues were used to help respondents think more broadly about the subject when they struggled to answer the questions or when they provided concise responses (Hancock et al., 2001). The interviews were conducted in the participants' preferred language (Guest et al., 2006), with most choosing English. A handful of respondents opted to be interviewed in Otjiherero (n=2) and Afrikaans (n=3). All interviews were conducted face-to-face, with recordings kept confidential in accordance with the ethical research guidelines of the Namibia University of Science and Technology (NUST). Project approval was obtained from the National Commission on Research, Science and Technology (NCRST) under authorisation number AN202204018 (Appendix 1). Additionally, ethical approval was obtained from the NUST Ethics Screening Committee (FHNRAS: 04/2025) prior to conducting the interviews (Appendix 2). Respondents were allowed to review and edit the audio recordings immediately after each interview, and all data obtained were used exclusively for this research (Retief et al., 2025).

Different approaches were adopted to determine the sample size for each land use type and the individuals/organisations to be interviewed. In ENP and the CC, interviews were conducted with each

member of the management cadre. In the park, the management cadre comprised all individuals holding a rank between Ranger and Director, including Conservation Scientists, while in CC, it comprised all individuals serving on the Conservancy Management Committee (CMC). To determine the sampling of different Support Organisations (SO), a list of all recognised SOs providing support to CC within the landscape was accrued from the Ministry of Environment, Forestry and Tourism (MEFT). For this study, only implementing organisations were selected for sampling, with prominent funding organisations such as the Community Conservation Fund of Namibia (CCFN), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), KfW Development Bank, Game Product Trust Fund (GPTF) and the Environmental Investment Fund of Namibia (EIF) excluded from the survey. This was done because those organisations have limited interaction with CC and thus lack a comprehensive understanding of the complexities often associated with these community-based organisations (CBOs). The sampled SOs comprised this organisation: MEFT (n=2), Namibian Chamber of Environment (NCE) (n=1), Namibian Association of CBNRM Support Organisation (NACSO) (n=4), Integrated Rural Development and Nature Conservation (IRDNC) (n=3), World Wildlife Fund WWF (n=2) and Namibia Nature Foundation (NNF) (n=3).

Random sampling was used to select freehold farmers (FFs) to represent this land use type. This method significantly reduced the researcher's bias, ensuring that every farm had an equal chance of being selected for the sample. Quantum Geographic Information System (QGIS) Version 3.28 (Xu et al., 2020) was utilised to randomly select points distributed across 384 farms within the landscape. The selected farm owners were traced using the farm file/permit system hosted by MEFT. Identified farmers were contacted to obtain consent and schedule interview appointments. When a farmer declined to participate, a neighbouring farmer was selected as a replacement. The theory of “Information power” proposed by Malterud et al. (2016) was used to determine the sample size (Nechully & Pokhriyal, 2019), which was reached at a point where no new information was yielded (saturation point) (Fossey et al., 2002). In total, 16 freehold farmers were interviewed, comprising mixed land-use farmers (MLF) (n = 5) and single land-use farmers (SLF) (n = 11).

3.3 Data Analysis

Respondents recorded replies in various languages were translated into English, and all responses were transcribed using Microsoft 365. This process adhered to the protocols outlined by McLellan et al. (2003) to ensure high-quality transcripts that accurately reflect the audio recordings. All recordings were transcribed verbatim, including false statistics, to avoid altering the meaning and capture the actual context in which they were said. A single researcher coded all interview transcripts to ensure consistent

code application. To enhance the accuracy and reliability of the coding scheme, 15% (n=12) of the transcripts were independently validated by two experienced qualitative researchers (Cox, Nibbelink & Morse, 2025). The first four transcripts, coded by the researcher, were purposively selected for peer validation, while the remaining eight were randomly selected. This was done because the first transcripts were expected to have mistakes as the researcher was still developing his familiarity with the coding framework and gaining experience. There was 76% alignment (79%, n=31; 72%, n=28) in the codes used for exact words and phrases between the researcher and the independent evaluators, resulting in 39 codes. Thematic analysis was conducted using ATLAS.ti Version 8 (Hart & Achterman, 2017; Adelowotan, 2021), enabling the researcher to undertake well-organised, systematic, effective and efficient data analysis while facilitating the analytical interpretation of the findings. The analysis was guided by the interview questions developed for each research objective, which served as a framework to ensure that coding and interpretation remained aligned with the specific objective. Transcripts were systematically coded utilising both inductive (Objectives 2 and 4) and deductive (Objectives 3 and 5) approaches. The inductive approach allows themes and patterns to be drawn from verbatim transcripts, thereby ensuring an extensive exploration of historical events that influence contemporary conservation practices (Bingham, 2023). Additionally, this approach is well-suited for research areas with limited information (Katz, Fleming & Main, 2024; Bihu, 2024), such as assessing future threats to biodiversity conservation in Namibia (Objective 4). To fully comprehend future threats to biodiversity within the landscape, a Network Diagram in ATLAS.ti was used to systematically map relationships between identified threats. This approach enabled visualisation of complex interactions, including triggering and amplifying threats and feedback loops, thereby providing a holistic understanding of systemic pressures on the landscape. While the analysis is subjective, it is grounded in qualitative network analysis methodologies utilising the literature to map the relationships among identified threats and to help understand the dynamics of complex ecological and socio-economic interactions.

The deductive approach used to analyse the results of Objectives 3 and 5 categorised participants' responses into codes derived from the literature (Azungah, 2018), reducing the extensive dataset to a manageable size. The Future of Conservation (2022) survey provided the analytical framework for these objectives, identifying four internationally recognised orientations for the future of conservation, namely: (1) Traditional Conservation (TC), (2) New Conservation (NC), (3) Critical Social Science (CSS), and (4) Market Biocentrism (MB). To ensure rigour, the coding process strictly adhered to the framework's established definitions of the orientations, with transcripts repeatedly cross-checked to maintain

consistency and minimise interpretive bias. Below is a detailed description of the principles underpinning each conservation orientation.

1. **Traditional Conservation**

   Ecocentrism is a tendency of traditional conservation (Kopnina et al., 2017; Retief et al., 2025), which is consistent with Shume's (2017) classification of "*us in nature*" or what Mace (2014) and Kopnina et al. (2017) call "*nature for itself*" and "*nature despite people"*. In this orientation, there is a firm rejection of capitalism and neoliberalism (Kopnina et al., 2017), with conservation approached from an exclusionary view (Doak et al., 2014), vigorously enforcing strict regulations that limit human access to resources. Additionally, this orientation opposes the strong forces behind resource extraction and consumption (Kopnina et al., 2017) to guarantee intact natural systems. This is exemplified by fortress conservation approaches, which focus on protecting nature for its intrinsic value alone (Mace, 2014). Prominent examples of this practice within the EWSL area include the ongoing need to upgrade and maintain the park's boundary fence and to militarise conservation areas in response to escalating poaching.

2. **New Conservation**

   First described by Kareiva and Marvier (2012), this orientation seeks to balance biodiversity conservation with human development. Under this orientation, there is an emphasis on shifting perspective from preserving nature for biodiversity's sake to conserving and ensuring sustainable utilisation of natural resources to achieve human wellbeing (Doak et al., 2014; Holmes et al., 2017), especially those who endure the cost of living with these resources (Future of Conservation, 2022). It highlights the importance of sustainable development and the need for conservation that is financially and socially feasible, thereby creating a symbiotic relationship in which conservation practices support economic development, particularly for rural, impoverished communities (Kesebir & Kesebir, 2017; Headrick, 2020). New conservation embodies an anthropocentric view (Holmes et al., 2017) and aims to make conservation viable, inclusive and sustainable by balancing ecological needs with economic and social priorities. It is consistent with Shume's (2017) classification of "*us over nature*" or what Mace (2014) calls "*nature for people*'' and "*people and nature*". From this viewpoint, the future of conservation lies in a paradigm shift toward a more holistic approach that integrates ecological health with human well-being (Headrick, 2020). The Community-based Natural Resource Management (CBNRM)

practice within the landscape is a classical approach that embodies the fundamental values of NC orientation (Büscher & Dressler, 2012; Brockington et al., 2012).

3. Critical social science

This orientation sheds light on the impact of conservation approaches and practices on people's well-being, emphasising the need to address power dynamics and inequalities in our pursuit of desired conservation objectives. This orientation is critical of conservation activities that harm the broader community (Retief et al., 2025). Traditional conservation models that marginalise local communities (e.g. displacement of people from PAs or PAs that explicitly limit access to resources for local communities) in favour of conservation goals are prime examples, with this orientation campaigning for a more inclusive approach that respects the rights and needs of Indigenous people (Headrick, 2020; Löfqvist et al., 2023). This orientation is grounded in the neo-Marxist worldview (Kopnina et al., 2017) and aligns with what Shume (2017) calls "*egocentrism*" or "*us versus nature*" (Kopnina et al., 2017; Retief et al., 2025).

4. Market Biocentrism

Described by Holmes et al. (2017) as a "neoliberalism" approach, this future orientation utilises market-based solutions to achieve the desired conservation outcomes (Kopnina et al., 2017), recognising both the intrinsic and instrumental value while pursuing a high degree of monetisation (Retief et al., 2025). This orientation develops mechanisms that create economic value to protect biological diversity, thereby promoting adequate protection without compromising economic sustainability. Prime examples of conservation practices grounded in the MB orientation include the valuation of ecosystem services (Forsythe et al., 2018), carbon credits (Skrindo, 2024), ecotourism and biodiversity offsets schemes (Koh et al., 2019). This conservation approach provides financial incentives for protecting ecosystems and biological diversity, thereby encouraging sustainable management of natural resources and benefiting local communities economically. Market biocentrism emphasises that conservation can be effective only when ecological health is recognised as a foundational economic asset (Kumar, 2012), thereby enabling innovative approaches that align with broader environmental, social and economic goals.

The use of quotes from the interviewees during the write-up adhered to the "Chatham House Rule", which dictates that contributions should be reported without revealing the identity or affiliation of the speaker (Parmar & Parmar, 2004; Severn, 2015). The inclusion of verbatim quotes ensured the analytical transparency and confirmability, allowing the readers to directly assess the alignment between the raw data and the researcher's interpretations. Collectively, this approach ensured both ethical compliance and analytical rigour, thus ensuring the robustness of this study.

Chapter 4: Results and Discussion

This section presents the demographic results of this study; respondents' details are presented to understand how they shaped their views on the future of conservation within the landscape. This study conducted a total of 81 interviews across the EWSL, with the highest proportion occurring from the CBNRM sector, which accounted for 48% of the total (Conservancy Management Committee members (CMC), n=24; Support Organisation (SO), n=15) (Table 1). Etosha National Park (ENP) contributed 32% of the interviews, evenly distributed between field-based ground managers (GMs) and National-level Ministerial Support (NLMS) managers in Windhoek (n=13). The lowest representation came from Freehold farmers (FF), comprising 20% of the total interviews, which were subdivided between mixed land use farmers (MLF) (n=5) and single land use farmers (SLF) (n=11). Of the total interviews, males accounted for 80% (n=65), while females accounted for 20% (n=16), indicating a notable gender disparity among respondents that may reflect an underlying demographic issue within conservation in the landscape. This may potentially affect the study's outcomes; however, the magnitude of this influence remains unclear.

Table 1: Summary of Interviews Conducted in the Etosha West and South Landscape (EWSL) area.

	Land Use Types in EWSL								
	Etosha National Park		**Total Average**	**CBNRM Sector**		**Total Average**	**Freehold Farms**		**Total Average**
Parameter being Measured	**GM**	**NLMS**		**CMC**	**SO**		**MLF**	**SLF**	
Number of Interviews Conducted	13	13	**26**	24	15	**39**	5	11	**16**
Average Length of Interview (min)	19.67	25.51	**22.59**	19.64	22.84	**21.24**	31.03	23.35	**27.19**
The Average Age of the Respondents	48	47	**48**	39	52	**46**	62	63	**63**
Gender of Respondents	M = 9	M = 13	**M = 21**	M = 17	M = 11	**M = 28**	M = 5	M = 11	**M = 16**
	F = 4	F = 1	**F = 5**	F = 7	F = 4	**F = 11**	F = 0	F = 0	**F = 0**

Footnote: The following abbreviations are used in the table: GM – Ground Managers, NLMS – National-Level Ministerial Support, CMC – Conservancy Management Committee, SG – Support Organisations, MLU – Mixed Land use Farmers, and SLF – Single Land use Farmers.

The “seven questions” survey results are analysed and discussed below in terms of their chronological progression, i.e. the past, the present and the future, not in sequence of the questions.

4.1 The Past: Historical Trends and Their Ongoing Influence on Contemporary Conservation Practices.

This subsection addresses the second objective of this study: investigating historical trends and their ongoing influence on contemporary conservation practices. Specifically, it examines respondents' answers to question 5, which focused on identifying significant historical events that contributed to the current state of the landscape. Respondents were not restricted to a specific timeframe when discussing "past" events; they referred to any occurrences they considered relevant to shaping current conservation practices, ranging from recent incidents such as COVID-19 to historical developments such as the 1967 Amendment to the Nature Conservation Ordinance. The analysis of historical events provides foundational data for understanding the future of conservation. It clarifies why certain conservation decisions are being made and the factors influencing them (Díaz & Corti, 2025). A total of 20 historical events were inductively identified as influential in shaping the current state of conservation, from 134 responses, with the top four events collectively accounting for 92% (n=123) of the observed impacts within the landscape (Table 2). The most prominent historical theme influencing conservation in the EWSL area is policy and legislation, accounting for 35% (n = 47) of responses. This is followed by drought, reported in 15% (n = 20) of responses, while ownership of and benefits from wildlife accounted for 10% (n = 14), and poaching, referenced in 8% (n = 11) of responses.

Influence of Legislation and Policy on the EWSL

The most notable and irreversible historical event shaping the landscape and its practices is the Homelands (Bantustan) policy (Table 2). Implemented in 1968, the policy divided the country into separate ethnic-based territories, facilitating a framework for racial separation and political control (Evans, 2012; Botha, 2013). The created homelands were intended to serve as self-governing territories, restricting the political rights of local inhabitants and controlling land with its natural resources (Dugard, 1973). Additionally, *"the Odendaal Commission wanted their homelands not to be sustainable, to force people out to go and work in the mines and the farms, so they deliberately undermined the sustainability in these homelands"* (SO-P2). This policy has left a massive scar on the landscape, particularly on the park and the neighbouring communities, by forcibly displacing indigenous communities from arable areas, including the park, into smaller, less arable areas (Mdiniso, 2017). This was substantiated by the following assertions:

"The excision of Etosha National Park, when it was gazetted in 1907 at a size of almost 100,000 km^2 and through the policies of those years, the park was excised by the South African Government, to form the Kaoko and Damara land" (GM-P6).

"*This park used to have inhabitants, and these inhabitants used to be those communities on the park's periphery. To the north, you have the northerners, to the West, you have the Ovaherero, and on the other side, to the east, you have the Hai//om, who have all the claims to have been the rightful inhabitants of sections of the park, and not the entire park…"*(NLMS-P1).

Footnote: The code appearing at the end of each quotation is the anonymised identifier assigned to the different respondents. The letters (NLMS, GM, CMC, SO, MLF, and SLF) refer to the different subsidiaries of each land use type, while "P" denotes Participant, and the subsequent number indicates the specific participant's sequence in the dataset (e.g., "P1" refers to Participant 1).

Despite the forced removal of people from their ancestral lands to make way for the creation of protected areas (Mdiniso, 2017), policies of the 20th century, addressing sustainable utilisation and equitable sharing of benefits from natural resources, have softened the wounds left as a legacy of colonial policies. The importance of ownership of and benefits from wildlife as a historical enabler of contemporary conservation achievements is evident, allowing for a more inclusive approach to conservation by turning past injustices into opportunities for farmers and community empowerment (De Vette, Kashululu & Hebinck, 2012; Gargallo, 2015; Nuulimba & Taylor, 2015). This is attributed to the *"…amendment of the Nature Conservation Ordinance 4 of 1975 that allowed landowners and community members rights to utilise and benefit from natural resources"* (NLMS-P9). These are the Nature Conservation Ordinance 31 of 1967 (Government of South-West Africa, 1967) and the Nature Conservation Amendment Act of 1996 (Government of the Republic of Namibia (GRN), 1996), which were referred to by n=47 respondents. Subsequently, the benefits derived from the sustainable utilisation of natural resources have promoted active community engagement in protecting and conserving the natural environment (Naidoo et al., 2011). Without tangible benefits, local communities may lack the motivation to engage in conservation initiatives and may perceive conservation as a barrier to their livelihoods, potentially resulting in resistance against conservation efforts and practices (Stem et al., 2003; Brooks et al., 2013). The respondents' assertions below substantiate the above-mentioned claims.

"The historic resizing of the Etosha National Park that used to stretch to Skeleton Coast Park allowed for this important corridor of wildlife to exist and for the community to be able to derive benefits from natural resources" (CMC-P21).

"if you look at how the communities West of the park conceive or perceive the park itself, they see it as a significant economic bank of wildlife, supporting the activities that they are involved in, and they have adapted towards the conservation objectives of not just the park, but conservation in general" (NLMS-P1).

Table 2: Historical themes inductively identified, currently influencing contemporary conservation practices across the broader landscape of the Etosha West and South Landscape area.

Historical Themes Shaping Conservation		
Codes/Themes	**Frequency**	**%**
Policy and Legislation	47	**35.07**
Drought	20	**14.93**
Ownership and benefits	14	**10.45**
Poaching	11	**8.21**
Decreasing budget	7	**5.22**
Poor management	6	**4.48**
COVID-19	5	**3.73**
Farmers association	5	**3.73**
Fencing of the Park	3	**2.24**
Human-wildlife conflict	3	**2.24**
Diseases	2	**1.49**
Poverty	2	**1.49**
Reduction in farm size	2	**1.49**
Governance	1	**0.75**
Land use change	1	**0.75**
Population increase	1	**0.75**
Species-focused funding	1	**0.75**
Technological advancement	1	**0.75**
Trade ban	1	**0.75**
Wildlife reintroduction in Conservancies	1	**0.75**

Influence of Drought on the EWSL

Drought has been identified as the second most influential historical theme, affecting current conservation practices within the landscape, accounting for 15% (n = 20) of the overall responses (Table 2). This phenomenon has led to significant changes in land use across the country (Wingate et al., 2016), exacerbating rural poverty (Shikangalah, 2020) and influencing farming practices nationwide. Droughts

have significantly reduced soil moisture, affecting agricultural activities by limiting rain-fed crop production and reducing pasture availability for livestock. This quandary directly affects 251,991 individuals engaged in crop production and an additional 36,118 people practising livestock farming in Namibia (Namibia Statistics Agency, 2019), underscoring the scale of human dependence on climate-sensitive agricultural systems. In response to declining productivity, notable land-use changes have occurred across the country, including the expansion of crop cultivation into previously uncultivated areas, which has led to large-scale deforestation (Wingate et al., 2016) and reduced access to grazing land (Heita et al., 2024). Additionally, repeated or prolonged drought events disrupt the equilibrium of a savanna ecosystem, leading to mortality in the herbaceous layer and creating vacant spaces that facilitate the establishment and spread of woody species, a process commonly referred to as bush encroachment (De Klerk, 2004). This phenomenon has intensified over the years, affecting 27 million ha of land across the country, thus altering vegetation cover and causing progressive loss of productive rangeland within the EWSL and broader Namibia (Namibian Biomass Industry Group, 2024). Bush encroachment has reduced the productivity and ecological functioning of rangelands across the landscape by decreasing grazing capacity, limiting water availability and constraining livelihood opportunities. These impacts have weakened the resilience of freehold farms and communal conservancies to climate-related risks, particularly recurrent droughts and increasing climatic variability (Angula, 2016; Mayr, Le Roux, & Samimi, 2020), as reflected in the respondents' views (CMC-P8, CMC-P14, and MFL-P4). The recurring drought events have altered the landscape's dynamics by affecting vegetation growth and water availability, thereby reducing stocking rates and increasing livestock and wildlife mortalities (Shiimi et al., 2023), which undermines the revenue streams of the landscape's inhabitants. Conversely, this historic drought cycle has created unorthodox opportunities, with innovative mechanisms used to mitigate the adverse impacts of droughts on their properties. Farmers increasingly diversified their livelihood portfolios by integrating wildlife-based land uses, including photographic tourism, conservation-oriented hunting, and charcoal production, thereby establishing multiple income streams to buffer against climatic variability and enhance socio-ecological resilience (Kariuki et al., 2025). The following respondent accounts illustrate how, despite efforts to diversify, drought continues to undermine both livestock and wildlife-based income streams, thereby constraining the effectiveness of these adaptive strategies:

> *"Droughts have affected the poverty levels within this area, causing farmers to lose most of their livestock"* (CMC-P8) and "*droughts have caused our wildlife numbers to*

decrease significantly, we cannot hunt anymore because of this, and as we all know, we depend on wildlife for income generation" (CMC-P14).

"For me, I think the droughts made me think differently, I was forced to be innovative and diversify my farming operation" (MFL-P4).

Influence of Poaching on the EWSL

Poaching was the fourth most influential historical event shaping contemporary landscape conservation practices (Table 2). In the early 1900s, Namibia experienced a significant and catastrophic decline in wildlife numbers, primarily due to extensive poaching (Wenborn et al., 2022). This phenomenon has led to the establishment of ENP, which has given rise to fortress conservation approaches that dominate current landscape conservation practices. Additionally, unsustainable hunting practices on commercial farms, driven by the perception that wildlife competes with livestock and the absence of direct benefits to farmers, have led to significant declines in wildlife populations (Weaver & Skyer, 2003). In response, the previous administration amended the Nature Conservation Ordinance of 1967, granting landholders user rights and ownership over wildlife, an approach that continues to influence contemporary conservation practices (Lindsey et al., 2013). This policy shift facilitated economic opportunities from wildlife utilisation and contributed to the effective conservation of biodiversity on commercial farmland, a practice that persists. (Lindsey et al., 2013). The establishment of CC was intended in part to facilitate the recovery of wildlife populations in regions primarily affected by historic poaching (Weaver & Skyer, 2003). The following articulations of the respondents substantiate the above claims.

"Back then, we regarded wildlife as competitors to our livestock and therefore hunted them to protect grazing areas on our farms" (SLF-P11).

"The event that shaped the conservancy is the historic poaching that occurred in this area, which led to a decrease in wildlife numbers and *with a lot of poaching, they started working with the people [rights to use wildlife devolved to community members], which gave birth to the conservancy program"* (CMC-P5).

Collectively, historical events have shaped contemporary conservation practices across the broader landscape; however, their distinct impacts on specific land-use types require closer examination, which is undertaken in the subsequent subsections.

4.1.1 Historical Trends Shaping Communal Conservancies within the Landscape

A total of nine historic themes have been inductively identified from 62 responses, as primary influences on current conservation practices within the CBNRM sector (Table 3). The legal framework was identified as the most significant influencer on contemporary conservation practices, observed in 40% (n=25; CMC=10 and SO=15) of the overall responses recorded in this sector. This finding is consistent with that of Kariuki et al. (2025), with this theme facilitating the much-needed transition towards sustainable resource use and equitable benefit distribution, a practice recognised as the second-highest historical parameter influencing current conservation practices, as evidenced by 19% (n=12) of respondents' responses. Collectively, these two themes account for more than half (59%) of the responses, underscoring their pivotal role in shaping perceptions and influencing conservation practices over the centuries (Table 3). Rounding out the top five influential themes are drought, which accounted for 16% (n = 10) of the responses, followed by farmers' associations, yielding 8% (n = 5) of the responses, and the COVID-19 pandemic, which accounted for 6% (n = 4) of the responses (Table 3).

Influence of Policy on Local Benefits

The movement in southern Africa to overcome the colonial centralisation of wildlife and restore rights to communities is a historical development that continues to revolutionise conservation across the continent (Child, 2019). To this end, changes in policy and legislation yielded the highest distinction (59%) amongst stakeholders representing CBNRM within the landscape (Table 3). This movement started in 1996, with the amendments to the Nature Conservation Ordinance 4 of 1975, enabling the devolution of rights over wildlife and tourism to local communities, to guarantee sustainable resource use and foster direct benefits from natural resource use by rural communities that have united to form conservancies (Republic of Namibia, 1996). Additionally, this approach has implications for intergenerational equity, ensuring that access, benefits, and responsibilities regarding natural resources and their management are transferred across generations within and beyond the conservancies. Garth Owen-Smith and "*Niko Bessinger, who were designated to be the first Minister of the Ministry of Environment at independence"* (SO-P2), were pivotal figures in shaping and implementing the philosophy of CBNRM in Namibia by involving the local community and ensuring that they form an integral part of conservation efforts and practices (Owen-Smith, 2011). This approach led to community members' participation in conservation, which significantly reduced poaching rates and initiated the restoration of wildlife populations in those areas, creating economic opportunities for rural communities to use those resources sustainably (Naidoo et al., 2011; Owen-Smith, 2011). This practice continues to dominate and has established the Namibian CBNRM

program as a model for eradicating rural poverty and promoting sustainable conservation across Africa (Bandyopadhyay et al., 2009). The long-term success of this program is reflected in the substantial socio-economic returns generated through community conservation initiatives, which contributed N$15 billion to Namibia's net national income from the program's inception until 2023 (MEFT/NACSO, 2023). Additionally, in 2023 alone, this program generated N$166 million, employed 2,340 community members, paid a combined salary of N$90 million, and distributed 90,116 kg of game meat from conservation hunting. These exemplify the CBNRM program's economic viability, reinforcing the enduring legacy of Namibia's post-1990 policy reforms, which redefined wildlife ownership and management as community assets, thereby transforming rural livelihoods and conservation outcomes across the region (Child, 2019). Hence, these policies have created a legacy that continues to shape contemporary conservation practices across Namibia. This enduring influence is further evident in stakeholders' lived experiences and perceptions, as reflected in the articulations below:

> *"The philosophy of Garth Owen-Smith influences the state of communal conservancies; when he arrived in Namibia, he found an abundance of wildlife in communal areas. However, due to the policies implemented during the Apartheid era, poaching increased significantly, leading to a decrease in wildlife numbers, and this gave birth to the philosophy of a community-centred management approach"* (SO-P14).

> "*The significant events that produced the current state of the conservancy is the establishment of the enterprises that we have, namely the Grootberg lodge, Wada campsite, the concession rights at Hobatere lodge and trophy hunting, which ensure a viable revenue stream for the conservancy.* Additionally, *the distribution of benefits to the members ensured that the concept flourished as community members were benefiting directly (meat, jobs, etc.) from wildlife, leading to a change in behaviour in the community"* (CMC-P11).

Influence of Drought and COVID-19

The combined effects of the prolonged drought and the COVID-19 pandemic emerge as critical historical events that continue to shape contemporary management practices within communal conservancies. These events accounted for 16% (n=10; CMC=8 and SO=2) and 6% (n=4; CMC=4) of respondents' overall responses, respectively. Collectively, these events disrupted the financial foundations of the conservancies by simultaneously constraining revenue generation and increasing expenditure pressures

(HWC offset), thereby exposing the structural vulnerability of conservation models that rely heavily on climate-sensitive ecosystems and tourism-dependent income streams (Lendelvo et al., 2020; Gargallo & Heita, 2021; Kalvelage et al., 2022). From an ecological perspective, prolonged drought has significantly altered wildlife dynamics by increasing mortality rates, reducing reproductive success, and causing large-scale shifts in species distributions. These changes have had cascading effects on conservation management by intensifying HWC, as wildlife, especially predators, expand their range toward human settlements in search of food and water. As one respondent noted, *"current practice of wildlife reintroductions in the conservancies is due to droughts, which have caused a decrease in their numbers"* (CMC-P1), highlighting how drought has necessitated reactive management interventions to restore wildlife populations that are central to nature-based enterprises. These findings illustrate that climatic stressors are not only ecological disturbances but also key determinants of management priorities, compelling SO to shift from long-term planning to short-term recovery strategies. This enduring influence is further evident in stakeholders' lived experiences and perceptions, as reflected below:

> *"Because of drought and COVID-19, our enterprises have been affected, we are unable to hunt because wildlife numbers have significantly decreased, and COVID-19 have stopped the movement of tourists, thus causing a significant reduction in the revenue stream of the conservancy"* (CMC-P1).

> "*Drought has contributed to what we currently see in the conservancy. Our wildlife numbers have decreased; as a result, we can no longer hunt. Livestock have died due to the drought, and we no longer have donkeys to conduct patrols as a result of the prolonged drought. The predators are now coming close to the people because of the drought, increasing HWC"* (CMC-P14).

Table 3: Historical themes inductively identified by the CBNRM stakeholders within the Etosha West and South Landscape area, influencing contemporary practices.

Historical Trends (CBNRM Sector)		
Codes/Themes	**Frequency**	**%**
Policy and Legislation	25	**40.32**
Ownership and benefits	12	**19.35**
Drought	10	**16.13**
Farmers association	5	**8.06**
COVID-19	4	**6.45**
Human-wildlife conflict	2	**3.23**
Poaching	2	**3.23**
Governance	1	**1.61**
Wildlife reintroduction in Conservancies	1	**1.61**

4.1.2 Historical Trends Shaping Current Management Practices of Etosha National Park

The current management of ENP has been shaped by a complex interplay of historical events, which have collectively influenced contemporary biodiversity conservation strategies within the park. In total, twelve historical events have been identified inductively, from 52 responses, with the most influential event being the policy framework, accounting for 34.62% (n = 18; GM = 7 and NLMS = 11) of all recorded responses (Table 4). Poaching emerged as the next most prominent theme, accounting for 15.38% (n=8) of the responses. This was followed by concerns related to inadequate budget allocations (13.46%, n=7) and poor management practices (11.54%, n=6), which ranked third and fourth, respectively (Table 4). These themes represent the four most frequently acknowledged historical events shaping current conservation practices, collectively accounting for 75% of participants' responses.

The Influence of Legislation on ENP

Respondents (n = 14) have identified the legislation that gazetted the park in 1907 as a pivotal historical moment that has profoundly shaped contemporary conservation practices within the park (Table 4), primarily by establishing the legal and institutional foundation for its protection. At the time of its proclamation, the park covered a total area of 93,240 km², extending westwards to what is now the Skeleton Coast National Park (SCNP) and northward to the Kunene River (Dieckmann, 2003; Hoole, 2008; Turner et al., 2022). The implementation of the Homelands policy during the South African Apartheid Era scarred the park, reducing its historic size by 70,299 km² and contributing to its current size and shape. The park's resizing disrupted historical wildlife migration routes, particularly for species such as zebra and

wildebeest, whose seasonal movements had previously extended beyond the newly imposed park boundaries. This legacy (Homeland Policy) continues to influence contemporary conservation efforts, particularly the mindset of protecting the park's physical existence through fortress-like approaches.

Equally significant are the socio-political ramifications of these historical processes, particularly regarding the displacement and marginalisation of the Hai//om community. The forced removals of Hai//om populations from the park, initially during the 1950s under apartheid rule and more recently through contested relocation efforts between 2012 and 2014 to areas such as Koppies, Mooiplaas, Nuchas, Werda, and Seringkop, have contributed to persistent grievances and negative perceptions of the park among affected communities (Dieckmann, 2003). These experiences have reinforced a legacy of dispossession and exclusion in a post-independent Namibia, which continues to undermine trust and complicate contemporary conservation efforts. Hence, these findings suggest that current conservation practices within the park cannot be fully understood in isolation from those historical events. These historical processes and their enduring consequences are clearly reflected in managers' perspectives, which articulate how ecological fragmentation and social displacement continue to shape contemporary conservation practices and perceptions within the park, as illustrated by the responses below:

> *"The Homelands policy led to the fragmentation of the park, reducing its size in 1975, creating the current shape of Etosha, cutting off zebra and wildebeest migrations due to fencing off the park. Etosha's new shape and size brought a mindset of how we now need to protect this thing, like an island"* (NLMS-P5).

> *"The displacement of local communities from the park has influenced the perception of the communities of the park"* (NLMS-P12).

Influence of Rhino Poaching on ENP

The escalation of rhino poaching, which intensified around 2010 (Knight, Mosweub & Ferreira, 2022), has influenced the park's current operational focus, as reported by 15.38% (n=8; GM=6 and NLMS=2) of officials in their overall responses. In response to the escalating poaching pressure in ENP, the Namibian government authorised the deployment of the Namibian Police (NAMPOL) and the Namibian Defence Force (NDF) to strengthen law enforcement and curb illegal hunting within the park. As one respondent noted, *"the introduction of police and NDF members to help curb the increasing poaching events within the park"* (GM-P11). While such measures may yield short-term reductions in poaching incidents (Duffy

et al., 2019), they have significantly affected resource allocation (budget) and institutional priorities within the park. Activities essential for tourism, including road maintenance and infrastructure upgrading, as well as those fundamental to effective park management, such as scientific research and water provisioning, have been systematically deprioritised, thereby contributing to the park's current deteriorating condition, described by one respondent as *"the worst state I have ever seen Etosha"* (NLMS-P5). The displacement of traditional conservation roles, particularly those of scientists and resource managers, has weakened the park's capacity to implement adaptive, knowledge-based management approaches, thereby undermining holistic park management, contributing to the *"…poor management of the park"* (GM-P10). Additionally, respondents reported declining staff morale, attributed to diminished autonomy for park personnel and the increasing dominance of external security forces in decision-making. As one respondent observed, *"the morale of staff members is gone… staff now cannot drive in the park without being accompanied by the police"* (NLMS-P7). This reflects a broader institutional tension in which conservation professionals are increasingly sidelined, thereby limiting their ability to function as effective stewards of biodiversity. This finding is consistent with that of Duffy et al. (2019), who reported that the militarisation of protected areas lowers morale among park personnel and strains community-park relations. This is because those approaches mirror colonial legacies of exclusion and control, leading to alienation and mistrust among rural populations living adjacent to protected areas (Duffy et al., 2019). Hence, Hübschle (2018) advocated for a more community-centred approach, emphasising trust-building, local participation and equitable benefit-sharing as effective deterrents to wildlife crime. In conclusion, the results show that an increased focus on security has intensified existing issues related to inadequate budgeting (13.46%, n = 7; GM = 5; NLMS = 2) and poor management (11.54%, n = 6; GM = 3; NLMS = 3), creating a reinforcing cycle that further undermines biodiversity conservation in the park. This was further supported by the different responses of the respondents managing the park.

> *"The introduction of the Namibian Police and the Namibian Defence Force as a result of rhino poaching is the biggest event that produced the current state within the park. Our budget is spent on feeding the security member, while our roads and other infrastructure are not maintained and remain in a poor state"* (GM-P11).

> *"When park management was taken away from the managers and handed over to NAMPOL and NDF, with the focus changing from park management to security, that is when the massive change hit and the park started crumbling"* (NLMS-P11).

Table 4: Historical themes inductively identified by park managers and national-level ministerial support personnel, currently shaping contemporary conservation practices within the park.

Historical Trends (Etosha NP)		
Codes/Themes	**Frequency**	**%**
Policy and Legislation	18	**34.62**
Poaching	8	**15.38**
Adequate budget	7	**13.46**
Poor management	6	**11.54**
Drought	3	**5.77**
Fencing off the Park	3	**5.77**
Poverty	2	**3.85**
Human-wildlife conflict	1	**1.92**
Ownership and benefits	1	**1.92**
Population increase	1	**1.92**
Species-focused funding	1	**1.92**
Trade ban	1	**1.92**

4.1.3 Historical Trends Shaping Freehold Farmers' Current Management Philosophy

Freehold farmers have inductively identified 9 historical events that influence contemporary farming practices, based on 20 responses. Among these are the historic drought cycles observed across much of the country (Liu & Zhou, 2021), which exhibited the highest prevalence, accounting for 35% (n=7; MLF=2 and SLF=5) of the overall responses (Table 5). This was followed by policy and legislative factors, which accounted for 13.46% (n=7) of the responses, while diseases and reductions in farm size ranked third, each contributing 10% (n=2) of the total responses.

Influence of Historic Drought on Freehold Farmers

Drought has evidently shaped the current complexity of freehold farming, forcing farmers to develop adaptive strategies to cope. As highlighted by Letsoalo et al. (2023), recurrent climatic stress has driven both herd-size reduction and diversification of income streams, reflecting a broader transition from conventional livestock-dominated systems toward more flexible, multi-enterprise models. Within this study, respondents similarly emphasised that drought has not only altered ecological conditions but also reshaped decision-making processes, pushing farmers to innovate to enhance resilience under increasingly variable climatic conditions. This adaptive response is most clearly reflected in a strategic shift toward complementing livestock farming, trophy hunting and photographic tourism with activities such as charcoal production and bush fodder production. Additionally, drought has driven farmers to manage

their rangelands more deliberately and strategically, prompting a shift away from opportunistic grazing toward structured, ecologically responsive management practices (Messner et al., 2025). Respondents highlighted the adoption of rotational grazing as a key adaptive strategy, in which livestock are concentrated at higher densities for short periods and then moved to allow vegetation to recover.

One of the most notable adaptations is the growing emphasis on technological innovation, particularly in livestock genetics. Farmers are increasingly investing in selective breeding and artificial insemination to develop herds with greater tolerance to drought, thereby improving productivity and survival rates under environmental stress. However, the adoption of such technologies remains uneven, as the high financial costs associated with genetic improvement constrain access for less-resourced farmers. These responses align with broader discourses on climate resilience in commercial farming, emphasising adaptive herd management, livelihood diversification, and the adoption of farming technologies as important strategies to ensure profitability in farming under increasing climate variability (Stringer et al., 2020). The articulations below exemplify how farmers have internalised climatic pressures and translated them into concrete management practices and livelihood adjustments:

> *"The historic droughts have shaped how I am currently farming, and what I am doing now on my farm, multiple enterprises ranging from trophy hunting, photographic tourism and charcoal production is all because of the drought. My approach has been regular cattle rotation, ensuring high-density and short-duration grazing"* (MLF-P3).

> *"….when we started artificial insemination and looked at the genetic make-up of our cattle in 1978, that changed the direction of the farm, and we became more profitable"* (SLF-P3).

Influence of Legislation and Policy

Similarly, as observed across the other land-use types, legislative frameworks continue to play a defining role in shaping and structuring contemporary farming practices among freehold farmers, accounting for 20% (n=4) of the reported historical drivers (Table 5). In particular, the spatial reconfiguration of land under the Bantustan policy institutionalised a highly unequal distribution of productive land, whereby arable and economically viable areas in the eastern parts of the landscape were retained and allocated to white commercial farmers, while less productive, low-rainfall areas towards the west were designated as communal homelands (Garcia, 2004). This historically determined pattern of land allocation continues to influence contemporary farming systems by contributing to unequal access to natural resources,

infrastructure and importantly, participation in higher-value agricultural markets. As a result, freehold farmers have been strategically positioned by the Bantustan policy to operate under more favourable economic conditions, enabling greater capital investment, diversification opportunities, and greater resilience to climatic variability than their communal counterparts.

Beyond land allocation, legislative reform in the wildlife sector, particularly the 1967 amendment to the Nature Conservation Ordinance, constitutes a critical institutional turning point with lasting implications for freehold farmers (Weaver & Petersen, 2008). While emerging from a discriminatory policy context, this amendment fundamentally redefined property rights over wildlife by granting freehold farmers ownership and utilisation rights, transforming wildlife from a state-controlled resource into a privately managed economic asset (Child et al., 2012). This legal transformation created strong economic incentives for wildlife utilisation, catalysing a gradual but profound transition from conventional livestock-based farming toward wildlife-based land uses, including trophy hunting and ecotourism enterprises, which now characterise most of the freehold farmers in the landscape (Lindsey et al., 2013). Importantly, this shift reflects not only an economic reorientation but also a broader institutional restructuring of conservation practice, where private landholders increasingly assume roles traditionally associated with the state (Child, 2019). These structural and legislative influences are clearly reflected in the lived experiences of farmers, who explicitly link historical policy decisions to present-day farming strategies as presented below:

> *"The allocation of areas during the Odendaal plan had a significant influence on the farming practice in that area"* (SLF-P9).

> *"The change in the law, which occurred in 1967, facilitated the transition from livestock farming to wildlife farming. Had the legislation not been amended to permit wildlife farming, I would not have become a wildlife farmer today*" (SLF-P8).

Table 5: Historical themes inductively identified by freehold farmers within the EWSL area, currently influencing contemporary conservation practices on commercial farms.

Historical Trends (Freehold Farms)		
Codes/Themes	**Frequency**	**%**
Drought	7	**35**
Policy and Legislation	4	**20**
Diseases	2	**10**
Reduction in farm size	2	**10**
COVID-19	1	**5**
Land use change	1	**5**
Ownership and benefits	1	**5**
Poaching	1	**5**
Technological advancement	1	**5**

4.1.4 Conclusion

Historical trends have profoundly and persistently influenced contemporary conservation practices within the EWSL area, providing important context and lessons that can shape future conservation efforts. The most influential historical events shaping contemporary conservation practices were the legislative framework, tangible benefits, and drought cycles, all of which trigger structural shifts in land-use governance and impact the socio-economic dynamics of people within the landscape. The legacy of the Apartheid-era policy continues to scar the landscape, with its irreversible impacts being visible in the current shape and size of the ENP and the whole structure of the landscape in general. The political reconfiguration of the park has influenced the current mindset of constantly protecting the physical existence of the park using fortress (fences) approaches, irrespective of scientific evidence highlighting the ecological disadvantages associated with habitat fragmentation, the importance of landscape connectivity for wildlife movement in a semi-arid landscape and the proven conservation benefits of integrating local communities into the management of the park. Additionally, this policy facilitated access to vast communal lands with abundant wildlife resources, making it easy to establish communal conservancies across Namibia.

The forward-looking legislative reforms, particularly the 1967 and 1996 Amendments to the Nature Conservation Ordinances, were acknowledged as historic milestones that continue to shape and transform the fortunes of conservation in the current century. These policies have been instrumental in catalysing a paradigm shift towards a more inclusive, people-based, participatory conservation model, facilitating the establishment of some of the most progressive wildlife institutions globally, and

transforming conservation into an economically viable prospect for poor rural communities and private commercial farmers. These results underscore the critical role of robust legislation in shaping effective conservation strategies for the distant future. Hence, a broad conclusion can be drawn that policies and associated benefits enable mechanisms that create the conditions necessary for sustainable socio-ecological transformation in conservation, providing important lessons for future practices.

Recurring drought cycles continue to shape contemporary conservation practices across the landscape. These events have tested the ecological and socio-economic resilience of the landscape, subsequently stimulating disruptive innovation that has led to effective range land management, adaptive land use strategies (boskos production), and diversified livelihoods among freehold farmers in the current climate. These findings underscore the importance of inter-land-use cooperation and collaboration in facilitating the adoption of best practices across the landscape, thereby enabling more effective navigation of the complex and dynamic challenges inherent in the EWSL area. Additionally, these historical themes inform the FT framework by highlighting how past governance decisions and socio-ecological outcomes shape current conditions and potential future scenarios for sustainable conservation in the EWSL area, as detailed in the following subsections.

4.2 The Present: Assessing the Current Conservation Orientation of Different Land Users within the EWSL

This section analysed the prevailing conservation orientation within the EWSL area by aligning stakeholders' perceptions of priority actions with the FT framework. The perspectives outlined in this objective pertain to question 6, which asked about priority actions to be implemented immediately to manage conservation and address its challenges. This approach also provides insights and solutions to burning contemporary issues affecting conservation within the landscape, utilising the feedback loop established in the previous subsection. This introductory section comprehensively evaluates the dominant conservation framework practised within the whole landscape.

A total of 227 responses were analysed deductively to determine the dominant FT orientation in the EWSL area (Appendix 4). This analysis revealed that conservation within the landscape appears predominantly characterised by a Traditional Conservation (TC) orientation, observed in 33% (n = 74) of the overall responses (Figure 9). This finding highlights the continued reliance on fortress conservation approaches, which, in the past, successfully addressed the targeted conservation challenge posed by low wildlife numbers resulting from unsustainable colonial-era hunting practices (Heatherington, 2012; Büscher, 2016a). Driven by rising poaching incidents across the country and the broader continent, as reported by Knight, Mosweub, and Ferreira (2022), this development necessitates interventions such as enhanced security measures (41%, n=30) and fencing (26%, n=19), which dominate respondents' responses. Namibia has experienced an escalation in rhino poaching over the past decade, increasing from zero incidents in 2006 to a peak of 97 incidents in 2015, followed by fluctuating but persistently elevated levels ranging from 93 incidents in 2018 to a relatively low of 31 incidents in 2020 (Knight, Mosweub & Ferreira, 2022). Cumulatively, Namibia ranks as the third-most-affected country in Africa (n=471), only after South Africa (n=9387) and Zimbabwe (n=698), thereby reinforcing the urgency of predominantly protectionist responses within the TC orientation. The second most prominent orientation was the Critical Social Sciences (CSS), evident in 26% (n=58) of participants' responses. This provides important context, highlighting the social injustices arising from biodiversity and its management (Luetkemeier et al., 2023), which have caused significant social unrest among the landscape's inhabitants (Brockington, 2004). This emerged strongly in responses from CMC and SO regarding past conservation practices (Sub-section 4.1.1) and the increase in HWC, which is affecting people's livelihoods. The New Conservation (NC) orientation was the third most prominently referenced framework, observed in 24% (n=55) of the respondent replies, while the least practised orientation within the landscape was Market Biocentrism (MB), evident in 18%

(n=40) of the overall responses from the respondents (Figure 9). This underrepresentation highlights a critical gap in the biodiversity sector, reflecting its limited capacity to effectively leverage market-based mechanisms to strengthen biodiversity protection and promote sustainable conservation financing. Hence, policy innovation and powerful FT tools, such as scenario planning, are needed to unlock strategies that can leverage market-driven solutions to enhance the ecological and socio-economic dynamics of the landscape's inhabitants. Collectively, these findings provide a foundational understanding of the prevailing conservation orientations within the EWSL, offering critical insights into how these paradigms shape management priorities and, in turn, set the stage for a deeper examination of the current conservation orientation across the CBNRM sector, ENP and freehold farms.

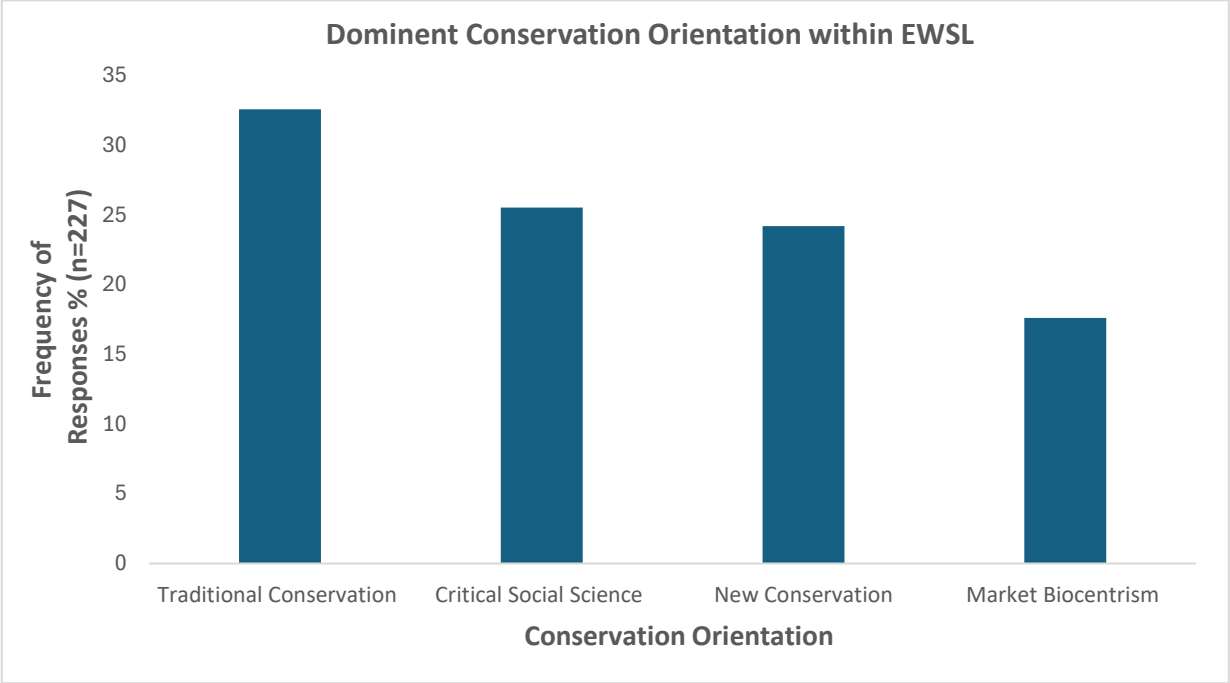


Figure 9: Dominant conservation orientations being practised within the Etosha West and South Landscape area, as extracted from the responses of participants.

4.2.1 The Identified Current Conservation Orientation of Conservancies within the Landscape

A total of 93 responses were analysed deductively under this subsection, with 54.84% (n=51) originating from the CMC and 45.16% (n=42) from SO to communal conservancies (Appendix 4). The data were stratified into CBNRM stakeholder types to capture potential variations in perceptions, experiences and priorities. This allows for the distinct identification of patterns and priorities amongst the different groups, which might be obscured in aggregated analyses. The analysis revealed mixed conservation orientations,

with CSS observed in 39% (n=36) of the overall responses (Figure 10). This suggests that conservation strategies in this context emphasise addressing social justice and community engagement, and integrating human well-being with ecological sustainability, aiming to achieve more equitable and inclusive outcomes (Armitage et al., 2020). A notable divergence emerged between CMC and SO in their framing of conservation priorities. Responses from the SO aligned more closely with the NC orientation, accounting for 40% (n=17), whereas responses from the CMC aligned more closely with the CSS orientation, accounting for 45% (n = 23) (Figure 11). This contrast suggests a potential disconnect in priorities between stakeholders, which may complicate collaboration and affect the implementation of strategies (Holmes & Cavanagh, 2016; Büscher & Fletcher, 2020). Unless deliberate efforts are made to bridge these perspectives, this discrepancy is likely to persist. This finding is consistent with the literature, particularly within the context of the SES theory, which has raised concerns about tensions in governance when attempting to harmonise ecological, social and economic priorities (Ostrom, 2009; Berkes, 2017).

Saturation of the CBNRM Programme

The principles of CBNRM are firmly rooted in the NC orientation, which promotes the integration of biodiversity conservation with human development objectives (Dressler & Büscher, 2008; Roe et al., 2009; Büscher & Dressler, 2012; Brockington et al., 2012). However, the findings of this study suggest that the programme's contemporary trajectory increasingly reflects elements of the CSS (Figure 10), emphasising the complexity of the relationship between ecological systems and social dynamics, as hypothesised by the SES theory (Ostrom, 2009). Although the NC orientation offers important conceptual foundations for achieving ecological and social harmony (Kareiva & Marvier, 2015; Buscher & Fletcher, 2020), critics argue that it may not sufficiently address local governance challenges, social inequity and historical injustices (Doak et al., 2014). This has been identified as problematic within the CBNRM program (Sullivan, 2006). The observed move towards CSS is intended to address the need for equity, inclusivity, and grassroots participation in managing natural resources, to foster sustainable outcomes by empowering local communities (Petriello et al., 2024). The different orientations expressed by the CMC and the SO might explain the program's current state, as misaligned priorities and conflicting approaches likely hinder effective collaboration, resource utilisation and the achievement of shared objectives (Folke et al., 2005). Respondents raised concerns that while SO played a critical role in establishing conservancies and promoting social cohesion during the programme's early stages, their capacity to support conservancies in developing viable economic enterprises has not kept pace with the programme itself. This explains why the program has struggled to achieve sustained growth and develop alternative nature-based business

models for the past 10 years (Bandyopadhyay et al., 2009). This stagnation appears to stem from the systemic limitations in sectoral capacity, particularly with the SO responsible for facilitating conservancy development and long-term strategic planning for the sector. These findings concur with those of Mosimane and Silva (2015) and Foyet (2024), who found that local governance institutions lack the technical and procedural capacity to design and implement equitable benefit-sharing mechanisms, while national authorities (SO) have, over the years, failed to adequately monitor and enforce policy requirements within the CBNRM program of Namibia, thereby weakening accountability and institutional performance. Similarly, the experiences of Zimbabwe's Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) and Zambia's Administrative Management Design Programme (ADMADE) proved that a rapid institutional expansion without parallel investment in technical expertise, managerial capacity and adaptive governance has undermined the program's effectiveness in ensuring equitable benefit distribution, constrained local economic development and perpetuated governance challenges (Child & Barnes, 2010).

The Namibian programme appears to have reached a point of saturation, where the expansion of conservancies has exceeded the existing SO's capacity to support these institutions effectively. This saturation is also reflected in the livelihood model underpinning the programme. Many conservancies rely heavily on revenue from charismatic wildlife species through tourism and trophy hunting, with these streams accounting for 97% (N$162,586,787.00) of the programme's total revenue in 2023 (MEFT/NACSO, 2024). Conversely, most areas supporting high-value species have already been incorporated into the programme during its early expansion phases. Consequently, conservancies established in areas with fewer wildlife resources generate significantly lower revenues, suggesting that the wildlife-based livelihood model has reached its practical limits for expansion and economic returns. However, this emerging saturation should not be interpreted as a failure of the CBNRM model itself. Rather, it signals a maturation phase in the programme's evolution, in which strategic emphasis must shift from the quantitative expansion of conservancies to consolidating and strengthening the institutional performance and economic viability of existing conservancies. Without these strategic reforms to strengthen SOs' technical capacity and enhance the economic viability of existing conservancies, conservancies' ability to deliver equitable benefits, maintain accountability, and sustain long-term conservation outcomes may remain limited. Building on this concern, empirical evidence from stakeholders provides direct insight into how these capacity constraints are experienced and articulated by SOs, to substantiate the argument that the CBNRM has reached its saturation point as presented below:

"Support organisations, including government and NGOs, remain significantly underprepared to address the economic needs of conservancies despite their early successes in building institutional frameworks and fostering social cohesion…. Support organisations lack the business, entrepreneurial and economic skills necessary to guide conservancies toward sustainable economic performance. Furthermore, the capacity of support organisation staff has stagnated, failing to adapt to the evolving needs of conservancies. Some individuals within the conservancies have surpassed the support organisations' expertise and innovative skills" (SO-P2).

"*We need to strengthen the capacity of NGOs and MEFT as support agencies in out-of-the-box ways to bring in money and expertise to the program, to ensure greater influence and dictate the direction of CBNRM in the country and beyond; if not, we will remain in this hole. We overestimated NGOs' capacity in Namibia and created too many conservancies (36 in a short span) without considering their capacity to support them"* (SO-P14).

Lack of Tangible Benefits

The most prominent challenge identified in the CBNRM sector is the limited distribution of tangible benefits to conservancy members, a concern closely aligned with the CSS orientation (Figure 10). These findings are consistent with the State of the Community Conservancy in Namibia Annual Report 2023 (MEFT/NACSO, 2024), which recognises the fact that benefit distribution remains a persistent challenge within the programme, despite a substantial revenue generated (n = N$ 166,855,933) by the program excluding grants, with only 17% (n = 13 out of 77) of the conservancies able to meet the minimum national target of allocating at least 50% of the income generated by the program to community benefits. It should be noted that this assessment is based on the 77 conservancies that submitted financial reports, as nine of the 86 registered conservancies did not comply with reporting requirements. This disparity shows a critical disconnect between revenue generation and equitable benefit distribution, raising concerns about the programme's ability to fulfil its foundational objective of linking conservation outcomes with improved rural livelihoods. The CMCs raised multiple concerns that tangible benefits often fail to reach the household level, fostering a negative perception of biodiversity conservation, as "*community members perceive their participation as not translating into meaningful economic or social gains*" (SO-P9).

The lack of tangible benefits for members is attributed to the conservancy's inability to generate and retain revenue, the local community's limited entrepreneurial capacity to manage the conservancy on a business-oriented model, and restrictive contractual agreements (Naidoo et al., 2016). In many cases, private-sector operators or external management companies capture a disproportionate share of the economic returns from conservation-linked enterprises, such as lodges and trophy-hunting concessions. While these partnerships were initially designed to compensate for limited local technical capacity and provide professional management expertise, they have often resulted in unequal benefit-sharing arrangements that constrain the economic empowerment of conservancy members. Consequently, communities may receive only a limited share of the income generated by these enterprises, despite bearing the ecological and social costs of living alongside wildlife. This long-standing practice provokes border frustrations (CSS) amongst community members who recognise the need for reforms and the renegotiation of restrictive contracts to ensure fairer revenue distribution and unlock the full potential of community-based organisations (CBO). However, SO provides limited support in this regard, leaving communities without the necessary backing and technical expertise to challenge those inequalities and implement the reforms required to yield benefits. In this context, some respondents suggested that the continued involvement of certain SOs has gradually become a source of stable employment, which may inadvertently reduce the incentive to pursue transformative reforms that would enable conservancies to operate independently and achieve long-term financial sustainability. Consequently, this arrangement reinforces reliance on SO assistance, fostering a culture of dependency within the programme and undermining CBNRM's original intention to evolve into a self-sustaining conservation and development model (Republic of Namibia, 2004). This dynamic is further reflected in the lived experiences and perceptions of both conservancy members and support organisations, whose accounts provide grounded evidence of how dependency has become embedded within the programme's operational reality as articulated below:

> *"We derive limited benefits from the lodge and most of the revenue is captured by the management company hired by the conservancy to oversee the lodge operations. Despite the lodge being 100% community-owned, the lack of local capacity to manage it has resulted in missed opportunities for generating substantial revenue. Achieving this will require amendments to the conservancy's constitution and the renegotiation of contracts that currently disadvantage us to ensure that we take direct control of our resources and maximise our benefits"* (CMC-P2).

> *"NGO support has become a double-edged sword because it has become a way of life and a source of employment, and this is not supposed to be the case because the program itself was supposed to grow to a level where it became sustainable"* (SO-P10).

Despite livelihoods and associated benefits remaining the sector's primary concern, MB frameworks exhibited a notably limited ideological basis, which could undermine the long-term viability of the CBNRM program. While market-oriented solutions such as payments for ecosystem services (PES), biodiversity offsets, eco-certification schemes and green financing instruments are increasingly becoming popular and proposed as alternative livelihood streams (Rossberg et al., 2021; Clifton & Schwerdtner Mänz, 2025), they did not feature as viable solutions to address the concerns of limited tangible benefits within the CBNRM program. This underrepresentation suggests a critical gap in the integration of market-based conservation strategies within the programme. Addressing this will require *"…a multi-disciplinary study….to identify opportunities and model the future, incorporating economic analysis and ensuring a comprehensive data collection…The government should lead this initiative, to foster collaboration among the private sector, local communities and other stakeholders"* (SO-P1). This initiative can be achieved by having a "*CBNRM steering committee, chaired by MEFT, at a senior level where NGOs, the private sector and everyone involved in CBNRM all sit and plan together the priorities for the program rather than different role players each doing their thing in isolation"* (SO-P2). This is because the government is the custodian and primary regulatory authority of the country's natural resources (Republic of Namibia, 1990) and can hold all stakeholders involved in their management accountable. While SOs such as the Namibian Association of CBNRM Support Organisations (NACSO) play an important role in facilitating and advising the program, they lack the formal authority to enforce national priorities and to reconcile divergent interests among SOs. Hence, a steering committee, chaired by MEFT and comprising NGOs, the private sector, and other relevant actors, would provide a coordinated platform to align objectives, streamline support, and mitigate inefficiencies stemming from fragmented, siloed operations across various SOs, which create conflicts and confusion within the program.

Respondents also emphasised the need to reconsider the role of third-party intermediaries within conservancy-based economic activities. These concerns have been raised above by respondent CMC-P2, who explained that third-party intermediaries often capture a disproportionate share of profits, thereby limiting conservancies' ability to benefit from the economic value of their natural resources fully. One participant emphasised the practical implications of these limitations while demonstrating how MB can

be utilised to shape innovative solutions to address the complexity of livelihood generation in the conservancies, substantiated by the respondents' articulations below.

> *"We need to upscale the current arrangement regarding livelihood and joint ventures. Instead of conservancies going into joint ventures, we would rather fund conservancies directly, market their product directly and sell their trophies directly because the current system limits them to intermediaries, which means they are losing huge revenue"* (SO-P3).

> *"We need to develop a strategy at a national and conservancy level for increased economic investment and economic growth in conservancies"* (SO-P2).

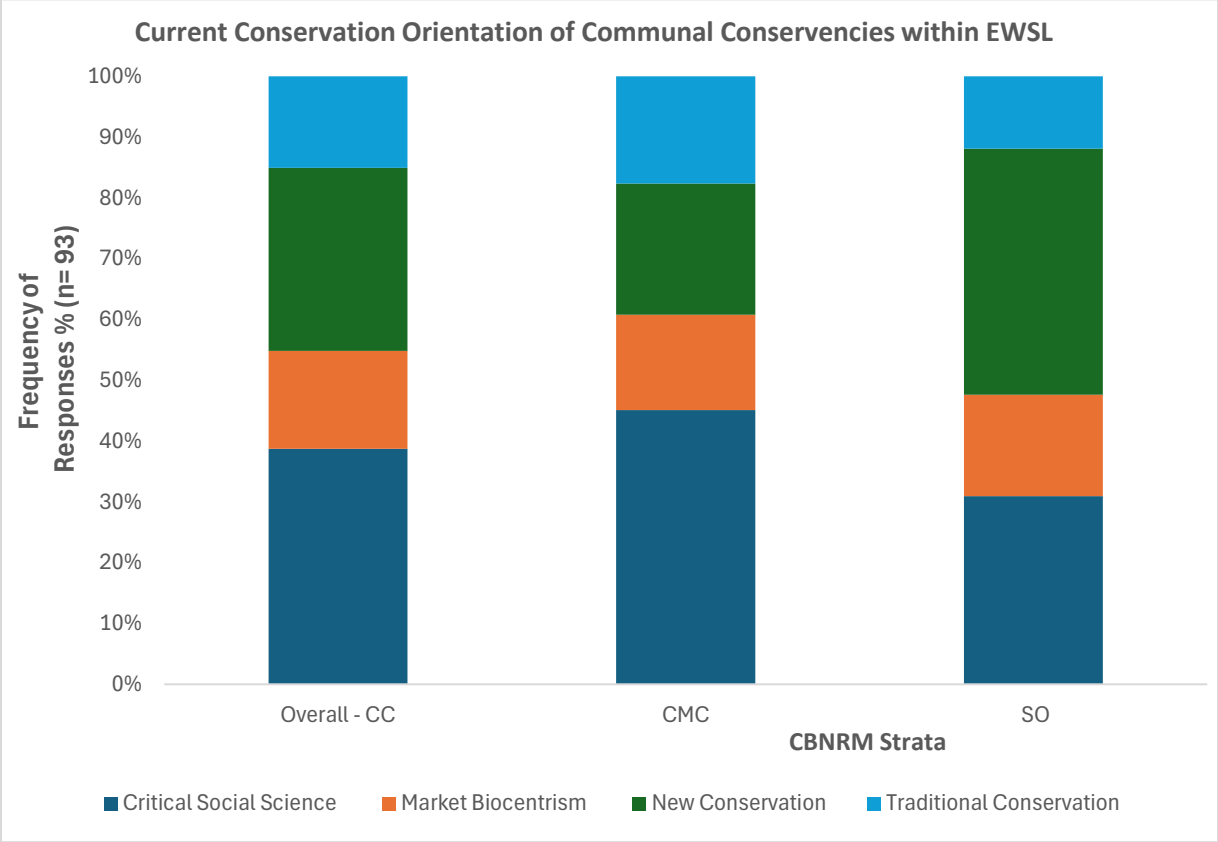


Figure 10: The percentage of responses classified under each conservation orientation type, illustrating the dominant practised orientation in the CBNRM sector, within EWSA, with data presented for the overall land use type and per stratum of land use (CMC and SO).

Given its 29 years of implementation across Namibia, the time is right for a comprehensive program review to reshape its trajectory and enhance its effectiveness. This approach is necessary for systematic reflection, enabling us to draw on historical successes and failures to provide a framework for integrating lessons learned into the program's future strategies. This call reflects an awareness that the current approach of the CBNRM program may no longer adequately align with contemporary socio-economic realities of the people and the complex conservation challenges faced by the local communities. Lessons from business scholars indicate that effective business models are valid for only 2-4 years (Bhardwaj et al., 2013). Regular reviews are necessary to ensure they remain competitive and can respond to shifting market conditions, technological advancements and customer needs (Wirtz, Göttel & Daiser, 2016; Wirtz & Daiser, 2017; Prokhorova, 2020; Freisinger et al., 2021). Similar findings have been reported in empirical reviews of business models, for example, Teece (2010) and Foss and Saebi (2017), where periodic evaluation and adjustment are critical to sustaining performance and innovation of any organisation. The time has come to ground the CBNRM program in robust business theories to help us transition from a reactive approach of "fixing what is broken" to a proactive orientation that reimagines CBOs as global institutions rather than localised institutions catering to geographic communities.

Drawing on extensive practical experience, respondents consistently emphasised the need to diversify livelihoods and strengthen strategic partnerships as central pillars of the programme in future. These findings are consistent with those of Child and Barnes (2010), who argue that the CBNRM program must evolve beyond reliance on wildlife-based revenues by integrating broader economic opportunities. Accordingly, expanding the programme to include a wider suite of natural resources and livelihood options will strengthen collaboration with the private sector, especially the commercial-communal interface present within the landscape, government Offices/Ministries/Agencies (OMAs) and conservation organisations (NGOs), reflecting a shift towards a more holistic and integrated governance model. Such an approach not only facilitates cross-sectoral collaboration but also positions the program within broader economic and institutional networks, thereby enhancing its adaptive capacity, reducing its vulnerability to reliance on a single revenue stream, and promoting more equitable distribution of benefits. These priorities are clearly reflected in respondents' calls for programme review and expanded partnerships, as illustrated below:

"We need to do a stocktaking of the whole program, derive all the good lessons learned and then revitalise the program by making it relevant to today's life and practices" (SO-P9).

"We must expand our partnerships and extend the program to include other natural resources. While the conservancy was initially established to address poverty, many community members remain impoverished. It is essential to recognise that conservation alone cannot resolve poverty, as doing so may lead to the exploitation of natural resources in a specific area. To effectively address conservation challenges and ensure sustainable use, it must be undertaken in collaboration with businesses, relevant government ministries, and other conservation partners. Conservation efforts must move beyond isolated initiatives and be built on strong partnerships to ensure long-term sustainability and equitable resource management" (SO-P9).

Human-Wildlife Conflict

A key challenge for Conservancy residents is human-wildlife conflict (HWC) (Luetkemeier et al., 2023), with respondents (n=15) raising concerns with the different mitigation strategies and the offset amount enshrined within the policy (Figure 10). This is consistent with the reporting in the State of the Community Conservancy in Namibia Annual Report 2023 (MEFT/NACSO, 2024), which detailed a concerning increase in livestock predation, crop damage, infrastructure loss and even human injury or death resulting from wildlife across the country. This trend is further reflected in the government's disbursement of over N$9.21 million in HWC offset payments in 2023, with a significant increase in payouts for human injury (n=22) and human death (n=13) (MEFT/NACSO, 2024). The national report emphasises the persistence and expansion of HWC incidents, which mirrors respondents' realities on the ground. Although respondents were free to express their views, no new ideas were proposed to address HWC, with the expressed ideas aligned with current practices and policies (Government of the Republic of Namibia, 2018). The lack of innovation in addressing HWC exemplifies the complexity of harmonising biodiversity conservation with people's socio-economic realities. However, conventional HWC mitigation practices that impose unnecessarily financial burdens on conservancy budgets should be phased out and replaced with innovative approaches that are both cost-effective and environmentally sustainable. This approach effectively mitigates the problem while accounting for the socio-economic realities of local communities.

Furthermore, respondents emphasised the need to review the HWC policy, highlighting that its current offset mechanisms disproportionately disadvantage economically vulnerable communities, as the amounts provided are insufficient to restore farmers' livelihoods following HWC events. However, while proposals advocating for full compensation or livestock replacement may appear attractive, the government's initial adoption of an offsetting model was likely informed by considerations of fiscal sustainability, the need to avoid dependency on the scheme (Government of the Republic of Namibia, 2018) and the prevention of administrative loopholes such as inflated or fraudulent claims, which require robust monitoring systems (Ravenelle & Nyhus, 2017; Karanth, Gupta & Vanamamala, 2018). This approach may become financially unsustainable in Namibia (Ravenelle & Nyhus, 2017), especially considering that HWC incidents are frequent and geographically widespread across the country (Tavolaro et al., 2022). Additionally, full compensation can undermine the shared responsibility and self-reliance framework that underpins CBNRM practices by reducing local communities' incentives to invest in preventive measures for HWC (Bulte & Rondeau, 2007). Hence, while the government's initial policy design appears justified in terms of fiscal prudence and risk management, periodic review and adjustment to offset values may enhance the fairness demanded by community members (Government of the Republic of Namibia, 2018). Failure to periodically review and adjust offset amounts in line with livelihood realities will contribute to declining tolerance toward wildlife and conservation programmes, ultimately leading to retaliatory killings of problem-causing species, which will undermine conservation efforts (Dickman, 2010). The limitations of the current offsetting approach are further reflected in stakeholder experiences, particularly regarding the adequacy, sustainability, and contextual relevance of compensation measures as presented below:

> *"We often give farmers elephant diesel, which is not sustainable in the long run. To address this, we must equip those waterholes with alternative energy sources such as solar panels to ensure a continuous water supply for elephants"* (CMC-P8).

> *"The first thing that needs to be changed is the policy on HWC, in terms of the offset amount. I will increase the offset, or we need to ensure the replacement of the animal lost…. If a farmer loses a goat, I give him back a goat"* (CMC-P18). *"…It needs to cater for traditional norms"* (CMC-P22).

Lack of Collaboration and Cooperation

Respondents have acknowledged the need to harmonise the activities of all stakeholders operating within the conservancies to promote sustainable coexistence. This is because conservancies operate within highly complex governance environments characterised by the involvement of multiple actors, including local communities, traditional authorities, government institutions, private-sector partners and non-governmental organisations (MEFT/NACSO, 2024). Ensuring that these actors work in a coordinated and complementary manner was therefore identified as a critical requirement for achieving effective natural resource governance. Such an approach reflects the core principles of the NC orientation, which advocates for inclusive and collaborative management systems that integrate conservation objectives with socio-economic development goals (Scherr & McNeely, 2008; Sayer et al., 2013).

However, there is recognition that while conservation remains a central pillar of Namibia's rural development strategy, it cannot serve as a stand-alone mechanism to address the broader socio-economic challenges faced by communities living in conservancy areas. This perspective concurs with those of Roe et al. (2009) and Büscher and Fletcher (2020), who argued that overreliance on nature-based income streams may place excessive pressure on ecological systems while simultaneously limiting opportunities for broader economic diversification. Wildlife-based tourism and trophy hunting have historically been the primary sources of revenue for the CBNRM program (MEFT/NACSO, 2024). While these activities have produced important conservation gains and generated income for communities, they remain vulnerable to external shocks, including fluctuations in international tourism markets, anti-hunting societies, and environmental variables such as drought. Hence, respondents have argued for diversifying livelihoods beyond nature-based enterprises to ensure the program's long-term sustainability. Such diversification requires strengthening partnerships with the private sector and other government ministries responsible for sectors such as agriculture, rural development, fisheries, and enterprise development to broaden the conservancies' economic model (Government of the Republic of Namibia, 2004). However, effective engagement and coordination require establishing structured platforms that enable collaborative decision-making and strategic management. This requirement is emphasised by respondents' articulation, which emphasises the need for expanded partnerships and formalised, multi-stakeholder governance structures to enhance coordination in the conservancies, as illustrated by the below excerpts:

> *"We must expand our partnerships and extend the program to include other natural resources. While the conservancy was initially established to address poverty, many*

community members remain impoverished. It is essential to recognise that conservation alone cannot resolve poverty, as doing so may lead to the exploitation of natural resources in a specific area. To effectively address conservation challenges and ensure sustainable use, it must be undertaken in collaboration with businesses, relevant government ministries, and other conservation partners. Conservation efforts must move beyond isolated initiatives and be built on strong partnerships to ensure long-term sustainability and equitable resource management" (SO-P9).

"We must establish an Advisory Council that comprises representatives from National Parks, conservancies, freehold farms, traditional authorities, local community, regional and town councils, businesses and other key stakeholders nearby, with the mandate of meeting quarterly to collaboratively discuss and address shared challenges and opportunities of mutual interest" (SO-P8).

4.2.2 The Identified Current Conservation Orientation of Etosha National Park

A total of 97 responses were analysed, of which 57.73% (n = 56) were provided by GM, while the remaining 42.27% (n = 41) originated from representatives of the NLMS strata (Appendix 4). Most respondents (59%) leaned towards the TC orientation (Figure 11). This suggests that implemented strategies often prioritise biodiversity preservation through strict protection, minimal human interference, and little monetisation (Berghöfer, 2010; Pullin et al., 2013), significantly influencing the park's operational responses. This approach has led to the upgrade of the elephant-proof fence to keep communities and livestock out of the park, the militarisation of anti-poaching operations to address the poaching of the charismatic rhino species, and the amendment of penalties to ensure stiffer punishment for perpetrators who contravene the law. Scholars have criticised the militarisation of PAs; for example, Duffy (2014), Duffy et al. (2015), and Duffy (2017) have found that it creates barriers to cooperation with community members and erodes community support for conservation. Critical Social Science had the second-highest representation, accounting for 20% (n = 19) of the overall responses, followed by NC at 16% (n = 16), and lastly, MB at 5% (n = 5) (Figure 11). When data were analysed by stratum, a similar trend emerged: both strata were dominated by TC orientation, accounting for 54% (n = 22) and 63% (n = 35) of the NLMS and Park Managers, respectively. The distribution of other orientations within the NLMS stratum was as follows: CSS at 24% (n = 10), NC at 17% (n = 7), and MB at 5% (n = 2). In contrast, the Park Managers were characterised by the following frequencies: CSS at 16% (n = 9), NC at 16% (n = 9), and MB at 6% (n = 3) (Figure 11).

Mitigating Poaching

The dominance of TC orientation in ENP is deeply embedded in its historical foundations, which have long prioritised exclusionary conservation and stringent security measures. Management interventions such as boundary fencing and park militarisation are regarded as central to safeguarding biodiversity. This reliance has been further reinforced by escalating rhino poaching incidents, with Knight, Mosweub and Ferreira (2022) reporting that a total of 471 rhinos were poached in Namibia between 2006 and 2021. The severity of this threat is also reflected in managers' responses, where 44% (n=25) advocated TC-aligned measures (Figure 11), including upgrading boundary fencing and operationalising the Wildlife Protection Services (WPS) subdivision. In this context, the fence not only marks the park's boundary but also helps prevent unauthorised entry, discourages opportunistic poaching, and ensures that rhinos remain within the park rather than dispersing into adjacent areas where protection measures are weaker and the risk of poaching is higher. This aligns with the core principle of the fortress conservation approach, which uses clearly defined, well-secured boundaries to strengthen management and enhance law enforcement (Büscher & Fletcher, 2020). However, despite its potential to improve the park's security, the use of fencing also highlights a broader tension between the need to implement strong protection measures and the objective of maintaining ecologically connected landscapes and socially inclusive conservation systems (Hering et al., 2022; Hauptfleisch et al., 2024b). These concerns are captured in the quotes from the respondents presented below:

> *"We need to secure and upgrade the boundary fence of the park to an elephant-proof fence, as it serves as the first line of defence against poaching and deters opportunistic poachers from accessing the park while ensuring the protection and containment of rhinos within the park boundaries"* (GM-P11).

> *"Well, the priorities are many for Etosha, but we have to take them step by step. The most important one is to secure the future of the park in terms of its physical existence* (NLMS-P1)".

The escalating threat of rhino poaching within ENP has necessitated the involvement of additional security structures, including deploying personnel from the Namibian Police Force (NAMPOL) and the Namibian Defence Force (NDF) to support anti-poaching operations. While these interventions were introduced as emergency measures to strengthen law enforcement capacity and deter organised wildlife crime, respondents raised significant concerns about the institutional compatibility and operational implications

of integrating military and police personnel into the park's management framework. This integration has adversely affected institutional cohesion by generating tensions between conservation personnel and security forces, as park staff perceive the deployment of security forces as encroaching upon their professional autonomy and diminishing their managerial authority over park operations. This finding is consistent with Day et al. (2023), who detailed how the militarisation of conservation areas in Uganda changed ranger roles and institutional structures, leading to unclear responsibilities and tensions between rangers and military personnel, thus reducing ranger autonomy and shifting conservation management toward a more security-focused approach. Within ENP, respondents reported comparable experiences, accounting for 74% (n=14) of the overall responses, recorded under the CSS orientation (Figure 11). Additionally, the militarised response to poaching has undermined collaborative working relationships, especially between park staff and the local community, thereby disrupting the effectiveness of informer networks. This practice is counterproductive to the emergence of NC philosophies, such as the CBNRM approach introduced in 1996 as an alternative to exclusionary TC practices (fortress conservation), which often erode stakeholder trust and cooperation (Duffy, 2017).

Respondents further indicated that the presence of armed security personnel has also had unintended consequences for internal staff morale and workplace dynamics. Several respondents noted that the introduction of security forces has created an atmosphere of mutual suspicion and reduced professional trust, particularly when conservation staff must operate under constant supervision or in the security forces' presence. Moreover, the unintended consequences associated with the actions of the deployed security forces have further strained this relationship, particularly following multiple allegations and arrests in connection with rhino poaching (n = 27), based on unpublished records obtained from the Integrated Database of Wildlife Crime in Namibia (IDWCN), which is not publicly accessible, as well as the reported poor performance of some security force personnel. These tensions are further reflected in respondents' responses, which highlight how issues of mistrust, reduced staff morale, and concerns regarding the effectiveness of deployed security personnel are shaping everyday management experiences, as demonstrated by the following excerpts:

> *"If I want to go and fix a broken waterhole, I need to be accompanied by a police officer because we do not trust one another. As a staff member, you cannot go anywhere without being escorted by the police, which is demoralising us as staff members"* (GM-P8).

"…. looking just at the number of arrests of stakeholders in the park in connection with poaching, NDF came up a few times. Regarding the police, you do not always get the cream of the crop; you get the police officers that are not wanted at their stations, so they get deployed to Etosha as punishment" (NLMS-P2).

Inadequate Park Budget

Respondents raised significant concerns about the financial sustainability of the park's current funding model, which relies heavily on government allocations and external donor support to fund key management activities. This funding approach negatively affects PAs, especially amid fluctuating government priorities or reductions in donor support (Emerton et al., 2006), leaving the park with a limited budget to carry out key management activities. This perspective is further illustrated by a lament response that *"the budget for the park needs to be increased to cater for whatever the park needs to function 100%"* (GM-P3). The severity of an inadequate budget is reflected in the data, which show it accounted for 23% (n=13) of responses under the TC orientation (Figure 11), and it is also discussed as the most feared future scenario by park managers. This challenge is further exacerbated by the escalation of rhino poaching within the park, which necessitates the reallocation of already limited financial resources toward anti-poaching operations, thereby constraining investment in other critical park functions, such as road maintenance, vehicle and heavy equipment upkeep, and tourist infrastructure maintenance. This concern was strongly echoed by a respondent, who emphasised the broader operational implications of insufficient funding, noting that: *"the budget allocation for the Ministry needs to be increased, to cater for the management of the park, maintenance of infrastructure in the park, procurement of vehicles, machinery and firefighting equipment, staff appointment and payment of staff incentives such as overtime and subsistence and travel allowances"* (GM-P12). This follows numerous complaints in local newspapers about the deteriorating state of the park's infrastructure, particularly the gravel roads, which are characterised by extensive potholes and severe corrugations, even at low speeds (Shikongo, 2020; Kandjii, 2022; Smit, 2024). These conditions are primarily caused by inadequate road maintenance, leading to progressive gravel loss and compromised drainage, which ultimately contribute to severe surface corrugation and the formation of potholes.

Respondent acknowledged the current approach of retaining and reinvesting park-generated revenue through conservation fees as a valuable and necessary financing mechanism for PAs. This approach generated N$73 million for PA management, representing a reinvestment of revenues derived from park entry fees (40%), which totalled N$183 million in 2025 (Nandi-Ndaitwah, 2026). However, while the

respondent recognises the contribution of conservation fees, there is broader recognition that this approach remains insufficient to meet the financial requirements of PAs management. In response to this, park entry fees have been raised for both domestic and international visitors, and MEFT's revenue retention has increased from 40% to 50% (Ministry of Environment, Forestry and Tourism, 2026). This reflects a deliberate policy shift toward enhancing internally generated revenue streams; however, on its own, it remains insufficient to meet the escalating financial demands of protected area management fully. This limitation is explicitly captured in the respondent's reflections that *"the conservation fees are great and can be increased, but they probably will not meet the whole management need"* (NLMS-P5). Consequently, this shortfall has prompted consideration of alternative funding models for PAs, with one respondent proposing transitioning PAs from a state-managed system to a semi-autonomous parastatal that can generate and retain revenue to support their long-term financial sustainability. A comparable model exists in South Africa, where 22 national parks are managed by South African National Parks (SANParks), a semi-autonomous conservation authority established under the National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003) (Republic of South Africa, 2003). According to Child (2019), such governance models can significantly improve management efficiency by enabling PA to access diversified funding streams, including private investment, philanthropic contributions and tourism revenues. The financial and operational flexibility offered by this model has enabled SANParks to invest substantially in ranger capacity, surveillance technologies, intelligence-led law enforcement, dehorning, canine units, and aerial support to strengthen anti-poaching operations. These interventions, enabled by the financial flexibility afforded by the semi-autonomous governance model, have contributed to more than 700 poacher arrests, while strategic dehorning has resulted in a significant 75% reduction in rhino poaching from pre-dehorning levels, highlighting the importance of complementing reactive law-enforcement strategies with proactive conservation interventions to enhance rhinoceros protection (Kuiper et al., 2023).

In addition to the proposed privatisation of national parks, one respondent suggested a controversial strategy, emphasising the need for a controlled trade in high-value wildlife products, particularly state-held stockpiles of ivory and rhino horn, to address the persistent funding challenges facing PAs. This approach is perceived as having the potential to generate substantial revenue, sufficient not only to address key conservation challenges (Child, 2012) and reduce dependency on donor funding, but also to provide surplus funds to support broader government priorities. Conversely, this practice was banned in 1977 by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to

curb poaching and the clandestine horn market (CITES, 2022). However, proposals to generate funding through wildlife product trade remain highly contested within the global conservation discourse. While some scientists argue that regulated trade could unlock significant financial resources for conservation initiatives (Child, 2012), critics caution that such policies may inadvertently increase demand for those wildlife products and ultimately incentivise the overexploitation of endangered species (CITES, 2016; Eikelboom et al., 2020). Against this background, respondents highlighted the practical realities of funding constraints and the urgent need for financially self-sustaining conservation models, as substantiated by the responses of respondents below:

> *"The park budget is a big issue that needs to be addressed because we rely on external funding now, and if that ends, the Ministry will not be able to operate and implement some crucial activities. We would not have achieved certain milestones if external funders like INL were not funding us"* (GM-P6).

> *"…investigate the possibility of creating a parastatal for protected areas to ensure the direct use of revenue from these protected areas"* (NLMS-P7). *"The other thing that one cannot leave out, but it is so unlikely to happen, and it is almost not worth talking about, is the ability to trade valuable wildlife products, Namibia sits on billions worth of ivory and rhino. It can pay for all that needs to be done and does not ever have to look at the donor again. If it is just allowed to trade in those stocks"* (NLMS-P5).

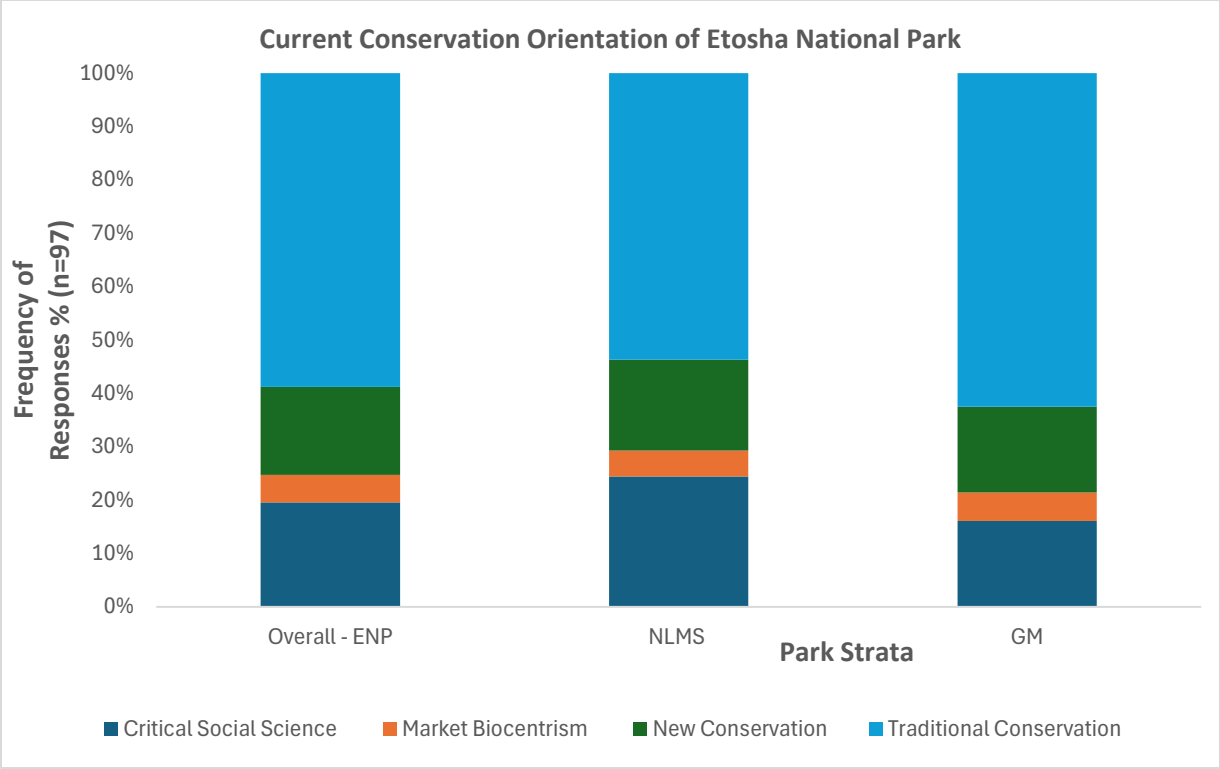


Figure 11: The percentage of responses classified under each conservation orientation type, illustrating the dominant practised orientation within ENP, with data presented for the overall land use type and per stratum of land use (National-level ministerial support and ground managers).

Lack of Cooperation and Collaboration

A recurring theme with park managers (NLMS & GM) was the recognition that cooperation and working relationships with neighbouring stakeholders must be strengthened to ensure the long-term sustainability of conservation efforts in and around the park. Respondents widely acknowledged that the current level of engagement and cooperation between the park authorities and surrounding stakeholders remains inadequate and, in some instances, strained. This perspective aligns closely with the CSS and NC orientations, aiming to improve strained relationships with stakeholders (CSS; 26%, n=5) and to ensure the collective management of natural resources (NC; 69%, n=11) (Figure 11). Central to these proposals was the suggestion to revitalise the existing landscape conservation initiative, which was originally established to facilitate cooperation between the park and surrounding land users. This approach enables stakeholders to coordinate activities, ensuring joint decision-making, aligning their interests to achieve shared conservation objectives, and integrating conservation management beyond the park's formal boundaries. Additionally, it lays the foundation for accelerating the transition from 20th-century, relevant but outdated, fortress conservation practices to a multi-dynamic landscape management approach,

better suited to address current conservation challenges, such as climate change, drought cycles and the enhancement of ecosystem resilience (Mannetti et al., 2017). Protected areas are increasingly recognised as integral components of complex socio-ecological systems (Hoole & Berkes, 2010). They are expected to drive the local economies of surrounding communal areas and commercial farms (Child, Suich & Anna, 2012), underscoring the importance of adopting a landscape-level conservation approach.

In addition to strengthening institutional cooperation, respondents also emphasised the importance of community engagement in anti-poaching initiatives, particularly through the involvement of traditional authorities. Traditional leadership structures were viewed as critical intermediaries that facilitated dialogue between conservation authorities and local communities while reinforcing conservation norms within communal areas. This approach is further supported by the *Traditional Authorities Act, 2000 (Act No. 25 of 2000),* Section 3(2), (a & c), which mandates the leadership to (a) assist the Namibian police and other law enforcement agencies in the prevention and investigation of crime and, subject to the provisions of the Criminal Procedure Act, 1977 (Act No. 51 of 1977), the apprehension of offenders within their jurisdiction and (c) to ensure that the members of his or her traditional community use the natural resources at their disposal on a sustainable basis and in a manner that conserves the environment and maintains the ecosystems for the benefit of all persons in Namibia (Republic of Namibia, 2000). The responses of respondents substantiate the above discussions presented below:

> *"At present, relationships between the Ministry and the stakeholders are strained, hence we need to re-establish consultation and a cooperative platform to improve working relationships with the neighbouring communities, such as commercial farmers, communal conservancies, the Hai//om, NDF and Police, and we should be accessible and visible to them"* (NLMS-P12).

> *"We need to create more awareness regarding rhino poaching within the communities and ….establish the Erongo, Kunene, and Omusati Traditional Authority Initiatives just to reconnect people back to the park through the engagement of traditional authorities"* (NLMS-P7).

In conclusion, the absence of a comprehensive management plan reflects a fundamental weakness in the park's current operations, limiting effective management and leading to poor retention of institutional memory. This concern is clearly reflected in respondents' views, which emphasised the urgency of

addressing this critical gap by articulating *"with Etosha, I see the need to develop a Management Plan as soon as possible for the park"* (NLMS-P6).

4.2.3 The Identified Current Conservation Orientation of Freehold Farms

A total of 37 responses were analysed, with 30% (n=11) originating from MLF and 70% (n=26) from SLF (Appendix 4). When the data were pooled and analysed, farms were predominantly characterised by the MB orientation, accounting for 54% (n=20) of the responses (Figure 12). This finding suggests that farmers within the landscape are utilising market-based solutions to achieve biodiversity conservation goals (Chausson et al., 2023) by harnessing the intrinsic value of natural resources and reinvesting the income generated to ensure adequate protection of biological diversity. This is further substantiated by the prominence of the NC orientation, which accounted for the second-highest prevalence among the responses, evident in 30% (n=11) of the respondents' overall articulations. Both frameworks employ the sustainable use of natural resources to generate economic opportunities for farmers. The remaining two orientation types were tied for the lowest proportion, each accounting for 8% (n=3) of the responses (Figure 13). When data were analysed at the individual stratum level, a similar trend was observed, with the MB emerging as the dominant conservation orientation in both strata, yielding frequencies of 55% (n=6) in the MFL and 54% (n=14) in the SFL. The dominance of this orientation is driven primarily by farmers' creativity and broader policy support that integrates these market-based approaches into broader conservation strategies. The second most prevalent orientation within the mixed-use land use strata was the combination of CSS and TC, with a frequency of 18% (n=2), while NC was the least frequently used orientation, accounting for 9% (n=1). In the single-farming land-use stratum, the NC orientation had the second-highest frequency at 38% (n=10), indicating a notable increase in its prominence compared with its application in the mixed land-use stratum. The CSS and TC orientation remains the least favoured, with a frequency of 4% (n=1). A detailed analysis of farmers' responses is presented below under different headings.

Overregulation of Conservation Legislation

Calls for legislative reform emerged prominently among farmers, reflecting a broader demand to realign Namibia's natural resource legislation with the economic realities of commercial farming, which are currently constrained in terms of profitability, flexibility, and adaptive land-use practices. These sentiments accounted for 52% (n=16) of the responses recorded under the MB and CSS orientations (Figure 12), suggesting a substantial level of concern among freehold farmers. Respondents consistently argued that existing legislative instruments impose excessive administrative and procedural constraints,

undermining entrepreneurial initiative and restricting farmers' capacity to pursue adaptive land-management strategies. In particular, the legislation governing natural resources was perceived as excessively rigid and insufficiently responsive to the realities of farming within a highly variable semi-arid ecosystem. For example, farmers highlighted a perceived over regulatory under Section 47 (1)(a)(i), of the Nature Conservation Ordinance 4 of 1975, which gives right to farmer to sell game meat provided that "the owner or lessee of a farm which is enclosed with a game-proof fence or a piece of land which is at least one thousand hectares in extent and which is enclosed with a game-proof fence, may sell any game or game meat or any such skins originating from that farm or that piece of land" (Republic of Namibia, 1975). However, in practice, the MEFT enforces permit conditions for the sale of game meat, even if farmers have a game-proof fence, thereby introducing an administrative layer that appears to extend beyond and potentially contradict the provisions of the Ordinance. Respondents also referred to the Forest Act, 2001 (Act No. 12 of 2001), under Sections 23(1) (b-c) and 33(2), and the Forest Regulations, 2015, especially regulation 12 (Government of Namibia, 2001). Below is a detailed description of what the different sections entail:

- Section 23, Unless the Director has approved, no person shall –
  (b) Clear the vegetation on more than 15 hectares on any piece of land or several pieces of land situated in the same locality which has predominantly woody vegetation; or
  (c) Cut or remove more than 500 cubic metres of forest produce from any piece of land in a period of one year.
- Section 33 (2), No person shall harvest forest produce from land which is not classified forest, unless the harvesting is done in accordance with a licence issued under subsection (4) or under the circumstances referred to in subsection (1) or section 24(3).
- Regulations 12 (1), A person is not authorised to harvest, transport, sell, market, transit, export or import forest produce without a valid licence for harvesting or permit for transport, marketing, transit, export or import as set out in the form of Forms 12 to 16 as set out in Annexure 1.

Collectively, these sections restrict the harvesting of encroacher species (Shikangalah & Mapani, 2020), a practice of importance in semi-arid landscapes characterised by sporadic rainfall and high land degradation caused by these species (De Klerk, 2004). This approach enables the rehabilitation of encroached rangelands, promoting the growth of grass species and enhancing underground water recharge, which in turn influences the land's carrying capacity (Honsbein & Lindeque, 2017). As one

respondent articulated, *"as soon as you have a market constrained by rules and regulations, you break people's initiative because excessive restrictions stifle innovation and discourage investors"* (MLF-P4). Farmers widely regard the selective removal or harvesting of these encroacher species as both an ecological restoration strategy and an economic necessity. These ecological benefits translate directly into improved livestock production potential, which remains the backbone of many farms across the country. Such articulations reflect a recurring theme in natural resources management of how top-down policy frameworks undermine farmers' adaptive capacity and hinder timely responses to environmental and climatic stochasticity, leaving them in a precarious economic position (Davies et al., 2020).

Within this context, farmers argued that regulatory restrictions on the harvesting of encroaching species inadvertently penalise proactive land stewardship practices needed to improve rangeland conditions. Rather than facilitating land rehabilitation, the permitting requirements and bureaucratic procedures associated with woody biomass harvesting were perceived as creating unnecessary economic barriers that discourage investment in land restoration initiatives. These findings underscore the importance of developing regulatory frameworks that strike a more effective balance between environmental protection and the long-term economic sustainability of farming enterprises within EWSL and across Namibia more broadly. The above discussions are substantiated by the respondents' articulations below:

> *"The overregulation within the environmental sector needs to change. We are penalised for reversing land degradation by harvesting encroaching species. We are losing money and hundreds of people are losing their jobs"* (SLF-P3).

> *"Removing unwanted woody species allows for more grasses to grow, thus enabling me to increase my livestock carrying capacity"* (SLF-P6).

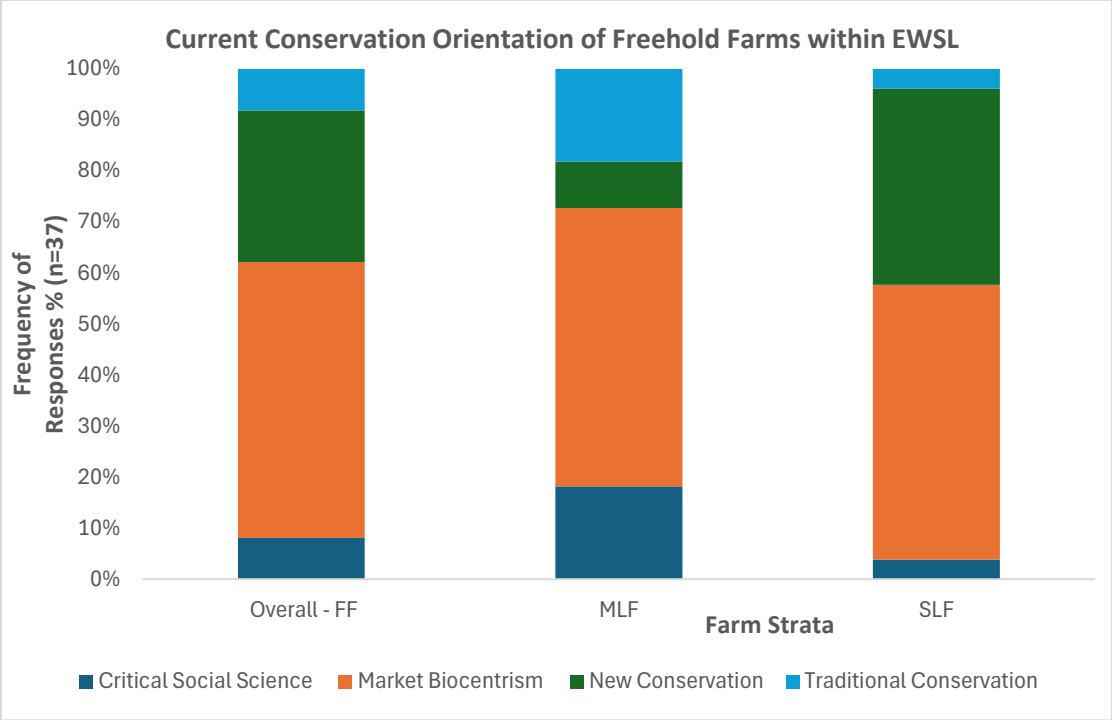


Figure 12: The percentage of responses is classified under each conservation orientation type, illustrating the dominant practised orientation by freehold farmers within EWSL, with data presented for the overall land use type and per stratum of land use (mixed-land use farming and single-land use farming).

Drought Mitigation

A growing awareness emerged among farmers regarding the need to proactively integrate drought-resilience measures into their farming operations, particularly through the adoption of genetic improvement strategies in livestock management. This shift in management thinking is largely driven by the increasing frequency and unpredictability of droughts across Namibia, which have compelled farmers to reconsider traditional herd management approaches. Operating within highly variable semi-arid ecosystems, farmers increasingly recognise that resilience can no longer be achieved solely by maximising herd size, but rather by strategically optimising livestock productivity and adaptability. Consequently, respondents emphasised the importance of leveraging technological advancements and genetic selection practices to develop livestock herds that can withstand prolonged environmental stress. As one respondent explained, "*…we are focusing on genetically improving our animals, which means we are keeping fewer animals to survive the droughts*" (SLF-P3). This strategic shift involves "*…getting rid of animals with less genetic merit and only keeping animals with a strong genetic makeup that we can feed with boskos during drought years….*" (SLF-P3). By maintaining smaller but genetically superior herds, farmers aim to reduce grazing pressure on rangelands during drought periods while simultaneously

improving the overall productivity and survivability of livestock. This strategy aligns with adaptive rangeland management principles, which emphasise balancing stocking rates with fluctuating environmental carrying capacities to maintain ecosystem health and long-term agricultural viability (Government of Namibia, 2012).

However, despite farmers' willingness to adopt these adaptive management strategies, respondents noted that existing policy frameworks inadvertently constrain their implementation. In particular, the taxation structure associated with the rapid reduction of livestock numbers during drought periods was perceived as creating a significant financial disincentive for farmers seeking to adjust herd sizes in response to environmental stress. Farmers argued that when they are forced to sell large numbers of their herds at once during drought, the high tax obligations associated with these sales significantly deplete their financial resources, leaving little capital to reinvest in rebuilding their herds and farming operations once favourable rainfall returns. Hence, farmers have advocated for flexible fiscal measures during drought periods to implement adaptive strategies that incorporate effective rangeland management. This will allow the farmers to significantly reduce their herd numbers and retain profits for reinvestment during favourable rainfall years, thereby mitigating policy-induced vulnerabilities during periods of environmental extremes. This suggestion aligns with broader calls in the literature for adaptive governance mechanisms that support local resilience and reduce policy-induced vulnerabilities during environmental extremes (Kapuka & Hlásny, 2020; Lüder & Kalvelage, 2024; Shaimemanya, 2024). These broader arguments are reflected in the experiences of respondents presented below:

> *"I cannot significantly reduce the number of cattle that I have by half or even 2/3 during a drought event, as adjusting herd numbers rapidly often results in significant financial losses, resulting from heavy taxation, and I will be left with nothing for reinvestment during favourable years"* (SLF-P4).

> *"We need a tax amnesty period during drought years to assist us in weathering the impact of drought" (SLF-P8).*

Lack of Collaboration and Coordination

Addressing unfavourable farming conditions across the landscape will require stronger collaboration and coordination among farmers to facilitate knowledge exchange, share best management practices, and collectively strengthen resilience against both environmental and socio-economic pressures. Such cooperative approaches were strongly emphasised by respondents and accounted for 64% (n=7) of the

responses recorded under the NC orientation (Figure 12). Within this framework, farmers recognised that many of the challenges confronting the agricultural sector, particularly those associated with climate variability, rangeland degradation and regulatory constraints, extend beyond individual farms and therefore require coordinated responses at a landscape level. Collaborative engagement among farmers was thus perceived as a practical mechanism for addressing knowledge and innovation constraints amongst the freehold community, enabling them to adopt management practices that improve rangeland productivity, strengthen drought preparedness, and enhance overall farm profitability.

Beyond peer-to-peer learning among farmers, respondents also emphasised the importance of establishing constructive partnerships with key institutional actors involved in natural resource governance. Farmers acknowledged that sustainable land management cannot be achieved through isolated farm-level interventions alone but requires active engagement with government agencies responsible for regulating and supporting natural resource use. This perspective reflects a broader recognition that farmers and government agencies share a common interest in sustaining the ecological integrity and economic productivity of Namibia's rangelands (Government of Namibia, 2012). The above discussions are substantiated by the respondents' articulations below:

> *"We must ensure that there is a collaboration with neighbouring farmers and the farming community, in general, to ensure that best practices are shared and adopted across the country"* (MLF-P5).
>
> *"…there should be cooperation and collaboration amongst the natural resources management stockholders (NAMPOL, Min of Agriculture and MEFT),…we are their allies and not their enemies"* (SLF- P5).

Poverty Levels of Surrounding Communities

Farmers within the landscape expressed considerable concern about the socio-economic conditions of the surrounding rural community, especially the high levels of poverty that characterise many settlements near freehold farmers. These concerns were strongly reflected in the CSS orientation, accounting for 50% of responses (Figure 12). Respondents, especially those whose farms are located adjacent to rapidly expanding rural settlements and towns, emphasised that the persistence of poverty in surrounding communities creates a range of social and economic pressures that directly affect the security and viability of farming operations. Within this context, farmers frequently linked rural poverty to the proliferation of

criminal activities such as stock theft, poaching and the theft of farm equipment and materials. This finding is consistent with Clack (2024), who drew similar conclusions. Hence, respondents strongly appealed for greater government intervention to address the structural drivers of poverty in rural areas, arguing that improving socio-economic conditions in surrounding communities would significantly create a more secure and conducive environment for farming activities. However, exclusive reliance on state-led poverty alleviation measures is unlikely to adequately address this complex socio-economic challenge (Jones, 2004). This is because poverty in many rural African countries is rarely the result of a single causal factor but instead emerges from the interaction of structural inequalities, limited livelihood opportunities, and weak institutional support systems (Nyamamu et al., 2025).

Empirical evidence indicates that socio-economic constraints, especially poverty, unemployment, and limited livelihood diversification, are strongly associated with increased reliance on natural resource extraction, whether legal or illegal (Hübschle, 2017). Hence, addressing this quandary will require a multi-scalar and multi-actor approach rather than relying solely on government interventions. The early phases of the CBNRM programme in Namibia provide a compelling example of how collaborative approaches can simultaneously address poverty and strengthen conservation outcomes. By granting communities conditional rights over wildlife and tourism revenues, the programme generated tangible economic benefits at the household level while simultaneously fostering stronger incentives for local communities to participate in conservation efforts (Child, 2004). This model demonstrated that when conservation initiatives deliver direct, visible economic benefits to local communities, they can help reduce incentives for illegal resource use while strengthening a shared sense of stewardship for biodiversity and natural resources.

Respondents also highlighted governance challenges, particularly corruption within public institutions, which they perceived as undermining the effectiveness of poverty alleviation efforts. These findings are consistent with those of Asheela-Shikalepo (2021), Zang et al. (2023) and Karita (2024), who argued that corruption within government institutions can perpetuate structural inequalities by diverting public resources away from development programmes intended to benefit marginalised populations (Asheela-Shikalepo, 2021; Zang et al., 2023; Karita, 2024). In such contexts, weak institutional accountability may limit the capacity of state-led interventions to deliver meaningful socio-economic improvements in rural communities, thus perpetuating poverty. The above articulations are substantiated by the respondent responses presented below:

"*We need to do away with government corruption to address poverty in the country. If you address poverty, you address stock theft, poaching and theft of equipment and material, creating favourable farming conditions in the country for farmers"* (MLF-P1).

"*If we do not provide an enabling environment for rural communities, we shoot ourselves in the foot"* (SLF-P9).

4.2.4 Conclusion

The overall aim of this objective was to determine the current conservation orientation of the EWSL area. This was achieved by deductively analysing priority actions proposed for immediate implementation to address current conservation misfortunes. These findings have important implications for enhancing policy coherence and integrating future-oriented conservation strategies. By identifying areas where current policies are misaligned or insufficiently responsive to socio-ecological dynamics, the findings suggest pathways to harmonise those frameworks and management practices to support adaptive governance and long-term sustainability across the landscape. Traditional Conservation orientation predominantly characterised conservation practices within the landscape and was heavily influenced by the ongoing poaching crisis targeting charismatic species such as rhinos. This atrocity necessitated the approach centred around strict protection measures, including anti-poaching, fencing and the exclusion of people from conservation areas to combat poaching effectively. The various subsidiaries within the landscape are characterised by distinct conservation orientations, highlighting the diverse, context-specific approaches necessary for effective conservation across varied land-use types. Etosha National Park is the only land-use type whose conservation orientation aligns with the broader landscape framework. This is because the park is heavily affected by rhino poaching, necessitating strategies aligned with this orientation. The CBNRM sector predominantly aligns with the CSS orientation, highlighting the impact of a lack of tangible benefits and an increase in HWC incidents on community members. Although addressing livelihoods and associated benefits remains the primary concern for the border sector, there were notably limited ideas that align with the MB frameworks. Hence, addressing the community members' outcry will require a comprehensive evaluation of the program, focusing on lessons from past successes, both locally and continentally, to revitalise and shape it for the latter half of the 21st century. Freehold farmers predominantly align with the MB orientation, utilising market-based solutions to leverage the intrinsic value of natural resources and reinvesting the generated income to achieve biodiversity conservation goals. This practice is, however, compromised by misaligned legislation, which

undermines farmers adaptive capacity and impedes their timely response to environmental and climatic stochasticity.

4.3 The Future: Examining Critical Issues Threatening Biodiversity Conservation in Namibia

This section critically examines prospective threats to the landscape by unpacking key issues and highlighting stakeholders' most significant concerns regarding their desired conservation future. This section builds on the preceding discussion of the present, drawing on current knowledge to anticipate future risks in a coupled social-ecological system. The perspectives outlined in this objective pertain to question 1, which inquired about critical issues likely to threaten their desired conservation future. This approach provides a foundation for developing strategies and governance responses to mitigating over-the-horizon threats in the current climate, thus fostering resilience within the landscape in the future. Overall, twenty-nine (29) threats have been inductively identified, referenced 503 times, encompassing both natural phenomena and anthropogenic drivers. Anthropogenic drivers were the most frequently cited, comprising 90.06% (n=453) of the total references, whereas natural phenomena, comprising drought cycles and diseases, accounted for the lowest frequency of 9.94% (n=50) (Figure 13). The predominance of anthropogenic drivers underscores the rapid, escalating impact of human activities on ecosystems, manifesting over a relatively short timescale (Montràs-Janer et al., 2024). These findings suggest that the predominance of anthropogenic drivers is not incidental but rooted in broader systemic factors, such as policy gaps, poverty, population increase and resource extraction associated with Namibia's drive toward industrialisation (Ministry of Environment, Forestry and Tourism, 2013), thus exacerbating human pressures on biodiversity conservation. Specifically, policy gaps and weak regulatory enforcement create institutional spaces in which unsustainable resource extraction can persist with limited deterrence (Warikandwa, 2023), while poverty increases households' dependence on natural resources, thereby increasing vulnerability to poaching and other illegal activities (Duffy et al., 2016). Concurrently, infrastructure expansion associated with population growth and Namibia's industrialisation agenda intensifies land-use transformation, accelerating habitat fragmentation and reducing ecological connectivity, thereby undermining the ecosystem's resilience (Perumal, O'Keeffe & Cumming, 2021).

The primary threat to biodiversity conservation within the EWSL area is the lack of profitability and benefits from conservation, accounting for 14.31% (n=72) of the identified threats (Figure 13). This is followed by security concerns at 12.52% (n=63), with the challenges arising primarily from illegal hunting, stock (livestock) theft, and theft of equipment and materials at cattle posts. Human-wildlife conflict follows at 9.34 % (n=47), then drought cycles at 8.95% (n=45), poor management at 6.56% (n=33), legislative framework at 5.57% (n=28), climate change at 5.37% (n=27), lack of cooperation and

collaboration amongst stakeholders at 4.77% (n=24), incompatible land use at 4.17% (n=21) and lastly insufficient funding for PAs at 3.98% (n=20). These threats collectively comprise the top ten threats, which pose a significant threat to biodiversity conservation within the landscape, accounting for 76.49% (n=384) of the total referenced threats.

Lack of Tangible Benefits from Natural Resources

The theme of profitability and benefits is highly grounded (n=72), yielding the highest interlinkages (n=19), which highlights its pivotal role in shaping the dynamics of biodiversity threats, both as a trigger and an amplifier (Figure 13). Similar patterns have been documented in studies examining community-based natural resource management (CBNRM) systems in southern Africa (Boudreaux & Nelson, 2011; Silva & Mosimane, 2013; Ashley & Barnes, 2020). This study's findings suggest that the perceived lack of tangible benefits from natural resources represents a critical structural weakness within the landscape and the broader conservation diaspora. For conservation to be successful, it rests on the assumption that sufficient economic incentives must be provided to offset the opportunity costs and risks of living alongside wildlife. When benefits fail to materialise at the household level, community support for and participation in conservation initiatives weaken, thereby affecting conservation objectives. This dynamic is reflected in the views expressed by respondents, with one participant noting that *"if community members do not get tangible benefits from conservation, it will affect the future of conservancy"* (CMC-P7). These sentiments illustrate that support for conservation is often conditional on perceived fairness and the distribution of benefits. This aligns with a respondent's assertion that "*conservation starts on a full stomach*" (SO-P4), highlighting the underlying socio-economic realities that shape conservation attitudes, in which immediate livelihood needs frequently take precedence over long-term ecological considerations. This quandary emphasises the crucial role of meeting essential human needs as a foundation for fostering community engagement and ensuring long-term commitment to biodiversity conservation (Chaigneau et al., 2019). Hence, conservation can only be socially sustainable when it meaningfully improves household well-being. This was further supported by a respondent's assertion that "*benefits from wildlife must outweigh the costs of living with the wildlife, if people do not receive tangible benefits from wildlife, then the cost they incur, they are less likely to support conservation initiatives"* (SO-P8). This reflection highlights a fundamental principle underpinning incentive-based conservation models, which emphasises the need for wildlife to generate sufficient economic returns competitive with those of alternative land uses (Lindsey et al., 2013).

In many rural areas, where poverty remains pervasive and livelihood opportunities are limited, communities often evaluate wildlife not solely in ecological terms but also through an economic lens, assessing whether its presence yields net benefits or imposes net costs on local livelihoods (Naidoo et al., 2016). The well-known expression *"If it pays, it stays"* (SLF-P10) supports the argument that wildlife persistence is directly tied to its economic value. These findings reveal a problematic dynamic for conservation, in which wildlife species known to impose substantial costs on communities are perceived as liabilities and may face heightened retaliatory persecution when economic incentives for coexistence are insufficient, irrespective of ecosystem, with large predators like lions particularly vulnerable across the landscape. As one respondent noted, "*farmers will only tolerate wildlife if they can benefit from it and wildlife that is not beneficial, like elephants and lions, we are killing every single day"* (SLF-P8). The implications of these dynamics extend beyond local attitudes toward wildlife and directly influence conservation outcomes. In this context, economic incentives play a vital role in fostering tolerance and stewardship of biological diversity among local communities in Namibia (Kansky, 2022). Consequently, "*if conservation fails to deliver meaningful benefits, communities may lose interest and resort to poaching*" (CMC-P20) or *"people will choose a destructive path, an individual path, or a selfish path and we have seen this destruction in other parts of the world and certain places in Namibia"* (SO-P5) as explained above by SLF-P8. Those statements highlight the feedback loop between the themes of profitability and benefits, and security concerns (poaching), which emerged as the second-most frequently referenced theme (n=65) and the third-highest interlinkage (n=8) (Figure 13).

This finding provides evidence that socio-economic pressures can undermine conservation governance by incentivising unsustainable resource use when institutional arrangements fail to distribute benefits equitably at the household level. However, there is recognition within the landscape that illegal hunting not only threatens wildlife populations but also undermines the economic foundations of their nature-based enterprises (NBEs). This is substantiated by the assertion of a respondent who noted that "*illegal hunting is a concern for the future of conservation, the same animals that are hunted illegally are the same animals that are used to draw in tourists to our lodges and to be trophy hunted"* (CMC-P8). Consequently, this dynamic creates a self-reinforcing cycle in which community members are forced to protect wildlife populations as declining wildlife numbers reduce tourism and hunting revenues, thereby affecting the economic benefits that incentivise them to do so. The relationship between insufficient benefits and increased vulnerability to illegal activities is well documented in the literature (Duffy et al., 2015; Cooney et al., 2017; Duffy et al., 2019) and is further compounded by the poverty levels within the landscape.

Recent national assessments indicate that the regions encompassing the EWSL experience relatively high levels of multidimensional poverty, with incidence rates estimated at 64% in Kunene, 51% in Omusati and 50% in Oshikoto (UNICEF Namibia, 2021), reflecting the socio-economic vulnerability of communities residing within the landscape and reinforcing their dependence on natural resources for livelihood security. Hence, illegal wildlife use has emerged as a coping strategy for households facing economic hardship with no alternative livelihood opportunities within the landscape. As noted by one respondent, *"if community members do not get substantial benefits, poverty will exacerbate in our area and poaching will increase significantly within the conservancy and the park"* (CMC-P22). Thus, a broader conclusion is that conservation initiatives that fail to address underlying socio-economic inequalities risk inadvertently reinforcing the very pressures they seek to mitigate. This statement highlights the feedback loop between the themes of profitability and benefits and poverty, yielding a frequency of 10 and an interlinkage of 6, which subsequently triggered security concerns (poaching) (Figure 13). The great concern regarding poaching across the landscape is, therefore, not merely a perception. However, it reflects broader conservation risks facing Namibia's wildlife populations and the socio-economic dynamics of the people who live alongside them. The increased concerns regarding poaching across the landscape are justified by the fact that *"the illegal killing of wildlife, especially rhinos, threatens to undo the gains that Namibia has achieved since independence with rhino conservation*" (NLMS-P5). Namibia is globally regarded as a conservation role model (Wenborn et al., 2022b), and this esteemed legacy faces significant threats *"if security organs are not able to comprehend the modus operandi of poachers, I fear that rhinos will become extinct"* (NLMS-P10).

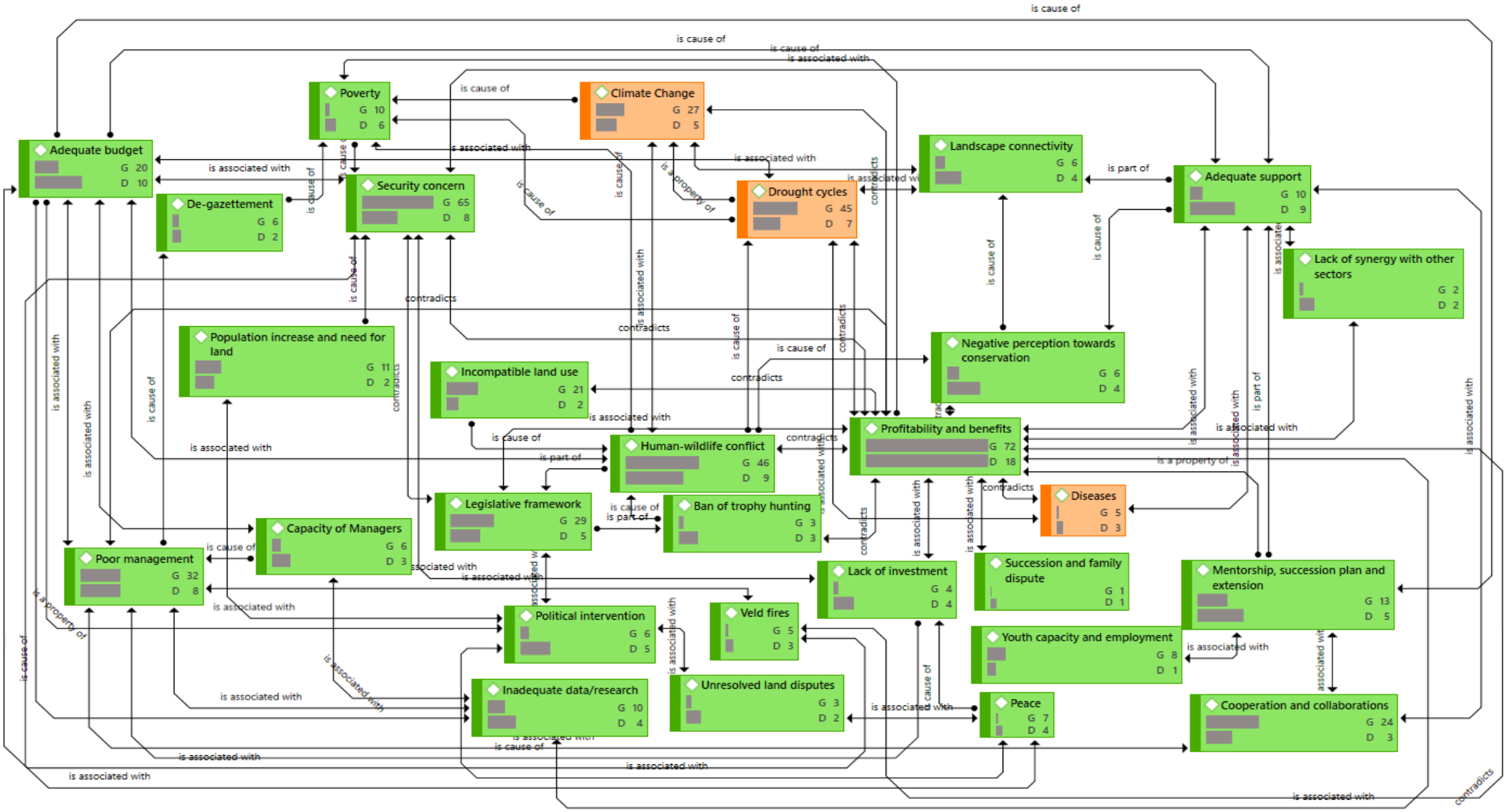


Figure 13: Network diagram illustrating the complex relationships among future threats to biodiversity conservation. Node colours indicate the type of threat: green for anthropogenic drivers and orange for natural phenomena. The "G" value (groundedness) represents the frequency with which a particular threat was mentioned across the dataset. In contrast, the "D" value (density) indicates the number of direct connections a node has to other nodes, reflecting how much it interacts with or influences other threats.

Increased Human-Wildlife Conflict Incidents

Human-wildlife conflict has been identified as the third most significant threat to the future of biodiversity conservation in the country, garnering 46 responses and exhibiting complex interconnections with nine other threats (Figure 13), underscoring its pervasive impact on conservation. The most profound impact of HWC emanates from its ability to synergise with natural (themes) threats (Carpenter, 2022). Respondents consistently identified drought as a key underlying driver of HWC within the landscape. They emphasised that forage scarcity and drought-induced water scarcity altered wildlife movement patterns, bringing wildlife closer to human settlements and increasing conflict with local communities. This was further supported by Mapaure (2022), who found that prolonged drought amplifies ecological stress, resulting in resource scarcity that disrupts wildlife movement and foraging patterns, thus affecting rural livelihoods and increasing the likelihood of HWC. This dynamic was substantiated by respondents who noted that "*the biggest threat towards the conservancy is drought, which has been the worst it has been over the years, causing wildlife to migrate and forcing predators to move close to human settlements and prey on livestock"* (CMC-P1). This observation reflects a broader ecological process where resource scarcity forces wildlife, particularly large carnivores, to expand their home ranges near human settlements in search of food (Dickman, 2010). Hence, within the landscape, drought is a critical driver reshaping spatial interactions between wildlife and rural communities. Similarly, another respondent noted that *"our wildlife numbers have reduced as shown by the game count results, and this reduction is caused by the low rainfall received over the past years and due to this, the predators are forever coming close to the people, leading to an increase in HWC incidents, affecting the livelihood of the farmers*" (CMC-P4).

Respondents expressed fear regarding HWC incidents and raised significant concerns about the current mitigation strategies. One participant emphasised that *"my greatest fear is HWC because the current mitigation measures that are in place are not sufficient in addressing HWC"* (CMC-P5). At the same time, another respondent noted that *"the offset amount is significantly less, which does not allow the farmers to buy back lost livestock* (CMC-P3). Furthermore, *"offset for damages is only considered for depredation and crop fields, but does not include infrastructure damages like fence infrastructure, crop field fences, backyard gardens or waterhole infrastructure (solar panels, pipes)"* (CMC-P10). Participants therefore suggested that "*there is a need to amend the policy to consider livestock that has been killed while grazing or close to the homestead because traditionally we do not herd or kraal our cattle's"* (CMC-P4). These concerns highlight the perceived gaps in the Revised National Human-Wildlife Conflict Management Policy (2018), which respondents believe does not adequately reflect the socio-cultural and livelihood realities

of communities living in wildlife-dominated landscapes. Those oversights failed to recognise the unique socio-cultural realities on the ground and placed an undue burden on the already affected communities, who must now also bear the financial cost of repairing or replacing those infrastructures (Luetkemeier et al., 2023). However, it is important to recognise that the policy's restrictive nature is a deliberate governance measure intended to minimise fraudulent claims and ensure accountability from the community members. Instances have been reported across the country where damage attributed to wildlife later proved to have been caused by livestock or other non-wildlife animals (Verschueren et al., 2020). Such occurrences highlight the challenges the government faces in verifying those claims and ensuring the offset scheme is not abused, to safeguard the limited funds available for the scheme. Nevertheless, while such safeguards are necessary, overly restrictive policies may unintentionally exacerbate community frustrations and weaken support for conservation initiatives if legitimate claims are rejected or compensation remains insufficient to offset actual losses (Dickman, 2010). The affected communities may develop negative perceptions towards wildlife and conservation initiatives, a concern echoed by a respondent who noted that *"I fear that people might change their attitude towards wildlife, becoming intolerant and killing these wild animals uncontrollably to protect their livestock, which can lead to local extinction"* (CMC-P24).

Weak Governance and Institutional Capacity

Poor management poses a serious threat to the future of conservation by undermining the effectiveness of conservation models, as referenced 32 times and linked to 8 other threats (Figure 13). Governance is a critical pillar of conservation success, as it shapes the institutional arrangements through which natural resources are managed, benefits are distributed, and conservation objectives are achieved (Armitage et al., 2020). It plays a fundamental role in ensuring the long-term sustainability of conservation without compromising the core values of sustainable development and biodiversity conservation. Effective governance systems are characterised by transparency, accountability, inclusive decision-making, and clear institutional coordination mechanisms, all of which are necessary for sustaining community-based conservation initiatives (Armitage et al., 2009; Lockwood, 2010). Where these governance attributes are weak, conservation programmes risk becoming vulnerable to elite capture, financial mismanagement, and declining community trust (Gayo, 2025). Respondents expressed concerns that governance structures within some conservancies are not functioning optimally. For example, one respondent noted that, "*the governance in conservancies is not where it should be, and in some cases, it has slipped backwards, resulting in much leakage of funds"* (SO-P2). Similar challenges have been documented in CBNRM

programmes across southern Africa, where limited administrative capacity, weak financial controls, and insufficient monitoring frameworks have at times led to the mismanagement of conservation revenues (Gayo, 2025). The weak governance structure erodes institutional accountability, undermining the equitable distribution of conservation benefits and, in turn, weakening the social legitimacy of the CBNRM program and the landscape-level conservation initiative. These concerns were further reinforced by another respondent who observed that "*if self-enrichment continues in the conservancy coupled with poor leadership, I fear that when we open our eyes, nothing will be left, and communities will have lost interest in the conservancy program"* (CMC-P11). This observation highlights the risks of elite capture, in which decision-making power and financial benefits are concentrated in the hands of a small group of individuals rather than equitably distributed among conservancy members. Studies have shown that when local communities perceive that conservation benefits are being captured by local elites or mismanaged by leadership structures, support for conservation initiatives tends to decline significantly (Gayo, 2025).

In addition to financial governance challenges, respondents also highlighted the lack of cooperation and collaboration among conservation stakeholders (n=24; D3), which often results in fragmented conservation efforts and inefficient resource utilisation (Mannetti et al., 2019). For instance, one respondent noted that *"my biggest concern for the future is a lack of cooperation amongst the different stockholders responsible for managing natural resources"* (SLF-P5), because *"there is no collaborative platform where we can address common problems"* (GM-P8). Fragmentation in cooperation has been identified as a key challenge to the effective implementation of landscape-level conservation initiatives (Mannetti et al., 2019), in which managing biodiversity often requires coordinated action across multiple land-use systems. Without strong collaborative platforms, conservation stakeholders across the landscape may pursue overlapping or conflicting objectives, thereby reducing the overall effectiveness of conservation interventions and potentially increasing the cost of executing common interventions. The importance of cooperation was further emphasised by another respondent who noted that *"the worst scenario for Etosha National Park and conservation would be if we lose the engagement, trust and cooperation of the neighbours"* (GM-P2). Maintaining trust between PAs and neighbouring land users is therefore essential for ensuring long-term conservation success, particularly in landscapes where wildlife populations move across different land-use boundaries (Hering et al., 2022). This is especially important for species such as rhinos, whose dispersal beyond ENP can enhance their security by enabling populations to occupy a broader landscape. Such spatial dispersion reduces the risks associated with concentrated populations in areas of high poaching pressure and makes it more difficult for poachers to locate and

target rhinos across a larger landscape (Knight et al., 2022). In this context, strengthening governance within the landscape becomes essential and requires institutional reforms that enhance transparency and collaborative decision-making. Such reforms should actively empower community members to participate in governance processes, thereby strengthening local ownership of conservation initiatives and improving accountability within conservation institutions in the landscape.

Legislative Constraints

Legislation has been identified as a potential future threat to biodiversity conservation, with 28 references and catalysing 5 additional threats (Figure 13). Respondents highlighted that Namibia's current legal framework for wildlife management is largely based on the *Nature Conservation Ordinance No. 4 of 1975* (1975), which predates Namibia's independence and does not fully reflect contemporary approaches to conservation governance. One respondent noted that "*we have an outdated legal framework in the form of the Nature Conservation Ordinance 4 of 1975*" (NLMS-P6), which does not "*recognise landscapes as a legal entity"* (NLMS-P12). This limitation may constrain the implementation of integrated landscape-level conservation strategies that are increasingly recognised as necessary for managing ecological processes that extend beyond PA's boundaries. The greatest threat posed by the legislation is by far "*the issues of rights and tenures that are not adequately addressed*, *and people are fundamentally unhappy with the status quo*" (SO-P5). Secure land tenure and clearly defined resource rights are widely recognised as essential components of effective natural resource governance, as they provide communities with incentives to invest in sustainable resource management (Adéchian & Baco, 2025). Where tenure arrangements remain unclear or contested, conservation initiatives may struggle to achieve long-term sustainability and may become vulnerable to the "tragedy of the commons," whereby shared resources are overexploited due to the absence of clearly defined rights and responsibilities, a phenomenon observed in several communal areas across the country.

Additionally, "*legislation governing the PAs still denies access, regarding non-consumptive resource utilisation"* (NLMS-P7). These restrictions may limit neighbouring communities' opportunities to derive economic benefits from conservation activities, thereby reducing local incentives to support conservation initiatives. This concern was further emphasised by another respondent who stated that *"If we do not relax the legislation and open tourism concessions towards the north and west of the park, to supplement income-generating opportunities for previously disadvantaged communities, where conservancies have been formed, I am afraid my desired future will not be attained"* (NLMS-P7). Addressing these legislative

constraints will require the enactment of the Protected Areas and Wildlife Management Bill, which seeks to modernise Namibia's conservation legal framework by aligning it with contemporary governance approaches that emphasise inclusive participation, equitable benefit-sharing and integrated landscape-level management. International experience demonstrates that legal frameworks that recognise community rights, support co-management arrangements, and promote equitable benefit-sharing mechanisms can substantially enhance conservation outcomes while simultaneously improving rural livelihoods (Lockwood et al., 2010). Thus, updating Namibia's legislative framework to reflect these principles may strengthen the effectiveness of conservation governance across the broader EWSL area.

4.3.1 The Perceived Future Threats Likely to Threaten Communal Conservancies within EWSL

In total, 23 threats have been identified inductively, perceived as threatening the future of conservancies, based on 212 responses (Table 6).

Lack of Tangible Benefits from Natural Resources

The greatest threat to the sector's future is a lack of tangible benefits towards community members from natural resources, accounting for 24.41% (n=52) of the overall responses (Table 6). The provision of tangible benefits constitutes the backbone of community-based conservation, underpinning the legitimacy, sustainability, and long-term viability of the CBNRM programme. As argued by Mosimane and Silva (2015), benefit distribution is not merely an operational component but a central mechanism that incentivises local communities to participate in and remain committed to biodiversity conservation actively. Empirical evidence from this study reinforces this premise, with respondents consistently emphasising that conservation initiatives that fail to deliver meaningful household-level livelihood improvements are unlikely to be supported. As articulated by one respondent, "*if livelihoods are not addressed adequately, I cannot see the two conservancies going ahead because as much as we talk about conservation, it needs to address people's livelihoods, especially at the household level"* (SO-P9). Hence, "*people expect tangible benefits from the conservancy and if they do not get those benefits, they will lose interest in conservation"* (SO-P8) and "*choose alternative land-uses that are not compatible with biodiversity conservation*" (SO-P6). This finding aligns with multiple conservation literature (e.g., Kegamba et al., 2023; Sinthumule, 2023; Silva & Strong, 2024), which consistently demonstrates that the long-term sustainability of community-based conservation initiatives depends significantly on the program's ability to generate tangible benefits. The results of this study reveal that the lack of benefits is primarily

attributed to the conservancies limited capacity to generate substantial livelihoods, combined with weak governance structures and practices (Naidoo et al., 2011b; Mosimane & Silva, 2015; Nuulimba & Taylor, 2018). Many of these conservancies are located in remote and ecologically marginal areas characterised by low wildlife densities, limited tourism infrastructure and poor market accessibility, which collectively limit their capacity to generate substantial revenue from tourism and other nature-based enterprises. Consequently, even the limited revenue streams from tourism remain susceptible to external pressures, such as prolonged droughts, fluctuating tourism markets and increasing HWC incidents, which further undermine the conservancy's economic performance. Additionally, these vulnerabilities are exacerbated by the high operational costs of conservancy management, such as anti-poaching efforts, HWC mitigation, and administrative expenditures, which often consume a disproportionate share of the income generated, thereby limiting the funds available for redistribution to members. In some instances, these financial pressures are further intensified by governance failures, including the misappropriation of funds by conservancy leadership, which erodes trust, undermines accountability and compromises the perceived legitimacy of the CBNRM model (Mosimane & Silva, 2015; Nuulimba & Taylor, 2018). As one CMC member succinctly reported, *"the critical issue for the conservancy's future is its inability to generate sufficient revenue to ensure benefits for the members"* (CMC-P23).

Importantly, the persistence of these challenges reflects a deeper structural limitation within the CBNRM model: its overreliance on a narrow set of nature-based revenue streams. Despite decades of implementation, the question of how to achieve financial viability and equitable benefit distribution remains unresolved, highlighting the complexity of aligning conservation objectives with rural development initiatives as hypothesised by the SES theory (Ostrom, 2009). This realisation is increasingly being acknowledged by the local communities, who emphasise the urgency of diversifying income streams to ensure the long-term survival of conservancies. As noted by one respondent, *"if we do not diversify the income stream of the conservancy, I believe this conservancy will not exist in the future"* (CMC-P2). However, efforts toward diversification are often constrained by a range of institutional and regulatory barriers. Conservancies typically lack the financial capital and knowledge required to invest in alternative enterprises, while existing regulatory frameworks, particularly those enforced by the MEFT, tend to prioritise wildlife-based land uses, thereby limiting economic diversification. Additionally, conservancies often lack the technical expertise and entrepreneurial capacity required to effectively develop and manage diversified livelihood initiatives, while engagement with public-private partnerships (PPPs) remains limited, particularly in leveraging opportunities arising from the commercial-communal interface

within the landscape. Addressing these systemic constraints will require reform of the current conservancy model, particularly in governance, institutional capacity, and economic strategy. This includes the professionalisation of conservancy management by appointing qualified personnel with expertise in financial management, enterprise development and strategic planning, thereby enhancing operational efficiency and accountability. Equally critical is the need to expand the economic base of conservancies beyond traditional tourism models by exploring alternative revenue streams, including carbon markets and payments for ecosystem services (PES), which recognise and monetise the broader ecological functions provided by conservancy landscapes. As highlighted by a respondent, we need to "*…to start looking beyond the current enterprises, for these conservancies, because tourism alone is not enough, we need to find another product that is more sustainable and compatible with that area, that will help them reach their objectives* (SO-P3). This was supported by another participant who proposed "*…other income possibilities such as carbon credit and payment for ecosystem services because all we are doing with conservancies is creating a healthy planet and securing ecosystems for humanity, which ensures continued provision of ecosystem services even for people that are far away from these areas"* (SO-P1). This finding is consistent with Turpie and Letley's (2021) proposal to diversify into PES, an untapped financial opportunity that can help conservancies diversify income streams in the short term. However, we first need to ensure that we *"explore how to have those benefits reach household levels to have a real impact"* (SO-P7) as failure to do so risks perpetuating the very legitimacy crisis that currently undermines the CBNRM programme. Hence, future reforms must focus not only on increasing revenue but also on improving the transparency and effectiveness of benefit distribution plans. This approach would reposition the program to better align conservation objectives with local socio-economic realities, enhancing its resilience and relevance as we transition into the latter half of the 21st century.

Weak Governance

Achieving the vision of increased benefits necessitates strengthening the governance pillar of the CBNRM program (Table 6), to ensure effective leadership, transparency and high levels of accountability (Fabricius & Collins, 2007). Governance has a profound impact on the management of the conservancy and ensuring the equitable distribution of benefits (Wiersum & Shackleton, 2005; Hebinck, Kiaka, & Lubilo, 2019). However, respondents identified governance as a significant weakness within many conservancies, ranking it as the second most significant threat to the future sustainability of the CBNRM sector, accounting for 13.15% (n=28) of the overall responses. The governance of conservancies is widely perceived as weak due to a combination of institutional and operational shortcomings, often associated

with elite capture of resources, nepotistic recruitment practices and the misappropriation of conservancy finances and resources (Nelson, 2010; Child, 2019). This concern is further illustrated by the lived experiences of the CMCs themselves, who highlight how such governance shortcomings manifest in practice, as reflected in the following statement: …" w*here we employ our family members or friends into the CMC, and this is not always advantageous towards the conservancy in terms of achieving its mandate and complying with the constitution"* (CMC-P17). Such practices often lead to *"…the misappropriation of funds and conservancy resources, which can cause unrest within the community members and at present, the communities are not happy with the misuse of the conservancy resources, especially the vehicles"* (CMC-P12). These findings are consistent with those of Muchapondwa and Stage (2023) and Goergen et al. (2025), who identified weak governance as a critical constraint undermining the effectiveness of community-based conservation initiatives across Africa.

Respondents also identified the current practice of replacing CMC members after every 5 years as a factor undermining governance efficiency within conservancies. While democratic leadership transitions are important for ensuring accountability, frequent turnover in leadership can erode valuable institutional memory, undermine long-term strategic planning for the conservancy and disrupt the implementation of ongoing projects, as newly elected members often introduce new priorities and strategic directions that replace or abandon existing plans (African Conservancies Volume, 2016; Hebinck et al., 2019). Additionally, frequent leadership changes require substantial financial investment to repeatedly train newly elected committee members, diverting scarce conservancy resources from the benefit distribution plan and preventing tangible benefits from being distributed to members. This concern was reflected in the statement: "*I am worried about the change in leadership in the conservancy, the change happens quickly. After every 5 years, elections are held, and new CMC members are elected. Often, these people do not know anything about the conservancy, the goals and how it should be managed, and this phenomenon will present challenges for the future of the conservancy as we are trusting unqualified people to run the operation of our conservancy"* (CMC-P8). Hence, strengthening the governance structure of conservancies will require institutional reforms to the CBNRM programme's governance framework that enhance management capacity while preserving community ownership. This can be achieved through continued investment in targeted capacity-building programmes and, where resources permit, by contracting suitably qualified technical, financial and managerial personnel to support elected CMCs in the daily management of conservancy operations, while allowing the CMCs to retain their governance and decision-making responsibilities. This perspective was also reflected by respondents, one of whom suggested that

"some of these conservancies should be managed as a business, by qualified people and not a committee, which includes managing both the social and economic development side of the conservancy, as well as improving their accountability" (SO-P7). While this recommendation may not be immediately feasible for all conservancies, particularly those with limited financial resources or access to local expertise, it highlights the need for continued investment in leadership development, targeted capacity building and innovative governance arrangements that strengthen institutional performance without compromising the community-based principles upon which Namibia's CBNRM programme is founded. Such reforms could significantly enhance governance effectiveness and improve the long-term sustainability of conservancy operations in the country.

Table 6: Perceived future threats likely to impact the conservancies within EWSL, as identified by respondents.

Future Threats (Communal Conservancy)		
Codes/Themes	**Frequency**	**%**
Lack of benefits	52	**24.41**
Governance	28	**13.15**
Human-wildlife conflict	26	**12.21**
Drought cycles	21	**9.86**
Incompatible land-use	11	**5.16**
Lack of cooperation and collaboration	10	**4.69**
Lack of capacity and employment among youth	8	**3.76**
Poaching	8	**3.76**
Legislative framework	8	**3.76**
Adequate support	6	**2.82**
Climate Change	5	**2.35**
Negative perception towards conservation	5	**2.35**
Lack of capacity among the CMC	4	**1.88**
Lack of investment capital	3	**1.41**
Population increases and the need for land	3	**1.41**
Poverty	3	**1.41**
Ban on trophy hunting	3	**1.41**
Diseases	2	**0.94**
Lack of synergy with other sectors	2	**0.94**
Political stability	2	**0.94**
Lack of mentorship	1	**0.47**
Inadequate data/research	1	**0.47**

Increased Human-Wildlife Conflict Incidents

The future of conservancies is significantly affected by the rising incidence of HWC, which undermines the socio-economic well-being of local communities (Table 6). The losses experienced by local communities

influence respondents' perceptions, which is identified as the third most significant threat, accounting for 12.21% (n = 26) of the overall responses (Table 6). The high conflict rates experienced within those two conservancies stem from them "*…bordering Etosha National Park and commercial farms, with predators always escaping from the park and neighbouring farms into the conservancy, causing significant damage to small-scale farmers"* (CMC-P23). Additionally, *"elephants are damaging homesteads, backyard gardens and waterpoint infrastructures"* (CMC-P23), leaving community members and small-scale farmers disgruntled because *"offset for damages is only considered for depredation and crop fields but does not include infrastructure damages like fences of the crops, backyard gardens or waterhole infrastructure"* (CMC-P10). This articulation is consistent with the Revised National Policy on Human-Wildlife Conflict (Government of the Republic of Namibia, 2018), which recognises that offset mechanisms primarily focus on livestock predation, loss of human life, injuries to humans and crop losses, while damages to infrastructure are often excluded due to the difficulty in quantifying such losses and the absence of clear provisions for offsetting these impacts. Hence, *"the cost of living next to the ENP is higher, compared to what they get out in return from the benefits offered by the conservancy"* (SO-P3). It is imperative to recognise that "*CBNRM is benefit-driven and once we cannot curb HWC, it can negatively affect the conservation of biological diversity or conservancy initiatives we are implementing"* (CMC-P3). Hence, the greatest threat HWC poses lies in its ability to foster negative attitudes towards wildlife, reducing community support and participation in local conservation efforts (Gargallo, 2021; Luetkemeier et al., 2023).

Additionally, the ability of HWC to interlink and be triggered by climatic variables, such as drought cycles, which accounted for 9.86% (n = 21) of the identified threats (Table 6), further intensifies the severity of HWC on the sector's future. This was substantiated and exemplified by statements such as "*…droughts cause an increase in HWC because wildlife migrated out of those areas in search of food, which forces predators to feed on livestock*" (CMC-P6). It is essential to recognise that climatic variables can pose a significant threat to the future of the CBNRM sector, a threat documented extensively by Bollig (2013) and Goudie & Viles (2014) within the landscape. Bollig (2013) demonstrates that recurrent droughts and unpredictable rainfall variability in Kaokoland exacerbate resource scarcity and erode pastoral livelihoods. In contrast, Goudie and Viles (2014) highlighted that the arid landscapes of Namibia are shaped by extreme climatic conditions, including low, highly variable rainfall, recurrent droughts, and high evaporation rates, which collectively drive land degradation and desertification. Those findings reiterated by a participant who recalled that "*because of droughts, the communities in NW region have now, in one*

generation, twice lost everything, in the late 1970s, and early 1980s, there was a complete die-off of all the cattle and now again they have lost their cattle" (NLMS-P5). This assertion demonstrates the impact of climatic variables on the socio-economic aspect of the people within the landscape and "*typical of the North-West regions (NW), by far the biggest threat is climate change, and we are seeing terrible trends of declining rainfall over long periods and very severe droughts"* (NLMS-P5), which triggers HWC incidents within the landscape and may drive land use changes in the conservancy that is incompatible with biodiversity conservation.

4.3.2 The Perceived Future Threats Likely to Threaten Etosha National Park

Increased Poaching

A total of 21 threats have been inductively identified as posing a threat to the future of ENP, based on 166 responses (Table 7). Among these identified threats, poaching emerged as the most prominent concern raised by respondents, accounting for 21.08% (n=35) of all reported threats to the park's future. This finding aligns with the work of Le Roex, Dreyer and Ferreira (2019), who similarly identified poaching as a major threat to the ecological integrity and long-term conservation outcomes of Kruger National Park, demonstrating how illegal hunting can undermine the management and sustainability of large iconic PAs. In ENP, this threat stems from *"the commercial poaching of our rare and endangered rhino species, which started in 2014"* (GM-P11). Namibia has indeed experienced a notable increase in rhino poaching since 2014, particularly within and around ENP, where organised criminal networks have increasingly targeted high-value wildlife species (Knight, Mosweu & Ferreira, 2022). This challenge is further compounded by perceptions among some respondents that certain security personnel deployed to combat rhino poaching may themselves be implicated in illegal wildlife activities. This concern raises serious questions regarding the effectiveness, integrity and accountability of anti-poaching operations within the park. As one respondent suggested, the situation is exacerbated by the "*involvement of security members in poaching activities, deployed to help fight rhino poaching, making it impossible to manage this practice in the park"* (NLMS-P10). While such perceptions reflect growing concerns regarding potential corruption and collusion within anti-poaching operations, publicly available information on confirmed convictions involving security personnel remains limited. However, at least 27 related case dockets (Werda: CR01/06/2021, Oshivelo: CR 09/01/2020, Otjiwarongo: CR 67/04/2017, Werda: CR 01/11/2019) involving members of the security forces previously deployed in the park are currently before the courts. These ongoing cases suggest that allegations of involvement by individuals within enforcement structures cannot be entirely dismissed. The continued adjudication of these cases is further supported by the recent

establishment of Namibia's specialised Environmental Crimes Court (ECC) in Otjiwarongo, which was created to expedite the hearing of wildlife crime cases, reduce court backlogs, and strengthen the country's response to environmental and wildlife-related offences (Government of the Republic of Namibia (GRN), 2025c).

Poaching has far-reaching implications for both the ecological integrity and economic sustainability of PAs. At the national level, wildlife crime has been shown to undermine tourism revenues and affect the broader economic benefits derived from PAs (Challender & MacMillan, 2014). In the context of ENP, respondents emphasised that escalating poaching pressures pose a direct threat towards the park's reputation as Namibia's flagship park and premier tourism destination. This quandary could reduce tourist arrivals and affect the economic benefits the park generates. As one respondent noted, poaching is *"…threatening the status of Etosha National Park as the country's flagship park, thus negatively affecting the tourist numbers that visit Namibia"* (GM-P9). Beyond its economic implications, the intensification of anti-poaching operations within the park has significantly reshaped its management priorities. Respondents indicated that substantial financial and logistical resources have been redirected toward combating rhino poaching, often at the expense of other essential park management functions. For instance, it was noted that *"as the entire budget for the Ministry is diverted to rhino poaching efforts, leaving other key management activities in despair"* (GM-P1). This has resulted in significant gaps in other critical management functions, jeopardising the park's operational stability and contributing to the park's current state of dilapidation. Similar patterns have been observed in other PAs where heightened anti-poaching efforts have redirected institutional resources away from broader conservation management priorities (Coad et al., 2015). A similar trend was reported within the study area, where respondents reported that the current management approach has become heavily securitised, with most operational decisions centred on rhino protection. This was reflected in the assertion that *"all decision made within the park is currently centred around rhino security, neglecting essential management operations by diverting all vehicles and budgetary resources toward security measures"* (NLMS-P11). Consequently, "*critical tasks such as routine park management, fence maintenance, water infrastructure upkeep and road maintenance have been overlooked, contributing to the park's current degraded state" (*NLMS-P7), necessitating an urgent re-evaluation of priorities to restore effective park management and return the park to being a tourist hotspot again. Such a re-evaluation should be led by MEFT, in collaboration with all stakeholders (conservation practitioners, scientists, neighbouring farmers, tourist operators, and conservancies), to ensure that anti-poaching operations are balanced with other essential park

management functions. However, implementing such reforms is constrained by the ongoing intensification of rhino poaching, which requires a robust security response to curb the threat. In addition to the operational challenges, poaching has also significantly affected the park's research and monitoring functions. Respondents indicated that stricter security protocols and restricted movement within the park have limited researchers' and park personnel's ability to conduct fieldwork effectively. As one respondent explained, "*it is difficult for researchers and park personnel to conduct research and move around the park as freely as they have done in the past"* (GM-P6), as movement within the park now requires adherence to strict security procedures (escort).

Climate Change

Climate change is widely recognised as one of the most significant global drivers of biodiversity loss, with growing evidence demonstrating its profound influence on ecosystem functioning, species distribution and ecological resilience (Hooper et al., 2012; Wudu et al., 2023). Namibia, characterised by its predominantly arid and semi-arid climate, is particularly vulnerable to climatic variability and increasing environmental uncertainty. In this study, climate change emerged as a notable concern shaping respondents' perceptions of future threats to ENP, accounting for 7.23% (n=12) of responses and ranking third among the most prominent threats to the park's future sustainability (Table 7). Although respondents did not always explicitly frame climate change within scientific terminology, their observations reflect a growing awareness of the environmental transformations currently affecting the park's ecological systems. One of the most frequently cited impacts of climate change is its effect on water availability, particularly groundwater resources, which play a critical role in sustaining wildlife populations within ENP. Groundwater is a vital resource that supports both natural waterholes and artificially drilled boreholes, providing water for wildlife during dry periods. Studies indicate that climate change-induced variations in precipitation patterns can significantly affect groundwater recharge rates, thereby compromising the reliability of these water sources (Kundzewicz & Doell, 2009). Respondents in this study similarly expressed concern regarding declining groundwater availability, noting that "*we are already experiencing the impact of climate change on the provision of water in the park, with several boreholes running dry"* (GM-P9). This is attributed to *"changing rainfall patterns affecting the recharge rate of the underground aquifer, which we are significantly dependent on to supply water to wildlife within the park"* (GM-P11). Additionally, *"over the years, climate change has caused rainfall to be more sporadic, causing drought within the park and Namibia"* (GM-P12), *"… thus altering the vegetation structure of the park and affecting food availability for animals"* (GM-P11). Interestingly, while respondents frequently discussed

drought conditions, drought itself was relatively infrequent as a distinct category within the survey results, accounting for only 1.81% (n=3) of the identified threats (Table 7). This discrepancy suggests that respondents may conceptualise drought not as an independent environmental phenomenon but rather as a manifestation or consequence of broader climate change processes.

Respondents further highlighted how current management practices aimed at addressing wildlife crime may inadvertently exacerbate climate-related challenges. In particular, the ongoing construction and upgrading of ENP's boundary fence, which some participants perceived as reinforcing ecological isolation by restricting wildlife movement across the broader landscape. One respondent argued that such infrastructure *"prevents landscape connectivity, an approach which is better suited for wildlife management in a semi-arid country like Namibia" (NLMS-P12).* This observation underscores a broader tension within conservation management, where security-oriented interventions designed to address immediate threats such as poaching may inadvertently undermine longer-term ecological adaptation strategies, particularly those related to climate resilience. Additionally, participants expressed concern about the limited scientific research available on the specific impacts of climate change on PAs in Namibia. As one respondent noted, "*very little research has been done regarding the impact of climate change on PAs in Namibia, hence we need to rely on other approaches like the landscape approach, but I doubt there will be political support for it"* (NLMS-P5).

Increased Human-Wildlife Conflict Incidents

Human-wildlife conflict (HWC) emerged as a significant and increasingly complex threat to the future sustainability of ENP and the surrounding socio-ecological landscape. Respondents consistently emphasised that interactions between wildlife and neighbouring communities are becoming more frequent and increasingly difficult to manage, particularly as demographic pressures intensify across the region. This concern is particularly relevant within the broader context of Namibia's expanding human population (Loeb et al., 2024), which is driving increased demand for land and natural resources. As human settlements expand toward PAs and wildlife habitats, the likelihood of direct encounters between people, livestock, and wildlife increases, often resulting in heightened conflict (Mekonen, 2020). In this study, HWC was identified as the third most significant future threat to ENP, jointly ranked with climate change, with a reported frequency of 7.23% (n=12) (Table 7). Respondents also highlighted that this issue is closely linked to broader demographic dynamics, particularly population growth and increasing demand for land, which were identified as the ninth most prominent threat to ENP, accounting for 4.82% (n=8) of the overall

responses (Table 7). Together, these findings suggest that HWC cannot be understood solely as an ecological problem but rather as a multidimensional socio-ecological challenge shaped by interactions between human population dynamics, land-use change and wildlife movement patterns.

One of the primary concerns raised by park managers is the rapid growth of human settlements along the northern boundary of ENP, where population expansion is perceived to be exerting increasing pressure on park boundaries and land-use policies. As one respondent explained, *"…the increase in human population, especially on the park's northern periphery, might pressure politicians to reduce the park size and allocate land to the people"* (GM-P9). Such concerns reflect broader anxieties among conservation practitioners regarding the long-term political and social pressures that PAs may face in regions experiencing rapid population growth and rising land scarcity. These pressures are further reinforced by perceptions within neighbouring communities that the park occupies a disproportionately large area relative to land available for local livelihoods. As noted by one respondent, there are increasing *"rumblings circulating amongst community members that ENP is excessively large…, prompting community members to question whether a portion of the park's land could be allocated to them"* (GM-P4). This is consistent with current developments along the park's northern border, where human settlements are increasingly expanding toward the boundary. This growing proximity has created greater opportunities for illegal activities and unregulated livestock grazing within the park, as reported by a respondent who articulated that *"…homesteads next to the boundary fence of the park increase the vandalism of the boundary fence to move livestock into the park for grazing, leading to HWC"* (GM-P7). This complex's dynamics create conditions in which livestock and wildlife interact more frequently, increasing the likelihood of predation and retaliatory killings (HWC). This phenomenon may explain managers' mindset of protecting the park as an island, characterised by the constant upgrading of the boundary fence, despite scientific evidence highlighting the ecological importance of connectivity with surrounding landscapes and socio-ecological systems.

Historically, settlement expansion near the park was regulated through spatial planning mechanisms established during both the colonial period and the early years following independence (Ministry of Environment and Tourism, 2010). A designated cutline was established parallel to the park's northern boundary, located approximately 15-30 km from the park fence, beyond which settlement and livestock grazing were strictly prohibited. As one respondent explained, *"the designated cutline was established parallel to the northern boundary fence… and settlement below this cutline was strictly prohibited"* (NLMS-P7). However, respondents indicated that effective enforcement of this spatial buffer has diminished over

time, leading to increasing encroachment of settlements toward the park boundary. With the non-existent cutline, *"the encroachment of people closer to the park" (GM-P10)* is prominent, with *"livestock grazing into or near the park and being exposed to wild animals, subsequently aggravating human-wildlife conflict"* (NLMS-P10). Prominent cases of conflict reported in this area illustrate the increasing interactions between wildlife and neighbouring communities, including *"incidents of lions and hyenas escaping the park to kill livestock outside and elephants raiding mahangu crop fields within the community"* (GM-P11). These escalating incidents of conflict have contributed to increasingly negative perceptions of wildlife among neighbouring communities, particularly toward species perceived to cause substantial economic losses. As reported by Luetkemeier et al. (2023), persistent HWC can erode community support for conservation initiatives, particularly where affected households derive limited or no direct benefits from the park. These sentiments were further echoed by a participant who articulated the perceptions of community members based on years of engaging with them closely, stating that they *"…perceive the park as an island that does not generate benefits for them but rather exacerbates poverty as a result of HWC"* (GM-P3).

Importantly, respondents emphasised that HWC is not confined solely to interactions between wildlife and neighbouring communities but also occurs within the park itself, particularly in terms of vegetation impacts associated with increasing elephant populations. Similar dynamics have been documented in the Kruger National Park (KNP), where high elephant densities have been shown to alter vegetation structure and ecosystem functioning significantly (Abraham et al., 2021). One respondent noted that elephants have caused substantial ecological changes by *"…significantly changing the vegetation structure within the park"* (GM-P11). The growth of elephant populations has been attributed to several factors, including improved wildlife protection measures, reduced lion pride sizes and improved boundary fencing (Huang et al., 2024). Respondents also linked these ecological changes to the discontinuation of historical population management practices, particularly elephant culling. As one participant explained, *"culling of elephants is no longer practised because of the sensitivity of hunting and the different treaties the country is signatory to. During those years, elephants were culled at Olifantsrus, ensuring they remained within their carrying capacity and thus reducing HWC"* (GM-P11). The cessation of these controversial population control measures reflects broader shifts in international conservation norms but may also contribute to increasing ecological pressures within enclosed PAs. Across southern Africa, elephant management approaches are broadly aligned with non-lethal population control, largely influenced by international regulatory frameworks such as CITES, which emphasise coexistence and community-based resource

management rather than direct population control (CITES, 2019). In contrast, Botswana represents a notable exception in the region, having pursued a protection-oriented conservation approach through the implementation of a national hunting moratorium from 2014 (Mbaiwa, 2018) until it was repealed in 2019 (Mokobela, Kerley & Wasserman, 2019). This follows nationwide stakeholder consultations, with the Government citing increasing human-elephant conflict, rising elephant populations and growing socio-economic pressures on rural communities as key reasons for reinstating controlled hunting (Mbaiwa, 2018). In response, Botswana has increasingly relied on transboundary landscape-level strategies, such as the Kavango-Zambezi Transfrontier Conservation Area (KAZA-TFC), which facilitates the movement of elephants across a broader regional network to reduce localised ecological impacts, thereby reinforcing the importance of landscape-level conservation approaches in the latter half of the 21st century (Hering et al., 2022; Chan et al., 2024). However, the lack of stakeholder cooperation and collaboration erodes the landscape connectivity principle (n = 6; 3.61%) (Table 7), which establishes functional corridors and ensures species movement beyond the barriers of existing physical infrastructure.

Lack of Cooperation and Collaboration among Stakeholders

A lack of cooperation and collaboration among stakeholders was identified as the fifth most significant threat towards the future of ENP, accounting for 6.63% (n=26) of the total responses (Table 7). This finding underscores park managers' recognition that the park's long-term sustainability cannot be achieved in isolation but depends on constructive relationships with neighbouring communities and land users across the broader landscape. In this regard, respondents emphasised the importance of strengthening collaborative engagement, noting that *"…we must foster far more practical working relations with our neighbours so that we can secure the park's future together"* (NLMS-P1). This perspective reflects a broader understanding that local communities and adjacent land users play a critical role in supporting conservation outcomes and safeguarding biodiversity beyond PA's boundaries. Consequently, the erosion of trust and cooperation between park authorities and neighbouring stakeholders was perceived as a particularly serious threat. As one respondent cautioned, "*the worst future scenario for ENP and conservation would be if we lose the engagement, trust and cooperation of the neighbours, because they form an integral part of conservation and the safety of wild fauna and flora"* (GM-P2). However, several structural barriers continue to undermine effective collaboration, with the most notable being the declining trust between park managers and neighbouring commercial farmers. This erosion of trust is partly attributed to land-use practices by some farmers that park managers perceive as incompatible with the conservation objectives of the park, as illustrated by one respondent who noted that *"there are*

commercial farmers that we know who are purposefully putting up water points closer to the periphery of the park to lure game onto their properties. Although they have the same compatible land use, they have put up business activities that are not compatible with the park, such as butcheries on their properties, and their involvement in the hunting of some species" (NLMS-P1).

The increasing reliance on militarised conservation measures has further compounded this problem. In response to rising poaching numbers, significant investments have been made to strengthen the park's boundary fencing. While these measures may provide short-term protection against wildlife crime, respondents indicated that they may also reinforce the perception of the park as an increasingly isolated conservation entity rather than an integrated landscape system that depends on cooperation with neighbouring stakeholders. As one respondent observed, *"we are seeing a trend of increased isolation of ENP, with major investments going into fencing, which presents a huge future threat; it might provide some short-term security, but honestly, fences do not keep people out, fences barely keep in animals, and fences are only as good as long as they are maintained"* (NLMS-P5). This growing emphasis on physical barriers and other security measures (the deployment of security personnel) may unintentionally weaken opportunities for collaborative approaches, as it shifts management attention toward protectionist strategies rather than fostering partnerships with surrounding land users, who are essential for maintaining ecological connectivity and the long-term success of conservation in the EWSL area. Overcoming this quandary will require creating, formalising and strengthening collaborative platforms that facilitate sustained stakeholder engagement between park management, communal conservancies, and neighbouring freehold farmers (Andrade & Rhodes, 2012). Such a platform should support the development of joint management initiatives that align conservation objectives with local livelihood priorities, while also enabling stakeholders to coordinate actions and pool resources to address shared challenges affecting the broader landscape.

Table 7: Perceived future threats likely to threaten Etosha National Park, as identified by respondents.

Future Threats (Protected Area)		
Codes/Themes	**Frequency**	**%**
Poaching	35	**21.08**
Adequate budget	20	**12.05**
Climate change	12	**7.23**
Human-wildlife conflict	12	**7.23**
Lack of cooperation and collaboration	11	**6.63**
Lack of mentorship and a succession plan	11	**6.63**
Poor management	10	**6.02**
Inadequate research	8	**4.82**
Population increase and the need for land	8	**4.82**
Incompatible land-use	7	**4.22**
Loss of landscape connectivity	6	**3.61**
Benefits	5	**3.01**
Political interference	5	**3.01**
Drought cycles	3	**1.81**
Legislative framework	3	**1.81**
Unresolved land disputes	3	**1.81**
Capacity of managers	2	**1.20**
Veld fires	2	**1.20**
Diseases	1	**0.60**
Negative perception towards conservation	1	**0.60**
Poverty	1	**0.60**

Governance and Institutional Capacity Limitations

The lack of a mentorship and succession plan constitutes a significant conservation catastrophe for the future of ENP, accounting for 6.63% (n = 11) of the overall responses (Table 7). Respondents indicated that the park has experienced a steady exodus of experienced personnel, resulting in many vacancies and increasing pressure on the remaining staff. This is largely attributed to staff members leaving the Ministry for better employment opportunities and to the retirement of long-serving employees who have reached the statutory retirement age of 60. The exodus of staff from the park is significant, often resulting in "*the park being understaffed, with most positions not filled*" (GM-P10), which places additional pressure on the remaining personnel and undermines the park's capacity to implement routine management, conservation and monitoring activities effectively. Additionally, the departure of experienced personnel has eroded valuable institutional knowledge that has historically guided park operations. Respondents emphasised that this loss has made it increasingly difficult for newer staff members to understand established management procedures and operational practices, as reflected in the observation that *"there*

is a loss of institutional memories of how certain activities are executed" (GM-P3). This quandary primarily affects early-career managers, who are often required to assume key responsibilities without adequate mentorship or guidance due to the retirement of experienced personnel, creating a critical gap in leadership support and institutional knowledge transfer. As a result, respondents expressed concern that critical institutional knowledge is not being adequately transferred between generations of staff, noting that *"there is a lack of knowledge and skills transfer from the older experienced staff members leaving their positions due to retirement to the young inexperienced staff members coming to occupy the vacated positions"* (GM-P7), leaving a substantial gap within the management of the park.

In response to these challenges, several respondents emphasised the need to systematically document institutional knowledge to ensure continuity in park operations and safeguard critical management practices essential to the park's effective administration. This view was echoed by one respondent, who articulated that *"there is a need to document in detail what has been done and how it has been done, to guide the new employee, rather than just having a job description"* (GM-P3), particularly given "*the fact that the park does not have a succession plan*" (GM-P11). Valuable lessons can be drawn from successful succession planning models implemented elsewhere on the continent. For example, the Kenya Wildlife Service has implemented a ranger-to-manager training approach to ensure leadership continuity (Akashinga, 2022), while South African National Parks (SANParks) systematically pair senior park managers with early-career conservators to facilitate mentorship and strengthen succession planning (South African National Parks, 2025). While these examples demonstrate the importance of structured mentorship and succession frameworks in strengthening institutional capacity in PA management, respondents indicated that similar mechanisms are largely absent from ENP's management structure. Worsening this challenge is respondents' concern about the absence of a clear, up-to-date management plan for ENP to guide the park's operations. One respondent highlighted the "*lack of a management plan to give guidance on the management of ENP"* (GM-P4)*,* an issue also associated with the perceived decline in park management (poor management), yielding a frequency of 6.02% (n=10) (Table 7). The combination of a lack of succession and a lack of a management plan creates a reinforcing cycle that threatens to compromise the long-term sustainability of ENP and its biodiversity management objectives.

4.3.3 The Perceived Future Threats Likely to Threaten the Operations of Freehold Farms within EWSL

A total of 18 threats have been identified as potentially threatening the future of freehold farming, based on 124 responses (Table 8), highlighting the complexity of pressures shaping the long-term sustainability of commercial farming systems within the landscape. These threats are discussed in detail in the subsections below, where each is examined to illustrate its influence on the long-term viability and sustainability of freehold farming systems within the landscape.

Intensified Drought Cycles

Among these threats, the increasing frequency and severity of drought cycles emerged as the most dominant concern, accounting for 16.94% (n=21) of all responses (Table 8). Participants consistently described drought not as an episodic climatic phenomenon but as an intensifying and persistent structural challenge that threatens the ecological and economic viability of farming systems beyond the landscape. One participant remarked, "*This is by far the longest drought we have experienced in Namibia"* (SLF-P8). At the same time, another observed that *"the severity of drought has progressively worsened over the past 15 to 20 years, with observable intensification each consecutive year"* (SLF-P2). This perception reflects a growing fear among farmers that climatic conditions are becoming increasingly unpredictable and severe, undermining their capacity to plan and manage agricultural production effectively. These locally articulated experiences align with broader climatological research indicating that Namibia has experienced some of the most severe drought events in its recent history, largely driven by global climate change dynamics (Shikangalah, 2020; Liu & Zhou, 2021; Menestrey Schwieger, 2022). These studies demonstrate that prolonged, highly variable rainfall across the country has resulted in substantial socio-economic and ecological consequences, affecting rangeland quality and increasing the vulnerability of rural livelihoods.

In the present study, climate change was also identified independently as a significant future threat, accounting for 8.06% (n=10) of responses (Table 8), suggesting that respondents increasingly interpret drought not only as part of Namibia's historical climatic variability but also as a manifestation of broader climate change processes. Scientific projections reinforce these concerns, indicating that climate change is likely to intensify extreme weather events nationwide, resulting in more frequent and prolonged droughts that will increase vulnerability in the agricultural sector (Clarke et al., 2022; Valavanidis, 2022). Respondents have attributed the current state of rangelands to prolonged droughts, which have altered

vegetation structure on their properties, subsequently affecting their productivity. One respondent noted that the drought cycle *"has affected the state of the rangeland, causing an increase in bushes and a decrease in grasses"* (SLF-P2). This articulation reflects a broader ecological phenomenon widely documented across many rangelands in the country, where overgrazing, the exclusion of fire and declining rainfall accelerate bush growth (bush encroachment), leading to reduced grass biomass and diminished carrying capacity (De Klerk, 2004). As rangeland conditions decline, farmers are increasingly compelled to adopt costly coping strategies to sustain their farming operations. For example, one participant explained that *"we are busy feeding wildlife on the farm due to a lack of grass growth this year, caused by the low rainfall, but you can only feed them to the extent your pockets allow you"* (SLF-P8). This demonstrates how drought conditions impose significant financial burdens on farmers, particularly those engaged in wildlife-based land use, where supplemental feeding becomes necessary to prevent large-scale wildlife mortality. This illustrates the interdependence among climatic variability, ecological resilience, and land-use sustainability, particularly in mixed farming systems where wildlife conservation and agricultural production coexist.

The impact of drought varies depending on the type of farming practised (wildlife and livestock). Farmers engaged in livestock farming are better suited to mitigate drought impacts through strategic destocking, as livestock can be sold or slaughtered to reduce grazing pressure during periods of resource scarcity. They can also be supplemented with alternative feed sources, an option that is limited in wildlife-based farming systems. In contrast, farmers operating wildlife-based enterprises identified unique management challenges associated with drought. As one respondent explained, *"cattle or sheep, which can be sent to abattoirs as a mechanism to de-stock, wildlife presents a unique challenge because they cannot be caught easily, especially when it is a drought year, without mass mortalities"* (SLF-P9). This distinction reflects fundamental differences between livestock and wildlife production systems, in which wildlife mobility, difficulty of capture, and ethical considerations limit farmers' ability to adjust stocking densities in response to environmental stress rapidly. Despite these concerns, not all respondents perceived drought as a catastrophic event. Some farmers expressed a degree of long-term optimism rooted in Namibia's historical climatic cycles, suggesting that drought may represent a temporary phase within broader rainfall fluctuations rather than a permanent structural shift. One respondent articulated this perspective by stating that "*the drought has an impact, but I am quite sure it is not a long-term thing because Namibia has drought cycles, and we have had a good rainy cycle from 2000 to 2012, but now we are experiencing a dry cycle, but I am sure it will end because Namibia always has those cycles"* (MLF-P5). This viewpoint

highlights the diverse perceptions on climate risk within the landscape, with some interpreting current conditions in the context of historical climatic variability rather than attributing them primarily to climate change.

Security Vulnerabilities

Farmers within the landscape identified security-related challenges, particularly theft and illegal incursions, as the second most significant threat to their future, accounting for 16.94% (n=21) of the total responses (Table 8). Participants described security concerns as an escalating problem that directly undermines the operational stability and long-term viability of commercial farming enterprises. These threats extend beyond stock theft to include the systematic theft of farming infrastructure and equipment, which farmers depend on to sustain agricultural production in a semi-arid environment. One respondent noted that *"people are entering your property illegally to poach and steal equipment (solar panels, pumps, floating valves and fences), increasing my expenses by having to employ anti-poaching teams and replace the stolen infrastructure"* (SLF-P11). Such incidents not only result in immediate financial losses but also disrupt farm operations, particularly when critical infrastructure, such as water pumps and fencing, is damaged or removed, thus affecting livestock and wildlife management. Respondents have associated the prevalence of these illegal activities with broader socio-economic conditions, particularly poverty and food insecurity in surrounding communities. One participant suggested that *"if you are hungry and you live in poverty, there will be an increase in social evils such as stock theft, poaching and theft of equipment and materials"* (MLF-P1). This perspective is also reflected in how such offences are frequently interpreted in judicial proceedings, where poverty and hunger are often presented as mitigating circumstances, leading to lenient penalties for the culprits. As one farmer explained, "*cases get reported and often in court, it is justified by hunger or poverty, and they get a fine of N$100. This I can live with; what I cannot live with is people stealing my cattle and equipment"* (SLF-P9). These statements reveal a strong perception among respondents that judicial responses to security concerns in the landscape are insufficient, reinforcing farmers' view that security issues are among the most prominent threats to the future sustainability of farming in the country.

The greatest threat posed by security concerns to the future of freehold farmers lies in their ability to divert farmers' time, financial resources, and managerial attention away from core farming activities toward crime prevention and surveillance. This diversion of resources poses a significant challenge to agricultural activity, as farmers are increasingly compelled to invest in security infrastructure and

monitoring technologies rather than in production-related improvements (Bunei, 2016). This dynamic was clearly illustrated by one respondent who explained that *"the increased crime rate over the years, both stock theft and poaching of wild animals, has driven me to procure a drone for N$300,000.00. Since then, I have not farmed, I am only preoccupied with trying to stop crime"* (SLF-P1). Such accounts illustrate how security challenges can fundamentally reshape farmers' priorities and operational focus, diverting their time, financial resources, and managerial attention away from core agricultural activities that constitute their primary source of livelihood.

Security concerns have greatly influenced farming profitability, which emerged as another prominent concern among respondents, accounting for 11.29% (n=14) of responses (Table 8). This is because farmers are experiencing increased operational expenditure due to higher security costs, replacement costs for stolen infrastructure, and drought-related pressures. One respondent captured this anxiety by stating that "*my greatest fear is not being able to make a profit from farming and not being able to pass on the farm to my children for them to be able to farm and make a decent living from it*" (SLF-P1). This articulation clarifies the importance of farm profitability as a cornerstone for generational continuity and the long-term viability of farming in the country. Consequently, declining farm profitability has already contributed to structural changes in the commercial farming landscape, with many farmers reportedly selling their properties under mounting financial pressure. As one participant explained, "*most farmers are selling their farms and you are left with fewer commercial farmers and more resettlement farms, which cannot contribute to the country's development"* (MLF-P4). This perceived shift in land ownership patterns raises broader concerns among respondents regarding the future contribution of commercial agriculture to Namibia's national economy. Commercial farmers have historically played an important role in food production, export earnings and rural employment, and respondents expressed concern that a reduction in the number of commercially viable farms may undermine these contributions (Lendelvo, Shapi, and Mapaure, 2020). Consequently, respondents perceive the combined pressures of security concerns, declining profitability and structural shifts in land ownership as interconnected factors that may fundamentally reshape the future trajectory of Namibia's commercial farming sector.

Table 8: Perceived future threats likely to impact freehold farmers in Namibia, as identified by farmers within the EWSL.

Future Threats (Freehold Farms)		
Codes/Themes	**Frequency**	**%**
Drought cycles	21	**16.94**
Theft (Stock and equipment theft & poaching)	21	**16.94**
Farming profitability	14	**11.29**
Legislative framework	14	**11.29**
Climate Change	10	**8.06**
Human-wildlife conflict	9	**7.26**
Poverty	6	**4.84**
Political stability	6	**4.84**
Ineffective service delivery	5	**4.03**
Cooperation and collaborations	3	**2.42**
Incompatible land-use	3	**2.42**
Land expropriation without compensation	3	**2.42**
Veld fires	3	**2.42**
Diseases	2	**1.61**
Inadequate data/research	1	**0.81**
Lack of investment capital	1	**0.81**
Lack of mentorship and extension	1	**0.81**
Succession and family dispute	1	**0.81**

Legislative Constrains

Farmers within the landscape also identified the legislative and policy framework governing land and natural resource management as a significant threat to the future sustainability of their operations. This theme accounted for 11.29% (n=14) of the responses recorded during the interviews (Table 8), indicating that regulatory and policy uncertainty constitutes a notable concern among freehold farmers. Respondents expressed concern not only regarding existing legislative constraints but also regarding potential policy shifts that could fundamentally alter land ownership patterns in the country. The most prominent concern articulated by respondents is the possibility of land expropriation without compensation, often framed by the precedent set in other southern African countries. One respondent expressed this fear by stating, *"the expropriation of land without compensation, like what happened in Zimbabwe"* (MLF-P3). Concerns regarding land tenure security were frequently linked to Namibia's broader political landscape, particularly during election cycles when land reform debates tend to intensify. As one respondent noted, *"with every upcoming election, there is a growing fear that the government may seize land as a political trick to garner votes"* (SLF-P8). These assertions highlight the perception among some farmers that land policy may be influenced by politics, potentially with adverse implications

for their farming operations and long-term security. These perceptions are partly reflected in broader national attitudes toward land reform. For example, the Afrobarometer survey (2019) found that 37% of respondents perceived Namibia's land policy as ineffective, while 41% supported expropriation of land without compensation, reflecting both public dissatisfaction with current policy measures and significant backing for more radical land reform initiatives. Much of the public dissatisfaction stems from the slow pace of land redistribution under the "willing seller-willing buyer" approach, which relies on market-based transactions between private landowners and the state. Although this model was initially designed to facilitate orderly land reform while maintaining investor confidence and agricultural productivity, critics argue that it has yielded limited progress toward equitable land redistribution due to high land prices, limited government purchasing capacity, and the voluntary nature of land sales (Afrobarometer survey, 2019). As a result, the pace of reform has remained relatively slow, contributing to public frustration and growing political pressure to accelerate redistribution. Within this context, farmers interpret these public sentiments as an indicator that the policy environment surrounding land ownership may become increasingly contested in the future.

Beyond land tenure concerns, respondents also criticised what they perceive as the overly restrictive and bureaucratic nature of legislation governing natural resource use in the country. Farmers argued that current regulatory frameworks limit their ability to adapt to changing ecological conditions, particularly in the semi-arid landscape. They emphasise that legislation restrictions hinder their ability "…*to be proactive with the management of wildlife*" (SLF-P9), especially when it comes to adjusting wildlife populations to *"…respond in time to changing environmental conditions such as drought…"* (SLF-P9). Farmers also expressed frustration regarding regulatory constraints affecting agricultural markets and meat exports, which they perceive as limiting the economic opportunities available to commercial farming enterprises. One respondent highlighted the structural barriers associated with abattoir grading and international export regulations, stating that, *B & C-graded abattoirs cannot sell our meat overseas because our facility is not built and equipped for that purpose. We are restricted from selling our meat in Angola, the Congo, or any other area in Africa accessible by truck, as the EU agreements also cover these areas. The export system is monitored by the EU system"* (MLF-P4). This statement shows how international trade regulations and export standards, particularly those related to European Union (EU) market access, can indirectly shape the operational realities of farmers in Namibia's agricultural sector. While these regulatory frameworks are designed to maintain food safety and quality standards, respondents perceive

them as creating structural barriers that restrict market access and reduce the competitiveness of smaller or regionally oriented meat producers.

Increased Human-Wildlife Conflict Incident

Human-wildlife conflict is another threat that negatively affects all land-use systems across the landscape, ultimately impacting their future. This issue was identified as the sixth most prominent threat to the future of freehold farms, accounting for 7.26% (n=9) of the responses recorded during the interviews (Table 8). Although HWC is widely recognised as a persistent challenge across Namibia's wildlife-rich landscapes, respondents emphasised that the nature and dynamics of these conflicts are evolving due to changing land-ownership patterns and shifting land-use priorities within the region. In particular, farmers expressed concern about the increasing acquisition of large tracts of land by philanthropists, which is often converted into wildlife conservation areas. While these initiatives are frequently motivated by biodiversity conservation objectives, respondents suggested that they may unintentionally intensify conflict with neighbouring agricultural land users. These conservation-focused land management practices can alter wildlife population dynamics, especially that of carnivores within the broader landscape. One respondent articulated this concern by stating that, "*the dynamics of human-wildlife conflict will shift towards human-human conflict, arising from differing approaches to managing human-wildlife interactions. This is particularly evident when philanthropists purchase large tracts of land, allowing predators and other problematic animals to proliferate on these properties and creating an imbalance within them. When these properties reach their carrying capacity, animals will disperse onto neighbouring properties, leading to an increase in human-wildlife conflict on those adjacent properties"* (SLF-P9). This statement highlights how differences in management objectives between conservation-focused landowners and neighbouring livestock producers may create spillover effects, leading to increases in wildlife populations within those conservation areas and, subsequently, their dispersal into adjacent farming properties. From the perspective of livestock farmers, the movement of predators from conservation areas where their numbers are allowed to grow represents a direct threat to their livelihoods, particularly where livestock depredation becomes more frequent.

Similar concerns were expressed by farmers along the ENP boundary, where wildlife moving across park boundaries has historically contributed to conflicts with agricultural land uses. One respondent noted that, "*predators that get dispossessed of their territories move onto farmlands, and we, the farmers, must kill them because we have livestock that we have to protect. I have been farming in this area for 42 years, and during that time, I have lost more than 2,000 cows to predators that escaped from the park. So, I*

think this problem will escalate in the future" (SLF-P2). This articulation provides evidence of the complexity of harmonising land-use practices among stakeholders with differing land-use types. While conservation-focused properties may prioritise protecting and expanding wildlife populations, neighbouring livestock farmers will prioritise livestock production, creating social tensions between land users. Respondents, however, believe that HWC is gradually evolving into a broader human-human conflict over land-use strategies and wildlife management approaches, reflecting the complex social-ecological interactions that characterise the EWSL area.

4.3.4 Conclusion

This objective (three) analysed perceived future threats to biodiversity conservation in Namibia, using the perceptions of managers, owners, and committee members managing different land-use types within the EWSL. This study has identified human-induced factors as the leading threat to the future of conservation, accounting for 27 threats, compared to 2 attributed to naturally occurring factors. The extent to which these threats interconnect determines their severity. This study found that the absence of tangible benefits from conservation initiatives emerges as the principal driver threatening the long-term viability of conservation in Namibia. This phenomenon was found to be both a direct threat and a reinforcing factor that reduces community participation in conservation efforts, driving local communities towards alternative land-use practices that conflict with conservation objectives and leading community members to poach, as detailed in respondents' accounts. These findings align with the SES theory, which has established that economic incentives play a crucial role in fostering sustainable biodiversity management and constitute the backbone of the CBNRM program and freehold farms. The perceptions from the leaders of ENP suggest that the ongoing poaching crisis of the charismatic rhino species is the greatest threat towards the future of PAs in Namibia. This constitutes a prominent conservation catastrophe threatening Namibia's remarkable progress towards biodiversity conservation since gaining independence. Poaching has severely disrupted park management by diverting budgetary provisions toward rhino security, thus neglecting other essential routine park functions. The park's effective management is further hampered by the absence of a management plan to guide managers and consolidate institutional memories. Moving on to freehold farms, the increasing frequency and severity of drought events, exacerbated by climate change, constitute the greatest threat towards the future of commercial farming. Although less frequently cited than anthropogenic factors, climate change and drought cycles were recognised as significant amplifiers of conservation challenges. The prolonged droughts have intensified financial pressures on farmers, compelling many to sell their land. However, once redistributed through the resettlement

program, much of this land becomes unproductive, undermining agricultural output and broader national economic contributions. Additionally, security concerns will undermine the viability of freehold farming in the country by increasing security costs and necessitating infrastructure replacement. As a result, farmers are increasingly diverting resources to crime prevention at the expense of farming activities, which benefits the country's economy. This phenomenon threatens the long-term viability of commercial farming; therefore, it is necessary to mitigate distractions that divert farmers from their core farming activities to ensure a desired future.

4.4 The Perceived, Most Likely and Ideal Future of Different Actors in the EWSL

The results were analysed within the context of three potential future scenarios: the most probable future, the feared future and the idealised future, building on current conservation orientation (Objective 2) and potential future threats (Objective 3), to serve as the baseline from which respondents could project their desired conservation futures. The most probable future scenario is based on responses to interview question 2, which addresses optimistic yet realistic expectations for the future, reflecting a perspective that leverages favourable outcomes to shape likely outcomes. The most feared future emerged from responses to question 3, in which respondents expressed their greatest fears about achieving their desired conservation future. Question 7 was used to determine respondents' idealised future, which was contrasted with scenarios characterised by absolute authority and abundant resources. Collectively, these scenarios provide a structured framework for understanding how current conservation practices and emerging threats may be addressed under different conditions, enabling the conservation community to develop strategies that enhance resilience under uncertainty.

4.4.1 Most Probable Conservation Future of Different Actors in the EWSL

In total, 258 responses were analysed deductively to determine the most probable future of the EWSL area (Appendix 5). The most desired conservation future was identified as the NC orientation, observed in 45% (n=116) of overall responses (Figure 14). This indicates a crossover towards effectively integrating conservation efforts with sustainable development goals, emphasising the need to balance biodiversity conservation and human well-being by ensuring socio-economic growth to guarantee people's support for conservation. While this dominance is evident from the respondents' perceptions, its realisation may depend on the capacity of different land-users, in terms of finances, human resources, technical expertise, and policy support, which collectively influence the implementability of the NC orientation in the future. The CSS orientation is the second most prominent, evident among 21% (n=53) of respondents, who acknowledge the importance of addressing social justice in achieving the desired conservation future. This was closely followed by the MB orientation, observed in 19% (n=48) of the responses, while the TC orientation ranked last, with a frequency of 18% (n=41) (Figure 14). These results suggest that exclusionary conservation approaches are unlikely to be viable in the most probable future scenario, as the conservation community increasingly seeks to transition toward integrated approaches that balance ecological, social and economic dimensions. This is consistent with the recommendations and conclusions

of Adams and Hutton (2007), Miller, Minteer, and Malan (2011), Kareiva and Marvier (2012), and Büscher and Dressler (2012).

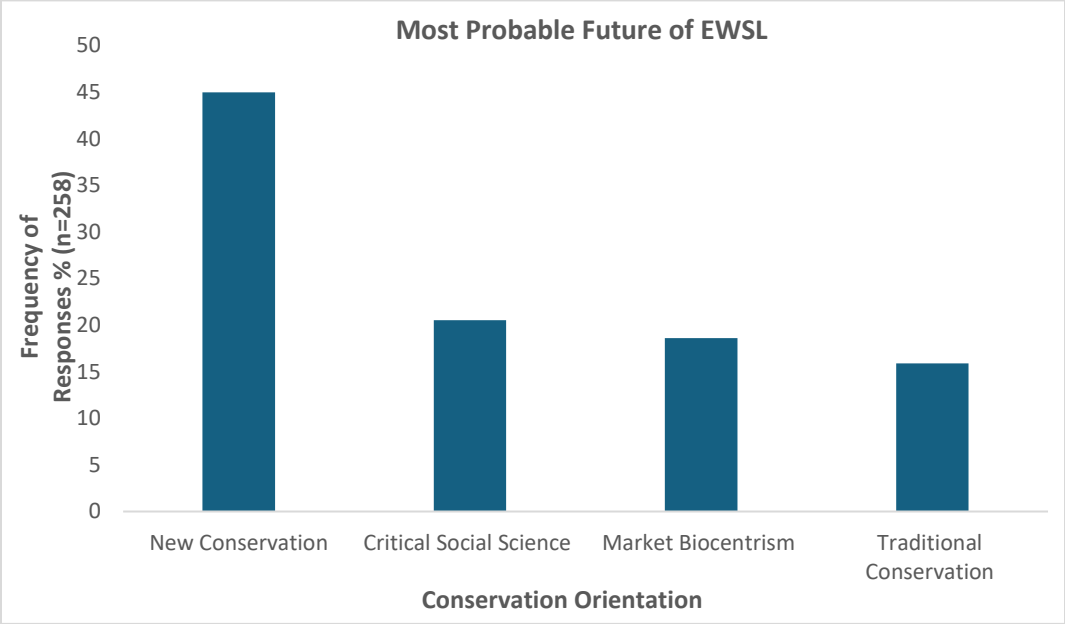


Figure 14: Most probable future conservation orientation for the Etosha West and South Landscape area as extracted from the responses of participants.

4.4.1.1 Most Probable Conservation Future of the conservancies within EWSL

In total, 108 responses were analysed, with 56.48% (n=61) from CMC and 43.52% (n=47) from SO (Appendix 5). The NC framework emerged as the dominant conservation orientation, shaping the most probable future orientation of the CBNRM sector, as observed in 55% (n = 59) of the total responses. This was followed by the MB orientation, evident in 22% (n = 24) of the responses, and, in close second, by the CSS orientation, which accounted for 21% (n = 23) of the responses (Figure 15). In contrast, TC was the least favoured orientation, making up only 2% (n=2) of the overall responses. A similar pattern emerged when the data were analysed from a stratum perspective, with the only notable difference being the complete absence of the TC orientation amongst the SO. Below is a detailed description of the most probable future envisioned by respondents representing the communal conservancies within the EWSL, categorised in thematic areas that capture the dominant narratives.

Enhanced Governance

The NBEs within communal conservancies have long underperformed compared to their counterparts operating on freehold farms. This disparity highlights structural weaknesses in the governance,

management capacity and business orientation of many conservancy-based enterprises. While freehold farmers often operate under market-driven incentives with clear managerial authority and accountability structures, conservancies frequently face institutional constraints that limit their competitiveness and financial sustainability. This performance gap highlights the need for targeted interventions to transform NBEs, ensuring they remain economically viable and continue to achieve important conservation objectives. Achieving this milestone will require reforming our governance system to enhance conservancies' self-reliance by reducing their dependence on external support structures (Government of the Republic of Namibia, 2004). Respondents acknowledged that the relationship between conservancies and SOs has evolved into a form of co-dependency, where NGOs continue to perform functions that could increasingly be managed internally by conservancies. This shift must also be reflected in SO's approaches to prevent the cultivation of dependency when engaging with conservancies. Hence, we must redefine the role of SO, shifting from direct operational involvement toward more specialised technical support functions. Such a transition would encourage conservancies to develop their own professional capacity without relying on external support structures.

Respondents emphasised that mismanagement and misappropriation of conservancy resources by some members of the CMC undermine the programme's credibility and effectiveness. As highlighted by Kansky (2022), governance weaknesses within conservancies can erode community trust and reduce the economic benefits derived from natural resource management. To address this challenge, participants suggested expanding oversight mechanisms to include additional government institutions responsible for financial governance. One respondent proposed that this could be achieved by "*expanding the scope of support to include other institutes, such as the Ministry of Finance, just to oversee how these communities manage their financial resources*" (SO-P12). Such measures could strengthen financial accountability within conservancies while ensuring that revenues generated from wildlife and tourism activities are managed transparently and equitably. The articulation of responses below substantiates the above discussion points:

> *"We have built a co-dependent relationship that, when it comes to community conservation, is perhaps tilted too much in favour of NGOs. As NGOs, we must look in the mirror closely and recognise that our role and support must evolve. In any developed country with strong, well-organised CBOs, NGOs still exist, but they primarily fill technical roles. Many activities we are currently handling, such as game counts and basic monitoring, should be managed by the communities themselves. They should*

invest in professional staff to carry out these tasks, and we need to be bold in taking this journey" (SO-P5).

"They also need to become more independent of the support structures and take responsibility and accountability. And I think to some extent, the structures and the support provided through the NACSO structures and other support organisations have created a dependency rather than an empowerment. I think there needs to be a change, not only within the conservancy but also in how the support organisations are working with the conservancies" (SO-P7).

The feasible future of the CBNRM sector lies in aligning with a more inclusive and integrative development model, in which biodiversity conservation is pursued alongside tangible socio-economic benefits for rural communities. This vision resonates with the principles of Sustainable Development, which provide a global development agenda, and the Nature Conservation Amendment Act of 1996 (Government of the Republic of Namibia (GRN), 1996), which provides the legal basis for communal conservancies. Respondents specifically emphasised the contribution of community conservation to SDG 1 (No Poverty) and SDG 2 (Zero Hunger), highlighting the potential of the CBNRM programme to function not only as an environmental conservation mechanism but also as a strategic rural development instrument. To achieve this pivotal milestone, a substantial shift in the current modus operandi is deemed necessary, with 22% of respondents advocating strategies grounded in the MB orientation to generate substantial revenue and achieve greater benefits (Figure 16). This can be achieved through "… *diversifying our income stream by getting involved in other business ventures, such as investments where we can partner up in the fisheries sector, accommodation and office facilities in big towns like Swakopmund and Windhoek, so that we do not entirely depend upon wildlife only"* (CMC-P9). This perspective reflects a growing recognition that economic diversification is essential to strengthening conservancies' financial resilience, particularly amid fluctuating tourism markets and environmental variability. Snyman (2014) similarly emphasises that the long-term success of community-based conservation initiatives depends on developing diversified livelihood strategies that extend beyond direct wildlife utilisation.

In the meantime, respondents emphasised the need to transform and enhance the tourism products offered within conservancies. Improving tourism infrastructure, visitor experiences, and service quality could significantly increase the competitiveness of conservancy-based tourism relative to leading destinations across southern Africa. Such improvements are critical for attracting higher-value tourists

and increasing revenue within communal conservancies (Goergen et al., 2024). Additionally, respondents are strategically exploring innovative funding mechanisms, such as carbon credits and payments for ecosystem services, to provide alternative livelihood opportunities and strengthen the sector's economic sustainability. These mechanisms recognise the global ecological value of ecosystems conserved within communal areas and create opportunities for communities to receive financial compensation for maintaining ecosystem services such as carbon sequestration and biodiversity conservation (Turpie & Letley, 2021). This broader ecological contribution of conservancies was also emphasised by respondents, who highlighted the global significance of the ecosystem services generated through community-led conservation initiatives by saying "…*conservancies are creating a healthy planet and securing ecosystems for humanity, which ensures continued provision of ecosystem services even for people far away from these areas" (SO-P1).* Only through the implementation of these strategies can we get "*… conservancies going from N$5 or N$6 a hectare up to at least N$50 a hectare"* (SO-P2). Collectively, these findings highlight the need for a multifaceted governance and economic transformation within the CBNRM sector, combining stronger institutional governance with innovative market-based strategies. Respondents consistently emphasised this envisioned transformation to ensure that the sector achieves long-term ecological and socio-economic resilience. The articulations of some respondents further supported this, as presented below:

> *"…Conservancies should aim to contribute to achieving several Sustainable Development Goals (SDGs), such as zero hunger and no poverty. These goals should be realised through rural communities' sustainable management of natural resources, ensuring benefits for both present and future generations"* (SO-P12). *"We need to diversify our income stream and expand on our activities undertaken at the lodges to generate more money"* (CMC-P24).

> *"I would like to see these entities managed properly as a business with a business approach, working on good management principles and excellent accountability. For this, you need to have the right qualified people in place"* (SO-P8).

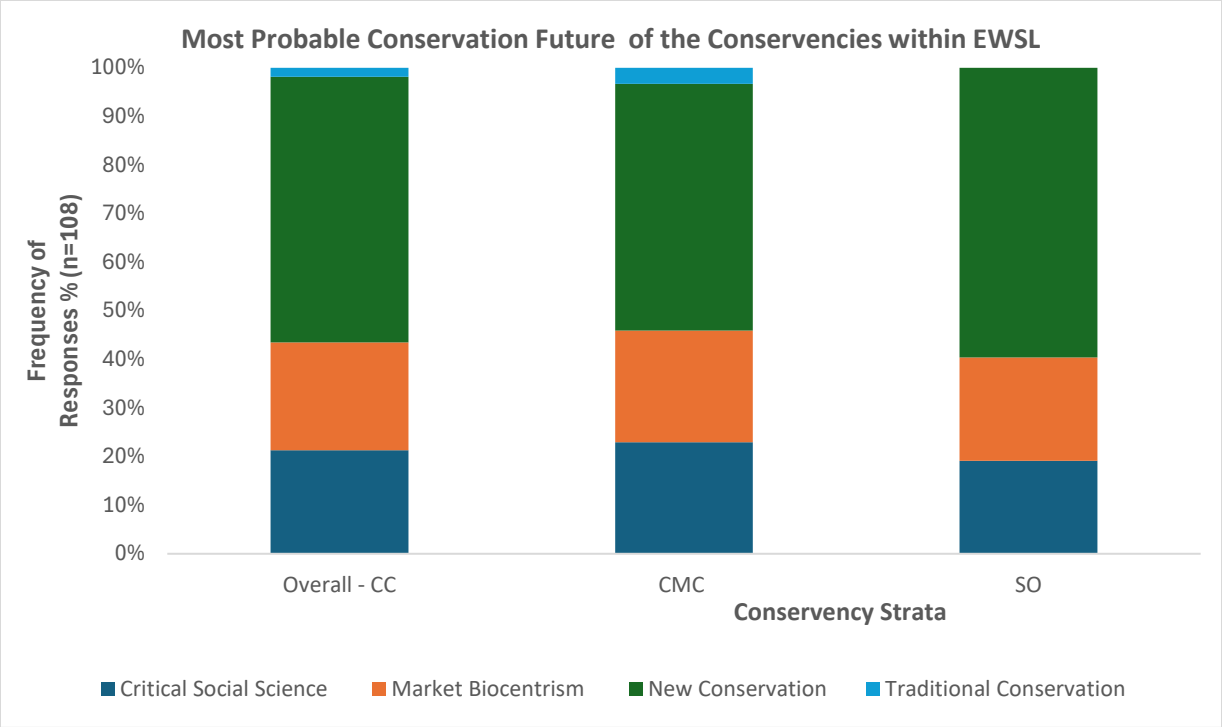


Figure 15: Percentage of responses classified under each conservation orientation type, to determine the most probable future, with data presented for the overall land use type and per stratum of land use (conservancy management committee and NGO conservancy support organisations).

Mitigation of Human-Wildlife Conflict Incidents

Addressing human-wildlife conflict (HWC) emerged as a prominent aspiration among respondents when reflecting on their most probable future, reflecting principles associated with the NC orientation, which emphasises harmonising biodiversity conservation with the socio-economic well-being of local communities. Within the conservancies studied, HWC was consistently perceived as an ongoing and escalating challenge that threatens both livelihoods and community support for conservation initiatives. Based on the collected qualitative data, respondents anticipate that future HWC incidents will primarily involve elephants, lions and hyenas, a finding consistent with national assessments conducted by the Government of the Republic of Namibia (2018), which identify these species as the principal drivers of conflict within communal conservancies across Namibia. In response to this challenge, participants proposed a range of mitigation strategies that reflect elements of both the NC and TC orientations (Figure 16). These strategies broadly align with two dominant paradigms in contemporary conservation discourse: coexistence, which seeks to enable humans and wildlife to share landscapes through adaptive management strategies, and separation, which emphasises spatial boundaries between wildlife and

human activities to minimise direct conflict (Luetkemeier et al., 2023). Within the coexistence paradigm, respondents emphasised the importance of adopting advanced technological innovations to improve wildlife monitoring and early warning systems across the landscape. Such technologies, including GPS tracking collars and mobile-based alert systems, could enable communities to anticipate wildlife movements and implement precautionary measures before conflicts occur. At the same time, respondents living adjacent to ENP advocated upgrading the park's boundary fence, reflecting a management approach aligned with the separation paradigm. The proposal to strengthen the park fence appears to be widely supported among community members, with Luetkemeier et al. (2023) reporting similar preferences among residents in the same landscape. From the perspective of local communities, improved fencing is a practical means of reducing the frequency of wildlife incursions into communal areas, particularly by elephants and large carnivores that cause significant damage to crops, infrastructure, and livestock.

However, the proposal to upgrade the park fence also highlights an important conservation dilemma. While improved boundary fencing may reduce immediate HWC incidents, it may reduce ecological connectivity between ENP and the surrounding landscape, with important long-term ecological and socio-economic implications (Hauptfleisch et al., 2024b). Restricting wildlife movement may increase wildlife populations within a closed system, potentially exceeding the park's ecological carrying capacity (Lindsey et al., 2019). In PAs where consumptive utilisation is not used as a population management tool, adaptive management interventions, such as wildlife corridors, have become increasingly important to prevent excessive grazing and browsing pressure, vegetation degradation, and declines in habitat quality. Additionally, ENP serves as an important wildlife source for neighbouring communal conservancies, with wildlife dispersal contributing directly to community livelihoods through photographic tourism, trophy hunting, and other nature-based enterprises (Naidoo et al., 2016). Restricting wildlife movement through extensive boundary fencing may reduce this natural dispersal, thereby diminishing the wildlife resource base available to surrounding conservancies (Hauptfleisch et al., 2024b), thus weakening the ecological and socio-economic linkages that underpin the CBNRM programme, and ultimately reducing livelihood opportunities for neighbouring communities (MEFT/NACSO, 2024). This situation highlights the inherent trade-offs associated with HWC mitigation strategies, where efforts to enhance human safety and livelihood security must be carefully balanced with the need to maintain ecological processes and the viability of wildlife populations. As noted by Luetkemeier et al. (2023), such trade-offs are characteristic of coupled social-ecological systems, in which conservation outcomes are closely intertwined with human

livelihoods. In this context, the challenge lies in identifying management strategies that simultaneously minimise conflict while maintaining the ecological connectivity necessary for sustainable wildlife populations.

One potential approach to reconciling these competing objectives is to implement corridor-based conservation strategies that allow wildlife to maintain natural movement patterns while reducing the likelihood of conflict. As suggested by Hauptfleisch et al. (2024a), strategically designed wildlife corridors could allow animals to move between protected areas and surrounding landscapes without intensifying conflict with local communities. Such spatial planning approaches represent an important mechanism for operationalising coexistence within multi-use landscapes where conservation and agricultural land uses intersect. However, community members will only agree with this arrangement if strict population control measures are implemented, such as *"…increased quota to ensure a high number of animals are to be hunted"* (CMC-P4). Beyond spatial planning, Namibia's national HWC policy framework already recognises the importance of providing incentives to offset the economic costs borne by communities living alongside wildlife (MEFT, 2018). However, participants suggested that current offset mechanisms remain limited in scope and should be expanded "*to compensate for infrastructures like kraals, waterpoints, backyard gardens and fences destroyed by elephants"* (CMC-P10). Hence, successfully addressing HWC within the EWSL area will require integrated management approaches that recognise the complex interdependencies among ecological processes, conservation objectives and rural livelihood systems. This integrated framing is further reflected in respondents' suggested interventions for addressing HWC in practice, as illustrated in the excerpts below:

> *"Lions within the conservancy and the park must be equipped with GPS collars to monitor their movements, facilitating timely alerts to local farmers regarding the presence of this predator in their proximity, allowing timely implementation of precautionary measures"* (CMC-P23).

> *"The fence of Etosha National Park needs to be upgraded to ensure that it can keep the problem animals within the park. This will ensure that HWC in the conservancy decreases* (CMC-P23).

Empowering Youth for Future Conservation

Community members have acknowledged the need to empower youth for their most likely future by integrating youth development initiatives into conservation strategies. This approach reflects an emerging

recognition among respondents that the long-term sustainability of the CBNRM programme depends not only on ecological stewardship but also on the development of human capital within rural communities. Interestingly, this perspective was more frequently articulated by female participants, which may reflect the central role women often play as primary caregivers and social anchors within rural households (Mwetulundila, 2021). From this standpoint, women expressed particular concern about the prospects of young people living in communal areas, where limited educational and employment opportunities often expose youth to various social challenges. Respondents indicated that youth development programmes could provide constructive activities for the youth, thus reducing their vulnerability to alcohol abuse, drug use and involvement in criminal activities. These concerns align with the broader literature, which highlights the socio-economic challenges faced by rural youth across Africa, including limited employment opportunities and restricted access to education, which frequently contribute to social marginalisation and risky behaviours (Chilwalo, Makhubele, & Ananias, 2021; Freeman, Makhubele, & Matlakala, 2022). Additionally, respondents perceive this approach as a means of building capacity among youth by investing in the future workforce and equipping them with the skills needed to navigate a complex, dynamic landscape in a semi-arid region. Their perspective highlights how community-based conservation is increasingly transitioning, with the program expected to move beyond ecological outcomes to address broader socio-economic challenges, particularly those affecting young people. The importance of youth empowerment within the most probable is articulated by the respondent's assertion below:

> *"I see a future where the conservancy can create platforms of opportunities for this young generation to be empowered, so that they stay away from alcohol, drugs, and poaching, and start doing something meaningful with their lives"* (CMC-P16).

> *"We want to have a well-educated community, with a particular focus on empowering the youth, who are expected to assume leadership roles and responsibilities in the future of the conservancy"* (CMC-P22).

4.4.1.2 The Most Probable Conservation Future of ENP

A total of 111 responses were analysed, with 58.56% (n = 65) originating from the NLMS and 41.44% (n = 46) from GM (Appendix 5), providing a comprehensive representation of the most probable future across both administrative and operational levels involved in park management. The most probable future of ENP is predominantly characterised by the NC orientation, observed in 43% (n=48) of the total responses (Figure 16). This is followed by the TC orientation, evident in 27% (n=30) of the respondents' responses.

In comparison, the CSS orientation accounted for 22% (n=24), and the MB orientation, in last place, constitutes the remaining 8% (n=9) of the overall responses. When the data were analysed from a two-stratum perspective, a high degree of similarity in responses was observed, with a consistent pattern aligned with the park's overall characteristics (Figure 16). Below is a detailed description of the most probable future envisioned by respondents representing park management, categorised in thematic areas that capture the dominant narratives.

Landscape-level Conservation Approach Enhanced

A transition towards a landscape-level management approach emerged as a prominent strategy within respondents' most probable future, accounting for 54% (n=26) of responses associated with the NC orientation (Figure 16). This finding reflects a growing realisation among managers that traditional conservation approaches centred on fortress models may no longer be sufficient to address conservation challenges in the current and coming centuries. This shift will mark the transition from the traditional fortress conservation model, which has historically dominated the park for centuries (Lasky et al., 2025), towards a participatory management approach that integrates the park into a broader network of multidisciplinary land use types (Mannetti et al., 2017). This aligns with current developments in Namibia, where landscape-level conservation is increasingly emerging as an innovative and transformative strategy for mitigating the negative impacts of climate change and sporadic, unpredictable rainfall patterns on biodiversity (Ghosh et al., 2022). Within this context, respondents emphasised the importance of re-establishing ecological corridors that reconnect ENP to its historical range prior to its excision in 1907 (Hoole, 2008). Such corridors would enable wildlife to move more freely between the ENP, neighbouring freehold farms, and communal conservancies, ultimately extending toward the Skeleton Coast National Park (SKNP), thereby enhancing ecosystem resilience and reducing ecological pressures within the park. Respondents view this approach as compatible with CBNRM, in which PAs function as interconnected components within larger ecological networks rather than isolated conservation islands.

Operationalising this approach will require collaborative platforms, which bring together diverse stakeholders across the landscape. Such a platform enables stakeholders to collaborate and collectively manage the landscape by identifying shared challenges and mobilising resources to address common problems (Bruku, 2024). However, meaningful participation by neighbouring communities will require they derive substantial benefits from the park. Hence, several respondents suggested that the park management must explore opportunities to *"…open several access routes on the northern and western part of the park because there is potential for concessions in those areas"* (NLMS-P7). Such expansion will

allow the *"community to establish tourism operations within the park and derive substantial benefits"* (GM-P12)*, "which can positively impact people's attitudes regarding addressing poaching and HWC"* (NLMS-P7), because *"protecting the park would be beneficial for them as they are protecting their interests"* (NLMS-P12). This viewpoint recognises that conservation success within the park is intrinsically linked to community engagement, benefits and empowerment (Bandyopadhyay et al., 2009). By ensuring tangible benefits from the park, a principle grounded in the NC orientation, you foster positive behavioural changes, thereby reducing retaliatory killings associated with HWC, in line with the CSS orientation. Additionally, fostering local stewardship and encouraging communities to monitor illegal activities may indirectly strengthen the TC orientation by enhancing surveillance of poaching, which could compromise their livelihoods. This approach is particularly crucial given the current high incidence of rhino poaching within the park and the increasing levels of HWC along the park's periphery. By positioning the park as a valuable asset to local communities, park management can foster community alliances, thereby improving strained relationships and facilitating the effective conservation of biological diversity within and beyond park boundaries (Mannetti et al., 2017). The following assertions substantiated the above-discussed claims:

> "*…I would love to see a link between Etosha National Park (ENP) and the northwest region linked through the Hobatere concession. Maintaining ENP as an isolated conservation island poses significant challenges, particularly in the face of climate change, which threatens the long-term ecological integrity of the park…"* (GM-P6).
>
> *"I will relax some of the legislation and open the park, remove the fences located at important wildlife corridors or dispersal areas to facilitate wildlife movement and speed up the implementation of the landscape approach, which should involve the neighbours in the management of the park…." (NLMS-P12).*

Despite broad support for landscape-level conservation, respondents acknowledged that implementing this approach remains constrained by the Veterinary Cordon Fence (VCF), commonly known as the 'Red Line'. Originally established during the colonial period to prevent the spread of livestock diseases between northern communal areas and southern commercial farming regions, the Red Line continues to function as a significant barrier to wildlife movement across the landscape (McKittrick, 2013). Its existence complicates efforts to establish ecological corridors that reconnect the ENP with neighbouring conservation areas and communal lands. Respondents therefore proposed a strategic realignment or

modification of sections of the Red Line to facilitate landscape-level conservation by reconnecting key wildlife dispersal routes that link the ENP with the Karos, Palmwag, and Omatendeka concessions (Mannetti et al., 2017; Huang et al., 2022). This proposed realignment is further substantiated by a respondent, who emphasised the need for strategic planning to operationalise such landscape-level connectivity, as reflected in the excerpt below:

> *"A strategic plan is necessary, potentially involving the realignment or modification of the veterinary cordon fence to allow the integration of Karos, Palmwag and Omatendeka concessions to the park..."* (GM-P6).

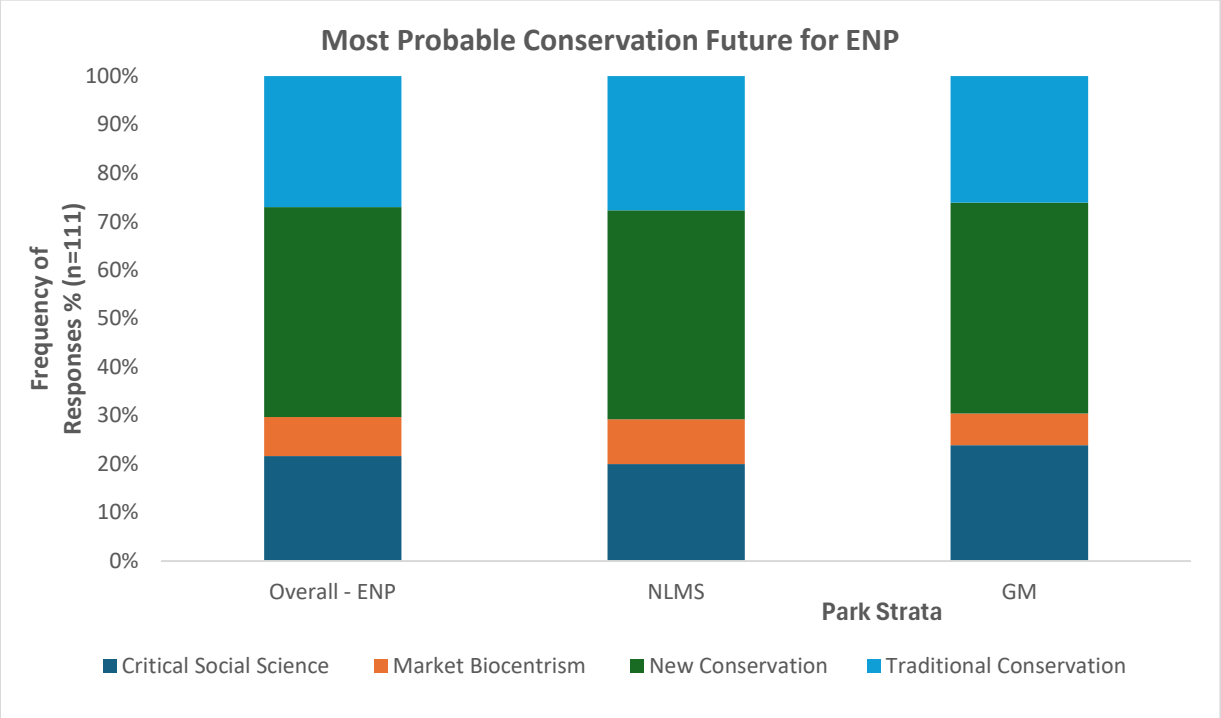


Figure 16: Percentage of responses classified under each conservation orientation type, to determine the most probable future for ENP, with data presented for the overall land use type and per stratum of land use (National-level ministerial support and ground managers).

Mitigating Poaching

The persistent threat of rhino poaching emerged as a dominant concern shaping respondents' perceptions of the park's most probable future. The findings reveal a strong emphasis on proposals associated with the TC orientation, with 80% (n=24) of responses within this orientation directly linked to rhino protection or anti-poaching measures (Figure 16). This pattern reflects the continued prioritisation of security-driven

conservation interventions in response to the severe threat posed by rhino poaching within ENP. Given the global significance of Namibia's black rhino population and the park's role as a key refuge for this species, respondents emphasised the urgency of strengthening protective measures aimed at safeguarding rhino populations from illegal hunting. Among the most frequently proposed interventions was the upgrading of the park's boundary fence, which respondents viewed as a crucial strategy to address escalating poaching. This is because the fence is perceived as the park's first line of defence against external threats, functioning as a physical barrier that restricts unauthorised human access while simultaneously confining wildlife within the park boundaries. This approach reflects a reliance on exclusionary conservation strategies that have historically reduced poachers' opportunities to infiltrate the park and access vulnerable wildlife populations.

However, respondents also acknowledged that reliance on intensified fencing presents an important strategic dilemma for future conservation planning. While stronger fences may enhance short-term security against poaching, they may also undermine efforts to transition toward landscape-level conservation approaches, which require greater ecological connectivity between the park and surrounding land-use systems. As discussed in earlier sections, landscape-level conservation has been identified as a key strategy for enhancing ecosystem resilience and enabling wildlife dispersal across broader ecological networks. Consequently, the expansion of exclusionary security measures, such as electrified fencing, may inadvertently reinforce the isolation of ENP as a conservation island, thereby complicating efforts to integrate the park into a larger landscape-scale conservation framework. In addition to physical infrastructure, anti-poaching strategies within ENP have also relied heavily on militarised security interventions, including the deployment of NAMPOL and the NDF. These deployments were introduced as emergency responses to the sharp increase in rhino poaching incidents in Namibia over the past decade. While the presence of armed security personnel was initially intended to deter organised poaching syndicates, respondents expressed mixed views on its effectiveness. Several participants questioned whether the continued militarisation of the park remains an appropriate long-term strategy for addressing wildlife crime. Respondents have also acknowledged, in their most probable future, the need to equip the park with modern anti-poaching technology rather than relying solely on physical infrastructure (fences) or military presence. They proposed a multi-layered security system supported by advanced technology, such as "*the sophisticated security system that relies a lot on the radar to detect entry into the park"* (NLMS-P5) or the installation of "*state-of-the-art surveillance closed-circuit television (CCTV) cameras around the park, monitored 24 hours a day from a control room by staff*

members implementing shifts" (GM-P5). Additional responses supporting the discussions made above are presented below:

> *"My desired future is to have the whole Etosha National Park border fence upgraded to an elephant-proof fence and electrified to minimise rhino poaching..."* (GM-P11).

> "*We need to remove NDF and NAMPOL from the park…the deployment of the NDF and NAMPOL within the park has proven largely ineffective and counterproductive. Evidence from similar operations in the Kruger National Park (KNP) has demonstrated the same comparable outcomes, and the same patterns are now observed in ENP. Additionally, there have been instances where members of these forces have been implicated in aiding poachers or directly participating in illegal activities, such as rhino poaching or the illicit trade of controlled wildlife products…."* (NLMS-P2)

Retention of Institutional Memory

The most desirable future for the park, as articulated by respondents, involves implementing a structured transitional plan to facilitate the effective transfer of knowledge between outgoing and incoming staff. Participants emphasised that such an approach would prioritise institutional continuity, preserve organisational memory, and empower new personnel to maintain and build upon existing management practices. This concern emerged as one of the most prominent issues shaping respondents' perspectives on the park's future, accounting for 63% (n=15) of responses in this orientation (Figure 17). Respondents indicated that the park is currently experiencing a gradual loss of experienced personnel due to retirement and the departure of skilled staff members from the Ministry of Environment, Forestry and Tourism in pursuit of better opportunities elsewhere. Without adequate mechanisms to transfer expertise to newly recruited personnel, this trend may erode the valuable institutional knowledge accumulated over many years of practical conservation management. Hence, ensuring continuity of institutional knowledge and managerial expertise is critical in the foreseeable future to maintain the long-term effectiveness of conservation interventions within the park and safeguard the ecological integrity of the ENP for future generations, as substantiated by participant GM-P4's assertion below.

> "*My desired future is to ensure staff turnover and the transfer of skills and knowledge to new staff members. There is a big gap between staff existing and the intake, we are losing a lot of older, knowledgeable people who have been there for a long time without recruiting new staff members, or sometimes the good guys get poached and*

leave the Ministry without transferring their knowledge they acquired over the years…" (GM-P4).

4.4.1.3 The Most Probable Conservation Future of Freehold Farms

A total of 39 responses were analysed deductively, with 30.77% (n=12) originating from the MLF and 69.23% (n=27) from the SLF (Appendix 5). The analysis revealed that freehold farms will remain predominantly characterised by the MB framework in the future, as evidenced by 38% (n=15) of responses aligning with this orientation (Figure 17). The use of TC orientation has increased from the current conservation orientation, when it yielded a relatively low frequency (8% n=3) (Figure 13), compared to the most probable conservation future, where it accounts for the second-highest frequency, yielding 23% (n=9) of the total responses from respondents (Figure 17). The NC orientation matches the frequency recorded for TC, whereas the CSS orientation yielded the lowest representation, accounting for only 15% (n=6) of the responses (Figure 18). Data analysed at the stratum level revealed a trend consistent with the overall land-use trend. Below is a detailed description of the most probable future envisioned by respondents representing freehold farmers within the EWSL, categorised into thematic areas that capture the dominant narratives.

Diversification of Livelihood Strategies

A growing desire among respondents to diversify livelihood strategies emerged as a defining feature of the most probable future for commercial farms, particularly among operations that currently rely on a single dominant land-use system (Figure 17). This shift reflects an increasing recognition among farmers that traditional livestock-based production systems alone may no longer be sufficient to sustain economic viability under the evolving environmental and climatic conditions characterising Namibia's semi-arid rangelands. Consequently, farmers are increasingly exploring alternative strategies that can simultaneously enhance ecological resilience and create new economic opportunities. Central to this transition is the growing emphasis on transforming degraded rangelands, particularly those affected by bush encroachment, into productive market opportunities to support diversified agricultural enterprises. Bush encroachment, characterised by the proliferation of woody plant species that suppress grass growth, has become one of the most pervasive ecological challenges affecting Namibia's rangelands (De Klerk, 2004). Respondents therefore identified bush harvesting for fodder and charcoal production as a promising strategy to address this challenge while generating additional income streams. This approach reflects a broader shift toward adaptive land management practices that seek to convert previously underutilised or problematic resources into economically valuable commodities (Laufs et al., 2020).

Removing excessive bush enables farmers to restore the ecological balance, enhance groundwater recharge (Geißler et al., 2019) and promote the growth of palatable grasses essential for grazing (Ayalew & Mulualem, 2018), thereby increasing the property's stocking rate.

Despite these adaptive management strategies, respondents acknowledged that historic stocking rates may no longer be achievable under current environmental conditions, particularly amid increasing climatic variability and declining rainfall. Based on long-term observation, one respondent noted that "*our historic stocking rate of 21/22 kilograms per hectare is no longer realistic, so we must change…"* (SLF-P3). This recognition reflects a broader shift among farmers toward more adaptive, efficiency-oriented livestock management practices, including improvements in breeding strategies and herd quality. Respondents emphasised that improving livestock genetics and selectively retaining more productive animals may help farmers maintain economic viability even under reduced stocking densities. This was further explained by the same respondent who articulated that "*I must improve my farming by selecting and keeping genetically better animals on the farm, while getting rid of animals with poor genetic make-up* (SLF-P3). These observations align with previous research conducted in Namibia, which has demonstrated that stocking rates are strongly influenced by ecological variables, including property size, rainfall variability, vegetation productivity and the prevalence of bush encroachment (Engler, von Wehrden, & Baumgärtner, 2019). Given these constraints, Engler, von Wehrden, and Baumgärtner (2019) further emphasise the importance of adopting technological and management innovations that enhance the efficiency and sustainability of livestock production within semi-arid environments. These strategies reflect a broader transition toward climate-adaptive agricultural systems, where ecological sustainability and economic resilience are pursued simultaneously. Within Namibia's semi-arid landscapes, these adaptive management practices may play a critical role in strengthening the long-term sustainability of commercial farming systems. The responses of respondents below support the above discussions:

> *"…we must strive to eliminate the redundant bushes or encroacher species, such as* **Acacia mellifera** *and* **Colophospermum mopane***, to try and minimise the effect of lower rainfall. I would like to see that we can reclaim the grasslands we had before we started to feel the negative effects of bush encroachment. This is aggravated by the underwhelming rainfall we have been receiving since 2013. Theoretically, if you can manage bush encroachment or the increase thereof, the expected bonus is an abundance of grass…"* (SLF-P3).

"My desired future is to de-bush, to get rid of this encroaching species and ensure significant grass growth on the farm, to allow me to increase my cattle numbers on this 3400-hectare piece of land. While doing that, I will use the buses for charcoal production, which I plan to start soon" (SLF-P6).

Intergenerational Inheritance

A notable increase in the prominence of the TC orientation was observed in this land-use compared with the current conservation orientation (Figure 17). This shift appears to be largely driven by farmers' aspirations to ensure the intergenerational continuity of their farming enterprises, particularly through the transfer of farms from parents to their children. Respondents frequently emphasised that maintaining family ownership of farmland represents both an economic and cultural priority, reflecting a strong commitment to preserving family legacies while ensuring that farming operations remain profitable and sustainable over time. Within the dataset, this aspiration accounted for 88% (n=8) of all responses associated with the TC orientation, highlighting the extent to which concerns about succession planning and family continuity shape farmers' perceptions of the most probable future (Figure 18). For many respondents, the concept of intergenerational succession extends beyond the mere transfer of land ownership; it also encompasses the transfer of knowledge, skills and management practices accumulated over many years of farming experience. This transfer of knowledge is considered essential for equipping the next generation with the relevant skills and adaptive management strategies needed to navigate emerging challenges, including climate change, increasing bush encroachment, and broader environmental uncertainties affecting farming systems in Namibia.

Respondents across the landscape have increasingly acknowledged that younger generations may possess competitive advantages in navigating the challenges faced by current commercial farming units, particularly in adopting modern technologies and innovative farming practices. Many younger farmers are more familiar with emerging technologies and digital platforms that can improve farm management and support more informed decision-making. As agricultural production systems become increasingly dependent on technological innovations, such as livestock genetics and digital monitoring tools, the younger generation taking over from their parents can effectively integrate these technologies into farming operations. This trend is becoming an increasingly important determinant of long-term farm sustainability. This was further substantiated by the assertion of respondents, as presented below:

"….to see this farming enterprise go over to my son, who is currently farming with me, and eventually, it can be passed on to my grandson, and it remains a family enterprise for the future generation to be able to make a living out of either cattle farming or tourism or whatever it might change to in the future" (MLF-P5).

"There is always a silver lining, and the next generation that is going to take over, like my son, who is my partner, knows more about modern technology and is better fitted to make use of this technology" (SLF-P3).

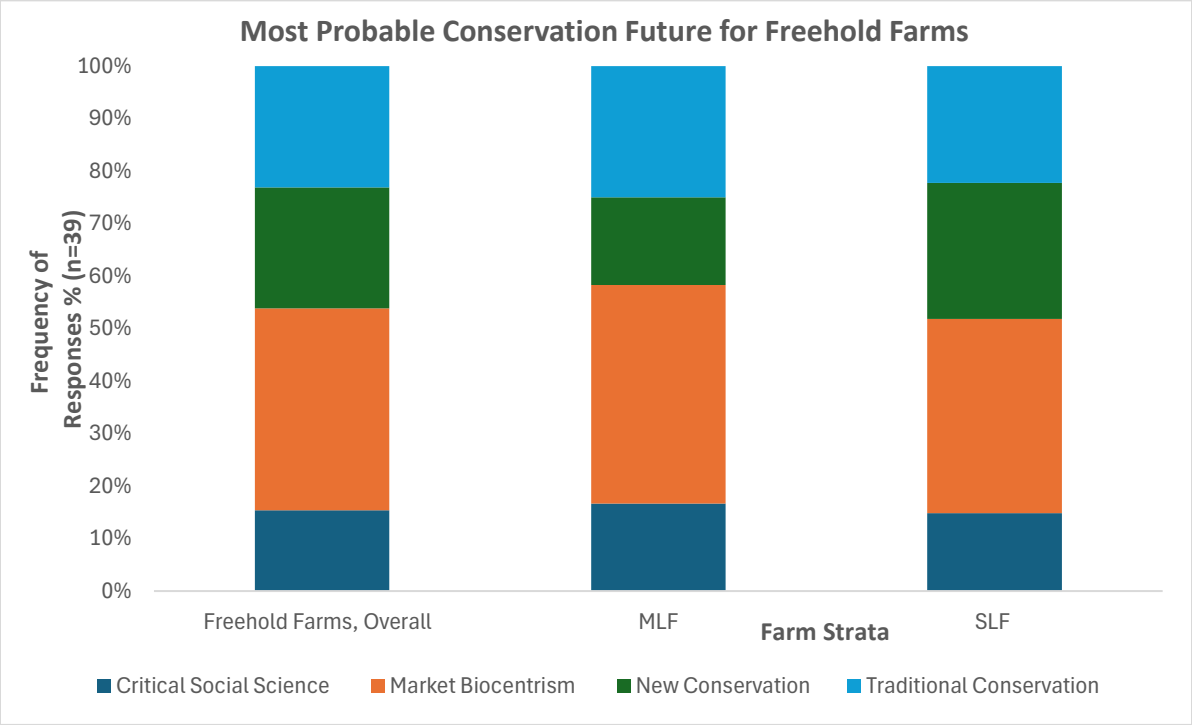


Figure 17: The percentage of responses is classified under each conservation orientation type to determine the most probable future for freehold farmers within the EWSL, with data presented for the overall land use type and per stratum of land use (mixed-land use farming and single-land use farming).

Enhanced Cooperation and Collaboration

The need for enhanced collaboration among key stakeholders emerged as a central feature of the most probable future envisioned by commercial farmers within the landscape (Figure 17). Respondents increasingly recognised that many of the challenges affecting the sustainability of commercial farming systems, especially stock theft, poaching, and equipment theft, cannot be effectively addressed through

isolated efforts by individual farmers. Hence, respondents have emphasised the importance of developing collaborative partnerships that bring together multiple institutional actors, enabling stakeholders to respond to complex socio-ecological challenges collectively. Through such partnerships, stakeholders could pool their resources, share information, and coordinate strategies to improve security and address operational challenges that undermine the efficiency and profitability of farming operations. Beyond addressing security concerns, respondents also highlighted the broader value of collaborative platforms as mechanisms for knowledge exchange and capacity building within the farming sector. These platforms were perceived as important spaces where experienced farmers could share practical insights and best practices with emerging or less experienced farmers, thereby strengthening collective problem-solving capacity across the landscape.

> *"We need to build collaborative platforms with key stakeholders, such as the Namibian police, the Ministry of Environment, Forestry and Tourism and the Ministry of Agriculture, so that we can jointly tackle the problems in our area"* (SLF-P5).

Amendment of Restrictive Legislation

Within the CSS orientation, respondents emphasised the need to reconsider the extent of government intervention in managing and utilising natural resources in Namibia. Participants advocated for a future policy environment that prioritises greater local autonomy and reduced bureaucratic intervention, particularly in the utilisation of natural resources on privately owned farms. This concern accounted for 67% (n=4) of the responses recorded within the CSS orientation, highlighting the importance respondents attach to creating a more enabling legislative environment that allows farmers to fully realise the economic potential of natural resources on their properties. Respondents argued that existing regulatory frameworks often impose extensive administrative constraints that limit farmers' capacity to innovate, diversify and expand their agricultural and wildlife-based enterprises. Additionally, they argued that overly restrictive legislation can create uncertainty about long-term investment in the natural sector, thereby affecting their ability to respond adaptively to changing environmental and economic conditions. Conversely, respondents also acknowledged that some level of government oversight remains necessary to ensure that natural resources are utilised sustainably and to prevent the overexploitation of biodiversity. This nuanced perspective reflects an understanding that effective natural resource governance requires a balance between regulatory oversight and local decision-making autonomy. Within the CSS orientation, this balance is often framed as empowering local actors while ensuring appropriate institutional safeguards to protect shared environmental resources (Future of Conservation, 2022). In this

context, respondents view legislative reform as an important component of the most probable future for commercial farming, particularly through policy frameworks that grant greater management autonomy to landowners, as historically achieved through the *Nature Conservation Ordinance of 1967* (1967), which empowered private landholders to manage and utilise wildlife resources on their properties. The lament expressions by respondents presented below support this discussion.

> *"My desired future involves minimising government interference in managing natural resources as much as possible. The sector is currently subject to extensive regulatory restrictions, which create significant long-term uncertainty. However, I acknowledge the need for government intervention to prevent overutilisation of resources"* (MLF-P1).

> *"My desired future is for restrictive laws and regulations to be taken away because if you are successful while being restricted, you will become more successful for the country's benefit. There is no sense in restricting efficient and effective people when the country can benefit"* (MLF-P5).

4.4.2 The Perceived Most Feared Conservation Future of EWSL

A total of 207 responses were analysed to identify the most feared future scenario of the EWSL area (Appendix 6). The highest proportion of responses came from the CBNRM sector, accounting for 43% (n=88), followed by the ENP at 38% (n=79) of the overall responses (Figure 18). Freehold farmers contributed the fewest responses, representing 19% (n=40). The CSS emerged as the most feared future conservation orientation across all land use types within the EWSL area (Figure 18), highlighting the complexity and intricacy of aligning conservation objectives with the evolving global values of equity, inclusivity and social justice (Martin, McGuire, & Sullivan, 2013; Büscher & Fletcher, 2020). The distinct fears expressed by each land-use type are presented below, organised by dominant thematic categories.

4.4.2.1 Fears Expressed by Conservancy Stakeholders

The primary feared future of the CBNRM sector aligns with the CCS, accounting for 64% (n=56) of the overall responses recorded under this orientation (Figure 18). The dominant themes comprised weak governance, policy constraints, and incompatible land-use, which were observed in 54% (n=30) of the responses of respondents, with the theme of weak governance contributing 43% (n=13), policy constraints contributing 30% (n=9), and incompatible land-use constituting 27% (n=8), respectively. Additional concerns raised align with the themes of a lack of beneficiation, increased HWC, climate change and a lack

of cooperation amongst community members, SO, and the CMC. The distinct fears of the CBNRM sector are detailed below, organised by the dominant thematic categories identified in the analysis.

Weak Governance

Governance is a vital component of the CBNRM program, hence, constant reform is required to transform and strengthen the leadership and enhance accountability (Heffernan, 2022; Foyet, 2024). However, persistent governance weaknesses within the sector reveal a deeply embedded concern about the intersection of institutional failure and socio-economic stagnation, demonstrating how such deficiencies can directly undermine both conservation and development objectives, with local elite capture identified as the primary driver of these governance-related fears within conservancies. This quandary undermines the normative foundations of Namibia's CBNRM programme (MEFT/NACSO, 2024) by centralising decision-making power and access to benefits in the hands of a small group of individuals. The elites disproportionately control financial flows, employment opportunities and resource allocation within the conservancies, thereby diverting greater benefits away from the broader community (Schneider, 2022). Evidence of this persistent governance shortfall is reflected in the conservancies' financial reporting cycles for 2022 and 2023, where 57 of 64 (89%) conservancies failed to exceed the prescribed minimum threshold of allocating 50% of benefits to members in 2022, a figure that increased to 64 of 77 (83%) conservancies in 2023 (MEFT/NACSO, 2023; 2024). Consequently, a substantial majority of conservancies, 85% (73 out of 86), remain non-compliant with the benefit distribution requirements stipulated in the Guidelines for the Management of Conservancies and Standard Operating Procedures (GMCSOP), reinforcing the fears SO raised. One respondent expressed concern that the continuation of such practices (non-compliance) may ultimately compel the government to *"a policy reversal in terms of removing the rights of communities and farmers over wildlife"* (SO-P1). This pattern is not unique to Namibia, as Nelson (2010) similarly attributes the decline of the formerly flourishing CAMPFIRE programme to the capture of elites, whose concentration of decision-making power and control over benefits undermined democratic governance structures and eroded equitable resource distribution. The prominence of elite capture has intensified broader concerns within the sector, particularly the risk of conservancies being deregistered for non-compliance, as such practices contravene the governance and accountability requirements outlined in the GMCSOP (Ministry of Environment and Tourism, 2013). This concern is further reinforced by a respondent, who demonstrated clear awareness of the implications of governance failures and non-compliance, as reflected in her articulation by saying, *"…if we do not execute our task and ensure adherence to the policy, we can be de-gazetted as a conservancy by the Minister"* (CMC-P4).

"My number one fear is the constraints preventing economic growth and development and this is linked to elite capture of resources at the Conservancy Committee and management levels, which turns people against the conservancies" (SO-P2).

Policy Constraints

Respondents expressed significant concerns about policy constraints, which they considered one of their greatest fears for achieving their desired future for communal conservancies across the country (Figure 18). This concern was equally highlighted by the freehold farmers under the current conservation orientation (Subsection 4.2.3) and in their articulation of future threats likely to affect their operations (Subsection 4.3.3), indicating a convergence of perspectives across land tenure systems regarding the constraining effects of legislation on the sustainable management of natural resources. While conservancies have been granted user rights over wildlife and forest resources, these entitlements do not extend to the land on which these resources occur, creating significant management challenges. The land on which communal conservancies are established falls under the jurisdiction of Traditional Authorities (TAs), as enshrined in the Communal Land Reform Act No. 5 of 2002 (Republic of Namibia, 2002). Accordingly, TAs are authorised to allocate land rights and regulate access to communal land for both community members and external actors on behalf of the government, in accordance with Section 20 of the same Act.

While this legal mandate is intended to support customary land governance, it can also create overlapping institutional responsibilities between TAs and conservancy leadership structures responsible for wildlife management and land-use planning. These practices risk undermining established land-use plans and zoning arrangements, exacerbating tension, increasing HWC and undermining the effective management and institutional coherence of conservancies. This finding is consistent with the observations of Gargallo (2015), Matthaei (2018), Hebinck et al. (2019), Hebinck (2021), and Miyamoto (2022), who found that tensions frequently arise when TAs allocate land in areas designated for conservation purposes or wildlife corridors. This was supported by one respondent who noted that "…*traditional authorities authorise people to stay at certain places in the conservancy despite those areas being set aside for wildlife, without notifying the CMC…"* (CMC-P6). This growing tension between land allocation by TAs is increasingly reflected in local concerns about uncontrolled settlement and its implications towards the effective management of conservancies. One respondent recommended that "*we must prevent the influx of other people into our conservancy, as this makes managing the area very difficult. We have core wildlife areas, but people from outside are coming to settle in those areas, which hurts the future of the conservancy"*

(CMC-P21). This concern is further substantiated by widespread reports of escalating land-use conflicts within conservancies, as illustrated by the articulation of a respondent who noted that *"every conservancy in the country has court cases against people who have settled in areas where they are not supposed to settle"* (SO-15). Hence, uncoordinated land allocations may create institutional conflicts between conservancy leadership and TAs, thereby weakening conservancy governance and structures required to support sustainable resource management.

Another concern raised by the respondent regarding the legislation is the absence of a coherent, integrated legislative framework for natural resource governance in the country. The mushrooming of multiple legislative frameworks administered by different institutions undermines holistic coordination in natural resource governance and perpetuates sectoral silos, limiting opportunities for synergistic outcomes across sectors. Additionally, the absence of a unified legislative framework weakens collective action and can lead to the dissemination of contradictory information, as stakeholders must navigate multiple, often conflicting, legislative frameworks. This finding aligns with broader scholarly literature regarding CBNRM, which highlights how fragmented policy frameworks and institutional pluralism often undermine integrated resource management and limit the effective decentralisation of natural resource management (Nelson, 2010; Sayer et al., 2013). Hence, the lack of a clear, shared national vision for integrated resource governance emerged as a prominent concern, undermining the CBNRM program's transformative potential to serve as a holistic, adaptive management system within Namibia's complex socio-ecological landscape. These discussions are consistent with the articulations of the respondents below:

> *"Currently, conservation land and landscape conservation initiatives are not protected or recognised under the legislation. The land where conservancies fall under the jurisdiction of the Communal Land Reform Act, and Traditional Authorities are mandated to administer and regulate such lands. They can decide to implement any activity that is anti-conservation, like allowing people to graze their livestock in the exclusive wildlife zone"* (SO-P15).

> *"I foresee two threats, the first one being a lack of vision in Namibia for an integrated CBNRM approach. We have community forests, conservancies for wildlife, non-renewable mineral resources and fisheries, but they are separate entities. There are few talks about this approach, and this is the greatest threat to CBNRM. I think there*

has been an unconscious or unspoken assumption, particularly from the conservancy leadership, that you will have a conservancy and that forestry, water, wildlife, fish, and natural resources will all be subcommittees of the conservancy. I do not think that can happen under this policy legislation" (SO-P8).

The most significant policy-related fear expressed by respondents concerns the potential ban on trophy hunting. This is because the CBNRM programme is heavily reliant on trophy hunting for income generation and in-kind benefits (meat) (Goergen et al., 2024), accounting for 31% (N$51,419,537) of its total revenue in 2023 (MEFT/NACSO, 2024). Hence, Naidoo et al. (2016) argued that the operational sustainability of most conservancies would be significantly compromised in the absence of conservation hunting revenue streams. Consequently, over the past few years, the growing influence of anti-hunting societies has increasingly threatened this practice, raising concerns about the long-term financial sustainability of conservancies (Angula et al., 2018). This is to the dismay of the CBNRM sector, which relies on trophy-hunting revenues to support local livelihoods and ensure the program's resilience. Hence, Naidoo et al. (2016) recommend that the program's financial viability can be achieved only by maintaining both major revenue streams from hunting and photographic tourism. This is further substantiated by the respondents' articulations below:

"…animal rights and anti-hunting societies should stop intervening with our internal affairs, where they want to dictate to us not to practice conservation hunting" (CMC-P3).

"The other is an external threat, we know about it, but we're not doing enough about it, and that is the anti-hunting societies. We have failed to convey the message interims of the importance of trophy hunting to CBNRM and ensuring tolerance towards wildlife in the area" (SO-P8).

Incompatible Land Use Practices

Respondents expressed significant concerns about the intrusion of mining activities within the conservancies, which they considered one of their greatest fears for achieving their desired future for CBNRM across the country (Figure 18). These concerns are not merely hypothetical but are grounded in ongoing developments within the broader landscape, particularly the recent legal dispute involving the Doro! Nawas, Uibasen Twyfelfontein, and Sorris Sorris conservancies. These conservancies have initiated legal proceedings against the MEFT following the issuance of an Environmental Clearance Certificate (ECC)

for tin and copper mining within a wildlife-sensitive area (De Klerk, 2024). This case remains pending before the court. This case raised broader concerns regarding the alignment between Namibia's mining legislation and environmental governance frameworks. In Namibia, mining activities are primarily governed by the Minerals (Prospecting and Mining) Act 33 of 1992, which vests the authority to grant exploration and mining rights to the Ministry of Industries, Mines and Energy (Government of the Republic of Namibia, 1992), while environmental oversight is regulated through the Environmental Management Act, 2007, administered by the MEFT (Government of the Republic of Namibia, 2007). Although the Environmental Management Act (EMA) requires an environmental impact assessment (EIA) and the issuance of an ECC prior to the commencement of mining activities, tensions often arise when exploration or mining licences issued under the Minerals Act permit extractive activities in ecologically sensitive areas. These governance challenges are particularly significant, especially at a time when the Minerals (Prospecting and Mining) Act is undergoing reviews (Felton, 2026), with the Chamber of Mines of Namibia advocating for the timely adoption of a revised Minerals Bill to modernise the 1992 legislative framework by strengthening regulatory efficiency, promoting local beneficiation and participation and improve regulatory certainty within the mining sector (Tlhage, 2025). These governance tensions have been further exacerbated by the lapse of the Policy on Prospecting and Mining in Protected Areas (Ministry of Environment and Tourism, & Ministry of Mines and Energy, 2018), which previously provided a framework for regulating mining activities in biodiversity-sensitive areas and coordinating decision-making between environmental and mining authorities. In the absence of this guiding policy instrument, regulatory coordination of mining activities has become increasingly fragmented, with decision-making processes lacking clear alignment across sectoral mandates and weakened safeguards intended to regulate mining activities in ecologically sensitive areas. This concern is reflected in observations within the study landscape, where respondents noted that "*around Brandberg, 50 new licences have been given in this area*" (NLMS-P5), suggesting an expansion of mining interests in the EWSL.

These concerns, when viewed through a socio-ecological systems (SES) lens, highlight the inherent challenges of governing landscapes characterised by competing land-use priorities, where conservation objectives, livelihood needs, and national development agendas intersect (Ostrom, 2009). However, this misalignment between sectoral legislation is not unique to Namibia and has been widely documented in other resource-rich countries where mining legislation and environmental protection frameworks operate in parallel and are not fully integrated (Mauger & Barnard, 2018; Gamu, le Billon & Spiegel, 2024), a condition that has been shown to contribute to ineffective resource governance. In such contexts,

decisions made in one sector may inadvertently undermine the objectives of another, thereby compromising the overall effectiveness of resource management. These governance tensions are also reflected in the perceptions of respondents, who highlighted similar concerns within the study landscape, noting that "*in some other conservancies, wildlife habitats are used for other purposes like mining"* (SP-P11). These discussions are consistent with the articulations of the respondent below:

> *"We need to protect conservation at all costs against other development needs. The needs of the countries are quite diverse, and I do not want to see conservation lag behind as we venture into energy production or mining in areas with unique biological diversity. My biggest fear is for conservation to become secondary to other land use types as the country strives to develop"* (SO-P3).

> *"I speak a lot to the guys from mine, and energy on other platforms, and the push is just so great, so great that it can easily overturn this program. So, there is a need to disseminate enough understanding and prove the case that what we are doing, which is conservation, is a livelihood that can sustain and help people live better in the future"* (SO-P10).

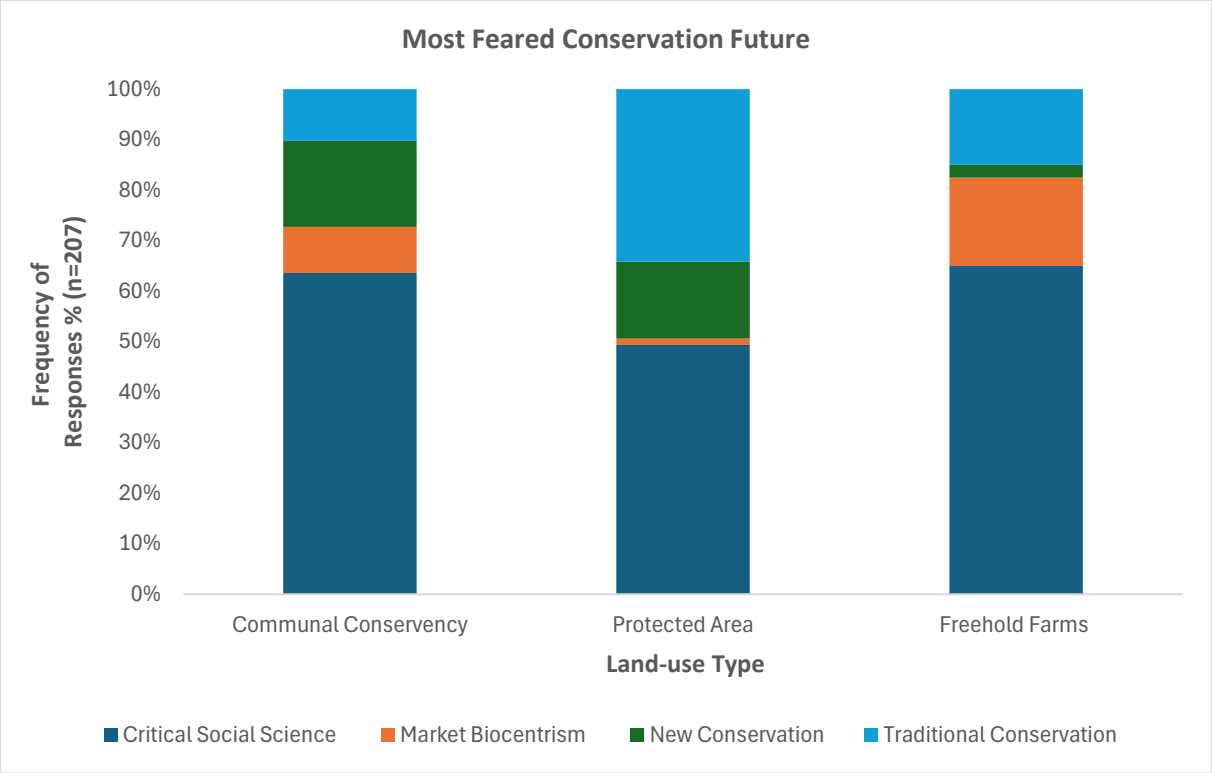


Figure 18: The percentage of responses is classified under each conservation orientation type to determine the most prominent feared conservation future across the different land use types within the Etosha West and South Landscape Area.

4.4.2.2 Fears Expressed by Etosha National Park Managers

The primary feared future of the park aligns with the CCS, accounting for 49% (n=56) of the overall responses recorded under this orientation (Figure 18). The range of concerns was broad; however, they are centred most prominently around three key themes, namely lack of adequate budget (15%; n=12), population pressure (14%; n=11) and increased poaching (11%; n=9). In addition, other threats can be summarised, in order of importance, as: political influence, negative perceptions of the park, inter-organisational tensions, lack of research, increased exploration and mining in the park, loss of institutional memory, increased HWC, climate change, and deteriorating infrastructure. Below is a detailed description of the fears associated with ENP, organised according to dominant thematic categories.

Lack of Adequate Budget

Park managers are concerned about the steadily declining budget allocation to the Ministry over the years, which is affecting the park's operational sustainability. Respondents consistently emphasised that the financial resources currently available are insufficient to support the full spectrum of management

activities required to maintain ecological integrity and ensure effective conservation outcomes. This perception is reinforced by the national budget, which has redirected government expenditure towards the social sectors (Kandume, 2024). Recent budgetary allocations indicate that approximately 49.9% of the N$106.3 billion national budget for the 2025/2026 financial year has been allocated to sectors such as education, health, safety and security, and defence, while MEFT receives only 0.75% of the total national budget (The Brief, 2025). Within this broader fiscal context, conservation is effectively deprioritised, despite its recognised contribution to national development through tourism, ecosystem services, and biodiversity protection (Ministry of Environment, Forestry and Tourism, 2024). This underinvestment has tangible consequences for PA's management, particularly large systems such as ENP, where the scale and complexity of ecological processes, coupled with extensive management demands, require substantial and sustained financial inputs, thus contributing to the current state of the park, as detailed in Subsection 4.2.2. The amount budgeted for MEFT, is substantially lower than the estimates reported by Lindsey et al. (2018), who determined that PAs supporting lion populations require an annual investment of $1.2 billion (N$22.8 billion) to $2.4 billion (N$45.6 billion) annually, translating to $1,000 (N$19,000) to $2,000 (N$38,000) per square kilometre, to ensure effective biodiversity conservation. When applied to the spatial extent of ENP, this translates to an estimated annual budget requirement of approximately US$22.27 million (N$422.13 million) to US$44.54 million (N$846.26 million), which, when contrasted with current allocations, highlights a significant funding deficit that constrains the park's ability to implement comprehensive biodiversity conservation strategies effectively. This constraint is further exacerbated by the escalating costs associated with rhino poaching, which require substantial investment in MEFT's anti-poaching operations, placing additional pressure on the already limited budget and diverting resources from other parks and critical management activities. Respondents suggested that this dynamic contributes to the broader disarray observed in the park, where essential functions such as road maintenance, water provisioning and infrastructure repair are deprioritised.

Government underfunding of PAs has forced managers to rely heavily on donor support to sustain key management activities within the park. While donor support has played a crucial role in enabling specific conservation interventions, especially anti-poaching efforts, respondents highlighted that such funding is often conditional and area-specific, thus limiting its effectiveness in addressing broader management needs. This reliance introduces an additional layer of vulnerability, as it becomes subject to shifting donor priorities, geopolitical dynamics and global economic conditions (Kandume, 2024). This susceptibility is

exemplified by the reductions in international environmental funding under the 47th Administration of the United States of America (USA), during which support for biodiversity conservation, climate change programmes and multilateral environmental initiatives was scaled back (Knox et al., 2025). As a result, critical but less visible management functions, such as infrastructure maintenance, water provision, staff capacity development and routine park operations, are frequently underfunded or neglected by donors. Additionally, donors impose stipulations on how and where their funds should be utilised, limiting the flexibility of park managers to prioritise critical operational needs (Alcorn et al., 2005). This approach disproportionately diverts resources from key activities that require such financial injections, thereby undermining PA's management effectiveness by constraining its capacity to address essential operational requirements fundamental to biodiversity conservation. These challenges are further reflected in the lived experiences and perceptions of park managers, as illustrated by the following accounts:

> *What keeps me up at night is the issue of budget, funding has gradually and drastically decreased over the years. The Ministry always get the least budget from the central Government, this is because we have education, we have health, we have the security of the country, and we make the money, but it goes to the other sectors, especially the social sector (education, health and security) that is prioritised more. The budget allocated to the Ministry for the park keeps on decreasing, and this harms the management of the park, from grading the roads to conducting anti-poaching patrols, water provisioning, filling of vacant positions and upgrading and repairing the fence"* (GM-P4).

> *"The other aspect linked to the budget is the selective funding of conservation by donor funders. We have donors funding conservation, but the funding comes with conditions or focus areas, and current projects focus solely on anti-poaching. For example, a particular project in the park funds anti-poaching operations; however, if a rhino waterhole is dry or broken, that project will not fund its repair. What good is it to save the rhino from the poachers and kill it because of thirst? Donors should be able to fund all costs associated with the effective implementation of conservation activities. For example, if I say you do not have uniforms, they should support the procurement of uniforms, or if there is no fuel for the vehicles, the project should fund this activity across the board, rather than only funding the anti-poaching unit"* (GM-P10).

Population Increase/Pressure

A prominent fear expressed by park managers concerns the rapid growth of the human population and the increasing encroachment of settlements toward the park's boundaries, with associated implications for land demand, intensified resource utilisation and escalating HWC incidents. From a management perspective, these trends are perceived not only as ecological pressures but also as socio-political challenges, as growing populations intensify competing claims over land and heighten expectations for economic benefits from the park. Consequently, this expansion toward the park boundary is considered a significant conservation threat, with the potential to undermine both the park's ecological integrity and spatial resilience, as well as those of the broader landscape. This concern is further amplified by documented demographic trends in northern Namibia, which border the park. Recent statistics indicate that the population in these regions increased from 847,259 in 2011 to 1,142,503 in 2023, a 26% increase over 12 years, accounting for approximately 38% of the national population (Namibia Statistics Agency, 2024). Such growth places sustained pressure on surrounding landscapes**,** as expanding settlements and increasing demand for land and natural resources are widely perceived as direct threats to conservation outcomes**.** These pressures raise concerns among park managers that continued population growth and land demand may ultimately translate into renewed political and social pressure to resize the park, echoing historical experiences. This is substantiated by an excerpt from Objective 1, which justifies how historical practices have influenced a protectionist mindset amongst managers, as reflected in these responses: *"Etosha's new shape and size brought a mindset of how we now need to protect this thing, like an island"* (NLMS-P5). The historical resizing of the park to accommodate societal land demands appears to have created a long-lasting institutional concern about the park's territorial security. Hence, senior managers emphasise that *"the priorities are many for Etosha, but we have to take them step by step. The most important one is to secure the future of the park in terms of its physical existence* (NLMS-P1)". As such, the fear of potential park resizing reflects a deeply embedded institutional memory within park management, shaped by past governance decisions and broader socio-political dynamics surrounding land redistribution and access. This historical consciousness continues to influence contemporary and future management priorities, with respondents emphasising the need to safeguard the park's physical existence against future encroachment pressures through reinforced boundary control measures, particularly fencing**.**

Another concern identified by the respondents is the unresolved land claims of the Hai//om people, which continue to be a source of fear among managers and contribute to ongoing tensions with the local

indigenous community residing in the park. Respondents highlighted that, despite Namibia's broader commitment to redressing historical injustices, the question of the Hai//om's ancestral land rights within the ENP remains unresolved. As such, the current contestations surrounding Hai//om land claims are not merely administrative or legal in nature but are also shaped by precedents established in other national parks. Respondents noted inconsistencies in policy implementation across protected areas, particularly when comparing the situation of resident communities in ENP with that in Bwabwata National Park (BNP). In BNP, a more inclusive governance model has been adopted, allowing resident communities to remain within the park while exercising certain user rights over natural resources and maintaining their nomadic pastoralism culture and norms (Paksi & Pyhälä, 2018). Conversely, in ENP, members of the indigenous community are allowed to reside in the park at designated areas, such as ranger stations; however, their access to natural resources and their ability to practise traditional hunting and gathering activities remain restricted under current management arrangements (Dieckmann, 2026). This quandary is further complicated by recent legal developments, in which an association representing members of Namibia's Hai//om community has filed a lawsuit against the government, seeking N$2.8 trillion in compensation for the historical dispossession and forced removal of the community from its ancestral lands within ENP (Menges, 2026). These concerns are further reflected in the perspectives of respondents, as illustrated by the articulations below:

> *"The other issue is an increase in human population, increasing the need for land, and this might force the government to resize Etosha National Park to ensure land availability for the people "* (GM-P11).

> *"And I think we still have the issue of the native people (Hai//om) that is not resolved from the aspect of land dispute. I normally joke and say if I were a Hai//om, I would win that case without a lawyer. Because of the different approaches within the same government in Bwabwata, we allow people to live and exercise certain rights in the park, whereas in Etosha, it is different"* (NLMS-P7).

Increased Rhino Poaching

The increasing rhino poaching incidents are a major fear for the park management as it not only threatens the survival of this high-value species but also expose the limitations of existing enforcement strategies in responding to increasingly adaptive and sophisticated poaching networks. Rhino poaching in Namibia has escalated since 2014, with a progressive increase in incidence (Knight, Mosweub, & Ferreira, 2022), raising

significant concern among park managers that, if this trajectory persists, it may culminate in the localised extinction of the species. The cumulative increase in poaching is attributed to the organisational sophistication of poaching syndicates, which operate through coordinated and well-resourced networks that facilitate intelligence sharing, logistical efficiency, and rapid adaptation to enforcement strategies (Ayling, 2013). In contrast to poaching syndicates, agencies mandated to enforce and implement anti-poaching strategies are frequently constrained by limited resources, tensions amongst security forces, and slower decision-making processes, which subsequently undermine the responsiveness, coordination and overall effectiveness of the strategies (Hübschle, 2017). This creates an imbalance in which highly organised poaching syndicates can respond to and adapt rapidly to changing strategies, while enforcement agencies remain comparatively slow and less flexible, thereby perpetuating poaching. Consequently, there is a growing concern that if the deployed security agencies fail to effectively comprehend and respond to the continually evolving tactics employed by poachers, the persistence of rhino poaching may ultimately drive the species towards extinction.

The concern surrounding poaching is not merely ecological but also relates to the disproportionate allocation of resources to anti-poaching interventions at the expense of other critical park management activities. In this regard, anti-poaching efforts, while necessary, have disproportionately affected the provision of water for wildlife, infrastructure maintenance, wildlife research, and biodiversity conservation in other, less prioritised PAs. These dynamics are well captured in respondents' reflections, which emphasise both the adaptive nature of poaching networks and the systemic strain placed on conservation institutions:

> *"The constant change in the Monads' operandi of poachers leaves law enforcement to re-strategise and come up with new methods to deal with the new trends and tactics of poachers. If the security organs that were deployed are not able to comprehend the ever-changing tactics, I fear that the illegal killing of the rhino might drive this species into extinction"* (NLMS-10).

> *"There is a fundamental issue, the park is consuming a lot of the resources for the whole Directorate of Parks and Wildlife, at the cost of the other parks, and it is because of the rhinos and because of the status of Etosha. Unless that is addressed, it has a negative effect on everything else, and it also does not seem there is much efficiency in using the resources, which is a worry"* (NLMS-P5).

4.4.2.3 Fears Expressed by Freehold Farmers

The primary feared future of the freehold farms aligns with the CCS orientation, accounting for 64% (n=26) of the overall responses recorded under this orientation (Figure 18). Farmers within the landscape most feared a future aligned with the themes of drought/climate change (35%; n=9), legislative concerns and insecurity of land tenure (31%; n=8) and security concerns (7%; n=27). The themes of drought/climate change and security concerns will not be discussed further in this section, as they have already been extensively detailed under Objective 3, specifically in Subsection 4.3.3, which addresses the perceived future threats likely to affect the operations of freehold farms within the EWSL. In addition, other threats can be summarised, in order of importance, as: removal of the Redline, lack of cooperation, HWC, and inadequate management on resettlement farms. A detailed account of the fears associated with freehold farmers is presented below, organised by the dominant thematic categories identified in the analysis.

Legislative Concerns and Insecurity of Land Tenure

Freehold farmers across the landscape expressed strong concerns regarding the restrictive nature of the current legislative framework, which they perceive as limiting their ability to respond effectively to environmental variability and address land degradation. From the farmers' perspective, these concerns are not merely procedural; they reflect a deeper tension between regulatory governance and adaptive land management in a semi-arid landscape. Respondents argued that excessive regulatory requirements (permit, approval processes and compliance obligations) often create administrative barriers that hinder the timely implementation of adaptive land management practices. In a semi-arid landscape where rainfall variability and drought cycles necessitate rapid intervention (destocking & debushing), delays associated with bureaucratic procedures may exacerbate ecological degradation rather than prevent it. Hence, respondents expressed concern that existing regulatory structures often impose significant administrative burdens on farmers, particularly when seeking approval for routine land management activities. This was further substantiated by the articulation of one respondent who noted that "*legislative restriction on natural resources in the country is another concern for the future of my farm. For you to utilise any natural resource on your farm, you need a permit, and it takes a long time for the permit to be issued"* (SLF-P8).

Another fear expressed by the respondents concerns the potential expropriation of land without compensation, an issue identified as a future threat to the operations of freehold farms within EWSL under Subsection 4.3.3. Importantly, this concern extends beyond a narrow focus on land tenure security

and reflects broader anxieties about the country's political drive for land reform. Respondents associated this risk with political campaigns, noting that discussions of land expropriation are amplified during election cycles as political parties seek to mobilise support. Such uncertainty surrounding land expropriation has significant implications for long-term management and investment behaviour, as it undermines landowners' confidence to invest in ecological restoration and infrastructure development on their farms (Lawry et al., 2017). In this context, respondents argued that policy debates on land reform have largely focused on addressing historical inequalities without sufficiently considering the long-term economic impact on the agricultural sector and the country's GDP. This concern is clearly reflected in the articulations of respondents, who linked their feared future to legislative concerns and insecure land tenure, as presented below:

> *"Overregulation in the sector is a major challenge for me as a farmer in achieving the future I envision for my farm. If, for example, you, as a farmer, identify the need for additional boreholes on your farm, you first need to apply for a permit, and you will get taxed for it; there is so much regulation in this sector. Because of these regulations and the unprofitability of farming, most farmers sell their farms, leaving fewer commercial farmers and more resettlement, which cannot contribute to the country's development"* (SLF-P8).

> *"My greatest fear is land expropriation without compensation, we are in an election year, and the different political parties are looking at soliciting votes, and this is a phenomenon that is getting the most attention in the current era"* (SLF-P11).

Respondents expressed strong concerns about the potential removal or realignment of the veterinary cordon fence (Red Line), as they regard it as important for maintaining animal health and market access. The fence plays a crucial role in safeguarding Namibia's disease-free status, which is essential for accessing premium export markets such as the European Union (EU), where beef commands lucrative prices. The fears expressed by the farmers stem from the recent court case (Case No: HC-MD-CIV-ACT-OTH-2021/02075), which challenged the constitutionality of the Red Line and its socio-economic implications. This case has amplified calls to remove the fence, framing it as a colonial-era structure that continues to reinforce spatial and economic exclusion between northern communal areas and southern commercial farms. While these arguments resonate strongly with the broader Namibian society, as detailed in the Report of the Parliamentary Standing Committee on Economics and Public Administration on the review

of the Veterinary Cordon Fence (Red Line) (Government of the Republic of Namibia, 2025b), respondents emphasised the potential consequences of the gradual removal of the fence towards the agriculture sector. Without the Redline protection, Namibia risks losing not only its international reputation as a top-quality meat exporter, but also much-needed foreign currency to support the Namibian agricultural sector (Legal Assistance Centre, 2020). Collectively, these findings illustrate how the Red Line has evolved as a central feature of Namibia's conservation and land-use system, reflecting past approaches rooted in segregation and disease control, shaping present-day priorities around animal health and market access, and increasingly becoming a focal point in future debates over equity, land reform, and the sustainability of agricultural and conservation systems. Hence, the ongoing debates regarding the removal of the Redline not only shape perceptions of future risk among freehold farmers but also highlight the need for an evidence-based reform that carefully balances these competing priorities (Government of the Republic of Namibia, 2025b). Examining alternative approaches adopted elsewhere in the region provides valuable insights into how this balance can be achieved. In this respect, Botswana offers a useful regional benchmark, as it exports beef to the same premium EU market without relying on a single veterinary cordon fence (Kabelo et al., 2023), equivalent to Namibia's Red Line. Instead, Botswana has developed an internationally recognised veterinary disease-control system founded on disease zoning and supported by multiple veterinary cordon fences, quarantine facilities, livestock movement controls, active disease surveillance, and stringent veterinary certification (Kabelo et al., 2023). This zoning approach enables only designated FMD-free zones to access export markets, while outbreaks occurring in infected zones are contained without necessarily disrupting exports from unaffected areas. Conversely, Namibia's Red Line system adopts a more precautionary spatial approach, whereby extensive areas north of the veterinary cordon fence remain excluded from premium export markets even in the absence of active FMD outbreaks, a situation that continues to fuel debates over equity and market access (Government of the Republic of Namibia, 2025b). The above discussions are substantiated by the articulated responses to their concerns, presented in more experience-based terms, reflecting how these broader debates are interpreted and internalised at the farm level, as presented below:

> *"The removal of the Red line is concerning because I have a slaughtering business. Personally, my biggest concern for my future is selling our product to the European Union (EU). We have an EU-bound relationship that is closely linked to the veterinary cordon fence. On paper, it looks very nice, but for the men on the ground, there are a couple of headaches because you have a few slaughter export facilities in this country.*

At this point, there are only two main abattoirs in Windhoek. These are the A-graded slaughter facilities; now they have the option of selling their meat to a 400-ton Norwegian market and selling it for a lot of money overseas. This red line and protecting our veterinary status, protection against foot and mouth disease and lung sickness must all be in place to manage the system and ensure lucrative returns" (MLF-P4).

"The removal of the Red-line is a big threat, it is a political issue, and an emotional issue, and people are not using their logic on the impact that the removal of the fence will have on a country like Namibia" (MLF-P5).

4.4.3 The Idealised Conservation Future of EWSL

A total of 331 responses were analysed deductively to determine the idealistic future of the EWSL area (Appendix 7). Similarly, as the most probable future, the idealistic future is predominantly characterised by the NC orientation, observed in 44% (n=145) of overall responses (Figure 19). Surprisingly, the CSS orientation emerges as the second most prevalent future despite being recognised as the most feared future amongst the conservation fraternity within the landscape. This demonstrates the complexity of biodiversity conservation in the country, where ecological, socio-economic, and governance dimensions are interconnected, necessitating an integrated, adaptive management approach to achieve sustainable outcomes. Additionally, the observed disparity highlights the need for continued efforts to achieve social justice in conservation, as 25% (n=84) of respondents chose to utilise their absolute authority and abundant resources to address this issue effectively. The MB orientation follows closely behind the CSS orientation, evident in 24% (n=78) of responses, while the TC orientation ranks last at 7% (n=24) (Figure 19). The popularity of this orientation has decreased among conservation leaders, from the current orientation to the idealised future orientation. This decline has important implications for the future of biodiversity conservation, suggesting that exclusionary approaches such as fortress conservation and limited community involvement in managing PAs, though effective at safeguarding specific ecological processes, often fail to account for the complex socio-ecological realities of contemporary conservation landscapes (Retief et al., 2025). This orientation (TC) has come under scrutiny in the current century from multiple authors, such as Mace (2014) and Büscher and Fletcher (2020), with contemporary practices and developments in the country reflecting this paradigm shift, as exemplified by Hering et al. (2022) and Hauptfleisch et al. (2024a; 2024b).

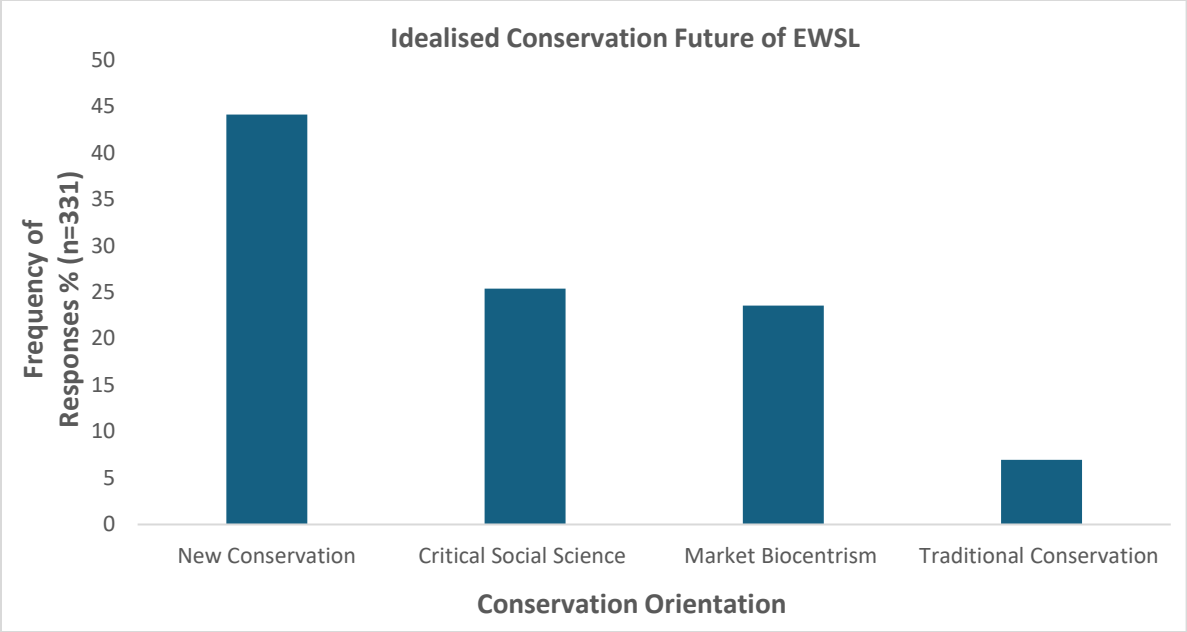


Figure 19: The perceived idealised future orientation of biodiversity conservation within the Etosha West and South Landscape area, as extracted from the responses of participants.

4.4.3.1 Idealised Conservation Future of the Communal Conservancies within EWSL

The idealised future refers to the scenarios the respondents envision for the CBNRM sector, assuming they have absolute authority and abundant resources. In total, 158 responses were analysed, with 52% (n=82) from CMC and 48% (n=76) from SO (Figure 20). The NC orientation is the dominant idealised conservation framework, accounting for 48% (n=76) of overall responses, followed by CSS at 32% (n=51). The MB orientation accounted for 18% (n=29), with TC the least popular orientation in the CBNRM sector, accounting for only 1% (n=2) of the overall responses. When data were analysed from a stratum perspective, the idealised future among the CMC balances social justice (CSS) and coexistence with wildlife (NC), with each accounting for 40% (n = 33) (Figure 20). Support Organisations invested most of their resources in harmonising coexistence between humans and wildlife within the landscape (NC), accounting for 57% (n=43) of overall responses (Figure 20). Below is a detailed description of the future idealised by the participants, representing the conservancies, categorised in thematic areas that capture the dominant narratives.

Scenario of Abundant Resources – Community Management Committee

Empowering Youth for Future Conservation

In a scenario in which respondents were presented with abundant resources, the community prioritised improving social justice and equity across both conservancies. In this scenario, participants consistently prioritised interventions to address structural socio-economic challenges affecting young people in communal areas. Notably, 70% (n=23) of responses recorded under the CSS orientation indicated that respondents would allocate significant financial resources toward improving the circumstances of youth residing within the conservancies. Respondents perceived youth empowerment not only as a social development priority but also as a strategic intervention for addressing several persistent challenges affecting conservancy governance and natural resource management. They argue that many of the social problems currently experienced within conservancies, such as poaching, stock theft, alcohol and drug abuse, are often linked to limited meaningful opportunities for the youth living in rural areas. These perceptions are consistent with previous research demonstrating that socio-economic marginalisation, unemployment, and limited livelihood opportunities increase young people's vulnerability to risky behaviours and engagement in illegal livelihood strategies (Mulama & Nambinga, 2017)

Beyond addressing immediate social challenges, respondents also framed youth empowerment as a long-term investment in the future governance and management capacity of conservancies. Respondents emphasised that the next generation will eventually assume leadership roles within conservancy institutions and therefore, require adequate education, training and professional development opportunities. This reflects a broader recognition that effective community-based conservation depends on continuous investment in local human capital to ensure institutional continuity, adaptive governance and the transfer of conservation knowledge across generations (Berkes, 2007). By investing in youth education and skills development, conservancies may strengthen their institutional resilience while ensuring that future leaders are equipped with the knowledge and competencies required to manage complex socio-ecological landscapes. Such investments may include academic scholarships, vocational training programmes and leadership development initiatives designed to prepare young people for roles in conservation management, tourism enterprises and community governance. These interventions not only strengthen institutional capacity but also diversify local livelihood opportunities, thereby reinforcing the socio-economic incentives that underpin successful community-based conservation (Naidoo et al., 2016). Collectively, these perspectives demonstrate that respondents viewed youth empowerment as extending beyond social welfare or employment creation. Rather, it was perceived as a strategic

mechanism for strengthening governance, enhancing community resilience, promoting intergenerational equity and ensuring the long-term sustainability of conservancy institutions. Respondents' articulation below supports this discussion.

> *"I will invest much money into the youth by providing scholarships and bursaries to further their education at accredited universities and technical schools"* (CMC-P4).

> *"I will start a youth centre within the conservancy because the youth are the future, and most of our youth are into substance abuse because they do not have anything to keep them busy. So, I would start a youth centre where the youth can be educated and get the necessary training, learn from each other, and have fun while learning"* (CMC-P16).

Investment in Wildlife Populations

Grounded within the NC orientation, respondents presented a vision of the future in which abundant financial resources would be strategically invested to increase wildlife populations within the conservancies and broader landscape. In total, 33% (n=11) of responses associated with the NC orientation indicated that respondents would prioritise allocating financial resources to wildlife restocking initiatives to increase wildlife populations within the conservancy, to strengthen the ecological and economic foundations of the local tourism industry. This aspiration reflects the widespread recognition among community members that wildlife populations constitute the primary economic asset underpinning the conservancy's tourism-based economy. Increasing wildlife abundance will enhance the conservancy's attractiveness as a tourism destination by improving visitor experiences and generating greater revenue from both consumptive and non-consumptive tourism (Child & Barnes, 2010; Naidoo et al., 2016). Goergen et al. (2024) demonstrated that the financial sustainability of community-based conservation initiatives depends heavily on conservancies' ability to maintain healthy wildlife populations that support competitive tourism products.

The respondents' desires also resonate strongly with the principles of MB orientation, which emphasises the economic value of biodiversity and the role of market-based mechanisms in promoting conservation outcomes. Within this framework, wildlife is viewed as a valuable natural capital asset that can generate revenue through tourism investments, thereby incentivising local communities to support biodiversity conservation (MEFT/NACSO, 2024). Several respondents envisioned ambitious tourism development initiatives that would capitalise on increased wildlife abundance, including the establishment of high-end

tourism facilities designed to attract international visitors. As one participant noted, such investments could involve *"developing unique lodges, rated as a 10-star, and increasing the number of campsites within the conservancy"* (CMC-P16). This statement illustrates the aspirational nature of respondents' visions, in which tourism expansion is seen as a pathway to transforming conservancies into competitive tourism destinations that can generate substantial economic returns for communities. These aspirations are consistent with broader evidence demonstrating that nature-based tourism can generate substantial local economic benefits when wildlife populations are healthy, tourism products are competitive, and revenues are equitably distributed among community members (Naidoo et al., 2016).

However, respondents also acknowledged that increasing wildlife populations may simultaneously intensify HWC within the conservancy. This understanding reveals the complex trade-offs inherent in community-based conservation. While increasing wildlife abundance can strengthen biodiversity conservation and tourism revenues, expanding wildlife populations may also increase crop damage, livestock predation, infrastructure damage and threats to human safety, particularly where human settlements and agricultural activities overlap with wildlife habitats (Zimmermann et al., 2021). Such trade-offs have become one of the defining challenges facing conservation landscapes at local and regional scales, requiring management approaches that balance biodiversity objectives with local livelihood security (Redpath et al., 2013). Recognising these challenges, respondents have emphasised that investments to increase wildlife populations must be accompanied by effective coexistence strategies that reduce conflict while maintaining the ecological and economic benefits associated with wildlife conservation. Suggested interventions included constructing additional elephant water reservoirs, expanding wildlife monitoring using GPS collars and early-warning systems, and reforming the HWC policy. Similar interventions have been widely recommended within the conservation literature as components of integrated human-wildlife coexistence strategies that combine technological innovation, financial incentives, community participation and adaptive management to improve conservation outcomes while reducing local costs (Pooley et al., 2021; Zimmermann et al., 2021; Gross et al., 2021). Hence, combining wildlife restocking initiatives with conflict mitigation strategies and tourism development investments may enable conservancies to develop integrated conservation models that simultaneously promote biodiversity protection and rural economic development. The quotes below substantiate the claims made above in the discussions:

> "*I will invest the money in restocking the conservancy and buying wildlife from the Ministry to ensure we re-populate our area with wildlife"* (CMC-P1).

"I will construct more elephant reservoirs within the conservancy to address the conflict that occurs between the people and the elephant" (CMC-P5) or *"I will invest in collars so that the movement of lions can be monitored, and local farmers can be warned about the presence of those animals in their area so they to take the necessary precautions"* (CMC-P23) and *"I will start a livestock scheme to replace the livestock of the farmers lost because of HWC"* (CMC-P13).

Scenario of Abundant Resources – Support Organisation

Investment in Human-Wildlife Co-existence

The idealised future of SO is predominantly characterised by the NC orientation, which accounts for 57% (n=43) of total responses (Figure 20). Equally, as with the most probable future, SO has no place for TC in their idealised future, with the future centred on reshaping policies and allocating resources to activities that enhance human-wildlife co-existence (NC) and social justice and equity (CSS). Abundant resources in this stratum were primarily invested in humanitarian initiatives, accounting for 48% (n=29) of the overall responses recorded under the NC and CSS orientation. These initiatives prioritised rangeland rehabilitation, infrastructure development and the welfare of the people, all of which have an integral role in enhancing the community's resilience and facilitating adaptation to the country's extreme environmental conditions, which may be further intensified by climate change. These measures are complemented by efforts to strengthen household-level resilience through targeted investments in securing homesteads, improving irrigation infrastructure and establishing protective livestock enclosures, designed to improve food security and reduce household vulnerability to wildlife. Such interventions will contribute to the broader socio-economic stability of conservancies, which is widely regarded as fundamental to the long-term success of conservation initiatives (Child, 2019), particularly in the semi-arid EWSL area where livelihoods remain highly vulnerable to climatic variability, recurrent droughts and land degradation.

Additionally, respondents also proposed investing in proactive interventions designed to maintain ecological integrity and landscape connectivity across the broader conservation landscape. One notable proposal involved acquiring commercial farms to facilitate the voluntary relocation of farmers currently operating in wildlife-sensitive zones or ecological corridors. This approach is perceived as a strategic mechanism to restore wildlife dispersal routes and strengthen ecological connectivity between protected areas and surrounding landscapes. By reducing human settlement and agricultural activities within key

wildlife corridors, such interventions could support large-scale ecological processes and improve the long-term viability of wildlife populations across the region (Mannetti et al., 2017). Furthermore, this approach will be valuable in addressing HWC, which remains a persistent challenge within communal conservancies. The proposed relocation of farming activities from wildlife corridors would reduce spatial overlap between wildlife habitats and agricultural areas, thereby minimising opportunities for conflict between communities and wildlife. This strategy becomes particularly relevant when considered alongside CMCs' aspirations to increase wildlife populations in these areas, which may intensify HWC if not accompanied by appropriate spatial planning and conflict-mitigation measures. This was substantiated by the assertion of respondents below:

> *"I would invest in securing people's homesteads, with backyard gardens and proper water points for them to irrigate those vegetable gardens. Because nutrition is a real problem here, they eat meat, but to get fresh vegetables and fruit every time, they grow a small garden, the elephants come in, so we need to secure that. I will also invest in protective areas against predators for livestock, and we need a rangeland management plan for livestock carrying capacity that incorporates wildlife and livestock"* (SO-P2).

> *"I will procure commercial farms and resettle every farmer who is farming in the conservancy wildlife zone or sensitive areas within the conservancy to free up these wildlife corridors and ensure landscape connectivity at a larger scale"* (SO-P14).

Investment in Capacity Building

In addition to humanitarian initiatives, respondents placed considerable emphasis on capacity development for community members and staff of supporting organisations, particularly in governance, financial management, and service delivery. This theme accounted for 23% (n=10) of the perceptions recorded under the NC orientation (Figure 20) and was primarily motivated by the need to address persistent governance challenges within conservancies, including asset mismanagement and limited technical expertise to manage increasingly complex conservation enterprises. Strengthening institutional capacity was therefore considered essential to enabling conservancies to evolve into effective community-based organisations (CBOs) capable of managing natural resources, economic activities, and community development.

Participants emphasised that developing competencies in governance, financial oversight, and business management would enable SO to guide the commercial arms of conservancies more effectively while fostering institutional systems that support diversified livelihood opportunities beyond wildlife-based enterprises. This is important because conservancies are expected to assume responsibilities that extend far beyond wildlife protection (MEFT/NACSO, 2023). These responsibilities include managing substantial revenues, supervising employees, negotiating tourism and hunting contracts, maintaining institutional records, organising annual general meetings, monitoring natural resources and distributing benefits among members (MEFT/NACSO, 2024). During the early stages of the CBNRM programme, SO played an important role in assisting communities in establishing representative institutions, preparing conservancy constitutions, developing management systems, negotiating contracts, and establishing wildlife- and tourism-based enterprises (Jones, 2004). However, as conservancies have evolved into increasingly complex socio-ecological and business-oriented institutions, capacity building should not be viewed as a one-off intervention confined to the establishment phase. Rather, it should be recognised as a continuous institutional process that enables SO and conservancies to adapt to changing ecological conditions, evolving regulatory requirements, dynamic tourism markets, and the growing governance and development expectations of their members. Similar observations have been made by Hoole (2010), Child (2019) and Goergen et al. (2025), who argue that the long-term success of Namibia's communal conservancies depends on sustained institutional support, adaptive governance, continuous capacity development and effective management systems capable of responding to evolving conservation and socio-economic challenges. Supporting this view, Barnes et al. (2002) demonstrated that conservancies require ongoing technical, organisational and managerial support to fulfil the increasingly complex financial, administrative and governance responsibilities that accompany the devolution of natural resource rights.

Capacity development was also closely linked to the MB orientation, as stronger governance and professionalised management structures were perceived as prerequisites for attracting private investment and developing sustainable tourism enterprises. Credible partnerships with the private sector depend on conservancies' ability to build transparent and accountable institutions, as investors are more likely to engage in long-term conservation-based ventures when governance structures demonstrate financial accountability and managerial competence (Child, 2019). As one participant emphasised, such partnerships can only be realised if conservancies *"…have good managers, good financial people and good governance to attract good investment"* (SO-P2). Collectively, these institutional improvements are

considered critical for unlocking the economic potential of conservancies while ensuring that the benefits from conservation enterprises are distributed equitably among community members. The articulation of respondents below supports the discussion made above.

> *"I will make sure that these two conservancies are fully supported. The three areas that I would like to invest in will be their governance, making sure they have a good governance system and making sure that they have excellent business systems in place with advisors and people who are technical to assist them in achieving good governance and solid business modules. Moreover, I will ensure they have a full contingent of ecologists and biologists on the ground if they must look at ecological services. If it concerns businesses, I will ensure they have a contingency plan to develop a successful business model that ensures a higher profit return and more benefits for the community. Despite the little we give as a support organisation, we expect too much from the conservancy, which is why it will not work"* (SO-P9).

> *"We need qualified bookkeepers to manage conservancy finances effectively. Expecting someone with only a sixth-grade or eighth-grade education to handle millions of dollars generated by the conservancies is unrealistic. I would not trust my finances with someone who does not have the appropriate qualifications and experience, so why should a conservancy which earns millions of dollars per year and potentially tens of millions in the future settle for unqualified bookkeepers"?* (SO-P2).

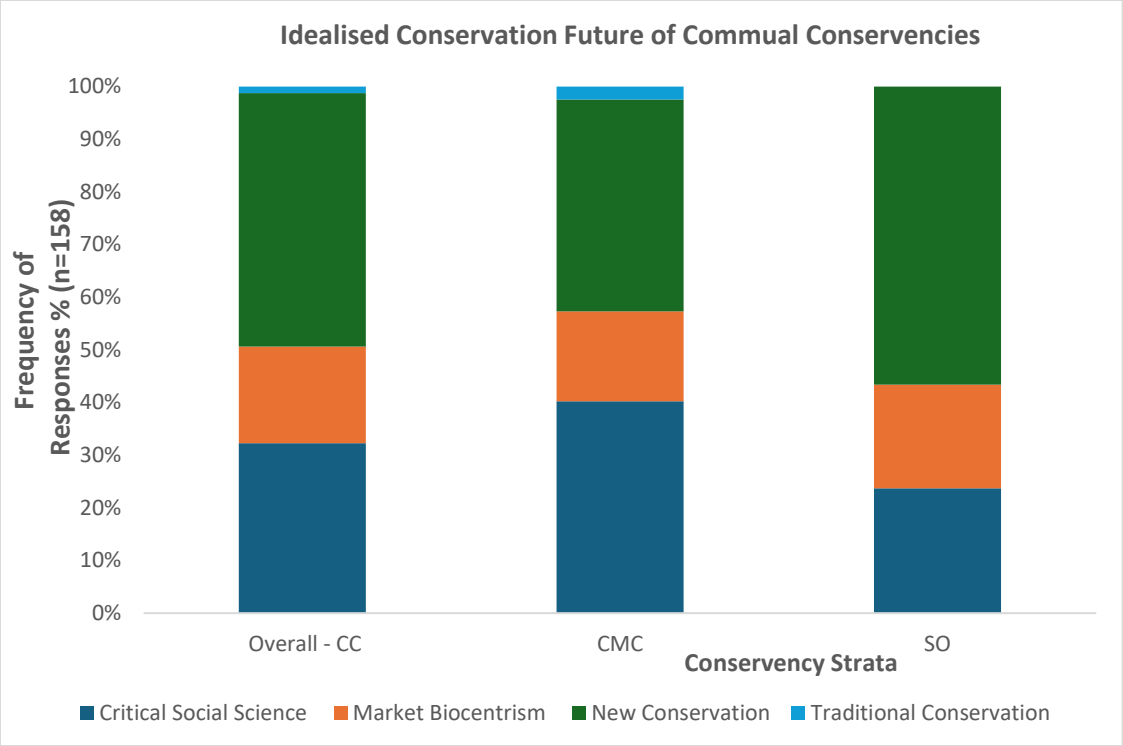


Figure 20: The percentage of responses classified under each conservation orientation type, illustrating the idealised conservation future of conservancies within EWSL, with data presented for the overall land use type and per stratum of land use (CMC and SO).

Scenario of Absolute Authority – Conservancy Management Committee

Amendment of the HWC Policy

When respondents were presented with a scenario in which they had absolute authority over policy decision-making, an overwhelming majority (91%; n=34) of CMC members expressed dissatisfaction with the current HWC offset policy and indicated that they would prioritise reforming it to address perceived structural injustices affecting rural communities. The responses reveal that the most pressing concern is the inadequacy of the compensation amounts provided under the current offset mechanism, which accounted for 64% (n=21) of participant responses. Respondents argued that current compensation values fail to adequately reflect the economic losses experienced by rural households affected by wildlife-related damage, thereby undermining the policy's effectiveness in addressing the socio-economic consequences of HWC. These perceptions are consistent with findings reported in the broader literature and policy debates surrounding Namibia's HWC offset framework. Scholars such as Gargallo (2021) and Luetkemeier et al. (2023), as well as the Parliamentary Standing Committee on Natural Resources (2025),

collectively indicated that the current offset amount is significantly below market value and is not reflective of the severity of the problem on the ground, in terms of trying to address rural poverty. Although the policy was developed through national consultative processes involving all stakeholders (Government of the Republic of Namibia, 2018), persistent dissatisfaction among communities suggests that the outcomes of these consultations may not have adequately reflected their views. Furthermore, these offset amounts were determined based on government fiscal constraints and administrative feasibility, rather than on full market replacement values, as providing full compensation would be expensive for the state and could create loopholes that might encourage misuse or fraudulent claims (Government of the Republic of Namibia, 2018).

Respondents also raised concerns about the limited scope of the current offset policy, noting that several wildlife species responsible for significant crop and livestock damage remain excluded, while damage to critical rural infrastructure, such as waterpoints, windmills, fences, and storage facilities, frequently caused by large wildlife species, remains uncovered. As a result, farmers and community members are often left to bear the full financial burden of these losses, which, over time, has contributed to growing negative attitudes toward wildlife. Consequently, respondents advocated a comprehensive revision of the policy to expand its scope to include a broader range of conflict-causing species and to provide compensation for damaged infrastructure. This is consistent with the recommendations of the Parliamentary Standing Committee on Natural Resources (2025), which concluded that infrastructure damage (such as water tanks, windmills, fences, and houses) caused by wild animals should be considered for offset. The articulation below by respondents supports the above discussions.

> *"I will change the HWC policy in terms of the offset and fully compensate farmers who have lost their livestock to wildlife*" (CMC-P8)

> *"With the powers, I will change the Human-wildlife conflict policy to include species causing problems in the conservancy but not catered for within the policy. Animals like Baboons eat small goats and raid crop fields and backyard gardens, but the policy does not cater to them. The honey badger and eagles feed on our chicken, but the policy does not cover that; equally, the black mamba is also not included in the policy, but they kill much of our livestock. I will also expect compensation for infrastructure, especially waterpoint infrastructure and fences, because they get destroyed a lot and*

farmers are not reimbursed for that infrastructure as per the current policy" (CMC-P23).

Scenario of Absolute Authority - Support Organisation

Consolidation of CBNRM Policy

The influence of legislation on the effectiveness and long-term sustainability of the CBNRM sector is reflected in the reforms proposed by support organisations when asked what they would implement if granted full decision-making authority. Those responses accounted for 36% (n=22) of the total articulations recorded within the NC and CSS orientation, demonstrating the complexity of the problem and providing needed insights into why legislation ranks among the top ten future threats to the CBNRM sector (Figure 20). The proposed changes to the legislation aim to ensure efficient management of natural resources, enhance the benefits derived from them and strengthen the conservancy's governance framework. Support Organisations have recognised the need to secure equitable rights over natural resources for the CBNRM programme, similar to those extended to freehold farms, where landowners possess stronger and clearly defined rights over wildlife and other natural resources. While accountability mechanisms are necessary, the current legal framework governing conservancies is often characterised by excessive conditionality attached to community rights, which may inadvertently undermine conservancies' autonomy and decision-making authority. These layered regulatory conditions are perceived to constrain communities' ability to fully utilise their natural resources and respond flexibly to emerging economic opportunities. For example, restrictions on the harvesting and utilisation of encroacher bush limit conservancies' ability to participate in charcoal production, despite the widespread prevalence of bush encroachment in many conservancies and any communal land (Ministry of Environment, Forestry and Tourism, 2023). This quandary prevents communities from converting an ecological challenge into a viable economic opportunity while simultaneously restoring degraded rangeland.

One of the legislative limitations frequently highlighted concerns the limited enforcement authority granted to community game guards under the existing legal framework. While these guards play a pivotal role in anti-poaching patrols, wildlife monitoring and conflict mitigation, their ability to enforce conservation laws remains constrained, often requiring intervention from state law enforcement agencies (Republic of Namibia, 1975). Strengthening the legal mandate for community game guards would significantly improve enforcement capacity and reduce poaching at the local level. As one participant

noted, this could be achieved by *"…giving the game guards the full power to arrest and execute full law enforcement powers just as the police or MEFT officials"* (SO-P11).

The most significant legislative reform proposed by respondents is to consolidate and harmonise the laws governing the use of natural resources in communal areas. Presently, wildlife, land, water, and forest resources are governed by separate sectoral legislation and overseen by different government institutions. This arrangement frequently results in fragmented governance, overlapping mandates, and regulatory conflicts, ultimately constraining institutions and communities' ability to implement integrated natural resource management strategies. Support organisations, therefore, advocated integrating all natural resource-related legislation into a unified legislative framework capable of governing the full spectrum of resources within communal conservancies. This approach is aligned with Namibia's Vision 2030, which has proposed the harmonisation of all natural resources in those areas and beyond as a strategy to achieve the expansion of conservancies to 160, covering 71% of communal land, while ensuring they are all financially self-sufficient, relying only on the government for technical advice and assistance (Government of the Republic of Namibia, 2004). Additionally, this approach facilitates the transition from a wildlife-centred conservation model to a more holistic, community-based natural resource management approach that can effectively protect natural resources in the latter half of the 21st century. This reform would enable communities to exercise greater control over multiple resources, thereby strengthening local governance systems and enhancing the economic viability of conservancies. This concern is largely driven by the issuance of mining licences in ecologically sensitive wildlife areas and the allocation of land for settlement and grazing within conservancies' exclusive wildlife zones by traditional authorities, issues highlighted under future threats (Section 4.3.1). Hence, this consolidation of approach is widely perceived as a critical safeguard for the programme's future. The participants' responses presented below support the discussions made above.

> "*The amendment act of the Nature Conservation Ordinance of 1996 has a lot of conditionality attached to the exercise of conservancy rights, and this is the biggest challenge because we just add layers of conditionality. I will remove all the conditional rights attached to the CBNRM program when it comes to utilising and exercising those rights"* (SP-P5).
>
> *"The first aspect that I will tackle with the power is integrating all natural resources under one legislation so that we are not talking about conservancies, which*

predominantly look at wildlife, but we transition to the real CBNRM. Additionally, I will transform communal conservancies into legal entities registered in the deeds office, so they have more control over the resources within their jurisdiction" (SO-P8).

Sustainability of the CBNRM Program

The long-term sustainability of the CBNRM programme emerged as a significant point of debate among SO, with many respondents emphasising the need to reassess the programme's operational model and long-term viability. Concerns were raised about the extent to which conservancies rely on wildlife-based revenues as their primary source of livelihood. While respondents acknowledged the critical role of natural resources in supporting rural livelihoods, there was a broad realisation that an exclusive reliance on wildlife-based income streams may undermine the long-term viability of the CBNRM programme, particularly amid climate variability and fluctuating tourism markets. These perspectives reflect a growing awareness within the CBNRM sector, as also discussed in Section 4.3.1 and highlighted by the impacts of the COVID-19 pandemic, that wildlife-based revenue modules are significantly fragile (Lendelvo, Pinto & Sullivan, 2020). Respondents therefore advocate for a more integrated livelihood model that combines conservation with agriculture and enterprise development beyond nature-based resources to strengthen livelihoods and ensure household-level food security. This is consistent with the findings made by Kanapaux and Child (2011), Jones et al. (2013) and Hulke et al. (2021), who discovered that most households in the conservancies continue to rely significantly on agriculture, collection of natural products and social assistance, rather than on the benefits from consumptive and non-consumptive tourism. Considering this reality, respondents emphasised that agricultural production should not be framed as incompatible with conservation objectives, but rather recognised as a complementary livelihood activity that can strengthen food security while reducing pressure on wildlife resources. This approach will allow us to integrate conservation objectives with traditional agricultural practices and cultural livelihood systems, thus preventing the marginalisation of long-standing rural land-use traditions that have historically underpinned livelihoods in communal areas. The respondents' articulations below support the discussion made above.

"Our economies should not be built around natural resources. We must seek external economies that supplement conservation and community development efforts" (SO-P15).

"What we need to do is not look at the agriculture sector as our enemy, but maybe look at it as our friend, because at the moment, the biggest issue is the drought and hungry people, which you cannot do anything with. So, let us try to create innovative feeding systems and livelihood systems, starting with agriculture, to provide people with food. Then, ensure that any surplus is available on markets where people can sell these products. I am exploring innovation in other areas that will address everything from food security to utilising agriculture as a tourism activity, while also enabling business opportunities, rather than relying solely on tourism. Additionally, because I do not want conservation practices to wipe out all the agricultural cultural norms, we must ensure that we remain with our cultural activity while remaining open to other practices that will complement our livelihoods" (SO-P9).

4.4.3.2 Idealised Conservation Future of ENP

To comprehend the idealised future of ENP, a total of 111 responses were analysed deductively (Appendix 7), assuming that leadership has absolute authority and abundant resources. Of the total responses, 48% (n=53) were obtained from the NLMS, compared with 52% (n=58) from GM (Figure 21). The NC orientation emerged as the predominant idealised conservation future for the managers of the park, which was observed in 50% (n=56) of the total responses, with respondents hoping to foster more excellent collaborative relationships with their neighbouring stakeholders and transition towards a landscape-scale conservation approach that ensures that ENP does not continue to be an island from the multi-dynamic landscape that surrounds it (Mannetti et al., 2017). The TC orientation was the second most popular framework, accounting for 18% (n=20) of responses, closely followed by the MB orientation at 17% (n=19). The CSS orientation was the least popular among the managers, accounting for 14% (n=15) of the overall responses. When data were analysed by stratum, NC orientation emerged as the most popular framework in both strata, accounting for 45% (n=24) and 55% (n=32) of the overall responses recorded by the NLMS and GM, respectively. Below is a detailed description of the future idealised by respondents representing park management, categorised into thematic areas that capture the dominant narratives.

Scenario of Abundant Resources - National Level Ministerial Support

Sustainable Park Management and Service Delivery

When NLMS were presented with a hypothetical scenario in which sufficient financial resources were available, a substantial proportion of respondents indicated that such resources would be directed toward initiatives aligned with NC (46%; n=10), TC (31%; n=7) and MB (18%; n=4) orientations (Figure 21).

Collectively, these responses suggest that respondents favour a strategic, multifaceted investment approach to strengthen the park's long-term sustainability and support a transition to landscape-level management. Respondents prioritised upgrading critical park infrastructure, including road networks, ranger stations, and visitor facilities, to improve operational efficiency. Although these interventions were primarily categorised under the NC orientation, they also exhibit strong synergies with the MB orientation, particularly regarding tourism revenue generation. The condition of park infrastructure plays a significant role in shaping tourist experiences and accessibility, ultimately influencing visitation levels and revenue generated (Mukanjari et al., 2021; Kalvelage et al., 2021). Similar investment priorities have been adopted across southern Africa, where flagship PAs have consistently invested in tourism infrastructure to enhance visitor experiences while generating financial resources to support biodiversity conservation and park management (Biggs et al., 2014). Respondents therefore recognised that infrastructure investment is not only an operational necessity but also a means of improving the financial sustainability of protected areas.

Beyond infrastructure development, respondents highlighted the importance of strengthening the park's scientific research capacity to support evidence-based management. Several participants expressed concern that the research function historically associated with ENP has diminished over time, potentially limiting managers' ability to respond effectively to emerging ecological challenges. Consequently, respondents proposed revitalising the park's research programme and developing a comprehensive management plan to guide future conservation interventions. These aspirations are consistent with recognised best practice in PAs management, which emphasises that adaptive management depends on continuous ecological monitoring, research and the integration of research findings into management decisions (Wilson & Anthony, 2023). Adaptive management has become a cornerstone of conservation management in PAs because it enables managers to respond proactively to changing ecological conditions, climate variability, invasive species, wildlife population dynamics and other emerging conservation challenges (Ranius et al., 2023; Gillingham et al., 2024).

While these measures focus on strengthening internal management systems, respondents further recognised that the long-term success of ENP also depends on improving relationships between the park authority and neighbouring communities. Etosha National Park exists within complex socio-ecological landscapes where conservation outcomes are closely interlinked with local livelihoods and land-use practices. Hence, conservation cannot be achieved solely within the park's boundaries but must also involve proactive engagement with surrounding communities. This finding reflects a broader shift in conservation thinking from managing PAs as isolated ecological units towards integrated landscape

conservation that recognises ecological connectivity and the importance of collaborative governance across multiple land-use systems (Cumming & Allen, 2017). Similar approaches have been implemented, with the most notable being the Kavango-Zambezi Transfrontier Conservation Area (KAZA TFCA), where conservation agencies increasingly collaborate with neighbouring communities to improve wildlife management, strengthen human-wildlife coexistence and facilitate cross-boundary conservation planning (Stoldt et al., 2020). To facilitate this engagement, one respondent proposed *"…establishing stations outside the park to ensure engagement and bring services close to the people. If you look around Etosha, you do not have a close station that can immediately reach out and successfully address the community's problems"* (NLMS-P7), thereby improving communication between communities and the Ministry. Such an intervention is primarily intended to enhance responsiveness to the high and persistent incidence of HWC across the broader landscape. Although establishing additional management stations outside the park may involve considerable financial and administrative challenges, these proposals illustrate respondents' recognition that successful conservation increasingly depends upon balancing biodiversity protection with community well-being. Similar trade-offs have been documented throughout southern Africa, where conservation agencies continue to seek innovative approaches that integrate PA management, community engagement, tourism development and human-wildlife coexistence within multifunctional landscapes (Gross et al., 2021). The articulations below support the discussions above.

> *"I will invest resources in tarring the main roads within the park due to the high maintenance costs associated with the gravel roads posing significant challenges towards sustainable park management"* (NLMS-P4).

> *"I will invest in the development of a management plan for the park, which should be a guiding tool to ensure the effective management of the park and equally important is to revamp and bring back the research component to ensure that management decision is based on/informed by scientific undertakings and findings"* (NLMS-P6).

Fencing of the Park

To complement the broader management strategies associated with the NC orientation, respondents from the NLMS stratum strategically allocated resources to addressing what has been identified as the most significant threat to the future of ENP (rhino poaching) (Table 9). Several proposed interventions align closely with the core principles of the TC orientation, which emphasise strong protectionist measures to safeguard biodiversity through enhanced security and boundary fences. The respondent identified the

boundary fence as a crucial strategy, as it restricts unauthorised access to the park, prevents the illegal entry of livestock, and deters opportunistic poachers (Ferguson & Hanks, 2010). Conversely, the reliance on fencing as a conservation tool remains a subject of debate within the conservation literature. A growing body of research suggests that while fences can be effective in limiting illegal access and reducing poaching pressure, they can also produce unintended ecological consequences. For example, fences have been shown to impede wildlife movement significantly (Hering et al., 2022; Hauptfleisch et al., 2024a), disrupt ecological connectivity across landscapes (Mannetti et al., 2017), and restrict the seasonal migrations of many wildlife species. Given that ecological processes frequently extend beyond the borders of national parks into surrounding communal conservancies and commercial farms, fences can disrupt ecological connectivity, thus undermining both biodiversity conservation and the economic viability of neighbouring communities that depend on wildlife-based tourism. Recognising these trade-offs, several respondents proposed modernising traditional protectionist strategies by integrating emerging technologies that balance security objectives with ecological functionality. For example, the concept of artificial smart gates installed at key wildlife corridors was proposed as a mechanism to maintain wildlife dispersal between the park and adjacent landscapes while preserving the security benefits of a fenced park. Such systems use sensor-based technologies or species-specific passage structures to selectively permit the movement of target wildlife while maintaining boundary control and reducing unauthorised animal movements (Palmeret et al., 2026). Similar artificial passageways have been successfully tested in Namibia to improve landscape connectivity for selected wildlife species while maintaining the integrity of wildlife-proof fences (Weise et al., 2014). However, the effectiveness and appropriateness of this approach depend largely on the nature of the adjoining land uses. Where ENP borders densely populated communal areas characterised by crop cultivation and livestock production, facilitating the movement of elephants and large carnivores will not be appropriate, as this could increase HWC and associated socio-economic costs (Kesch et al., 2015). Conversely, controlled wildlife movement is likely to be more appropriate where the park adjoins communal conservancies or freehold farms with compatible land-use practices, depending on the species. The placement of smart gates should be informed by ecological connectivity assessments, wildlife movement patterns, compatibility with adjacent land uses, and the availability of the technological infrastructure necessary to support their effective implementation, including reliable connectivity to the communication network. This technological advancement demonstrates how technological innovation can be leveraged to improve conventional TC strategies, better accommodating the complexities of the dynamic socio-ecological system. The assertions of respondents supported this, as presented below:

"If I have abundant resources, I will upgrade the fence of Etosha National Park, which is dilapidated, to ensure park visibility and curb the driving-in of livestock into the park. Additionally, I will install artificial smart gates at important wildlife dispersal corridors to ensure wildlife moves freely between the park and adjacent land-use" (NLMS-P10).

"*With the abundant resources, I will invest in a sophisticated monitoring and warning system that uses radar to detect poachers and other illegal park entries"* (NLMS-P5).

Scenario of Abundant Resources Authority – Ground Managers

Analysis of responses from GM revealed that 83% (n=48) aligned with the abundant-resource scenario, while 17% (n=10) aligned with the absolute-authority scenario (Figure 21). In total, 84% (n=37) of the assertions from respondents used abundant resources to address current management misfortunes such as rhino poaching (44%; n=19), infrastructure development (20%; n=9) and staff matters (20%; n=9), demonstrating the intricacy of those problems and the potential threat they pose towards the future of the park.

Investment in Anti-poaching Strategies

When anti-poaching responses were analysed through the lens of conservation orientations, most articulations were strongly aligned with the TC (68%; n=13), followed by NC (26%; n=5) (Figure 21). This distribution suggests that, despite growing recognition of more integrated conservation approaches, anti-poaching interventions within PAs remain predominantly framed as protectionist strategies that prioritise fences and technological surveillance. Among the strategies proposed by GM, the maintenance and strengthening of the boundary fence emerged as the most prominent intervention, reflecting a priority that the NLMS respondents equally emphasised. The perimeter fence is widely regarded as the first line of defence against unauthorised entry into the park, while simultaneously preventing high-value species from straying into high-risk, unprotected areas where they are more vulnerable to poaching (Ferguson & Hanks, 2010). Respondents invested resources in upgrading the perimeter fence to an elephant-proof electrified fence. While this intervention is popular amongst GM, it remains contentious within the broader conservation literature. Several studies have demonstrated that fences can cause significant ecological consequences, including the restriction of wildlife movement, disruption of ecological connectivity and limitation of seasonal migrations that many species rely on to access water, forage, and breeding areas (Mannetti et al., 2017; Hering et al., 2022; Hauptfleisch et al., 2024a). Consequently, upgrading the fence is likely to compromise the overall profitability and sustainability of the surrounding

conservancies by restricting the movement of charismatic wildlife species essential for both consumptive and non-consumptive utilisation within them (Störmer et al., 2019; Goergen et al., 2024). This tension highlights the complex trade-offs between species protection and landscape connectivity, which continue to shape debates regarding the most appropriate strategies for managing highly threatened wildlife species.

In addition to the boundary fence, respondents emphasised the importance of modern surveillance technologies in strengthening anti-poaching efforts across the park. Hence, they invested significant resources in closed-circuit television (CCTV) surveillance and rapid-response aerial units (helicopters) to improve early detection of perpetrators and enable a swift intervention when illegal activities are identified. However, the effectiveness of these strategies depends on GM's ability to address outstanding issues within the CSS framework, particularly those related to staff morale. Achieving this will require *"…invest in settling the outstanding overtime and subsistence and travel allowances (S&T) of staff members within the park and those attached to ant-poaching operations. Furthermore, I will procure uniforms for those staff members and thoroughly equip them with the materials and tools required to execute their tasks"* (GM-P1). Alternatively, *"…team-building exercises to ensure high morale and motivate the personnel to want to work for ENP"* (GM-P10) is needed. This is because the optimal utilisation of those transformative technologies depends on staff members, whose morale directly affects their engagement, performance and willingness to employ the equipment effectively. The above claims were substantiated by the respondent's articulations below:

> "*I will invest substantial resources into fencing the whole park with an Elephant-proof fence and make sure that the fence is electrified"* (GM-P11).
>
> "*I will invest in state-of-the-art surveillance cameras around the park and ensure 24-hour surveillance within our office by implementing shifts"* (GM-P10). *"I will procure eight helicopters for the park and allocate three in the west, another three in the east and two in the central part of the reserve to be used for anti-poaching*" (GM-P9).

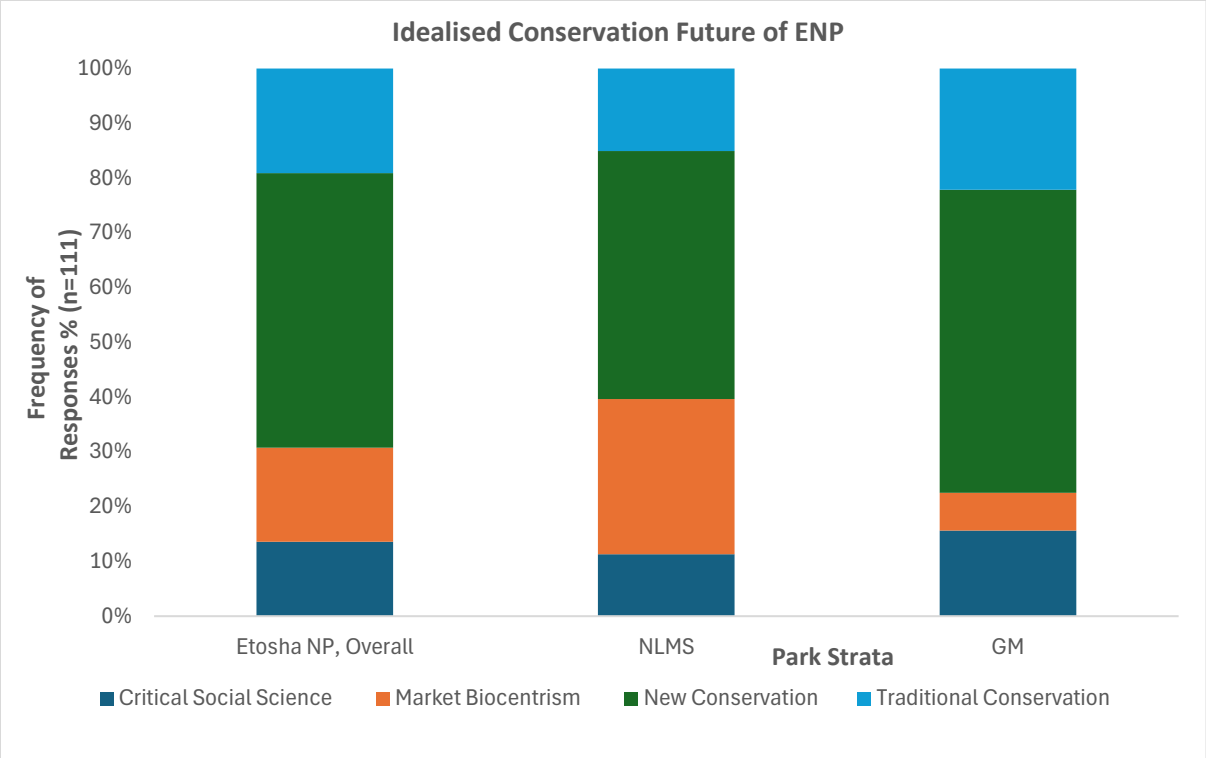


Figure 21: The percentage of responses classified under each conservation orientation type, illustrating the idealised conservation future of ENP, with data presented for the overall land use type and per stratum of management (National Level Management Support and Ground Managers).

Sustainable Park Management and Service Delivery

Similar to the priorities expressed by the NLMS stratum, a substantial proportion of GMs indicated that available resources would be allocated to improving the park's infrastructure to enhance operational efficiency and the visitor experience. The prominence of infrastructure-related investments in the responses reflects the deteriorating condition of key infrastructure within the park, an issue previously highlighted in sub-sections 4.2.2 and 4.3.2. Respondents attributed this deterioration largely to the persistent reallocation of financial resources originally intended for infrastructure development toward anti-poaching operations, which have increasingly dominated the park's operational budget amid escalating wildlife crime. Ground managers identified several important infrastructures requiring urgent attention, including the park's road network, research facilities, and tourism infrastructure. This follows numerous complaints about the deteriorating state of the park's infrastructure, particularly the gravel roads, which are characterised by extensive potholes, severe corrugations, and a dusty campsite due to poor road conditions (Shikongo, 2020). These conditions are primarily caused by inadequate road maintenance, leading to progressive gravel loss and compromised drainage, which ultimately contribute

to severe surface corrugation and the formation of potholes. Recognising the implications of these challenges for both park management and tourism performance, several respondents proposed significant investments to upgrade the park's road infrastructure. Some respondents even suggested converting key gravel roads to tarred surfaces to reduce long-term maintenance costs and improve accessibility within the park. While such upgrades may enhance accessibility and improve the tourist experience over the long run, the construction phase may pose significant environmental risks, including poaching by construction personnel and disruption to wildlife movement and behaviour. Upon completion of the road upgrades, the presence of tarred surfaces may encourage speeding among tourists, thus increasing the risk of wildlife-vehicle collisions and posing significant threats to both biodiversity and visitor safety, as similarly reported by Gandiwa et al. (2020) in Hurungwe Safari Area, northern Zimbabwe. Beyond Zimbabwe, comparable challenges have been reported in several South African protected areas. In Hluhluwe-iMfolozi Park and iSimangaliso Wetland Park in KwaZulu-Natal, public roads traversing protected areas have been associated with increased wildlife-vehicle collisions, leading to recommendations for speed restrictions, warning signage and continuous monitoring to reduce collision risks while maintaining visitor access (Mhlanga et al., 2025). Similar patterns have been reported in Serengeti National Park, Tanzania, where wildlife mortality has been associated with vehicle traffic along major roads. Long-term records from the park showed that spotted-hyena road mortality was concentrated along heavily used roads, particularly where animals travelled long distances to access migratory prey (Naciri et al., 2023). Roadkill involving several mammal species, for example, Thomson gazelles (Eudorcas thomsonii) and Cape hares (*Lepus capensis*), has also been recorded across the wider Serengeti ecosystem, with improved road conditions and vehicle speeding identified as the leading contributing factors (Lyamuya et al., 2022). These experiences suggest that, should major road upgrades be considered within ENP, they should be accompanied by comprehensive environmental safeguards, including strict contractor supervision, speed-calming measures, wildlife crossing structures where appropriate, and long-term ecological monitoring to minimise unintended conservation impacts.

Beyond roads and tourism infrastructure, respondents emphasised the need to strengthen research infrastructure within the park, which they viewed as a key component of evidence-based conservation management. Proposals for investments in research camps, laboratories, and satellite research stations aim to create an enabling environment that would attract both national and international researchers to conduct research within the park. The emphasis placed on research infrastructure reflects a broader recognition among ground managers that effective conservation management must be grounded in

robust scientific evidence. This approach aligns with the broader management vision outlined in subsection 4.3.2, in which respondents emphasised the need to address emerging conservation threats through science-based decision-making to guide long-term biodiversity conservation efforts. This was substantiated by the participants' responses presented below:

> *"I will upgrade all the gravel roads in the park to tar roads and increase picnic areas around the park so that tourists can stop and relax in a safe area"* (GM-P8).

> *"Upgrade the research camp and the laboratory to create an enabling environment for researchers to come in and conduct research in the park and maybe have satellite research stations around the park"* (GM-P3).

Scenario of Absolute Authority – National Level Ministerial Support

Development of New Concession Areas

When respondents within the NLMS stratum were presented with the hypothetical scenario of exercising absolute authority, a significant proportion of responses (38%; n=11) (Figure 21) focused on addressing what was widely perceived as the monopolistic inefficiencies associated with the Namibia Wildlife Resorts (NWR). These responses reflected growing concerns about the current institutional arrangement in which NWR serves as the primary tourism operator in Namibia's PAs. Respondents argued that this monopolistic structure has constrained innovation, limited improvements in service quality, and ultimately reduced the competitiveness of the park's tourism offerings relative to regional conservation destinations. Respondents advocated for a more pluralistic and competitive arrangement, wherein multiple tourism operators are granted access to the park through concessionary systems. The introduction of additional tourism operators within the park is perceived as an opportunity to improve the economic integration of surrounding communities into the tourism value chain. This perspective aligns with the broader objectives of the CBNRM programme, which aims to enhance rural livelihoods by reinforcing conservation incentives through the devolution of rights and benefits over natural resources (MEFT/NACSO, 2024). Hence, respondents proposed allocating tourism concessions directly to communities living adjacent to the park, particularly those bearing the costs associated with wildlife interactions (HWC). As articulated by one respondent, this would involve the *"development of new concession areas within the park's sustainability, to be awarded to the community who endures the costs of living with wildlife within the landscape"* (NLMS-P9). Collectively, these proposals signal a shift away from centralised state control (the fortress model) towards more inclusive governance arrangements that promote equitable sharing of

benefits and decision-making, ensuring that local communities directly benefit from conservation initiatives.

Beyond concession reform, respondents advocated establishing a dedicated parastatal entity for protected areas (PA) in Namibia, arguing that such an institutional arrangement could enhance operational efficiency while enabling the retention and reinvestment of tourism-generated revenues into park management and conservation priorities. As articulated by one respondent, who proposed the *"establishment of parastatals for Protected Areas in Namibia to enhance the operational efficiency of parks and guarantee that they play a significant role towards the country's economy"* (NLMS-P7). This suggestion is particularly noteworthy, as it reflects an awareness of alternative governance models implemented across the African continent, particularly in countries widely regarded as global leaders in conservation. For instance, the South African National Parks (SANParks) operates as a semi-autonomous public entity responsible for managing South Africa's national parks, combining state oversight with commercial flexibility and revenue retention mechanisms (Republic of South Africa, 2003). Similarly, Kenya has established the Kenya Wildlife Service (KWS) as a state corporation (body corporate) with a dual mandate of wildlife conservation and tourism management, enabling it to generate revenue from PA's and reinvest a portion of this income into park management and community-based conservation programmes as stipulated under Sections 6 and 7 of the Wildlife Conservation and Management Act No. 47 of 2013 (Republic of Kenya, 2013). These models illustrate how parastatal structures can provide a hybrid governance arrangement that balances state control with market-oriented efficiency, to enhance the financial sustainability and operational effectiveness of PAs (Child, 2019). Hence, respondents perceived the establishment of a similar entity as a means of overcoming the institutional rigidity associated with NWR, while simultaneously creating a more enabling environment for innovation, competition, and community participation. Collectively, all those proposed interventions are founded on the principle of inclusivity and cooperation (NC orientation), leveraging public-private partnerships (PPP) and the CBNRM program as the backbone of the turnaround strategy/model. These perspectives are further substantiated by respondents' narratives, which emphasise the perceived limitations of the current system and the need for structural reform:

> *"My biggest wish is to open the park to other role players in the tourism sector. The park currently has NWR as the sole entity operating within the park's periphery…I would wish for NWR to equally accept that it cannot be the sole operator within the park boundaries. For us to continue improving the product and service delivery, NWR*

needs to adapt and face competition. We need to supplement the current skills, ideology and properties within the park…There is space for additional role players to participate in the park's tourism sector, to introduce products not currently provided by NWR, to enhance the visitor experience and infrastructure development within the park" (NLMS-P1).

"From the beginning, I felt that we might have made a mistake in allocating the sole rights of all camps in the park to NWR. When you compare its tourism offerings to those of the private sector, it does not even come close. The ideal situation would have been to tender each camp out to a different company, just from the point of view of competition and ensuring that we have got the best possible product on offer" (NLMS-P2).

Reconsidering Militarised Conservation and Wildlife Trade Governance

The persistent rhino poaching crisis remained a dominant concern among participants, prompting several respondents to exercise their hypothetical authority to advocate for contentious yet transformative reforms grounded primarily in the CSS orientation. These proposals reflect a broader critique of conventional anti-poaching strategies that rely heavily on militarised enforcement and strict prohibitionist policies (Duffy et al., 2019). While such approaches have been widely adopted across many PAs in response to escalating wildlife crime, they have not consistently achieved their intended conservation outcomes (Witter, 2021) and, in some cases, have generated unintended consequences for both conservation governance and park management, as reported under sub-section 4.2.2 (Inter-organisational Tension) in ENP. While the involvement of security forces was initially intended to strengthen anti-poaching capacity, respondents expressed concern that this approach has yielded limited success in reducing rhino poaching and has simultaneously disrupted the park's broader operations. Participants contended that the deployment of military personnel has, at times, redirected the park's institutional focus from its primary mandate of biodiversity conservation and tourism management toward a security-dominated approach that may undermine tourism objectives. Consequently, several respondents proposed changes to the park's security strategy, emphasising the need to withdraw military forces and instead strengthen the Wildlife Protection Services (WPS) unit within the Ministry. This approach reflects the view that anti-poaching operations should be conducted by personnel with specialised ecological knowledge and law enforcement expertise, rather than by conventional military

forces, whose training and operational mandates may not align with the unique requirements of PAs management.

Respondent also used their hypothetical authority to address the global governance framework regulating wildlife trade, particularly the longstanding international ban on rhino horn trade introduced in 1977 under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Biggs et al., 2013). While the diktat trade ban was originally intended to protect rhino populations by eliminating legal markets for rhino horn, it may have inadvertently contributed to the emergence of highly lucrative clandestine markets, thus intensifying incentives for poaching rather than eliminating it (Chanyandura et al., 2021). This quandary continues to sabotage conservation efforts across the country, causing market failures on properties that host rhinos, as escalating costs of safeguarding them exceed the intangible benefits of hosting this species (Child, 2012; Büscher, 2016b). In response to these challenges, some respondents proposed exploring alternative governance models that would involve the regulated legalisation of certain wildlife products, particularly rhino horn, under strictly controlled conditions. This approach relies on market-based theories that creating a regulated legal market could potentially reduce the profitability of illicit trade networks while simultaneously generating significant revenue streams for conservation initiatives. Such revenues could then be reinvested into rhino protection programmes, habitat management, and broader conservation activities, thereby reducing reliance on donor funding and strengthening the financial sustainability of conservation institutions. Conversely, proposals for the legalisation of wildlife trade remain highly controversial within international conservation policy discourse; however, its emergence in this study highlights the frustration among some conservation practitioners regarding the perceived limitations of existing anti-poaching frameworks. The articulations below support the discussions above.

> "*With the power, I get the police and the army out of the park and fill the Wildlife Protection Services (WPS) unit positions with qualified, trained personnel. The park is for tourism and not for fighting a war; therefore, there is no room for army personnel in the park"* (NLMS-P9).
>
> *"I will legalise the rhino horn trade to generate income for dehorning and other rhino protection strategies. Namibia sits on billions worth of ivory and rhino horn, which can*

pay for all conservation expenses and will not ever need donor funding again if the trade is legalised (NLMS-P13).

Scenario of Absolute Authority - Ground Managers

Landscape Level Conservation

The exercise of absolute authority was relatively uncommon among GM, accounting for only 17% (n=10) of responses in this scenario (Figure 21). The responses that emerged under this scenario were predominantly aligned with the NC orientation, with respondents manipulating the law to transition to a future in which stakeholder engagement and cross-sectoral collaboration are standard practice. Strengthening collaboration across the broader landscape would enable the development of a robust landscape-level model capable of reconnecting fragmented habitats and facilitating wildlife dispersal beyond the traditional boundaries of ENPs (Mannetti et al., 2017; 2019). A key component of this vision involves establishing ecological corridors and buffer zones that enable wildlife populations to move more freely across multiple land-use systems. These corridors are particularly important in semi-arid landscapes such as north-western Namibia, where wildlife movement enables species to respond to seasonal variations in water availability and forage resources, as well as the increasing ecological pressures associated with climate change. This perspective closely aligns with the suggestion made by SO in the CBNRM sector, which advocated an integrated conservation approach that extends beyond the boundaries of PAs. This is based on the realisation that the long-term viability of ENP depends not only on the management of ecological processes within park boundaries but also on broader land-use dynamics across landscapes. While these proposals showcase GM's ambitions, they also highlight the complex socio-political challenges of implementing landscape-level conservation strategies. This was substantiated by the following assertions:

"*I would establish the link between Etosha NP and the North-west region by evicting people who are living in wildlife corridors, ensuring a landscape approach which encompasses Hobatere, Palmwag, Omatendeka, all the way to the Skeleton-Coast National Park"* (GM-P7).

"I would shift the Red Line south of Etosha-Heights Nature Reserve and those bordering farms and establish a 30-40 km buffer zone from Etosha National Park to facilitate free and greater wildlife movement" (GM-P6).

4.4.3.3 Idealised Conservation Future of Freehold Farms within EWSL

A total of 62 responses were analysed to determine the idealised future for freehold farmers (FF), assuming farms possess absolute authority and unrestricted resources (Appendix 7). Of the total responses, 35% (n=22) were contributed by MFL, while 65% (n=40) of the responses were from SFL (Figure 22). Similarly, as the current and most probable conservation future, the perceived idealised future of farmers is dominated by the MB orientation, observed in 48% (n=30) of overall responses. The CSS orientation ranks second, with farmers allocating resources (29%; n=18 of the responses) to address social issues that create unfavourable farming conditions. The least popular orientation among the farmers was TC, as evidenced by its lowest score of 2% (n=1) among participants' overall responses. Below is a detailed description of the future idealised by respondents representing freehold farmers within EWSL, categorised into thematic areas that capture the dominant narratives.

Scenario of Abundant Resources – Mixed Land Use Farmers

Investment in the Agriculture Sector

When respondents representing the MLF were presented with a hypothetical scenario of abundant financial resources (n=12; 56%), their responses consistently prioritised strategic investments in critical production constraints that currently limit the economic productivity of the agricultural sector. These responses were predominantly framed within an MB orientation, reflecting a strong emphasis on enhancing the productive capacity of natural resources to generate economic returns, while simultaneously addressing structural drivers of the CSS orientation, such as rural poverty and unemployment (Figure 22). Respondents recognised that the agricultural sector within the EWSL area remains constrained by persistent infrastructure limitations, particularly those related to water availability, agricultural finance and access to land for emerging farmers. As such, their proposed investments were directed towards addressing these systemic bottlenecks, which they perceived as critical for unlocking the region's agricultural potential and stimulating broader economic development.

Respondents recognised that the agricultural sector within the EWSL remains constrained by persistent infrastructure limitations, particularly water availability, agricultural finance and access to land for emerging farmers. Hence, they proposed constructing large-scale water storage and supply systems, including reservoirs and desalination infrastructure linked to the Kunene River and the Ocean, to stabilise water access for irrigation and agricultural enterprises across the landscape. This need is evident in the landscape, where water availability is naturally limited by low, highly variable rainfall and a heavy reliance on scarce groundwater resources, making water one of the principal constraints to agricultural

development and irrigation expansion in this area (Mendelsohn et al., 2002). Additionally, groundwater resources within much of the landscape are constrained by the predominance of fractured crystalline hard-rock aquifers, which typically have low storage capacity, limited recharge and relatively low sustainable borehole yields, thereby limiting the reliability of groundwater as a source of water for irrigation and agricultural development (Gutierrez et al., 2026), while perennial surface water is largely restricted to the Kunene River along the Angolan border. Similar approaches have been implemented elsewhere in other arid regions. For example, Morocco has invested in the Chtouka desalination and irrigation project, which supplies desalinated seawater for agricultural irrigation, reducing pressure on overexploited groundwater aquifers while maintaining agricultural production under water-scarce conditions (Bourziza et al, 2023; Aglagal et al., 2025). This example demonstrates how strategic investments in alternative water supply infrastructure can simultaneously strengthen agricultural productivity and improve the sustainable management of limited freshwater resources. Such interventions were perceived not only as mechanisms for increasing agricultural production but also as catalysts for broader humanitarian and socio-economic transformation, particularly through the establishment of green agricultural schemes that facilitate youth participation in agribusiness. This approach is already reflected in Namibia's Green Scheme Programme, through which irrigated agricultural projects provide emerging farmers with access to serviced farmland, water infrastructure, technical support and opportunities to participate in commercial crop production, thereby promoting agricultural development, employment creation and rural livelihoods (Government of the Republic of Namibia, 2008). This perspective reflects a broader development-oriented interpretation of conservation landscapes, where the sustainable utilisation of natural resources is not viewed in opposition to conservation goals but rather as a complementary strategy for achieving long-term socio-ecological stability, as highlighted under the theme of Sustainability of the CBNRM Program by SO in the CBNRM sector.

Beyond infrastructural development, respondents also emphasised the need to launch an agricultural finance scheme to help young/new farmers establish themselves in the agricultural sector. They specifically referenced historical government credit schemes that previously provided low-interest loans to new farmers, noting that such programmes had played a significant role in establishing earlier generations of commercial farmers. However, at present, finance systems often remain inaccessible to young or first-generation farmers due to high collateral requirements and limited institutional support. As a result, respondents advocated for the reintroduction of affordable agricultural credit facilities,

coupled with robust monitoring systems, technical training, and structured mentorship programmes to ensure young farmers receive the necessary financial and capacity support to build a viable agri-business. Similar integrated support approaches have been widely recommended for emerging farmers, with evidence showing that combining affordable finance with technical training, extension services and mentorship substantially improves the long-term success and sustainability of agricultural enterprises (FAO, 2021). Collectively, these responses highlight how mixed farmers conceptualise the future development of the landscape through a strategic combination of economic investment, institutional support and human capital development. The articulations below support the discussions above.

> "*With the abundant financial resources and a little power, I will construct a reservoir on the Kunene River…. Supplemented by a desalination plant to ensure a sustainable water supply in this area and beyond…. With water availability, I will establish a large green scheme to empower the youth by providing them with opportunities to start agri-businesses, allowing them to apply for a portion of the land situated on the scheme, ranging from half a hectare to a full hectare…This allows the youth to drive their future, contributing to job creation and food security while equipping them with the skills and experience needed to contribute meaningfully to the country's economic development"* (MLF-P1).

> *"Money-wise, I think I would give cheaper loans to young farmers and give them the opportunity we had in the past. In the past, a 4% credit scheme was available, providing loans to new farmers from the government, which helped establish many farmers. These subsidies must be monitored, and we must also provide training and mentorship to young farmers to ensure efficiency and effectiveness"* (MLF-P5).

Scenario of Abundant Resources – Single Land Use Farmers

Diversification of Livelihoods

When data were analysed within an SFL strata, a substantial proportion of responses (75%; n=30) aligned with abundant resources, which were mainly used to unlock new livelihood opportunities on their farms (Appendix 7). Most of these responses reflected a combination of MB (37%; n=11) and New NC (27%; n=8) orientations (Figure 22). Rather than focusing solely on traditional livestock production, respondents articulated a vision of economic diversification, in which multiple complementary land-based enterprises would collectively strengthen their farms' resilience to environmental and economic uncertainties. This

shift towards diversified livelihood strategies reflects a broader adaptive response to the environmental stochasticity that characterises the arid and semi-arid EWSL area. Recurrent droughts, bush encroachment, and increasing climatic variability have progressively undermined the reliability of SLF, thus forcing farmers to diversify their income streams.

A prominent theme emerging from the responses was the recognition that nature-based enterprises can simultaneously generate economic value and restore ecological functionality in degraded rangelands. For instance, respondents highlighted the potential of bush harvesting for fodder production and charcoal manufacturing as a viable strategy for addressing bush encroachment, a widespread ecological challenge across Namibia's rangelands (Honsbein & Lindeque, 2017). By converting encroacher bush species into marketable products, farmers not only create additional revenue streams but also restore grazing capacity by improving grass production, subsequently allowing them to increase their stocking rate (Namibian Biomass Industry Group, 2024). This approach reflects an MB perspective, in which ecological restoration and economic productivity are not seen as conflicting goals but rather as processes that can support and strengthen one another when natural resources are managed strategically. This approach allows farmers to turn an ecological misfortune into an economic opportunity while simultaneously improving their land's carrying capacity and expanding the potential for livestock production.

Beyond local farm-level investments, some respondents proposed expanding agricultural development into areas with greater natural resources, particularly along the banks of the Kunene River. These areas were identified as possessing more reliable water availability and fertile soils capable of supporting irrigated agricultural production. Participants suggested that large-scale green scheme developments could significantly enhance national food production while simultaneously ensuring that perpetrators convicted of criminal activities pay their dues to society by working in the green schemes. Notably, several responses, for example, SO, CMC and MLF, also highlighted the importance of addressing broader socio-economic conditions, suggesting that sustainable conservation and agricultural development cannot be achieved in isolation from the structural challenges of poverty, unemployment, and limited livelihood opportunities that characterise many rural communities. The articulations below support the discussions above.

> *"With the money, I will diversify my livelihood, build a lodge on my farm and start harvesting bushes for bush feed and charcoal production. Through this exercise, I increase grass production on my farm, thus increasing the number of livestock I can*

keep on the land. This allows me to create more jobs and address poverty at a local level" (SLF-P10).

"I will build big gardens on the banks of Kunene River, and I shall take all prisoners there to work in those gardens and produce food for the country" (SFL-P5).

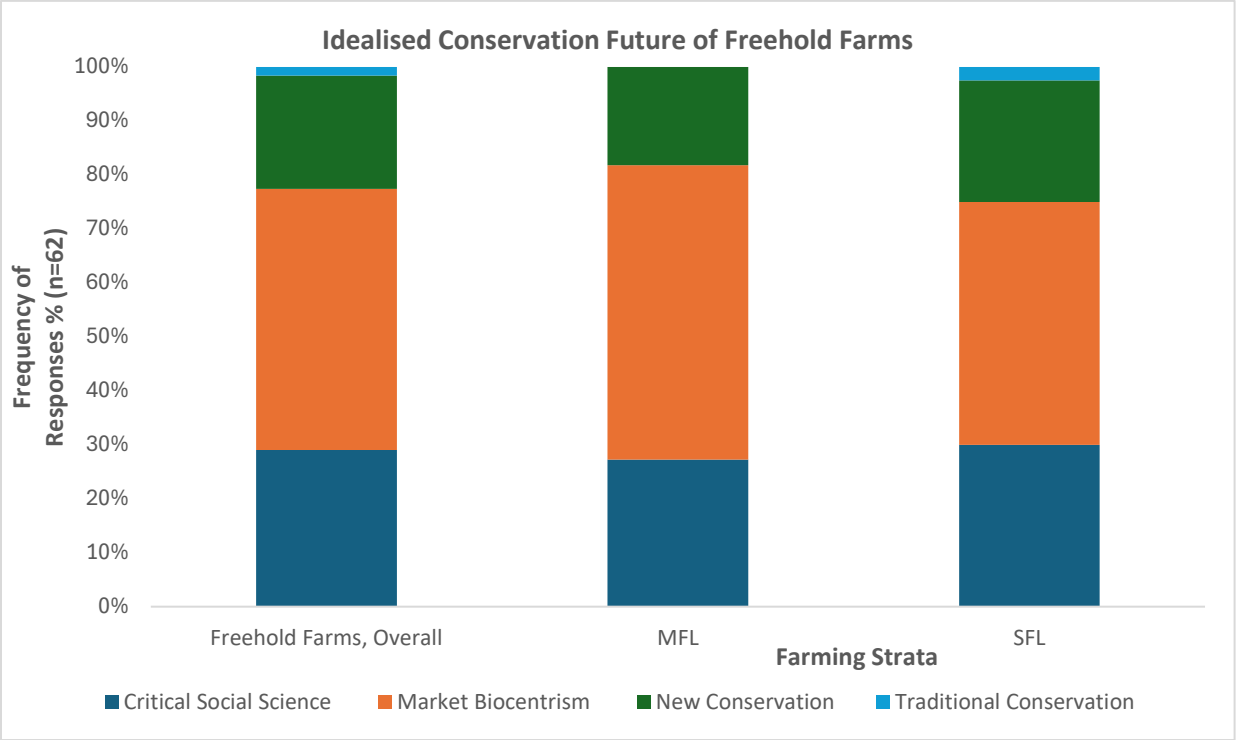


Figure 22*:* The percentage of responses classified under each conservation orientation type, illustrating the idealised conservation future of freehold farmers within EWSL, and is presented overall for land use and by farming land use type.

Scenario of Absolute Authority - Mixed Land Use Farmers

Land Reform

The application of absolute authority (n=10; 45%) among MLF (Appendix 7) was largely articulated in relation to the highly sensitive and historically embedded issue of land ownership and redistribution in Namibia, a matter deeply rooted in the country's colonial and apartheid past. This phenomenon accounted for 50% (n=5) of the overall responses in this category (Figure 22), with farmers raising concerns about the National Resettlement Programme (NRP), established by the government, as a vehicle to ensure land redistribution to previously disadvantaged Namibians. Under this programme, large-scale commercial farms are acquired by the state and subdivided into smaller farming units, typically ranging

around 1,000 ha, to create viable small-scale commercial farming enterprises (Werner & Odendaal, 2010). The programme represents an important policy instrument aimed at promoting equity in land access across the country. However, responses from MLF reveal significant scepticism about the programme's practical outcomes, particularly in arid, low-productivity rangelands where large land areas are often required to sustain viable livestock operations (Mendelsohn et al., 2002). Consequently, the fragmentation of large commercial farms into smaller units may constrain farmers' ability to maintain viable herd sizes and manage grazing resources effectively. As highlighted by one respondent, the *"rate at which highly productive land is being acquired and subdivided into smaller fragments of unproductive land… negatively impacts the agricultural sector"* (MLF-P5). This perspective reflects broader concerns that land reform processes, while addressing historical injustices, may unintentionally undermine the agricultural sector's productive capacity if the country's semi-arid nature is not adequately integrated into policy implementation.

These findings concur with those of Lendelvo et al. (2020), who noted that poorly structured land redistribution processes may inadvertently reduce agricultural output, particularly in regions where farming systems depend on economies of scale and extensive land management. Additionally, respondents noted that newly resettled farmers often face significant wildlife-related risks (HWC), as the landscape hosts the country's largest free-roaming lion population. Hence, resettling farmers with small herds in predator-rich landscapes may exacerbate their vulnerability and poverty. *"It does not benefit anyone, as we continue to impoverish people with this program. Resettling a farmer with a small herd of approximately 20 cattle next to Etosha [National Park], which has a high abundance of lion population, is indirectly impoverishing that farmer because the lions will finish those cattle"* (MLF-P4). The respondents thus perceive the implementation of the NRP policy as insufficiently aligned with the ecological realities of EWSL, where wildlife presence and climatic variability create additional risks for small-scale livestock producers. To address this quandary, respondents proposed an alternative approach centred on productivity-based land governance, in which land would be expropriated from owners who fail to utilise it productively and reallocated to individuals capable of managing it efficiently. From the perspective of these respondents, land ownership should be accompanied by a clear responsibility to contribute to national development through food production, employment creation and economic growth. However, before implementing this proposal, it is essential to ensure the *"…removal of restrictive laws and regulations, because if you are successful while being restricted, you will become more successful for the country's benefit if those restrictions are lifted. There is no sense in restricting efficient and effective people*

when the country can benefit from it and then allow land to lie idle and not be utilised effectively due to political reasons" (MLF-P5).

In addition to concerns about land redistribution, respondents highlighted the economic pressures farmers face during severe drought, particularly the financial burden of taxation when they are forced to destock livestock to protect rangeland resources. The retention of these funds enables farmers to reinvest in their operations or acquire new livestock once the drought has passed, thereby facilitating herd size recovery and enhancing the long-term resilience and sustainability of their farms. This was substantiated by the following assertions:

> *"I will take away land from people who are not being productive on that land, irrespective of their colour or political affiliation…The minute you are a landowner, you have a responsibility towards the land and your country, for your country to benefit from that land through job creation or food production and contribute meaningfully to the country's Gross Domestic Product (GDP)…I will not restrict the sale of land to foreigners as long as they can be productive on the land and contribute to job creation, poverty eradication and the country's GDP. We need to take politics out of agriculture"* (MLF-P5).
>
> "*One thing that I will change with the authority is the hefty taxing of farmers during the drought year, especially those farmers destocking to save their land and prevent degradation* (NLM-P2)".

Scenario of Absolute Authority - Single Land Use Farmers

Legislative Reform

The exercise of absolute authority (n=10; 25%) within the SLF stratum was primarily aimed at addressing what respondents perceived as the restrictive, overly regulatory character of existing conservation legislation. From these farmers' perspective, current policy frameworks governing natural resources (wildlife and forests) impose administrative and operational constraints that limit their ability to fully realise the economic potential of wildlife resources on their land. The magnitude of the concern is reflected in the fact that 70% (n=7) of the responses explicitly called for reforming existing legislation to improve its practical effectiveness and alignment with both conservation objectives and agricultural livelihoods. Farmers argued that conservation policies often emphasise regulatory controls and compliance mechanisms without adequately recognising the economic incentives needed for farmers to

invest in biodiversity stewardship actively. For example, *"farmers who have upgraded their boundary fence from a normal cattle fence (1.22m) to a game-proof fence (2.4m) are still required to apply for a shoot-and-sell permit, even though the Ordinance makes no provision for such application"* (SLF-P5). From their perspective, granting farmers greater decision-making authority over wildlife utilisation is a mechanism for strengthening economic incentives for biodiversity conservation. Additionally, granting more rights to farmers could reduce illegal hunting and save wildlife deemed problematic, which are constantly persecuted on those farms, a phenomenon farmers describe as *"shoot, shovel and shut up"* (SLF-P10). This practice reflects a governance failure in which rigid regulatory frameworks inadvertently incentivise non-compliance by imposing high costs on landowners while offering limited economic benefits from wildlife conservation (Child, 2019), especially for species like elephants and lions. Valuable lessons can be learned from the past, in which the significant recovery of wildlife populations on freehold land since the late 20th century has largely been attributed to legislative reforms that grant conditional wildlife-use rights to private landowners (Weaver & Petersen, 2008). These reforms transformed wildlife from a government asset into a privately managed asset, thus incentivising landholders to invest in wildlife conservation and habitat management. Hence, the proposed legislative amendments articulated by the SLF respondents are not intended to undermine conservation objectives but rather to promote policy frameworks that effectively align ecological sustainability with the economic realities of farming in the EWSL area. The articulations below support the discussions above.

> *"I will get rid of the over-regulating laws and policies enforced in the natural resources and agricultural sector, which stem from socialism. As per our constitution, we are a mixed economy, but we are more of a capitalistic society than we are socialist"* (SLF-P3).

> *" I will change all the regulations that make it difficult for farmers to farm in Namibia, e.g. the law that mandates farmers to have a double fence when the neighbouring farmer is keeping blue wildebeest is super unnecessary…When they decide to get a trophy hunter to shoot it, as a problem, the farmer does not get any money from that elephant, yet destruction was done to his property, and he must deal with the cost of repairs"* (SLF-P8).

4.4.4 Conclusion

The overall aim of this objective was to understand the perceived desired future of conservation, building on past and contemporary conservation practices, through a deductive analysis of the most probable, feared and idealised future scenarios. The findings revealed that conservation within the landscape is most likely to transition towards an NC orientation under both the most probable and idealised futures, with respondents aiming to integrate biodiversity conservation with socio-economic development. This shift highlights a growing consensus among stakeholders that the long-term conservation success depends on aligning ecological objectives with human well-being to secure broader societal support for conservation initiatives. Under the most probable future, respondents articulated a preference for a more inclusive and integrated conservation model centred on landscape-level management. This approach promotes collaboration across land-use types, ensuring that resources are pooled to address common challenges and encourage the collective management of shared natural resources. This approach was prominent among CBNRM representatives and park managers, where the NC orientation prevails alongside elements of CSS and MB, reflecting the need to address governance limitations, improve benefit distribution, combat poaching, and enhance financial sustainability. These findings indicate a shift away from exclusionary conservation models towards more adaptive and participatory approaches that recognise the interdependence of ecological systems and human livelihoods. In contrast, the most probable future of freehold farmers remains aligned with the MB orientation. Respondents identified opportunities to transform ecological challenges, such as bush encroachment, into viable economic ventures through value chain addition, ensuring the production of charcoal and bush feed to improve rangeland condition, thereby allowing increased stocking rates. In parallel, elements of the TC orientation persist, particularly regarding intergenerational succession and the desire to maintain family-owned farming enterprises. These findings demonstrate that the most probable conservation futures are increasingly shaped by the need to balance ecological sustainability, economic viability, and social inclusivity within a coupled social-ecological system such as the EWSL.

The findings from the most feared future revealed that the conservation future within the EWSL is predominantly aligned with the CSS orientation, reflecting widespread concerns about socio-economic challenges, governance, and restrictive legislation across the landscape. The variation in these fears across land-use types highlights a complex socio-ecological system in which conservation outcomes are increasingly shaped by political, economic, and governance dynamics rather than purely ecological processes. Within the CBNRM sector, the dominant concerns centre on systemic governance failures,

policy fragmentation, and incompatible land-use practices. Persistent issues such as elite capture, weak accountability, and non-compliance with benefit distribution frameworks undermine the programme's sustainability and long-term viability. Fears associated with ENP are primarily shaped by institutional and operational constraints, notably the park's underfunding, which limits the implementation of core management functions and reinforces dependence on conditional donor funding. These challenges are further worsened by expanding human populations and unresolved land claims, alongside increasingly sophisticated poaching networks that both threaten key species and skew resource allocation toward anti-poaching at the expense of broader conservation priorities. In contrast, freehold farmers' fears are primarily shaped by regulatory constraints and an insecure land tenure system. Bureaucratic requirements are perceived as limiting adaptive management in a climate-variable environment, thereby constraining efficiency and innovation and discouraging long-term investment due to concerns about land expropriation without compensation. These challenges are further reflected in the contested future of the veterinary cordon fence (Red Line), underscoring the tension among historical legacies, economic priorities, and ongoing debates over land reform and equity. Collectively, these findings demonstrate that the feared future of conservation in the EWSL is not defined by a single threat but rather by the convergence of governance inefficiencies, policy misalignment, socio-political pressures, and economic uncertainties.

The idealised conservation future within the EWSL reflects a strategic realignment of authority and resource allocation, primarily aimed at addressing the structural weaknesses and risks identified in the most feared future scenario. Across land-use types, respondents transcended sector-specific interventions, recognising that a sustainable conservation future requires deliberate, systemic reform rather than isolated technical solutions. Within the CBNRM sector, abundant resources were primarily directed towards addressing socio-economic challenges and strengthening the program's long-term institutional capacity. Under conditions of absolute authority, respondents prioritised governance reform, including strengthening accountability, revising the HWC policy to ensure fair compensation, and consolidating fragmented legislation into a unified framework. The idealised conservation future for ENP is characterised by investment in advanced technology, surveillance systems, aerial support, and fence upgrades to address persistent poaching challenges, recognising the limitations of militarised conservation approaches. The exercise of absolute authority amongst the consortium of park managers was mainly used to transition the fortress conservation model implemented in the park towards enhancing community participation through concession allocation. Additionally, there was a strong need

to align wildlife trade bans to ensure that local conservation initiatives support global conservation efforts. In contrast, freehold farmers' idealised future remains strongly aligned with the MB orientation, with abundant resources directed towards unlocking the economic potential of their farms' natural resources. Respondents prioritised investments in agricultural infrastructure, water provision, and diversification strategies, including utilising bush encroachment for charcoal and bush feed production, thereby linking ecological restoration with economic gain. The use of absolute authority amongst the freehold farmers was primarily directed at legislative reform, with respondents addressing regulatory constraints in the country's natural resources legislation. Overall, the idealised future across the EWSL reflects a convergence towards more integrated and adaptive approaches, in which financial investment, governance reform and institutional restructuring are key to achieving the desired outcomes. These findings highlight that the future of conservation in the landscape will depend not only on ecological management but also on the ability to address socio-economic inequalities, strengthen governance systems, and align policy frameworks with the realities of a complex and dynamic socio-ecological system.

Chapter 5: Synthesis of Findings

5.1 Integrated Synthesis of Findings

Historical trends have played an important role in shaping conservation practices in Namibia (Murombedzi, 2003; Amoo & Harring, 2009); however, this study's findings indicate a clear shift in the relative importance of key themes over time. While policy, ownership, and benefits were instrumental in shaping past conservation outcomes, their influence has diminished in contemporary conservation practices. However, they remain strategically important in shaping respondents' desired conservation future. This suggests that although these historical themes once drove transformative change, their continued application without adequate adaptation has diminished their effectiveness within current conservation approaches, as the circumstances they were designed to address no longer reflect present-day realities. Consequently, these historical enabling themes, once the backbone of conservation success, are now, in some instances, perceived as constraints to achieving the desired conservation outcome, thus prompting respondents to advocate for their reform in future conservation strategies. This reflects a common pattern in biodiversity conservation, where visionary solutions and strategies are continually applied without sufficient adaptation over time to meet evolving needs. Consequently, these once-laudable policies and practices have become threats to biodiversity conservation in the country. Respondents summarised the impact of those policies as operational failures on their properties, preventing them from fully leveraging the economic potential of biological diversity (Schiffer, 2004). These perceived limitations are closely linked to the broader regulatory framework governing natural resource use, which has evolved in response to the state's responsibility to safeguard biodiversity. The government's obligation to ensure effective conservation of biological diversity on freehold land and communal conservancies after granting rights over biological diversity has historically prompted an over-regulatory approach in conservation legislation, resulting in the stringent control of natural resource use through permit systems (*Nature Conservation Ordinance 4 of 1975*, 1975; *Forest Act 12 of 2001,* 2001). Despite decades of institutional and conservation successes on those properties, those stringent control mechanisms have remained in place.

The most significant concern with restrictive, over-regulatory legislation is that it impedes innovation and efficient management of natural resources (Park et al., 2025). For example, the restriction on harvesting redundant bushes impedes effective management of bush encroachment, thereby preventing the restoration of the rangeland ecosystem and limiting the productive capacity of the veld (Ministry of

Environment, Forestry and Tourism, 2022a). This is partly due to the mischaracterisation of Namibia by the international community as a forest region, leading to the imposition of global forest governance frameworks on the country, which are misaligned (De Cauwer, 2023) with Namibia's predominantly arid to semi-arid savanna classification (Mendelsohn et al., 2002). The increase in redundant bushes adversely affects groundwater recharge and reduces the availability of palatable grasses, thereby decreasing the carrying capacity for beef production (Birch et al., 2017; Shikangalah & Mapani, 2020; Brinkmann et al., 2023), a crucial resource for many farmers. Hence, farmers across the landscape are pleading with the government to adopt a policy that recognises the country's unique vegetation profile and distinguishes bush encroachment management from conventional international forest conservation strategies (Shikangalah & Mapani, 2020). This calls for the border amendments of conservation laws and the enactment of the Wildlife and Protected Areas Management Bill, to foster a sustainable development framework that unlocks both complex biodiversity conservation objectives and local livelihoods in the latter half of the 21st century, as historically achieved by the Nature Conservation Ordinance of 1967 and the 1996 amendment.

Future threats to biodiversity conservation in Namibia differ significantly from those identified globally by prominent scholars. Global threats identified can be summarised in order of importance as land use change, overexploitation of natural resources, pollution, climate change and alien invasive species (Tilman et al., 2017; Allan et al., 2019; Powers et al., 2019; Harfoot et al., 2021; Jaureguiberry et al., 2022; Díaz, 2023). Additional threats unique to Africa, as noted in the literature, include expanding agricultural land-use, mineral extraction, weak governance, and inadequate enforcement of conservation laws (Leisher et al., 2022; Ogwu et al., 2022; Saliu et al., 2023). At the same time, threats identified by the respondents within the EWSL area include a lack of profitability and benefits from natural resources, security concerns (such as poaching and theft), human-wildlife conflict, recurrent drought cycles, and poor natural resource management (Figure 14). These threats align with those projected by Kariuki et al. (2025) for the same landscape under future scenarios for 2030 and 2063. In contrast, identified future threats within the landscape are more interdependent, driven by governance, economic incentives, and human-wildlife interactions, and are exacerbated by climate change, which manifests locally through intensified drought cycles that subsequently affect economic incentives for local communities and increase human-wildlife interactions. The interdependent nature of these local threats suggests that a singular approach will be insufficient to address their multi-layered complexity (Pfenning-Butterworth et al., 2024). Despite the prominence of these threats to contemporary conservation practices and the future of biodiversity

conservation, limited strategies have been proposed under the most probable and idealised scenarios to address these complexities.

The perceived future of Namibian conservation appears short-sighted, characterised by limited strategic vision and long-term planning, with participant responses influenced by contemporary conservation challenges across different land-use types rather than by a long-term strategic vision. This lack of long-term strategic vision undermines the sector's ability to adapt to changing ecological and socio-economic conditions, thereby weakening our capacity to secure resilient ecosystems and meaningful community benefits for future generations (Cook et al., 2014a; Ednie, 2022). The absence of long-term strategic visioning stems from the limited role of research in informing future conservation priorities, as the conservation agenda is predominantly driven by practitioners on the ground, whose decisions are often guided by immediate management needs rather than by evidence-based, forward-looking strategies. This is further evident from the omission of research from participants' envisioned future, suggesting a perceived lack of confidence in its value for guiding and addressing conservation challenges. Despite this finding, conservation in this landscape is transitioning toward an NC orientation under desirable future scenarios. Respondents firmly emphasised the need for a multi-dynamic landscape conservation approach, better suited to address future threats posed by natural disasters such as drought cycles and climate change, which is projected to worsen (Waidelich et al., 2024). This approach is consistent with current developments in the country, as detailed by Hering et al. (2022), Turner et al. (2022), Hauptfleisch et al. (2024a), Hauptfleisch et al. (2024b), and Lendelvo et al. (2024). However, the future dominance of the NC orientation suggests limited cooperation among the various land uses, which may partly account for the prevailing dominance of the fortress approach (TC) in contemporary practice. Additionally, historical practices continue to influence the desired conservation future through a prevailing tendency among conservation practitioners to revert to historically successful strategies when confronted with significant challenges, thereby explaining the constant need for TC (boundary fences), which dominate the park's desired future. This regression often occurs despite scientific evidence and progressive conservation approaches (landscape) being affected by this practice, thus constraining innovation in the conservation sector and reinforcing outdated management paradigms.

The complexity of the various land-use types within the EWSL area allows different conservation orientations to dominate under different future outlooks and scenarios. However, what is evident from the data is the stagnation of the CBNRM sector, historically grounded within the NC orientation (Dressler & Büscher, 2008; Roe et al., 2009; Büscher & Dressler, 2012; Brockington et al., 2012) and continues to

persist within this framework, both under the most probable and idealised future scenarios. This development constitutes a significant conservation catastrophe, particularly given the consensus within the broader CBNRM sector that the lack of tangible benefits for members from natural resources is the greatest threat to biodiversity conservation in the country. While the NC orientation may be comparatively well positioned to promote human-wildlife coexistence and strengthen community resilience to climate change, it is less able to address livelihood generation, which is crucial to the equitable distribution of benefits among members. To effectively address the threat posed by the lack of tangible benefits within the CBNRM sector, the programme needs to be positioned within the MB orientation, where livelihood generation plays a critical role in fostering tolerance and sustained support for conservation among local communities. In this regard, the park's evolving conservation orientation provides a useful entry point for such repositioning, as the observed shift within ENP from a TC to an NC orientation presents a substantial opportunity to advance development and stimulate economic growth within the CBNRM sector. This opportunity is driven by a growing emphasis among park managers on allocating concession areas within the park to neighbouring communities that bear the costs of human-wildlife coexistence. However, this potential can only be realised if community members' entrepreneurial and economic skills are strengthened and the conservancy model is restructured and professionalised to enhance operational efficiency before concessions are obtained within the park. Additionally, this will require leveraging the communal-commercial interface within the landscape to facilitate the involvement of commercial farmers in addressing critical business and entrepreneurial skills gaps within the CBNRM programme, while supporting the establishment of profitable nature-based enterprises.

The global conservation literature has increasingly recognised that the loss of biodiversity cannot be effectively addressed through isolated ecological interventions but rather requires integrative approaches that consider the interdependencies between ecological systems and human well-being (Sandbrook et al., 2019; Wyborn et al., 2019). This shift is also evident in the Namibian context, where conservation trajectories indicate a transition from a TC orientation, which dominates contemporary conservation practices, towards an NC orientation, as reflected in both the most probable and idealised future scenarios. This transition reflects broader global shifts in conservation thinking, with a growing move away from ecocentric approaches towards models that deliberately align biodiversity conservation with socio-economic realities, human well-being, and sustainable development (Kareiva & Marvier, 2012). Incorporating these global insights into the Namibian context reveals a complex pattern of both convergence and divergence. In this context, Namibia’s conservation model, particularly as implemented

through the CBNRM programme and the freehold farmers, closely aligns with global calls for rights-based and participatory governance, demonstrating how the devolution of resource rights and active community involvement can jointly advance biodiversity conservation and support rural livelihoods. However, Namibia's distinct socio-political and ecological conditions, including its complex land tenure systems and semi-arid landscapes, necessitate context-specific perspectives that may diverge from dominant global models and perceptions. For example, findings from this study demonstrated that fortress conservation approaches remain viable in the future, largely driven by the need to address immediate threats posed by poaching and HWC, thereby explaining the relevance of TC orientation in specific contexts. In conclusion, within the Namibian context, this study highlights that conservation approaches are ideologically diverse but not fundamentally divorced from global perspectives (Sandbrook et al., 2019).

5.2 Contribution of the study

This study makes a significant scholarly contribution by addressing an important knowledge gap concerning the limited empirical understanding of how stakeholders across different land-use systems perceive, anticipate and envision the future of conservation in Namibia. While previous research has predominantly focused on contemporary conservation issues, such as stakeholders' attitudes towards wildlife conservation, community-based natural resource management, human-wildlife conflict and the distribution of conservation benefits, considerably less attention has been given to stakeholders' perceptions of long-term conservation futures. This study provides new empirical insights into how stakeholders across ENP, communal conservancies and freehold farms within the EWSL area envision desirable, probable and feared conservation futures, thereby advancing conservation research beyond present-day challenges towards a future-oriented understanding of conservation planning.

Methodologically, this study contributes to the conservation futures literature by demonstrating how FT can be operationalised within a real-world conservation landscape through the direct participation of stakeholders representing different land-use systems. While conservation futures research has predominantly focused on global or broad-scale scenarios, often with limited engagement of local communities, land users and other stakeholders directly affected by conservation decisions, this study translates these largely conceptual approaches into an empirical, stakeholder-driven application within EWSL. This study demonstrated how local stakeholders' perspectives can be systematically integrated into the development and evaluation of alternative conservation futures, highlighting the practical value of FT

as a participatory decision-support approach for informing long-term conservation planning within complex social-ecological systems.

The study also makes an important contribution to policy and management. The findings demonstrate that although Namibia's conservation legislation and governance frameworks have historically been instrumental in enabling wildlife recovery and decentralised conservation, stakeholders within the EWSL perceive them as increasingly misaligned with the ecological, socio-economic and land-use realities of the contemporary conservation landscape. Consequently, legislation and institutional arrangements that once supported conservation success are increasingly viewed as constraining adaptive conservation management within the EWSL. Furthermore, the study reveals that stakeholders' perceptions of the future remain largely influenced by immediate contemporary challenges, highlighting the need for more strategic, long-term conservation planning. To address these challenges, the study proposes practical recommendations across different temporal horizons and advances a hybrid conservation orientation that strategically integrates the complementary strengths of the TC, NC, CSS and MB orientations. Rather than advocating a single conservation orientation, the hybrid conservation orientation provides a flexible, adaptive framework to guide future conservation policy and management in Namibian conservation.

Chapter 6: Conclusions and Recommendations

6.1 Conclusions

This study provides an in-depth qualitative analysis of the perceived future of Namibian conservation, examining how historical legacies, contemporary management practices and anticipated future scenarios collectively shape the conservation outlook across different land-use systems within the EWSL area. ***The Past:*** Across all land-use types, three interrelated historical drivers, namely legislative frameworks, benefit from natural resources and recurring drought cycles, emerged as the most influential forces shaping and structuring contemporary conservation practices and outcomes. Historical processes, particularly those associated with apartheid-era land restructuring, have produced enduring patterns in land distribution, governance arrangements and socio-political relations that continue to shape conservation approaches within the landscape. In ENP, the historical resizing of the park and the displacement of local communities have reinforced a protectionist management paradigm centred on strict boundary control and exclusion, reinforcing a fortress conservation mindset. Conversely, pre- and post-independence legislative reforms, most notably the amendments to the Nature Conservation Ordinance of 1967 and 1996, have facilitated the devolution of rights over wildlife, enabling the emergence of community-based conservation within communal areas and wildlife-based land use on freehold farms. These findings demonstrate that policy frameworks directly shape the distribution of access and benefits within the landscape, thus influencing both ecological outcomes and the social acceptance of conservation interventions.

The present: Notwithstanding these enabling reforms, the study finds that contemporary conservation approaches across the landscape are constrained by persistent structural challenges that affect each land-use type in distinct, context-specific ways. Amongst these is the persistent failure to ensure that conservation-generated revenues yield meaningful, equitably distributed benefits that trickle down to the household level. Despite the programme's success in generating substantial revenue, the gap between the revenue it generates and the benefits that reach the household level undermines its core objective of linking conservation with improved rural livelihoods and poverty eradication. This quandary has contributed to the widespread dissatisfaction among respondents. Additionally, this study found that inadequate entrepreneurial capacity, restrictive contractual agreements, and the stagnation of support institutions and livelihood models constrain conservancies' ability to function as competitive economic entities. As a result, the programme exhibits characteristics of structural saturation, where its expansion has outpaced its institutional and economic capacity to deliver equitable outcomes. This finding suggests

that the lack of tangible benefits is not merely an operational inefficiency but constitutes the most significant threat to the long-term future of conservation.

Contemporary conservation practices in ENP are increasingly shaped by the escalation of rhino poaching, which has triggered a shift toward militarised, security-driven management approaches. While these responses are understandable in the context of immediate threats to high-value species, they have resulted in significant trade-offs, including the reallocation of resources away from core ecological management functions, reduced staff morale and strained relationships between park authorities and local communities. This reflects a broader systemic tension between immediate protection priorities and long-term sustainability goals, where security-driven interventions risk undermining the social and institutional foundations necessary for effective conservation. Similarly, on freehold farms, although legislative reforms have enabled the transition toward wildlife-based land uses, ongoing policy constraints continue to shape management decisions and limit their adaptive capacity. The legislation has imposed regulatory controls, such as permit requirements, on the utilisation of redundant bush, which delay critical management interventions such as bush harvesting, ultimately exacerbating rangeland degradation and reducing farmers' ability to adapt to environmental variability. Across all land-use types, these governance challenges are further intensified by climate variability, particularly recurrent droughts, which exacerbate livelihood vulnerability, drive land-use change and increase pressure on biodiversity.

The Future: This study's findings indicate that conservation within the EWSL is at a critical juncture, where existing models are no longer fully aligned with the socio-economic realities and ecological pressures facing the landscape. The persistence of protectionist approaches, the growing emphasis on equity and social justice, weak governance, population pressures, restrictive regulations, and the limited integration of market-based mechanisms (MB orientation) reflect a system undergoing transition but lacking a coherent, integrated strategic direction. The study, therefore, concludes that the long-term sustainability of conservation in the EWSL will depend on a deliberate and strategic shift toward practices that prioritise livelihood generation, economic diversification, and equitable distribution of benefits. This requires moving beyond fragmented, sector-specific interventions toward a more integrated landscape approach that strengthens institutional capacity, enhances collaboration across land-use types, and positions conservation within a broader economic framework, especially in the CBNRM sector. In this regard, this study has shown that conservation cannot be sustained solely through protection-focused measures or participatory rhetoric; rather, it must be underpinned by tangible, meaningful benefits that justify its costs

to local communities. Without this, tolerance toward wildlife is likely to decline, leading to increased retaliatory killings, reduced compliance with conservation regulations, and the gradual erosion of community support, which is essential to the long-term sustainability of conservation efforts. Hence, the future of conservation in Namibia will be shaped not only by the effectiveness of its ecological management strategies but, more fundamentally, by our ability to realign conservation objectives with the historical realities and aspirations of the people for tangible benefits and the amendment of restrictive legislation.

Dominant Conservation Orientation: The complexity and dynamism of the EWSL enable multiple conservation orientations to coexist across different conservation outlooks. Conservation within the landscape is predominantly characterised by three distinct orientations, namely, TC, NC and CSS, each with unique conservation repercussions, allowing for the following broader conclusions to be drawn:

- Contemporary conservation practices are characterised by limited innovation and a continued reliance on historically successful approaches, particularly those aligned with the TC orientation. While elements of NC, such as sustainable wildlife use and community-based approaches, are instrumental, the findings indicate that conservation leadership frequently reverts to fortress-based strategies when confronted with immediate threats, most notably rhino poaching within ENP and the broader landscape. This reactionary shift reinforces protectionist measures such as fencing and militarised anti-poaching responses, often at the expense of more integrated and adaptive approaches. As a result, the dominance of TC orientation within contemporary conservation practices reflects not only its historical legacy but also its perceived reliability in crises, despite growing evidence that such approaches are insufficient to address complex, multidimensional conservation challenges across the landscape.
- The most probable conservation future reflects a transition away from TC orientation towards a more integrated NC orientation. This future is characterised by efforts to transform nature-based enterprises (NBEs), strengthen partnerships across land-use types, and promote landscape-level conservation approaches, including the establishment of ecological corridors and improved HWC mitigation strategies. However, this transition remains partial, as it continues to be influenced by contemporary conservation challenges. While the NC orientation provides a more adaptive and inclusive framework, its effectiveness will depend on its ability to go beyond collaboration

and address underlying economic constraints, particularly the need to generate tangible benefits for local communities.

- The most feared conservation future is strongly aligned with the CSS orientation, reflecting deep concerns related to governance failures, socio-economic inequalities and declining trust among stakeholders. In this scenario, conservation is undermined by the continued lack of tangible benefits, restrictive and over-regulatory legislative frameworks, population pressure, unresolved land disputes and institutional tensions, particularly between conservation authorities and security forces. These factors collectively contribute to negative perceptions of conservation, reduced community support, and an increased risk of non-compliance with conservation regulations. The interaction of these threats and the fear they instilled among respondents highlights that the greatest threats to conservation in the landscape are rooted in socio-political and institutional dynamics and, if left unaddressed, they may undermine the long-term effectiveness of conservation efforts.
- The idealised conservation future is predominantly framed within the NC orientation, where respondents envision a more collaborative, inclusive, and landscape-level approach to conservation. This future emphasises strengthened partnerships among stakeholders, increased wildlife populations, and the integration of conservation with broader development objectives. However, a notable contradiction emerged: the idealised future did not fully address the critical issues threatening biodiversity conservation in Namibia, as raised under Objective 3, particularly the lack of tangible benefits. This gap indicates that although respondents envision a more integrated and cooperative conservation model, insufficient attention is paid to the underlying constraints that must be addressed for such a system to be viable in practice.

6.2 Recommendations

The recommendations presented are derived from key findings of this study, which examined how historical legacies, contemporary management practices and anticipated future scenarios shape biodiversity conservation within the EWSL area. They directly address the systemic constraints identified across the three primary land-use types within the landscape to enhance the resilience and long-term sustainability of conservation efforts in Namibia, both now and in the future. A broader recommendation is for Namibia to adopt a hybrid conservation approach that strategically integrates the strengths of all four orientations. The findings of this study indicate that reliance on a single orientation is insufficient to address the complex, interlinked challenges facing conservation in the EWSL. A hybrid model would

enable a more balanced and adaptive system that simultaneously strengthens ecological protection, enhances stakeholder collaboration, improves livelihoods, and addresses governance concerns, thereby harmonising conservation approaches with the socio-economic realities of the local community. The recommendations for each land-use type within the landscape are presented below, highlighting targeted interventions required to address the specific challenges and constraints identified across the EWSL.

6.2.1 Strengthening the CBNRM Sector

Long-term: A central finding of this study is that the lack of tangible benefits represents the greatest threat towards the long-term sustainability of the CBNRM programme. Addressing this quandary requires recognising that reliance on natural resource-based revenues alone is insufficient to generate the resources needed to address rural poverty meaningfully. Hence, it is recommended that the programme prioritise diversifying the livelihood model to incorporate broader economic opportunities beyond photographic and hunting tourism, including sectors such as agriculture, *fisheries, and mining, and to develop accommodation and office facilities in major urban cities such as Swakopmund and Windhoek* (CMC-P9). To fully capitalise on these emerging opportunities, conservancy structures should be professionalised by appointing qualified, experienced, and skilled individuals to oversee business operations, negotiate contracts, diversify the conservancy's business profile, manage finances, and monitor employee performance, thereby ensuring a transition towards professionally managed entities. *"There is a need to adopt a more progressive and results-oriented approach to managing communal conservancies in the country, by ensuring that individuals with the necessary competencies, experience and qualifications are appointed to manage and advance these institutions' agenda of the conservancy"* (SO-P7). Hence, reducing dependence on a narrow set of income sources will improve the programme's ability to withstand external shocks and sustain conservation outcomes over time. Additionally, this approach addresses the weak governance and capacity constraints among SOs identified by respondents, and it redefines their roles, shifting them from direct operational involvement to technical and advisory functions that promote institutional independence. This was emphasised by a respondent who noted that *"support organisations must move away from these paternalistic approaches and rhetoric of community empowerment and take active actions to really empower the communities. This involves actively handing over projects, channelling resources directly to the conservancies and encouraging donors to engage directly with conservancy leadership"* (SO-P5).

***Medium-term*:** The findings of this study revealed that joint-venture arrangements between the conservancies and private operators are characterised by disproportionate profit capture in favour of

external partners, thereby affecting the conservancies' potential to generate income. Addressing this imbalance will require collaborating with other specialised government Offices/Ministries/Agencies (OMA) such as the Government Attorneys, in the negotiation and review of such contracts to ensure that community interests are adequately protected, particularly in light of the limited technical and legal capacity currently available at the conservancy and SO level. This perspective is further reinforced by respondents, who emphasised the need to broaden institutional oversight by *"expanding the scope of support to include other institutes, such as the Ministry of Finance, just to oversee how these communities manage their financial resources"* (SO-P12). This study further found an urgent need to establish an integrated national framework for natural resource governance that aligns wildlife, forestry, fisheries, water, mining and land matters within the CBNRM sector. The current fragmentation of legislative and institutional arrangements, characterised by multiple, often overlapping mandates administered by different M/O/A, undermines coordination, perpetuates sectoral silos, and limits the implementation of holistic conservation within conservancies and stakeholders' ability to respond adaptively to socio-ecological challenges. This approach would address governance challenges such as the allocation of grazing rights to external users within designated wildlife-exclusive zones by TAs, which exacerbates HWC, and the issuance of exploration and mining licences in ecologically sensitive wildlife areas, both of which are identified as future threats to biodiversity conservation in Namibia.

Short-term: A central finding of this study is the persistent failure to ensure that revenues generated by conservancies are equitably distributed in ways that meaningfully reach households. Addressing this limitation is critical to maintaining community support and ensuring the programme's continued influence on biodiversity conservation. It is therefore recommended that the CBNRM sector undergo targeted institutional reforms to improve benefit-distribution mechanisms, ensuring that a greater proportion of conservation revenues reaches local community members. Additionally, MEFT should strengthen enforcement by taking corrective action against conservancies that fail to comply with the directive requiring 50% of revenues to be allocated to community development initiatives, as stipulated in the Guidelines for the Management of Conservancies and Standard Operating Procedures (GMCSOP). Consistent application of these provisions is likely to enhance compliance and reinforce accountability amongst the conservancies. This position is further emphasised by a respondent who expressed that *"first of all, it is to ensure compliance. For any communal conservancy that is not complying, I will not think twice about de-gazetting them to set a precedent for the rest of the conservancies to fall in line"* (SO-P6). While such enforcement measures are critical to strengthening compliance and governance within the sector,

they must be complemented by interventions that enhance conservancies' economic viability. There is a need to diversify conservancy livelihoods in the short term. This can be achieved by removing regulatory constraints that limit activities such as bush utilisation in conservancies and communal areas, allowing community members to participate in the lucrative charcoal production industry. This approach facilitates the rehabilitation of degraded rangelands affected by bush encroachment, transforming ecological challenges into viable economic opportunities while simultaneously improving traditional pastoral practices and livelihood outcomes.

6.2.2 Strengthening Etosha National Park

Long-term: This study found that effective management of ENP is constrained by limited budgetary allocations from the central government, driven by competing national priorities, thus limiting the implementation of critical park management activities. It is therefore recommended that Namibia transition to a semi-autonomous model of national park management that grants greater financial and administrative autonomy, with oversight from the Office of the Auditor General and Parliament. This approach would enhance the parks' financial sustainability, improve management efficiency, and reduce dependence on external funding by ensuring that revenues from tourism and other park-based activities are directly reinvested to maintain ecological integrity and support core conservation functions. This perspective was supported by a respondent who advocated for institutional reforms that grant PAs greater financial and administrative autonomy, asserting, *"I will support the establishment of parastatals for protected areas in Namibia"* (NLMS-P7).

Medium-term: The findings of this study indicated that conservation management within ENP has become increasingly influenced by security-driven approaches in response to rhino poaching, thereby affecting the MEFT budget and social cohesion among park management, security personnel, and surrounding communities. While the deployment of security forces (NAMPOL and NDF) was necessary in the short term to address rhino poaching, their continued use, coupled with reported instances of involvement in poaching activities, has led to trade-offs that undermine broader conservation objectives. It is therefore recommended that security forces be progressively withdrawn from ENP. At the same time, the MEFT prioritises the recruitment, training, and deployment of suitably qualified professionals within the Wildlife Protection Services (WPS) unit to enhance specialised and effective conservation enforcement. This is further supported by one respondent, who expressed strong concerns regarding the militarisation of the park and emphasised the need to restore the primary purpose of PAs, with a lamenting articulation, *"get*

rid of NAMPOL and NDF from the park and fill the structure of WPS, with people who have relevant experience and who are trained properly" (NKMS-P11).

Short-term: The findings of this study indicate that management decisions within the park are significantly influenced by security-driven intervention. The escalation of rhino poaching has resulted in a disproportionate allocation of financial resources within the park, with funding increasingly diverted away from critical park management activities toward anti-poaching interventions. This practice has significantly constrained essential activities, such as general park management, infrastructure maintenance and research required to support evidence-based decision-making, thus contributing to the poor state of the park, as discussed under Objective 2. Hence, it is recommended that resource allocation within ENP be strategically rebalanced to ensure that anti-poaching efforts do not compromise other core park management functions.

This study further found that institutional memory is being rapidly lost within the park due to high staff turnover, undermining effective park management. It is therefore recommended that Etosha National Park (ENP) develop and implement an updated, comprehensive and adaptive management plan that reflects the present-day realities of the park, including emerging challenges such as climate change, increasing tourism pressures, biodiversity conservation, human resource capacity, technological advancements and changing socio-economic and governance contexts. Such a management plan should also incorporate a structured succession strategy to facilitate the transfer and retention of institutional knowledge, thereby ensuring continuity in decision-making and strengthening long-term management effectiveness. This recommendation is further supported by one respondent who emphasised the need for a structured and adaptive management plan to guide the park's operations and respond to emerging challenges, as reflected in the following statement: "Develop a dynamic and flexible management plan (tourism, resources, and human resources) for Etosha National Park, aligned with global standards, that considers the impacts of climate change on the park" (NLMS-P10).

6.2.3 Strengthening Freehold Farms

Medium to Long-term: The findings of this study indicate that the current legislative framework governing natural resource use imposes excessive regulatory constraints on freehold farms, including stringent permit requirements and bureaucratic delays, thus limiting the farmers' ability to respond adaptively to environmental and economic challenges. It is therefore recommended that Namibia

undertake targeted legislative reforms to enhance flexibility in natural resource use, thereby enabling land users to implement timely, adaptive management interventions in responding to ecological challenges, particularly for critical management actions such as bush control, water infrastructure development, and drought response. Additionally, the government must adopt policy frameworks that recognise Namibia's unique vegetation profile, thereby distinguishing bush encroachment management from conventional international forest conservation strategies.

6.2.4 Additional Recommendations

Additional recommendations were derived from responses to interview questions 2, 6, and 7, which specifically explored participants' perspectives on innovative ideas to improve conservation outcomes within the EWSL area. They serve as the foundation for transitioning conservation towards the preferred future and can also serve as the research agenda for conservation.

CBNRM Sector

Operational Recommendation

- Efforts should be directed toward establishing and gazetting the Ombonde People's Park, which represents a key strategic vision of unlocking the area's tourism and conservation potential (SO-P14).
- We need to integrate other land uses, especially agricultural activities, into conservancies and support good practices. For many years, support for conservancies came from the wildlife and conservation field because that is where the money was. However, the Conservancy was never intended to be only a wildlife area; it was always intended, and known, that there are other activities whose livelihoods depend on it, such as agriculture, yet there was no real engagement in that aspect. (SO-P7).

Future Research Recommendation

- We need to conduct a multi-disciplinary study within the CBNRM program that consolidates all relevant data and integrates economic analysis to unlock over-the-horizon opportunities and enable robust future scenario modelling of the program (SO-P9).

Policy/Legislative Recommendations

- There is a need to revise the HWC policy to incorporate a broader range of conflict-causing species excluded from the policy (CMC-P23).

- I would recommend that game guards be granted full powers to enforce conservation laws within their jurisdiction, to strengthen on-the-ground responses to wildlife crime and enhance overall conservation security (CMC-16).
- Communities should be granted full rights over natural resources, including the land formally gazetted as conservancies, enabling them to exercise complete control and regulatory authority over the use and management of natural resources within their boundaries (SO-P8).

Etosha National Park

Operational Recommendation

- It is essential to prepare and transition the younger generation into management positions by establishing a deliberate succession plan that will equip them with the necessary skills, knowledge and values to allow and ensure continuity in managing protected areas (GM-P7).
- Revitalise the Etosha Ecological Institute (EEI), to ensure its active contribution to the generation and dissemination of scientific data that supports knowledge-based management and ensures that decisions taken within the park are informed by scientific evidence and empower managers to do away with the ad hoc and reactive management practice currently dominating the landscape of park management (NLMS-P4).
- Develop a Tourism Management Plan to effectively regulate and oversee various concession holders operating within the park, with clear guidelines aiming to ensure that tourist numbers remain within the ecological carrying capacity of the park, to prevent over-tourism and significant damage to the park's road infrastructure (GM-P6).

Future Research Recommendation

- We must establish an ecological corridor linking ENP to the north-western region landscape, integrating key conservation areas such as Hobatere, Palmwag and Etendeka to the two parks. Maintaining Etosha NP and Skeleton Coast NP as conservation islands is not a viable long-term strategy, particularly in the face of climate change, which is projected to have significant negative impacts on the local ecosystems within those areas (GM-P6).

Policy/Legislative Recommendations

- The Wildlife Bill needs to be enacted as soon as possible, as it gives greater power and responsibility to the Ministry, better legal status, better fines and penalties and gives more rights to the Conservancies (NLMS-P5).

- Develop a strategic plan/policy for the sustainable financing of protected areas, outlining ways of generating and spending revenue within the park. It must also include guidelines for sustaining donor-funded projects beyond their lifespans, as the end of a project often leads to the discontinuation of critical conservation activities, primarily due to insufficient government follow-through and financial commitment (NLMS-P5).
- There is a need to identify and develop more concession areas within the park, specifically designated for allocation to neighbouring communities that bear the costs of living alongside wildlife. Currently, NWR is the sole entity operating within the park's periphery, and they must acknowledge that they cannot be the sole operator within the park's boundaries. For us to continue improving the product and service delivery, NWR needs to adapt and face competition (NLMS-P1).

Freehold Farmers

Operational Recommendation

- We need to introduce mentorship programs within the landscape, allowing established farmers to provide guidance and support to emerging and neighbouring farmers. This enables knowledge transfer, promotes capacity building, and ensures that best practices are adopted and implemented widely across the landscape, thereby enhancing sustainable farming in Namibia, a semi-arid country (MLF-P5).
- We face the reality that our stocking rate of 21/22 kilograms per hectare is no longer realistic; hence, we must change our approach to farming by selecting and keeping genetically superior animals producing quality beef while being drought-resistant and able to be sustained with boskos (SLF-P8).
- Poverty alleviation must be prioritised as a crucial component of national development, as it is closely linked to issues such as theft, poaching, and broader challenges farmers face (MLF-P1).

Policy/Legislative Recommendations

- Minimal government interference is required in managing natural resources to ensure farmers take full advantage of over-the-horizon opportunities and establish a flourishing bioeconomy within the landscape and broader country (SLF-P8).

References

Abraham, J. O., Goldberg, E. R., Botha, J., & Staver, A. C. (2021). Heterogeneity in African savanna elephant distributions and their impacts on trees in Kruger National Park, South Africa. *Ecology and Evolution, 11*(9), 5624–5634. https://doi.org/10.1002/ece3.7445

Adams, W. M., & Hutton, J. (2007). People, parks and poverty: Political ecology and biodiversity conservation. *Conservation and Society, 5*(2), 147–183.

Adams, W. M., & Jeanrenaud, S. J. (2008). *Transition to sustainability: Towards a humane and diverse world*. Gland, Switzerland: IUCN.

Adéchian, S. A., & Baco, M. N. (2025). How does land tenure security contribute to the sustainable development of rural households? Evidence from Benin (West Africa). *Frontiers in Sustainable Food Systems*. https://doi.org/10.3389/fsufs.2025.1621537

Adelowotan, M. (2021). Software, method, and analysis: Reflections on the use of ATLAS.ti in a doctoral research study. Eurasian Journal of Economics and Finance, 9(3), 189–204. https://doi.org/10.15604/ejef.2021.09.03.004

Africa Progress Group. (2018, March 2). *Making progress towards attaining the Sustainable Development Goals in Africa*. http://www.africaprogresspanel.org/files/rogress-panel-report_fzt4qpsoy4yta2aptzwttm/

African Conservancies Volume. (2016). *Towards Best Practices*. Retrieved from https://www.academia.edu/88229561/African_Conservancies_Volume_Towards_Best_Practices_31_October_16_lm_1

Afrobarometer. (2019, October 31). *Namibians are divided on land reform, including expropriation*. Survey Warehouse. https://www.afrobarometer.org/articles/namibians-divided-land-reform-including-expropriation-afrobarometer-survey-shows/

Aglagal, C., Hssaisoune, M., El Hafyani, M., & Ait el Kadi, M. (2025). Toward sustainable agricultural water management in an agribusiness system: A case study of the Chtouka Plain, Morocco. *Euro-Mediterranean Journal for Environmental Integration,* 10(6). https://doi.org/10.1007/s41207-025-00909-9

Akashinga. (2022, January 11). *LEAD Ranger – Kenya: Servicing East & Southern Africa*. https://www.akashinga.org/news/leadranger

Agricultural (Commercial) Land Reform Act 6 of 1995. (1995). *Government Gazette of the Republic of Namibia*.

Alberts, R. C., Hauptfleisch, M., Retief, F. P., Roos, C., Cilliers, D. P., Amutenya, J., Moolman, H. J., Liebenberg, L., Haingura, G. K., & Bond, A. J. (2025). Developing a deliberative-Delphi method for informing national conservation capacity development strategies. *The Journal of Environment & Development,* 34(1), 101–125. DOI: 10.1177/10704965241271266

Alcorn, J. B., Luque, A., Weisman, W., Suralaga, D., Singh, S., Zeballos, R., ... & Brosius, P. (2005). Non-governmental organisations and protected areas governance. In *Governance Stream of the Vth World Park Congress* (pp. 1–44). Canada, Parks Canada and IUCN World Commission on Protected Areas (WCPA), Ottawa and Gland. https://www.researchgate.net/publication/255575632_Non-governmental_Organizations_and_Protected_Area_Governance

Allan, J. R., Watson, J. E., Di Marco, M., O'Bryan, C. J., Possingham, H. P., Atkinson, S. C., & Venter, O. (2019). Hotspots of human impact on threatened terrestrial vertebrates. *PLoS Biology, 17*(3), e3000158. https://doi.org/10.1371/journal.pbio.3000158

Amer, M., Daim, T. U., & Jetter, A. (2013). A review of scenario planning. Futures, 46, 23–40. https://doi.org/10.1016/j.futures.2012.10.003

Amoo, S. K., & Harring, S. L. (2009). Namibian land: Law, land reform, and the restructuring of post-apartheid Namibia. *University of Botswana Law Journal, 9*, 87–108.

Amoo, S. K. (2024). *Property law in Namibia*. Pretoria University Law Press.

Anderson, B., & Jooste, J. (2014). Wildlife Poaching: Africa's Surging Trafficking Threat. *Africa Security Briefs*, *28*.

Andrade, G. S. M., & Rhodes, J. R. (2012). Protected areas and local communities: An inevitable partnership toward successful conservation strategies? *Ecology and Society, 17*(4), 14.

Angula, M. N., & Kaundjua, M. B. (2016). The changing climate and human vulnerability in north-central Namibia. *Jàmbá: Journal of Disaster Risk Studies,* 8(2). https://doi.org/10.4102/jamba.v8i2.200

Angula, H. N., Stuart-Hill, G., Ward, D., Matongo, G., Diggle, R. W., & Naidoo, R. (2018). Local perceptions of trophy hunting on communal lands in Namibia. *Biological Conservation, 218*, 26–31. https://doi.org/10.1016/j.biocon.2017.11.033

Armitage, D., Plummer, R., Berkes, F., Arthur, R., Charles, A., Davidson-Hunt, I., Diduck, A., Doubleday, N., Johnson, D., Marschke, M., McConney, P., Pinkerton, E., & Wollenberg, E. (2009). Adaptive co-management for social–ecological complexity. *Frontiers in Ecology and the Environment,* 7(2), 95–102. https://doi.org/10.1890/070089

Armitage, D., Mbatha, P., Muhl, E., Rice, W., & Sowman, M. (2020). Governance principles for community-centered conservation in the post-2020 global biodiversity framework. *Conservation Science and Practice*, *2*(2), 1–18. https://doi.org/10.1111/csp2.160

Asheela-Shikalepo, N. (2021). Corruption and corporate governance in Namibia: An analysis of the strategic approaches in the 4th industrial revolution. *Potchefstroom Electronic Law Journal (PER)*, 24, Article 56. https://doi.org/10.17159/1727-3781/2021/v24i0a11065

Ashley, C., & Barnes, J. (2020). Wildlife use for economic gain: The potential for wildlife to contribute to development in Namibia. In *Environmental Sustainability* (pp. 163–191). CRC Press.

Ayalew, S., & Mulualem, G. (2018). *A Review on Bush Encroachment Effect on Cattle Rearing in Rangelands*. *8*(4).

Ayling, J. (2013). What sustains wildlife crime? Rhino horn trading and the resilience of criminal networks. *Journal of International Wildlife Law & Policy, 16*(1), 57–80. https://doi.org/10.1080/13880292.2013.764776

Azungah, T. (2018). *Qualitative research: Deductive and inductive approaches to data analysis*. https://doi.org/10.1108/QRJ-D-18-00035

Bandyopadhyay, S., Humavindu, M. N., Shyamsundar, P., & Wang, L. (2009). Benefits to local communities from community conservancies in Namibia: an assessment. *Development Southern Africa*, 26(5), 733–754. https://doi.org/10.1080/03768350903303324

Barnard, P., Brown, C. J., Jarvis, A. M., & Robertson, A. (1998b). Extending the Namibian protected area network to safeguard hotspots of endemism and diversity. In P. Barnard (Ed.), *Biological diversity in Namibia: A country study* (pp. 531–547). Namibian National Biodiversity Task Force.

Barnes, J. I., MacGregor, J., & Weaver, L. C. (2001). *Economic analysis of community wildlife use initiatives in Namibia*. Directorate of Environmental Affairs, Ministry of Environment and Tourism.

Barnes, J. I. (2007). Human-wildlife conflict in Namibia: Experiences from a portfolio of practical solutions. *Nature & Faune*, 20(1), 52–60

Barnes, J. I., Macgregor, J., & Weaver, L. C. (2002). Economic Efficiency and Incentives for Change within Namibia's Community Wildlife Use Initiatives. *World Development*, *30*(4), 667–681.

Barnes, J. I., MacGregor, J., & Alberts, M. (2012). Expected climate change impacts on land and natural resource use in Namibia: Exploring economically efficient responses. *Policy and Practice*, *2*(22).

Barnes, J. I., & Jones, B. (2012). Game ranching in Namibia. In *Evolution and innovation in wildlife conservation* (pp. 113–126). Routledge.

Barnes, J. I. (2013). *Economic analysis of land use policies for wildlife conservation in Namibia*. Windhoek, Namibia: Ministry of Environment and Tourism.

Berkes, F. (2007). Community-based conservation in a globalised world. *Proceedings of the National Academy of Sciences, 104*(39), 15188–15193.

Berkes, F. (2017). Environmental governance for the Anthropocene? *Sustainability*, 9(7), 1232. https://doi.org/10.3390/su9071232

Berghöfer, A. (2010). Protected areas: The Weakness of Calls for Strict Protection. *GAIA-Ecological Perspectives for Science and Society*, *19*(1), 9–12.

Berrang-Ford, L., Ford, J. D., & Paterson, J. (2011). Are we adapting to climate change? *Global Environmental Change, 21*(1), 25–33. https://doi.org/10.1016/j.gloenvcha.2010.09.012

Berry, P. E., Dammhahn, N., & Blaum, N. (2023). Keeping cool on hot days: Activity responses of African antelope to heat extremes. *Frontiers in Ecology and Evolution, 11*. https://doi.org/10.3389/fevo.2023.1172303

Beytell, P. C. (2010). *Reciprocal impacts of black rhino and community-based ecotourism in north-west* Bhardwaj, G. (2009). Focus on business model innovation and increase growth. *Innovation Management*, *1*, 1-4.

Bhatt, H., Bahuguna, R., Singh, R., Gehlot, A., Akram, S. V., Priyadarshi, N., & Twala, B. (2022). Artificial intelligence and robotics led technological tremors: A seismic shift towards digitising the legal ecosystem. *Applied Sciences, 12*(22), 11687. https://doi.org/10.3390/app122211687

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly, 37*(2), 471–482. https://doi.org/10.25300/MISQ/2013/37:2.3

Biermann, F., Kanie, N., & Kim, R. E. (2017). Global governance by goal-setting: The novel approach of the SDGs. *Current Opinion in Environmental Sustainability, 26–27*, 26–31. https://doi.org/10.1016/j.cosust.2017.01.010

Biggs, D., Courchamp, F., Martin, R., & Possingham, H. P. (2013). Legal trade of Africa's rhino horns. *Science, 339*(6123), 1038–1039.

Biggs, D., Swemmer, L., Phillips, G., Stevens, J., Freitag, S., & Grant, R. (2014). The development of a tourism research framework by South African National Parks to inform management. *Koedoe,* 56(2), 1-9.

Bihu, R. (2024). *Qualitative data analysis: Novelty in deductive and inductive coding*. Advance. https://advance.sagepub.com/doi/full/10.31124/advance.24143088.v1

Bingham, A. J. (2023). From data management to actionable findings: A five-phase qualitative data analysis process. *International Journal of Qualitative Methods, 22*. https://doi.org/10.1177/16094069231183620

Birch, C., Harper-Simmonds, L., Lindeque, P., & Middleton, A. (2017). Benefits of bush control in Namibia: A national economic study for Namibia and a case for the Otjozondjupa Region. Report for the Economics of Land Degradation Initiative. Retrieved from http://www.eld-initiative.org

Bliss, D. S. (2018). Landscapes and Landforms: Deserts - The Namib Desert. *Geography Bulletin, 50*(1), 37–52.

Bollig, M. (2013). Social-ecological change and institutional development in a pastoral community in north-western Namibia. *Pastoralism in Africa. Past, Present and Futures. Berghahn, London*, 316–340.

Bollig, M., & Menestrey Schwieger, D. A. (2014). Fragmentation, cooperation and power: Institutional dynamics in natural resource governance in north-western Namibia. *Human Ecology, 42*(2), 167–181. https://doi.org/10.1007/s10745-014-9647-7

Bollig, M. (2016). Towards an Arid Eden? Boundary-making, governance and benefit-sharing, and the political ecology of the new commons of Kunene Region, Northern Namibia. *International Journal of the Commons, 10*(2), 771–799. https://doi.org/10.18352/ijc.702

Botha, A. P. (2016). Developing executive future thinking skills. In *Proceedings of the International Association for Management of Technology Conference*.

Boudreaux, K., & Nelson, F. (2011). Community conservation in Namibia: Empowering the poor with property rights. *Economic Affairs*, *31*(2), 17–24.

Bourgeois, R., Guerbois, C., Giva, N., Mugabe, P., Mukamuri, B., Fynn, R., Daré, W., Motsholapheko, M., Nare, L., Delay, E., Ducrot, R., Bucuane, J., & Mercandalli, S. (2023). Using anticipation to unveil drivers of local livelihoods in Transfrontier Conservation Areas: A call for more environmental justice. *People and Nature, 5*(3), 726–741. https://doi.org/10.1002/pan3.10446

Bourziza, R., Oudrhiri, S., Outmrhoust, Y., Mourjanou, I., & El Khoumsi, W. (2023). Desalination of seawater in Morocco: Case study of Chtouka and Dakhla public-private partnership projects. *World Water Policy,* 9(4), 767–786. https://doi.org/10.1002/wwp2.12143

Brinkmann, K., Schwieger, D. A. M., Grieger, L., Heshmati, S., & Rauchecker, M. (2023). How and why do rangeland changes and their underlying drivers differ across Namibia's two major land-tenure systems? *The Rangeland Journal, 45*(3), 123–139. https://doi.org/10.1071/RJ22034

Brockington, D., Duffy, R., & Igoe, J. (2012). *Nature unbound: Conservation, capitalism and the future of protected areas*. Routledge.

Brooks, J., Waylen, K. A., & Mulder, M. B. (2013). Assessing community-based conservation projects: A systematic review and multilevel analysis of attitudinal, behavioural, ecological, and economic outcomes. *Environmental Evidence*, *2*, 1–34.

Brown, C., & Thomson, G. (2024, September 5). *Namibia's decision to cull 723 wild animals to feed its people strikes a good balance*. Conservation Namibia. https://conservationnamibia.com/blog/namibia-animal-cull.php

Bruku, C. E. (2024). *Collaborative Governance in Africa's National Parks: A Systematic Literature Review of Models and Practices*. *8*(6), 4302–4318. https://doi.org/10.47772/IJRISS.2024.8080329

Bufford, J. L., Brandt, A. J., Ausseil, A. G., Black, A., Case, B. S., Forbes, A. S., Kirby, C., Sprague, R., Wreford, A., & Peltzer, D. A. (2024). Conservation futures 2050: Developing future scenarios to explore potential socio-economic developments and their impact on biodiversity. *PLOS ONE,* 19(12). https://doi.org/10.1371/journal.pone.0311361

Bulte, E. H., & Rondeau, D. (2007). Compensation for wildlife damages: Habitat conversion, species preservation and local welfare. *Journal of Environmental Economics and Management, 53*(1), 1–18. https://doi.org/10.1016/j.jeem.2007.02.003

Büscher, B., & Dressler, W. (2012). Commodity conservation: The restructuring of community conservation in South Africa and the Philippines. *Geoforum, 43*(3), 367–376. https://doi.org/10.1016/j.geoforum.2010.06.010

Büscher, B. (2016). Reassessing fortress conservation? New media and the politics of distinction in Kruger National Park. Annals of the American Association of Geographers, 106(1), 114–129. https://doi.org/10.1080/00045608.2015.1095061

Büscher, B., & Fletcher, R. (2020). *The conservation revolution: Radical ideas for saving nature beyond the Anthropocene*. Verso Books. https://doi.org/10.1080/14888386.2020.1811769

Carpenter, S. (2022). Exploring the impact of climate change on the future of community-based wildlife conservation. *Conservation Science and Practice*, *4*(1), 1–8. https://doi.org/10.1111/csp2.585

Carr Kelman, C., Brady, U., Raschke, B. A., & Schoon, M. L. (2023). A systematic review of key factors of effective collaborative governance of social-ecological systems. *Society & Natural Resources, 36*(11), 1452–1470. https://doi.org/10.1080/08941920.2023.2228234

Chaigneau, T., Coulthard, S., Brown, K., Daw, T. M., & Schulte-Herbrüggen, B. (2019). Incorporating basic needs to reconcile poverty and ecosystem services. *Conservation Biology*, *33*(3), 655–664.

Challender, D. W. S., & MacMillan, D. C. (2014). Poaching is more than an enforcement problem. *Conservation Letters, 7*(5), 484–494. https://doi.org/10.1111/conl.12082

Chan, A. N., Leimgruber, P., Stabach, J., & Wittemyer, G. (2024). Identification of landscape features structuring movement connectivity for Namibian elephants. *Landscape Ecology, 39*(8), 151. https://doi.org/10.1007/s10980-024-01957-2

Chanyandura, A., Muposhi, V. K., Gandiwa, E., & Muboko, N. (2021). An analysis of threats, strategies, and opportunities for African rhinoceros conservation. *Ecology and Evolution,* 11(11), 5892–5910. https://doi.org/10.1002/ece3.7536

Chausson, A., Welden, E., Melanidis, M. S., Gray, E., Hirons, M., & Seddon, N. (2023). Going beyond market-based mechanisms to finance nature-based solutions and foster sustainable futures. *PLoS Climate*, *2*(4), 1–17.

Chen, R., Little, R., Mihaylova, L., Delahay, R., & Cox, R. (2019). Wildlife surveillance using deep learning methods. *Ecology and Evolution*, *9*(17), 9453–9466.

Child, B. (Ed.). (2004). *Parks in transition: Biodiversity, rural development and the bottom line*. Earthscan.

Child, B., & Barnes, G. (2010). The conceptual evolution and practice of community-based natural resource management in Southern Africa: Past, present, and future. *Environmental Conservation, 37*(3), 295–305. https://doi.org/10.1017/S0376892910000512

Child, B. (2012). The sustainable use approach could save South Africa's rhinos. *South African Journal of Science, 108*(7/8), 1–4. https://doi.org/10.4102/sajs.v108i7/8.1338

Child, B., Suich, H., & Anna, S. (2012). *Evolution and Innovation in Wildlife Conservation: From Parks and Game Ranches to Transfrontier Conservation Areas*. Earthscan.

Child, B. (2019). *Sustainable governance of wildlife and community-based natural resource management: From economic principles to practical governance*. Routledge.

Chilwalo, M., Makhubele, J. C., & Ananias, J. (2021). Experiences and opinions of youth towards alcohol abuse in and out of school in Oshikango, Ohangwena Region, Namibia. *Journal of Social Sciences and Humanities Research, 23*(1), 701–709. https://ideas.repec.org/a/tec/journl/v23y2021i1p701-709.html

Chimes, L. C., Beytell, P., Muntifering, J. R., Kötting, B., & Neville, V. (2022). Effects of dehorning on population productivity in four Namibia sub-populations of black rhinoceros. *European Journal of Wildlife Research*.

CITES. (2016). *World Wildlife Crime Report: Trafficking in Protected Species*. United Nations Office on Drugs and Crime (UNODC). Retrieved from https://www.unodc.org/documents/data-and-analysis/wildlife/World_Wildlife_Crime_Report_2016_final.pdf

CITES. (2019). *Resolution Conf. 10.10 (Rev. CoP18): Trade in elephant specimens.* https://cites.org/eng/res/10/10-10R18.php

CITES. (2022). *Consideration of Proposals for Amendment of Appendices I and II, CoP19 Prop. 3.* Nineteenth meeting of the Conference of the Parties, Panama City (Panama), 14 – 25 November 2022

Clack, W. (2024). An analysis of livestock theft in South Africa (2013-2023): Towards a deeper understanding of livestock dynamics for enhanced countermeasures. *International Journal of Rural Criminology, 8*(3), 335–371. https://doi.org/10.1515/ijrc-2024-0031

Clarke, B., Otto, F., Stuart-Smith, R., & Harrington, L. (2022). Extreme weather impacts of climate change: An attribution perspective. *Environmental Research: Climate*, *1*(1), 012001.

Claudino-Sales, V. (2019). Namib Sand Sea. In V. Claudino-Sales (Ed.), *Coastal World Heritage Sites* (pp. 9–14). Springer Netherlands. https://doi.org/10.1007/978-94-024-1528-5_2

Clifton, J., & Schwerdtner Mänz, K. (2025). A framework based on payments for ecosystem services to support the delivery of high-integrity carbon and biodiversity credits. Ecological Economics, 214, 107468. https://doi.org/10.1016/j.ecoser.2025.101724

Coad, L., Leverington, F., Knights, K., Geldmann, J., Eassom, A., Kapos, V., Kingston, N., Loucks, C., Moraes, M., Oliveira, T., Palumbo, G., Pavese, H., de Sousa Pinto, I., Woodley, S., Zamora, C., Burgess, N. D., Hockings, M., & Watson, J. E. M. (2015). Measuring impact of protected area management interventions: Current and future use of the Global Database of Protected Area Management Effectiveness. *Philosophical Transactions of the Royal Society B: Biological Sciences, 370*(1681). https://doi.org/10.1098/rstb.2014.0281

Colditz, R., Keil, M., Strohbach, B., Gessner, U., Schmidt, M., & Dech, S. (2007). *Vegetation structure mapping with remote sensing time series: Capabilities and improvements*.

Cox, C. M., Nibbelink, N., & Morse, W. C. (2025). Identifying synergies and differences in multistakeholder conservation priorities using participatory mapping interviews. *Ecology and Society*, *30*(3), Article 12. https://doi.org/10.5751/ES-15645-300312

Cook, C. N., Inayatullah, S., Burgman, M. A., Sutherland, W. J., & Wintle, B. A. (2014b). Strategic foresight: How planning for the unpredictable can improve environmental decision-making. *Trends in Ecology & Evolution, 29*(9), 531–541. https://doi.org/10.1016/j.tree.2014.07.005

Cook, C. N., Wintle, B. C., Aldrich, S. C., & Wintle, B. A. (2014a). Using Strategic Foresight to Assess Conservation Opportunity: Strategic Foresight and Conservation Opportunity. *Conservation Biology*, *28*(6), 1474–1483. https://doi.org/10.1111/cobi.12404

Crawford, A., & Terton, A. (2016). *Review of current and planned adaptation action in Namibia*. International Institute for Sustainable Development (IISD). https://www.iisd.org/system/files/publications/idl-55658.pdf

Creswell, J. W. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

Cooney, R., Roe, D., Dublin, H., Phelps, J., Wilkie, D., Keane, A., Travers, H., Skinner, D., Challender, D., Allan, J., & Biggs, D. (2017). From poachers to protectors: Engaging local communities in solutions to illegal wildlife trade. *Conservation Letters, 10*(3), 367–374. https://doi.org/10.1111/conl.12294

Costanza, R., de Groot, R., Sutton, P., van der Ploeg, S., Anderson, S. J., Kubiszewski, I., Farber, S., & Turner, R. K. (2014). Changes in the global value of ecosystem services. *Global Environmental Change,* 26, 152–158. https://doi.org/10.1016/j.gloenvcha.2014.04.002

Crookes, D. J., & Blignaut, J. N. (2016). A categorisation and evaluation of rhino management policies. *Development Southern Africa*, *33*(4), 459–469.

Cumming, G. S. (2017). Protected areas as social-ecological systems: Perspectives from resilience and social-ecological systems theory. *Ecological Applications*, *21*(6), 2109–2117.

Cumming, G. S., & Allen, C. R. (2017). Protected areas as social-ecological systems: Perspectives from resilience and social-ecological systems theory. *Ecological Applications,* 27(6), 1709–1717.

Davies, J. E., Spear, D., Ziervogel, G., Hegga, S., Ndapewa Angula, M., Kunamwene, I., & Togarepi, C. (2020). Avenues of understanding: Mapping the intersecting barriers to adaptation in Namibia. *Climate and Development, 12*(3), 268–280.

Day, C., Moreto, W., & Ravary, R. (2023). Ranger/soldier: Patterns of militarising conservation in Uganda. *Journal of Eastern African Studies*, *17*(1-2), 57-78.

De Cauwer, V. (2023). *Status Quo of Sustainable Forest Management in Namibia*. Hanns Seidel Foundation and Desert Research Foundation of Namibia (DRFN), Windhoek.

De Klerk, E. (2024, December 11). *Conservancies claim small victory over mining*. *New Era*. https://neweralive.na/conservancies-claim-small-victory-over-mining/

De Klerk, J. N. (2004). *Bush encroachment in Namibia: Report on phase 1 of the bush encroachment research, monitoring, and management project*. Ministry of Environment and Tourism, Directorate of Environmental Affairs.

De Vette, M., Kashululu, R., & Hebinck, P. (2012). Conservancies in Namibia: A discourse in action. In P. Hebinck, J. S. van der Ploeg, & S. Schneider (Eds.), *Rural development and the construction of new markets* (pp. 161–184). Wageningen Academic Publishers. https://doi.org/10.3920/978-90-8686-749-3_9

Díaz, M. (2023). Dealing with global threats to biodiversity: A pressing but realistic challenge. *Frontiers in Conservation Science, 4*, 1147470. https://doi.org/10.3389/fcosc.2023.1147470

Díaz, N. I., & Corti, P. (2025). Ensuring the quality of historical data for wildlife conservation: A methodological framework. *Perspectives in Ecology and Conservation, 23*(1), 32-38. https://doi.org/10.1016/j.pecon.2024.12.003

Dickman, A. J. (2010). Complexities of conflict: The importance of considering social factors for effectively resolving human–wildlife conflict. *Animal Conservation*, 13(5), 458–466. https://doi.org/10.1111/j.1469-1795.2010.00368.x

Dickman, A., Cooney, R., Johnson, P. J., Louis, M. P., Roe, D., & 128 signatories. (2019). Trophy hunting bans imperil biodiversity. *Science, 365*(6456), 874. https://doi.org/10.1126/science.aax7115

Dieckmann, U. (2003). *The impact of nature conservation on the San: A case study of Etosha National Park*. In U. Dieckmann, T. Thiem, E. Dirkx, & H. Hays (Eds.), *Scraping the pot: San in Namibia two decades after independence* (pp. 37–84). Legal Assistance Centre.

Dieckmann, U. (2026). *Hai|| om in the Etosha Region*. African Books Collective.

Doak, D. F., Bakker, V. J., Goldstein, B. E., & Hale, B. (2014). What is the future of conservation? *Trends in Ecology & Evolution*, *29*(2), 77–81. https://doi.org/10.1016/j.tree.2013.10.013

Dressler, W., & Büscher, B. (2008). Market triumphalism and the CBNRM 'crises' at the South African section of the Great Limpopo Transfrontier Park. *Geoforum, 39*(1), 452–465. https://doi.org/10.1016/j.geoforum.2007.09.005

Dugard, J. (1973). *The South West Africa/Namibia dispute: Documents and scholarly writings on the controversy between South Africa and the United Nations*. University of California Press.

Durfort, A., Mariani, G., Troussellier, M., Tulloch, V. J., & Mouillot, D. (2022). Value wild animals' carbon services to fill the biodiversity financing gap. *Nature Climate Change, 12*, 725–729.

Duffy, R. (2014). Waging a war to save biodiversity: The rise of militarised conservation. *International Affairs*, *90*(4), 819–834.

Duffy, R., St John, F. A., Büscher, B., & Brockington, D. A. N. (2015). The Militarisation of Anti-Poaching: Undermining Long-Term Goals? *Environmental Conservation, 42*(4), 345–348. https://doi.org/10.1017/S0376892915000119

Duffy, R., St John, F. A. V., Büscher, B., & Brockington, D. (2016). Toward a new understanding of the links between poverty and illegal wildlife hunting. *Conservation Biology,* 30(1), 14–22. https://doi.org/10.1111/cobi.12622

Duffy, R. (2017). We need to talk about the militarisation of conservation. *Green European Journal*, *20*.

Duffy, R., Massé, F., Smidt, E., Marijnen, E., Büscher, B., Verweijen, J., Ramutsindela, M., Simlai, T., Joanny, L., & Lunstrum, E. (2019). Why we must question the militarisation of conservation. *Biological Conservation, 232,* 66–73. https://doi.org/10.1016/j.biocon.2019.01.013

Ednie, G. (2022). Foresight science in conservation: Tools, barriers, and mainstreaming opportunities. *Ambio*, 51(5), 1063–1074. https://doi.org/10.1007/s13280-022-01786-0

Eikelboom, J. A. J., Nuijten, R. J. M., Wang, Y. X., Schroder, B., Heitkönig, I. M. A., Mooij, W. M., & Prins, H. H. T. (2020). Will legal trade in rhino horn lead to the extinction of rhinos? *Global Ecology and Conservation, 23*. https://doi.org/10.1016/j.gecco.2020.e01145

Emerton, L., Bishop, J., & Thomas, L. (2006). *Sustainable Financing of Protected Areas: A global review of challenges and options*.

Engelbrecht, F., Adegoke, J., Bopape, M.-J., Naidoo, M., Garland, R., Thatcher, M., McGregor, J., Katzfey, J., Werner, M., Ichoku, C., & Gatebe, C. (2015). Projections of rapidly rising surface temperatures over Africa under low mitigation. *Environmental Research Letters, 10*(8), 085004. https://doi.org/10.1088/1748-9326/10/8/085004

Engler, J.-O., von Wehrden, H., & Baumgärtner, S. (2019). Determinants of farm size and stocking rate in Namibian commercial cattle farming. *Land use Policy*, *81*, 232–246.

Evans, L. (2012). South African bantustans and the dynamics of 'decolonisation': Reflections on writing histories of homelands. *South African Historical Journal, 64*(1), 1–18.

Evelina, J., Samuel, N., & Lukas Homateni, J. (2020). *Estimating the economic impact of COVID-19: A case study of Namibia* [MPRA Paper No. 99641]. Munich Personal RePEc Archive. https://mpra.ub.uni-muenchen.de/99641/

Fabricius, C., Koch, E., Magome, H., & Turner, S. (Eds.). (2004). *Rights, resources and rural development: Community-based natural resource management in Southern Africa*. Earthscan.

Felton, N. (2026, January 13). *Emerging miners push reform priorities as Mineral Act review still not finalised*. *The Namibian*. https://www.namibian.com.na/emerging-miners-push-reform-priorities-as-mineral-act-review-still-not-finalised/

Ferguson, K., & Hanks, J. (2010). Fencing Impacts: A review of the environmental, social and economic impacts of game and veterinary fencing in Africa with particular reference to the Great Limpopo and Kavango-Zambezi Transfrontier Conservation Areas. *Pretoria: Mammal Research Institute*, 1–328.

Findlay, K. (2020). Challenges facing marine protected areas in Southern African countries in light of expanding ocean economies across the sub-region. *Elsevier*, 37–65. https://doi.org/10.1016/B978-0-08-102698-4.00003-4

Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive governance of social-ecological systems. *Annual Review of Environment and Resources, 30*(1), 441–473. https://doi.org/10.1146/annurev.energy.30.050504.144511

Food and Agriculture Organisation of the United Nations (FAO). (2021). *Youth-to-youth mentorship approach in agripreneurship development: Lessons learned from the Youth Inspiring Youth in Agriculture (YIYA) initiative in Uganda.* FAO.

Forsythe, F., Letley, G., & Turpie, J. (2018). *The Economics of Ecosystems and Biodiversity (TEEB): A NATIONAL ASSESSMENT OF NAMIBIA'S ECOSYSTEM SERVICES* (Vol. 1).

Forum for the Future. (2007). *The Future Leaders Survey 2006/07*. https://www.sustainabilityexchange.ac.uk/files/futureleaders0607.pdf

Forum for the Future. (2008). *The Future Leaders Survey 2007/08.* https://www.sustainabilityexchange.ac.uk/files/futureleaders0708.pdf

Foss, N. J., & Saebi, T. (2017). Business models and business model innovation: Between wicked and paradigmatic problems. *Long Range Planning, 50*(6), 619–626. https://doi.org/10.1016/j.lrp.2017.07.006

Fossey, E., Harvey, C., McDermott, F., & Davidson, L. (2002). *Understanding and evaluating qualitative research*. *36*, 717–732.

Foyet, M. (2024). Community-Based Natural Resource Management (CBNRM) in Southern Africa: History, Principles, Evolution, and Contemporary Challenges. *Namibian Journal of Environment*, *9*, 1–15.https://doi.org/10.64640/0pvv5g41

Freeman, N., Makhubele, J. C., & Matlakala, F. K. (2022). Traditional leaders' perspectives on the risk factors of alcohol abuse amongst the youth: The case of Oshikango in the Ohangwena Region of

Namibia. *Journal of Social Sciences and Humanities Research, 28*(1), 676–690. https://ideas.repec.org/a/tec/journl/v28y2022i1p676-690.html

Freisinger, E., Heidenreich, S., Landau, C., & Spieth, P. (2021). Business model innovation through the lens of time: An empirical study of performance implications across venture life cycles. *Schmalenbach Journal of Business Research*, *73*(3), 339-380. DOI:10.1007/s41471-021-00116-6

Future of Conservation. (2022). *About the debate*. https://www.futureconservation.org/about-the-debate

Gamu, J. K., Le Billon, P., & Spiegel, S. (2024). Governance capture and socio-environmental conflict in the global mining industry. *Review of International Political Economy*. https://doi.org/10.1080/09692290.2023.2265976

Gandiwa, E., Mashapa, C., Muboko, N., Chemura, A., Kuvaoga, P., & Mabika, C. T. (2020). Wildlife–vehicle collisions in Hurungwe Safari Area, northern Zimbabwe. *Scientific African, 9*. https://doi.org/10.1016/j.sciaf.2020.e0051

Garcia, C. T. (2004). Land Reform in Namibia: Economic versus Socio-Political Rationale. *Land Reform, Land Settlement and Cooperatives, 2*, 22–34. https://www.fao.org/4/y5639t/y5639t05.htm

Gargallo, E. (2015). Conservation on contested lands: The case of Namibia's communal conservancies. *Journal of Contemporary African Studies, 33*(2), 213–231. https://doi.org/10.1080/02589001.2015.1066083

Gargallo, E., & Heita, J. (2021). COVID-19, conservation, and tourism in Namibia's conservancies. In R. van der Duim, M. Lamers, & J. van Wijk (Eds.), *Tourism, protected areas and the COVID-19 pandemic* (pp. 143–157). Routledge. https://doi.org/10.4324/9781003188902-13

Gargallo, E. (2021). Human-wildlife conflict in a "successful" community conservation programme: Local perceptions from Namibia. *Journal of Rural Studies, 85*, 89–99. https://doi.org/10.1016/j.jaridenv.2021.104591

Gayo, L. (2025). Community-based conserved areas in advancing sustainable development and conservation in Sub-Saharan Africa. *Discover Conservation*, 2(1), 1–26. https://doi.org/10.1007/s44353-025-00047-x

Geißler, K., Heblack, J., Uugulu, S., Wanke, H., & Blaum, N. (2019). Partitioning of Water Between Differently Sized Shrubs and Potential Groundwater Recharge in a Semiarid Savanna in Namibia. *Frontiers in Plant Science*, *10*. https://doi.org/10.3389/fpls.2019.01411

Gerling, C., Drechsler, M., Keuler, K., Sturm, A., & Wätzold, F. (2023). *Time to Consider the Timing of Conservation Measures: Designing Cost-Effective Agri-Environment Schemes under Climate Change*. *52*, 231–249. https://doi.org/10.1017/age.2023.4

Ghosh, A., Sen, A., Dutta, K., & Ghosh, P. (2022). Falling "fortresses": Unlocking Governance Entanglements and Shifting Knowledge Paradigms to Counter Climate Change Threats in Biodiversity Conservation. *Environmental Management*, *69*, 305–322. https://doi.org/10.1007/s00267-021-01552-0

Gillingham, P. K., Britton, J. R., Jones, G. C. A., Miller-Rushing, A., Stafford, R., & Slater, H. (2024). Climate change adaptation for biodiversity in protected areas: An overview of actions. *Biological Conservation,* 289, 110375. https://doi.org/10.1016/j.biocon.2023.110375

Gilolmo, P., & Lobo, A. (2016). On the Relationship between Land Tenure and Land Degradation. *A Case Study in the Otjozondjupa Region (Namibia) Based on Satellite Data*.

Goergen, J. D., Lindeque, M., Louis, M. P., Kellner, K. F., Roloff, G. J., & Belant, J. L. (2024). Drivers of hunting and photographic tourism income to communal conservancies in Namibia. *Global Ecology and Conservation*, *56*, e03294. https://doi.org/10.1016/j.gecco.2024.e03186

Goergen, J. D., Louis, M. P., Kellner, K. F., Roloff, G. J., Lindeque, M., & Belant, J. L. (2025). Local management and governance improve natural resource incomes of communal conservancies in Namibia. *Conservation Science and Practice*, *5*(3). https://doi.org/10.1111/csp2.70054

Goudie, A., & Viles, H. (2014). *Landscapes and landforms of Namibia*. Springer.

Government Office for Science. (2017). *The futures toolkit: Tools for futures thinking and foresight across UK government*. Gov.uk.

Government of the Republic of Namibia. (1975). *Nature Conservation Ordinance, No. 4 of 1975*. Government Gazette of the Republic of Namibia.

Government of the Republic of Namibia. (1990). *The Constitution of the Republic of Namibia*. Windhoek, Namibia: Government of the Republic of Namibia.

Government of the Republic of Namibia. (1992). *Minerals (Prospecting and Mining) Act 33 of 1992*. Government Gazette of the Republic of Namibia.

Government of the Republic of Namibia. (1996). *Nature Conservation Amendment Act 5 of 1996*. Government Gazette of the Republic of Namibia. Windhoek, Namibia: Government Printer.

Government of the Republic of Namibia. (2000). *Traditional Authorities Act, 2000 (Act No. 25 of 2000).* Windhoek: Government of the Republic of Namibia.

Government of the Republic of Namibia. (2001). Forest Act, 2001 (Act No. 12 of 2001). Windhoek, Namibia: Government Gazette of the Republic of Namibia.

Government of the Republic of Namibia. (2002). *Communal Land Reform Act, No. 5 of 2002*. Government Gazette of the Republic of Namibia.

Government of the Republic of Namibia. (2004). N*amibia Vision 2030: Policy framework for long-term national development.* Office of the President.

Government of the Republic of Namibia. (2007). *Environmental Management Act 7 of 2007*. Government Gazette of the Republic of Namibia.

Government of the Republic of Namibia. (2008). *Green Scheme Policy. Ministry of Agriculture, Water and Forestry. Government of the Republic of Namibia.* Green Scheme Policy.

Government of the Republic of Namibia. (2012). *National rangeland management policy and strategy of Namibia.* Windhoek, Namibia: Ministry of Agriculture, Water and Forestry.

Government of the Republic of Namibia. (2018). *Revised national policy on human–wildlife conflict management*. Ministry of Environment and Tourism.

Government of the Republic of Namibia. (2025). *National report: Wildlife protection and law enforcement in Namibia for the year 2024*.

Government of the Republic of Namibia. (2025b). *Report of the Parliamentary Standing Committee on Economics and Public Administration on the review of the Veterinary Cordon Fence (Red Line).* National Assembly of Namibia.

Government of the Republic of Namibia (GRN). (2025c). *Wildlife protection and law enforcement in Namibia: National report for the year 2024*. Government of the Republic of Namibia. https://www.meft.gov.na/files/files/Namibia_National-Report_Wildlife-Protection_2024_F2_250715_online.pdf

Government of the Republic of Namibia. (2025d). *Namibia's First Biennial Transparency Report (BTR1) and Fifth National Communication (NC5) to the United Nations Framework Convention on Climate Change and the Paris Agreement*. Government of the Republic of Namibia. United Nations Framework Convention on Climate Change. https://unfccc.int/sites/default/files/resource/Namibia%27s%20BTR1_NC5%20Consolidated%20FINAL.pdf

Government of South West Africa. (1967). *Nature Conservation Ordinance No. 31 of 1967*. *Official Gazette Extraordinary of South West Africa* (No. 2815). Government Printer.

Griggs, D., Stafford-Smith, M., Gaffney, O., Rockström, J., Öhman, M. C., Shyamsundar, P., Steffen, W., Glaser, G., Kanie, N., & Noble, I. (2013). Policy: Sustainable development goals for people and planet. *Nature, 495*(7441), 305–307. https://doi.org/10.1038/495305a

Gross, E. M., Jayasinghe, N., Brooks, A., Polet, G., Wadhwa, R., & Hilderink-Koopmans, F. (2021). *A future for all: The need for human-wildlife coexistence.* WWF. https://www.wwf.nl/globalassets/pdf/nieuws/a-future-for-all-the-need-for-human-willdife-coexistence.pdf

Guest, G., Bunce, A., & Johnson, L. (2006). How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods*, *18*(1), 59–82. https://doi.org/10.1177/1525822X05279903

Gupta, M., Wahi, A., Sharma, P., Nagpal, R., Raina, N., Kaurav, M., Bhattacharya, J., Oliveira, S. M. R., Dolma, K. G., & Paul, A. K. (2022). *Recent Advances in Cancer Vaccines: Challenges, Achievements, and Futuristic Prospects*. https://doi.org/10.3390/vaccines10122011

Gutierrez, A., Brugeron, A., Soulignac, A., Gourcy, L., & Ihemba, S. (2026). Hydro-Economic Mapping of Groundwater Potential in the Kunene and Omusati Regions, Namibia. In Environmental Sciences: Aquifer Characterisation and Management—Techniques and Perspectives. *IntechOpen.* https://doi.org/10.5772/intechopen.1014115.

Hallaj, Z., Bijani, M., Karamidehkordi, E., Yousefpour, R., & Yousefzadeh, H. (2024). Forest land use change effects on biodiversity, ecosystem services, and human well-being: A systematic analysis. *Environmental and Sustainability Indicators, 23*.

Hancock, B., Ockleford, E., & Windridge, K. (2001). An introduction to qualitative research. London: Trent focus group.

Hart, T., & Achterman, P. (2017). *Qualitative Analysis Software (ATLAS.ti/Ethnograph/MAXQDA/NVivo)*. https://doi.org/10.1002/9781118901731.iecrm0194

Harfoot, M. B., Johnston, A., Balmford, A., Burgess, N. D., Butchart, S. H., Dias, M. P., Hazin, C., Hilton-Taylor, C., Hoffmann , M., Isaac, N. J. B., Iversen, L. L., Outhwaite , C. L., Visconti , P., & Geldmann, J. (2021). Using the IUCN Red List to map threats to terrestrial vertebrates at global scale. *Nature Ecology & Evolution, 5*(11), 1510–1519. https://doi.org/10.1038/s41559-021-01551-2

Hassan, Q., Abdulateef, A. M., Hafedh, S. A., Al-samari, A., Abdulateef, J., Sameen, A. Z., ... & Jaszczur, M. (2023). Renewable energy-to-green hydrogen: A review of main resources routes, processes and evaluation. *International Journal of Hydrogen Energy*. https://doi.org/10.1016/j.ijhydene.2023.01.175

Hauptfleisch, M., Blaum, N., Liehr, S., Hering, R., Kraus, R., Tausendfruend, M., Cimenti, A., Lüdtke, D., Rauchecker, M., & Uiseb, K. (2024a). Trends and Barriers to Wildlife-Based Options for Sustainable Management of Savanna Resources: The Namibian Case. In *Sustainability of Southern African ecosystems under global change: Science for management and policy interventions* (pp. 499–525). Springer International Publishing. https://doi.org/10.1007/978-3-030-72456-4_23

Hauptfleisch, M., Tembo, D., Alberts, R., Cilliers, D., Uiseb, K., Cloete, C., Retief, F., Roos, C., Winter, C., Harris, R., & Pitot, C. (2024b). Exploring the implications of elephant movements between land-use types in an arid savannah landscape. *Pachyderm, 65*, 119–131.

Headrick, D. R. (2020). *Humans versus nature: A global environmental history*. Oxford University Press, USA.

Heatherington, T. (2012). Remodelling the fortress of conservation? Living landscapes and the new technologies of environmental governance. *Anthropological Forum, 22*(2), 165–185. https://doi.org/10.1080/00664677.2012.694172

Hebinck, P., Kiaka, R. D., & Lubilo, R. (2019). Navigating community conservancies and institutional complexities in Namibia. In M. van der Duim, M. Lamers, & J. van Wijk (Eds.), *Natural resources, tourism and community livelihoods in Southern Africa* (pp. 64–77). Routledge. https://doi.org/10.4324/9781315100738

Hebinck, P. (2021). Land and grazing disputes and overlapping authorities in Namibia. *The Journal of legal Pluralism and unofficial law*, 53(3), 356-366. https://doi.org/10.1080/07329113.2021.1996094

Heffernan, A. (2022). Development, Conservation, Empowerment: The Trilemma of Community-Based Natural Resource Management in Namibia. *Environmental Management*, *69*, 480–491. https://doi.org/10.1007/s00267-021-01589-1

Heffernan, A. (2022b). Panaceas, utilitarians, and sceptics: A review of three decades of Community-Based Natural Resource Management in Namibia. *Journal of Namibian Studies, 31*, 55–77. https://doi.org/10.59670/jns.v31i.242

Heita, H. T. N., Dressler, G., Menestrey Schwieger, D. A., & Mbidzo, M. (2024). Pastoralists' perceptions on the future of cattle farming amidst rangeland degradation: A case study from Namibia's semiarid communal areas. *Rangelands,* 46(1), 1–12. https://doi.org/10.1016/j.rala.2023.10.001

Hering, R., Hauptfleisch, M., Kramer-Schadt, S., Stiegler, J., & Blaum, N. (2022). Effects of Fences and Fence Gaps on the Movement Behaviour of Three Southern African Antelope Species. *Frontiers in Conservation Science*, *3*, 959423. https://doi.org/10.3389/fcosc.2022.959423

Heydinger, J. (2021). Human-lion conflict and the reproduction of white supremacy in northwest Namibia. *African Studies Review, 64*(4), 909–937. https://doi.org/10.1017/asr.2021.57

Hicks, D. (2012). The future only arrives when things look dangerous: Reflections on futures education in the UK. *Futures*, 44(1), 4–13. https://doi.org/10.1016/j.futures.2011.08.002

Hipondoka, M., Kempf, J., & Jousse, H. (2013). Palaeo and present ecological value of the Etosha Pan, Namibia: An integrative review. *Journal of the Namibia Scientific Society*, *61*, 67–85.

Holmes, G., & Cavanagh, C. J. (2016). A review of the social impacts of neoliberal conservation: Formations, inequalities, contestations. *Geoforum, 75,* 199–209. https://doi.org/10.1016/j.geoforum.2016.07.014

Holmes, G., Sandbrook, C., & Fisher, J. A. (2017). Understanding conservationists' perspectives on the new-conservation debate. *Conservation Biology*, *31*(2), 353–363.

Honsbein, D., & Lindeque, C. (2017). Bush encroachment–Turning a problem into an industry. *Economic Association of Namibia. Retrieved on*, *22*(06), 2018.

Hoole, A. F. (2008). *Community-based conservation and protected areas in Namibia: Social-ecological linkages for biodiversity* [Unpublished doctoral dissertation]. University of Manitoba.

Hoole, A. (2010). Place-power-prognosis: Community-based conservation, partnerships, and ecotourism enterprises in Namibia. *International Journal of the Commons, 4*(1), 78–99. https://doi.org/10.18352/ijc.112

Hoole, A., & Berkes, F. (2010). Breaking down fences: Recoupling social–ecological systems for biodiversity conservation in Namibia. *Geoforum, 41*(2), 304–317. https://doi.org/10.1016/j.geoforum.2009.10.002

Hooper, D. U., Adair, E. C., Cardinale, B. J., Byrnes, J. E., Hungate, B. A., Matulich, K. L., Gonzalez, A., Duffy, J. E., Gamfeldt, L., & O'Connor, M. I. (2012). A global synthesis reveals biodiversity loss as a major driver of ecosystem change. *Nature*, *486*(7401), 105–108.

Huang, R. M., van Aarde, R. J., Pimm, S. L., Chase, M. J., & Legget, K. (2022). Mapping potential connections between Southern Africa's elephant populations. *PLOS ONE*, 1–20. https://doi.org/10.1371/journal.pone.0275791

Huang, R. M., Maré, C., Guldemond, R. A., Pimm, S. L., & van Aarde, R. J. (2024). Protecting and connecting landscapes stabilises populations of the endangered savannah elephant. *Science Advances, 10*(1), eadk2896. https://doi.org/10.1126/sciadv.adk2896

Hübschle, A. (2017). The social economy of rhino poaching: Of economic freedom fighters, professional

hunters and marginalised local people. *Current Sociology, 64*(3), 427–447. //doi.org/10.1177/0011392116673210

Hübschle, A. M. (2018). The fight against poaching must shift to empowering communities. https://www.researchgate.net/publication/319998761

Inayatullah, S. (2004). The causal layered analysis (CLA) reader. *Theory and Case Studies of an Integrative and Transformative Methodology*, 1–52.

Inayatullah, S. (2008). Six Pillars: Future Thinking for Transformation. *Foresight*, *10*(1), 4–21. https://doi.org/10.1108/14636680810855991

Inayatullah, S. (2013). Futures studies: Theories and methods. *There is a Future: Visions for a Better World*, *30*.

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). (2019). *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (E. S. Brondízio, J. Settele, S. Díaz, & H. T. Ngo, Eds.). IPBES Secretariat. https://doi.org/10.5281/zenodo.3831673

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. (2024). *Thematic assessment report on the interlinkages among biodiversity, water, food and health of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services* (P. A. Harrison, P. D. McElwee, & T. L. van Huysen, Eds.). IPBES Secretariat. https://doi.org/10.5281/zenodo.13850054

Jabareen, Y. (2008). A New Conceptual Framework for Sustainable Development. Environment, Development and Sustainability, 10(2), 179–192. https://doi.org/10.1007/s10668-006-9058-z

Jacsó, P. (2005). Google Scholar: The pros and the cons. *Online Information Review, 29*(2), 208–214. https://doi.org/10.1108/14684520510598066

Jaureguiberry, P., Titeux, N., Wiemers, M., Bowler, D. E., Coscieme, L., Golden, A. S., Guerra, C. A., Jacob, U., Takahashi, Y., Settele, J., Díaz, S., Molnár, Z., & Purvis, A. (2022). The direct drivers of recent global anthropogenic biodiversity loss. *Science Advances, 8*(45), eabm9982. https://doi.org/10.1126/sciadv.abm9982

Jewell, Z. C., Alibhai, S., Law, P. R., Uiseb, K., & Lee, S. (2020). Monitoring rhinoceroses in Namibia's private custodianship properties. *PeerJ,* 8, e9670. https://doi.org/10.7717/peerj.9670

Johansson, E. L. (2021). Participatory futures thinking in the African context of sustainability challenges and socio-environmental change. *Ecology and Society, 26*(4), Article 3. https://doi.org/10.5751/ES-12617-260403

Jöhnk, J., Weißert, M., & Wyrtki, K. (2021). Ready or Not, AI Comes—An Interview Study of Organisational AI Readiness Factors. *Bus Inf Syst Eng*, *63*(1), 5–20. https://doi.org/doi.org/10.1007/s12599-020-00676-7

Jones, B. (2004). *Community-based natural resource management as a conservation mechanism: Lessons and directions*. In B. Child (Ed.), *Parks in transition: Biodiversity, rural development and the bottom line* (pp. 63–96). Earthscan.

Jones, B. T., Stolton, S., & Dudley, N. (2005). Private protected areas in East and southern Africa: Contributing to biodiversity conservation and rural development. *Parks*, *15*(2), 67–76.

Jones, B. T. (2006). *Case studies on successful southern African NRM initiatives and their impacts on poverty and governance* (Report prepared for USAID FRAME).

Jones, B. T., Davis, A., Diez, L., Diggle, R. W., Roe, D., Elliott, J., Sandbrook, C., & Walpole, M. (2013). Community-based natural resource management (CBNRM) and reducing poverty in Namibia. *Biodiversity conservation and poverty alleviation: Exploring the evidence for a link*, 191-205. https://doi.org/10.1002/9781118428351.ch12

Kabelo, T. I., Fana, E. M., Hyera, J. M., & Lebani, K. (2023). A review of foot-and-mouth disease status and control measures in Botswana. *Tropical Animal Health and Production, 55*(4), 278. https://doi.org/10.1007/s11250-023-03674-5

Kairiza, T., Pallegedara, A., & Chigusiwa, L. (2024). The interplay of drought, human–wildlife conflict and food security: Insights from rural Zimbabwe. *Australian Journal of Agricultural and Resource Economics*.

Kalvelage, L., Revilla Diez, J., & Bollig, M. (2021). Do tar roads bring tourism? Growth Corridor Policy and Tourism Development in the Zambezi Region, Namibia. *The European Journal of Development Research*, *33*(4), 1000-1021. https://doi.org/10.1057/s41287-021-00402-3

Kalvelage, L., Schreiber, H., & Greiner, C. (2022). Navigating through the storm: Conservancies as local institutions for regional resilience in Zambezi, Namibia. *Geographica Helvetica, 77*(1), 5–16. https://doi.org/10.5194/gh-77-5-2022

Kamwi, J., & Mbidzo, M. (2022). Impact of land use and land cover changes on landscape structure in the dry lands of Southern Africa: A case of the Zambezi Region, Namibia. *GeoJournal*, *87*(1), 87–98. https://doi.org/10.1007/s10708-020-10244-x

Kanapaux, W., & Child, B. (2011). Livelihood activities in a Namibian wildlife conservancy: A case study of variation within a CBNRM programme. *Oryx*, *45*(3), 365-372. doi:10.1017/S0030605310000815

Kandjii, K. (2022, August 12). *Gravel roads at Etosha National Park deteriorating rapidly*. *NBC News Namibia*. https://www.nbcnews.na/node/99279

Kandume, H. (2024). Challenges and Needs for Financing Biodiversity Conservation in Namibian National Parks. *International Journal of Natural Sciences, 4*(2), 1–20. https://doi.org/10.47604/ijns.3088

Kansky, R. (2022). Unpacking the challenges of wildlife governance in community-based conservation programs to promote human–wildlife coexistence. *Conservation Science and Practice*, *4*(10), 1–14. https://doi.org/10.1111/csp2.12791

Kapuka, A., & Hlásny, T. (2020). Social vulnerability to natural hazards in Namibia: A district-based analysis. *Sustainability, 12*(12), 4910. https://doi.org/10.3390/su12124910

Karanth, K. K., Gupta, S., & Vanamamalai, A. (2018). Compensation payments, procedures and policies towards human-wildlife conflict management: Insights from India. *Biological Conservation*, *227*, 383-389.https://doi.org/10.1016/j.biocon.2018.07.006

Kareiva, P., & Marvier, M. (2012). What is conservation science? *BioScience*, *62*(11), 962–969. https://doi.org/10.1525/bio.2012.62.11.5

Kareiva, P., & Marvier, M. (2015). *Conservation science: Balancing the needs of people and nature*. Roberts & Company Publishers.

Karita, C. T. (2024). Corruption in Namibia: Examining the nexus between survey-identified causes and empirical validation. *Journal of Public Administration and Governance, 14*(1), 130–149. https://doi.org/10.5296/jpag.v14i1.21960

Kariuki, R. W., Thorn, J. P., Mfune, J. K., Marchant, R., & Capitani, C. (2025). Near- and far-future conservation, land-use, and land-cover interactions around the wider Etosha landscape, north-central Namibia. *Regional Environmental Change, 25*(2), 1–13. https://doi.org/10.1007/s10113-025-02388-8

Katz, A., Fleming, G. C., & Main, J. (2024). *Thematic analysis with open-source generative AI and machine learning: A new method for inductive qualitative codebook development*. arXiv. https://arxiv.org/abs/2410.03721

Kegamba, J. J., Sangha, K. K., Wurm, P. A., & Garnett, S. T. (2023). Conservation benefit-sharing mechanisms and their effectiveness in the Greater Serengeti Ecosystem: Local communities' perspectives. *Biodiversity and Conservation, 32*, 1901–1930. https://doi.org/10.1007/s10531-023-02583-1

Keja-Kaereho, C., & Tjizu, B. R. (2019). Climate Change and Global Warming in Namibia: Environmental Disasters vs. Human Life and the Economy. *Global Warming and Climate Change*, *5*(S3). https://doi.org/10.18639/MERJ.2019.836535

Kesch, K. M., Bauer, D. T., & Loveridge, A. J. (2015). Break on through to the other side: The effectiveness of game fencing to mitigate human–wildlife conflict. *African Journal of Wildlife Research,* 45(1), 76–87. https://doi.org/10.3957/056.045.0109

Kesebir, S., & Kesebir, P. (2017). How modern life became disconnected from nature. *Greater Good Magazine*, *20*.

Kim, H., Rosa, I. M. D., Alkemade, R., Leadley, P., Hurtt, G., Popp, A., van Vuuren, D. P., Anthoni, P., Arneth, A., Baisero, D., Caton, E., Chaplin-Kramer, R., Chini, L., De Palma, A., Di Fulvio, F., Di Marco, M., Espinoza, F., Ferrier, S., Fujimori, S., Pereira, H. M. (2018). A protocol for an intercomparison of biodiversity and ecosystem services models using harmonised land use and climate scenarios. *Geoscientific Model Development*, 11(11), 4537–4562. https://doi.org/10.5194/gmd-11-4537-2018

Kirkman, S. P., Holness, S., Harris, L. R., Sink, K. J., Lombard, A. T., Kainge, P., Majiedt, P., Nsiangango, S. E., Nsingi, K. K., & Samaai, T. (2018). Using Systematic Conservation Planning to support Marine Spatial Planning and achieve marine protection targets in the transboundary Benguela Ecosystem. *Ocean and Coastal Management*, *168*, 117–129. https://doi.org/10.1016/j.ocecoaman.2018.10.038

Klingbeil, E. (2013). Impact of climate change on *Bacillus anthracis* virulence in Southern Africa. *Rhodes Journal of Biological Science: About this Issue, 4*, 4.

Knight, A. T., Cook, C. N., Redford, K. H., Biggs, D., Romero, C., Ortega-Argueta, A., Norman, C. D., Parsons, B., Reynolds, M., Eoyang, G., & Keene, M. (2019). Improving conservation practice with principles and tools from systems thinking and evaluation. *Sustainability Science*, 14(6), 1531–1548. https://doi.org/10.1007/s11625-019-00676-x

Knight, M., Mosweub, K., & Ferreira, S. (2022). African Rhino Specialist Group report/Rapport du Groupe de Spécialistes du Rhinocéros d'Afrique. *Pachyderm, 63*, 17–32.

Knight, M. H., Balfour, D., Emslie, R. H., & Orenstein, R. (2022). African rhino conservation: A review of successes and challenges. *Pachyderm,* 63, 15–28.

Knox, J. H., Bodansky, D., & Rajamani, L. (2025). The Trump administration steps back from international environmental cooperation. *American Journal of International Law*. https://doi.org/10.1017/ajil.2025.10112

Koh, N. S., Hahn, T., & Boonstra, W. J. (2019). How much of a market is involved in a biodiversity offset? A typology of biodiversity offset policies. *Journal of Environmental Management*, *232*, 679–691. https://doi.org/10.1016/j.jenvman.2018.11.080

Kopnina, H., Washington, H., Gray, J., & Taylor, B. (2017). "The 'future of conservation' debate_ Defending ecocentrism and the Nature Needs Half movement". *Biological Conservation*. https://doi.org/10.1016/j.biocon.2017.10.016

Kuiper, T., Haussmann, S., Whitfield, S., Altwegg, R., Ferreira, S., Shaw, J., Polakow, D., Hofmeyr, M., Pierce, E., Nowak, I., Rowles, C., Zowitsky, H., Olivier, I., Boyd, W., Bird, J., Worth, E., van Tonder, M., Bourn, M., Greet, Z., & Hartman, Z. (2023). *Evaluating the cost and effectiveness of rhino conservation interventions in the Greater Kruger*. Greater Kruger Environmental Protection Foundation. https://gkepf.org/wp-content/uploads/2023/08/PROJECT-FIRE-v18-final.pdf

Kumar, P. (2012). *The economics of ecosystems and biodiversity: Ecological and economic foundations*. Routledge.

Kundzewicz, Z. W., & Doell, P. (2009). Will groundwater ease freshwater stress under climate change? *Hydrological Sciences Journal*, *54*(4), 665–675.

Kuosa, T. (2009). *Towards the dynamic paradigm of futures research: How to grasp a complex futures problem with multiple phases and multiple methods* (Series A-8:2009). Turku School of Economics. https://urn.fi/URN:ISBN:978-952-249-016-2

Kuosa, T. (2011). Evolution of futures studies. *Futures 43*, 327–336. doi:10.1016/j.futures.2010.04.001

Kwembeya, E. G., & Shikangalah, R. N. (2023). Towards understanding rainfall variability in Namibia: An analysis of spatial and temporal variations of rainfall from 2010 to 2019*. International Science and Technology Journal of Namibia, 16*, 26–39.

Lapeyre, R. (2013). The Grootberg Lodge partnership in Namibia: Towards poverty alleviation and empowerment for long-term sustainability? In *Tourism and the Millennium Development Goals* (pp. 29–42). Routledge.

Lasky, M., Sibiya, M. D., & Hull, V. (2025). *Applying the adaptive cycle and resilience principles to understand and manage human-wildlife relations on the African savanna*. https://doi.org/10.1016/j.jnc.2025.126896

Laufs, J., Gschwender, F., Kamenye, P., Jäger, M., Wilkie, I., Theis, J., David, A., & GIZ, I. Z. (2020). *A Decade of Targeted Sector Development for Bush Control and Biomass Utilisation in Namibia*.

Lawry, S., Samii, C., Hall, R., Leopold, A., Hornby, D., & Mtero, F. (2017). The impact of land property rights interventions on investment and agricultural productivity in developing countries: A systematic

review. *Journal of Development Effectiveness, 9*(1), 61–81. https://doi.org/10.1080/19439342.2016.1160947

Legal Assistance Centre. (2020). *The "Red Line": A historical and socio-economic analysis of Namibia's veterinary cordon fence*. Windhoek, Namibia.

Leisher, C., Robinson, N., Brown, M., Kujirakwinja, D., Schmitz, M. C., Wieland, M., & Wilkie, D. (2022). Ranking the direct threats to biodiversity in sub-Saharan Africa. *Biodiversity and Conservation, 31*(4), 1329–1343. https://doi.org/10.1007/s10531-022-02386-9

Lendelvo, S., & Nakanyala, J. (2012). Socio-economic and livelihood strategies of the Ehirovipuka Conservancy, Namibia.

Lendelvo, S., Shapi, M., & Mapaure, I. (2020). Economic Viability of Emerging Commercial Farmers under the Resettlement Programme in Namibia. *University of Namibia Institutional Repository*. https://repository.unam.edu.na/items/0d59ab77-58b2-4d2e-9188-e70006ed9366

Lendelvo, S. M., Pinto, M., & Sullivan, S. (2020). A perfect storm? The impact of COVID-19 on community-based conservation in Namibia. *Namibian Journal of Environment, 4*(B), 1–15. https://nje.org.na/index.php/nje/article/view/volume4-lendelvo

Lendelvo, S., Sullivan, S., & Dieckmann, U. (2024). *CBNRM and landscape approaches to conservation in Kunene Region, post-Independence*. Open Book Publishers. https://doi.org/10.11647/OBP.0402.03

Le Roex, N., Dreyer, C., & Ferreira, S. M. (2019). Poaching creates ecological traps within an iconic protected area. *Animal Conservation, 22*(4), 302–312. https://doi.org/10.1111/acv.12532

Lesser, J. (2018). The future of conservation in Namibia: Making the case for an environmental court and legislative reforms to improve enforcement of wildlife crimes. *Tulane Environmental Law Journal, 32*(1), 49–91.

Letsoalo, N., Samuels, I., Cupido, C., Ntombela, K., Finca, A., Foster, J., Tjelele, J. & Knight, R. (2023). Coping and adapting to drought in semi-arid Karoo rangelands: Key lessons from livestock farmers. *Journal of Arid Environments, 219*, 105070. https://doi.org/10.1016/j.jaridenv.2023.105070

Leyequien, E., Verrelst, J., Slot, M., Schaepman-Strub, G., Heitkönig, I. M. A., & Skidmore, A. (2007). Capturing the fugitive: Applying remote sensing to terrestrial animal distribution and diversity. *International Journal of Applied Earth Observation and Geoinformation*, *9*(1), 1–20. https://doi.org/10.1016/j.jag.2006.08.002

Li, M., Jin, Z., Liao, G., Yin, J., & Zhang, Q. (2023). The Impact of Mentoring Relationships on Innovation Performance of Post-90s Employees: A Dual-Path Model of Cognition and Affect. *Sustainability*, *15*(18), 13580. https://doi.org/10.3390/su151813580

Li, Z., Zheng, W., Wang, H., Cheng, Y., Fang, Y., Wu, F., Sun, G., Sun, G., Lv, C., & Hui, B. (2021). Application of Animal Models in Cancer Research: Recent Progress and Future Prospects. *Cancer Management and Research*, *13*, 2455–2475. https://doi.org/10.2147/CMAR.S302565

Liu, X., & Zhou, J. (2021). Assessment of the continuous extreme drought events in Namibia during the last decade. *Water*, *13*(20), 2942.https://doi.org/10.3390/w13202942

Lindsey, P. A., Havemann, C. P., Lines, R. M., Price, A. E., Retief, T. A., Rhebergen, T., Van der Waal, C., & Romanach, S. S. (2013). Benefits of wildlife-based land uses on private lands in Namibia and limitations affecting their development**.** *Oryx, 47*(1), 41–53. https://doi.org/10.1017/S0030605311001049

Lindsey, P. A., Miller, J. R. B., Petracca, L. S., Coad, L., Dickman, A. J., Fitzgerald, K. H., Flyman, M. V., Funston, P. J., Henschel, P., Kasiki, S., Knights, K., Loveridge, A. J., Macdonald, D. W., Mandisodza-Chikerema, R., McNutt, J. W., Pole, A., & Weldon McNutt, J. (2018). *More than $1 billion needed annually to secure Africa's protected areas with lions*. Proceedings of the National Academy of Sciences, 115 (45), E10788–E10796. https://doi.org/10.1073/pnas.1805048115

Lindsey, P. A., Petracca, L. S., Funston, P. J., Bauer, H., Dickman, A., Everatt, K., Flyman, M., Henschel, P., Hinks, A. E., Kasiki, S., Loveridge, A. J., Macdonald, D. W., Mandisodza-Chikerema, R., Mgqatsa, N., Miller, S. M., Nazerali, S., Siege, L., Uiseb, K., & Hunter, L. T. B. (2019). Fencing Africa's protected areas: Costs, benefits, and management issues. *Biological Conservation, 229*, 67–75. https://doi.org/10.1016/j.biocon.2018.10.030

Lockwood, M. (2010). Good governance for terrestrial protected areas: A framework, principles and performance outcomes. *Journal of Environmental Management,* 91(3), 754–766. https://doi.org/10.1016/j.jenvman.2009.10.005

Loeb, T., Willis, K., Velishavo, F., Lee, D., Rao, A., Baral, S., & Rucinski, K. (2024). Leveraging Routinely Collected Program Data to Inform Extrapolated Size Estimates for Key Populations in Namibia: Small Area Estimation Study. *JMIR Public Health and Surveillance*, *10*(1), e48963.

Löfqvist, S., Kleinschroth, F., Bey, A., De Bremond, A., DeFries, R., Dong, J., Fleischman, F., Lele, S., Martin, D. A., Messerli, P., Meyfroidt, P., Pfeifer, M., Rakotonarivo, S. O., Ramankutty, N., Ramprasad, V., Rana, P., Rhemtulla, J. M., Ryan, C. M., Vieira, I. C. G., … Garrett, R. D. (2023). How social

considerations improve the equity and effectiveness of ecosystem restoration. *BioScience*, *73*(2), 134–148.

Long, S. A. (2004). *Livelihoods and CBNRM in Namibia: The findings of the WILD Project: Final technical report of the Wildlife Integration for Livelihood Diversification Project (WILD)*.

Luetkemeier, R., Kraus, R., Mbidzo, M., Hauptfleisch, M., Liehr, S., & Blaum, N. (2023). A Qualitative Exploration of Conflicts in Human-Wildlife Interactions in Namibia's Kunene Region. *Diversity*, *15*(3), 440. https://doi.org/10.3390/d15030440

Lüder, L., & Kalvelage, L. (2024). Regional resilience and social-ecological systems: The impact of COVID-19 on community conservation in Namibia. *African Geographical Review, 43*(6), 775–790. https://doi.org/10.1080/19376812.2024.2119885

Ludynia, K., Kemper, J., & Roux, J.-P. (2012). The Namibian Islands' Marine Protected Area: Using seabird tracking data to define boundaries and assess their adequacy. *Biological Conservation, 156*, 136–145. https://doi.org/10.1016/j.biocon.2011.12.014

Lunstrum, E. (2014). Green militarisation: Anti-poaching efforts and the spatial contours of Kruger National Park. *Annals of the Association of American Geographers*, *104*(4), 816–832.

Lyamuya, R. D., Munisi, E. J., Hariohay, K. M., Masenga, E. H., Bukombe, J. K., Mwakalebe, G. G., Mdaki, M. L., Nkwabi, A. J., & Fyumagwa, R. D. (2022). Patterns of mammalian roadkill in the Serengeti ecosystem, northern Tanzania. *International Journal of Biodiversity and Conservation,* 14(1), 65–71. https://doi.org/10.5897/IJBC2021.1480

Mace, G. M. (2014). Whose conservation? *Science*, 345(6204), 1558–1560. https://doi.org/10.1126/science.1254704

McLellan, E., MacQueen, K. M., & Neidig, J. L. (2003). Beyond the qualitative interview: Data preparation and transcription. *Field Methods, 15*(1), 63–84. https://doi.org/10.1177/1525822X02239573

Maier, H. R., Guillaume, J. H., van Delden, H., Riddell, G. A., Haasnoot, M., & Kwakkel, J. H. (2016). An uncertain future, deep uncertainty, scenarios, robustness and adaptation: How do they fit together? *Environmental Modelling & Software*, *81*, 154–164.

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research, 26*(13), 1753–1760. https://doi.org/10.1177/1049732315617444

Mannetti, L. M., Göttert, T., Zeller, U., & Esler, K. J. (2017). Expanding the protected area network in Namibia: An institutional analysis. *Ecosystem Services*, *28*, 207–218. https://doi.org/10.1016/j.ecoser.2017.08.008

Mannetti, L. M., Göttert, T., Zeller, U., & Esler, K. J. (2019). Identifying and categorising stakeholders for protected area expansion around a national park in Namibia. *Ecosystem Services*, *28*, 207–218.

Mapaure, I. (2022). *Review of the Climate Change Situation in Namibia: Projected Trends, Vulnerability and Impacts*. 533–560.

Martin, A., McGuire, S., & Sullivan, S. (2013). Global environmental justice and biodiversity conservation. *The Geographical Journal*, 179(2), 122–131. https://doi.org/10.1111/geoj.12018

Martin, R. (2019). *Perfidious Albion: Moves by the United Kingdom to ban the import of hunting trophies*. SSRN. https://doi.org/10.2139/ssrn.3511899

Mashele, N. M., Thompson, L. J., & Downs, C. T. (2021). Uses of vultures in traditional medicines in the Kruger to Canyons Biosphere Region, South Africa. *Journal of Raptor Research*, *55*(3), 328-339.

Matthaei, E. A. (2018). *A critical reflection on the formalisation of communal land rights in Namibia: Why local contexts matter for bridging the dichotomies of tenure rights* (Doctoral dissertation, Stellenbosch University).

Mauger, R., & Barnard, M. (2018). Addressing fragmentation in the South African renewable energy governance effort-lessons to be learnt from France. Journal of Energy in Southern Africa, 29(1), 1-10. https://doi.org/10.17159/2413-3051/2018/v29i1a1661

Maynard, L., Jacobson, S. K., & Kamanga, J. (2020). Stakeholder collaboration: Evaluating community-based conservancies in Kenya. *Oryx*, *54*(5), 723–730.

Mbaiwa, J. E. (2018). Effects of the safari hunting tourism ban on rural livelihoods and wildlife conservation in Northern Botswana. *South African Geographical Journal, 100*(1), 41–61. https://doi.org/10.1080/03736245.2017.1299639

Mdiniso, J. M. (2017). *Relationships between local communities and protected areas in KwaZulu-Natal: During the apartheid to the post-apartheid era*.

McLellan, E., MacQueen, K. M., & Neidig, J. L. (2003). Beyond the qualitative interview: Data preparation and transcription. *Field Methods, 15*(1), 63–84. https://doi.org/10.1177/1525822X02239573

MEFT/NACSO (2022). *The state of community conservation in Namibia: Annual Report 2021*. MEFT/NACSO, Windhoek. https://nacso.org.na/wp-content/uploads/2025/06/The-State-of-Community-Conservation-Report-2021-book-1.pdf

MEFT/NACSO 2023. *The state of community conservation in Namibia: Annual Report, 2022*. MEFT/NACSO, Windhoek. https://nacso.org.na/wp-content/uploads/2025/06/2022-SOCC-Annual-Report_p7-1.pdf

MEFT/NACSO. (2024). *The state of community conservation in Namibia: Annual report 2023*. MEFT/NACSO. https://nacso.org.na/wp-content/uploads/2025/06/SOCC-2023-Annual-Report_-Web-_Repro-2-1.pdf

Mekonen, S. (2020). *Coexistence between human and wildlife: The nature, causes and mitigations of human wildlife conflict around Bale Mountains National Park*. *20*(51), 1–9. https://doi.org/10.1186/s12898-020-00319-1

Mendelsohn, J., Jarvis, A., Roberts, C., & Robertson, T. (2002). *Atlas of Namibia: A portrait of the land and its people*. David Philip Publishers.

Mendelsohn, J., Jarvis, A., Roberts, C., & Robertson, T. (2013). *Atlas of Namibia: A portrait of the land and its people*. Sunbird Publishers.

Mendelsohn, J., & Haraes, L. (2018). Aerial census of Cape cormorants and Cape fur seals at Baía dos Tigres, Angola. *Namibian Journal of Environment*, *2*, A-6.

Mendelsohn, J. M., Huntley, B. J., & Vaz Pinto, P. (Eds.). (2023). *Monograph on endemism in the highlands and escarpments of Angola and Namibia*. Namibian Journal of Environment, 8**.**

Menges, W. (2026, January 29). *Hai||om Association sues Govt for N$2.8 trillion over Etosha land*. The Namibian.

Menestrey Schwieger, D. A. (2022). Overcoming Namibia's worst drought in the last 40 years: Ethnographic insights from Okakarara constituency. *ResearchGate*. https://www.researchgate.net/publication/368568739

Messner, R., Schlüter, M., Müller, B., & Abson, D. J. (2025). Holistic grazing management as a scalable niche? A systems perspective. *Sustainability Science*. Advance online publication. https://doi.org/10.1007/s11625-025-01725-4

Meyer, M., & Börner, J. (2022). Rural livelihoods, community-based conservation, and human–wildlife conflict: Scope for synergies? *Biological Conservation, 272*, 109666. https://doi.org/10.1016/j.biocon.2022.109666

Mfune, J. K., Mosimane, A., Hamukuaja, H., & Angula, M. (2006). *A preliminary survey of human-wildlife conflict along the northern border of Etosha National Park*. Submitted by the Multidisciplinary Research & Consultancy Centre (MRCC), University of Namibia, for the Ministry of Environment and Tourism: Directorate of Scientific Services, Windhoek.

Mhlanga, Z., Mpakairi, K. S., Gandiwa, E., & Ngorima, P. (2025). Effects of public roads on wildlife-vehicle collisions in two protected areas, Hluhluwe-iMfolozi Park and iSimangaliso Wetland Park, in

KwaZulu-Natal, South Africa. *Global Ecology and Conservation*, 57. https://doi.org/10.1016/j.gecco.2024.e03368

Miescher, G. (2012). *Namibia's red line: The history of a veterinary and settlement border*. Springer.

Millennium Ecosystem Assessment (Program) (Ed.). (2005). *Ecosystems and human well-being: Synthesis*. Island Press.

Miller, T. R., Minteer, B. A., & Malan, L. C. (2011). The new conservation debate: The view from practical ethics. *Biological Conservation, 144*(3), 948–957. https://doi.org/10.1016/j.biocon.2010.04.001

Milojević, I. (2002). *A Selective History of Futures Thinking*. 12.

Ministry of Environment and Tourism. (2007). *Etosha Management Plan*. http://the-eis.com/elibrary/sites/default/files/downloads/literature/Etosha%20Management%20Plan%20August_2007.pdf

Ministry of Environment and Tourism (MET). (2010a). *State of protected areas in Namibia: A review of progress and challenges*. Windhoek: MET.

Ministry of Environment and Tourism. (2010b). *Fourth national report to the Convention on Biological Diversity*. Windhoek, Namibia: Ministry of Environment and Tourism.

Ministry of Environment, Forestry and Tourism. (2013). *Namibia's Second National Biodiversity Strategy and Action Plan (NBSAP2) 2013–2022*. Republic of Namibia. https://www.cbd.int/doc/world/na/na-nbsap-v2-en.pdf?utm_source=chatgpt.com

Ministry of Environment and Tourism. (2013). *Guidelines for management of conservancies and standard operating procedures*. Government of the Republic of Namibia.

Ministry of Environment, Forestry and Tourism. (2022). *National strategy on the sustainable management of bush resources (2022-2027).* https://library.n-big.org/wp-content/uploads/2019/10/GIZ-deBushing-Bush-Harvesting-Guidelines-2017.pdf

Ministry of Environment, Forestry and Tourism (MEFT). (2023). *Governance framework and management system for sustainable bush control in selected communal areas of Namibia*. Windhoek, Namibia.

Ministry of Environment, Forestry and Tourism. (2024). *Tourist statistical report 2024*. Government of the Republic of Namibia. https://www.meft.gov.na/files/downloads/Tourist_Statistical_Report_2024.pdf

Ministry of Environment, Forestry and Tourism. (2026). *Revised park entrance and conservation fees effective 1 April 2026.* Government of the Republic of Namibia. https://www.meft.gov.na/files/downloads/543_Park%20Entrance%20and%20Conservation%20Fees.PDF

Ministry of Environment and Tourism, & Ministry of Mines and Energy. (2018). *National policy on prospecting and mining in protected areas (2018–2022).* Republic of Namibia. https://www.meft.gov.na/files/downloads/235_MET_Policy%20on%20Mining_4.pdf

Miyamoto, K. (2022). Traditional authorities, legal power and land disputes in north-west Namibia. *Anthropology Southern Africa, 45*(1), 16–29. https://doi.org/10.1080/23323256.2022.2101736

Mokobela, M. J., Kerley, G. I. H., & Wasserman, R. J. (2019). Foster local expertise in Botswana's elephant-hunting debate. *Nature, 573*(7774), 346. https://doi.org/10.1038/d41586-019-02773-4

Molitor, G. T. (2003). *The power to change the world: The art of forecasting*. Graham TT Molitor.

Montràs-Janer, T., Suggitt, A. J., Fox, R., Jönsson, M., Martay, B., Roy, D. B., Walker, K. J., & Auffret, A. G. (2024). Anthropogenic climate and land use change drive short-and long-term biodiversity shifts across taxa. *Nature Ecology & Evolution*, *8*(4), 739–751.

Mosimane, A. W., & Silva, J. A. (2015). Local governance institutions, CBNRM, and benefit-sharing systems in Namibian conservancies. *Journal of Sustainable Development, 8*(2), 99–112. https://doi.org/10.5539/jsd.v8n2p99

Moss, R. H., Edmonds, J. A., Hibbard, K. A., Manning, M. R., Rose, S. K., van Vuuren, D. P., Carter, T. R., Emori, S., Kainuma, M., Kram, T., Meehl, G. A., Mitchell, J. F. B., Nakicenovic, N., Riahi, K., Smith, S. J., Stouffer, R. J., Thomson, A. M., Weyant, J. P., & Wilbanks, T. J. (2010). The next generation of scenarios for climate change research and assessment. *Nature,* 463(7282), 747–756. https://doi.org/10.1038/nature08823

Muchapondwa, E., & Stage, J. (2023). Whereto with institutions and governance challenges in African wildlife conservation? *Ecological Economics, 203*, 107631. https://doi.org/10.1016/j.ecolecon.2023.107631

Mufune, P. (2015). Community-Based Natural Resource Management (CBNRM) and Sustainable Development in Namibia. *Journal of Land and Rural Studies*, *3*(1), 121–138. https://doi.org/10.1177/2321024914534042

Mukanjari, S., Muchapondwa, E., & Demeke, E. (2021). Recreation demand and pricing policy for international tourists in developing countries: evidence from South Africa. *Journal of Environmental Economics and Policy*, *10*(3), 243-260. https://doi.org/10.1080/21606544.2020.1853609

Mukherjee, N., Hugé, J., Sutherland, W. J., McNeill, J., Van Opstal, M., Dahdouh-Guebas, F., & Koedam, N. (2015). The Delphi technique in ecology and biological conservation: applications and guidelines. *Methods in Ecology and Evolution,* 6(9), 1097-1109. doi: 10.1111/2041-210X.12387

Mulama, L., & Nambinga, V. (2017). Namibia's untapped resource: Analysing youth unemployment. *National Planning Commission, Windhoek, Namibia*.

Murombedzi, J. (2003). Pre-colonial and colonial conservation practices in southern Africa and their legacy today. Unpublished IUCN manuscript.

Mwetulundila, P. (2021). Gender perspectives in Namibia's communal land: Exploring women's hindrances to equitable land ownership. *Journal of Asian and African Studies*, *57*(3), 481-496. https://doi.org/10.1177/00219096211020486

Naciri, M., Planillo, A., Gicquel, M., East, M. L., & Benhaiem, S. (2023). Three decades of wildlife–vehicle collisions in a protected area: Main roads and long-distance commuting trips to migratory prey increase spotted hyena roadkills in the Serengeti. *Biological Conservation,* 279, 109950. https://doi.org/10.1016/j.biocon.2023.109950

NACSO (2012a). *Living with Wildlife: The Story of Ehirovipuka Conservancy.* John Meinert Printing. https://www.nacso.org.na/sites/default/files/Brochure%20Ehi-Rovipuka.pdf

NACSO (2012b). L*iving with Wildlife: The Story of "Khoadi-//hôas Conservancy.* John Meinert Printing. https://www.nacso.org.na/sites/default/files/Brochure%20Khoadi%20Hoas.pdf

Naidoo, R., Weaver, L. C., Stuart-Hill, G., & Thouless, C. (2011). Namibia's community-based natural resource management programme: An unrecognised payments for ecosystem services scheme. *Environmental Conservation,* 38(4), 445–453. https://doi.org/10.1017/S0376892911000476

Naidoo, R., Weaver, L. C., De Longcamp, M., & Du Plessis, P. (2011a). Namibia's community-based natural resource management programme: An unrecognised payments for ecosystem services scheme. *Environmental Conservation, 38*(4), 445–453.

Naidoo, R., Weaver, L. C., Stuart-Hill, G., & Tagg, J. (2011b). The Effect of Biodiversity on Economic Benefits from Communal Lands in Namibia. *Journal of Applied Ecology*, *48*(2), 310–316. https://doi.org/10.1111/j.1365-2664.2010.01955.x

Naidoo, R., Weaver, L. C., Diggle, R. W., Matongo, G., Stuart-Hill, G., & Thouless, C. (2016). *Complementary benefits of tourism and hunting to communal conservancies in Namibia*. *Conservation Biology*, 30(3), 628–638. https://doi.org/10.1111/cobi.12643

Namibian Biomass Industry Group. (2024). *Land management in the context of bush encroachment.* (Report No. SBA_REP_ONLINE_2024_Kashandula_v1). N-BiG. https://doi.org/10.5281/zenodo.13273052

Namibia Statistics Agency. (2019). *Namibia Census of Agriculture 2013/14: Communal Sector Revised Report.* Windhoek, Namibia. https://nsa.org.na/wp-content/uploads/2024/07/NAMIBIA_CENSUS_OF_AGRICULTURE_2013_14_REVISED_05_JUNE2019-Latest_17Jun19.pdf

Namibia Statistics Agency. (2024). *2023 Population and Housing Census Main Report*. Retrieved from https://nsa.org.na/census/wp-content/uploads/2024/10/2023-Population-and-Housing-Census-Main-Report-28-Oct-2024.pdf

Nandutu, I., Atemkeng, M., & Okouma, P. (2022). Intelligent Systems Using Sensors and/or Machine Learning to Mitigate Wildlife–Vehicle Collisions: A Review, Challenges, and New Perspectives. 22(7). https://doi.org/10.3390/s22072478

Ndlovu, J., Utete, O., & Kimaro, M. E. (2014). Defying extinction through conservation: Benefits of black rhino tracking in the #Khoadi //Hôas Conservancy, Namibia. *Journal of Human Ecology, 47*(3), 229–239.

Nelson, F. (Ed.). (2010). *Community rights, conservation and contested land: The politics of natural resource governance in Africa*. Routledge.

Nandi-Ndaitwah, N. (2026, April 8). *State of the Nation Address by Her Excellency Dr. Netumbo Nandi-Ndaitwah, President of the Republic of Namibia* [Speech]. Office of the President, Republic of Namibia.https://op.gov.na/documents/1697384/7848729/State%2Bof%2Bthe%2BNation%2BAddress%2B2026%2Bby%2BHer%2BExcellency%2BDr.%2BNetumbo%2BNandi-Ndaitwah%2C%2BPresident%2Bof%2Bthe%2BRepublic%2Bof%2BNamibia%2C%2BWindhoek%2B%2B%2B08%2BApril%2B2026%2B%2B.pdf

Newsham, A., & Bhagwat, S. (2015). *Conservation and development*. Routledge.

Nghikembua, M. T., Marker, L. L., Brewer, B., Mehtätalo, L., Appiah, M., & Pappinen, A. (2020). Response of wildlife to bush thinning on the north central freehold farmlands of Namibia. *Forest Ecology and Management, 473*, 118330. https://doi.org/10.1016/j.foreco.2020.118330

Ngwangwama, M. (2022). the threat of COVID-19 to tourism: PersPeCtives from industry Namibia. *Reflections on the Complexities of the Covid-19 Pandemic: Perspectives from the Global South*, 223.

Nicholson, E., Collen, B., Barausse, A., Blanchard, J. L., Costelloe, B. T., Sullivan, K. M. E., Underwood, F. M., Burn, R. W., Fritz, S., Jones, J. P. G., McRae, L., Possingham, H. P., & Milner-Gulland, E. J. (2012). Making robust policy decisions using global biodiversity indicators. *PLoS ONE, 7*(7), e40851. https://doi.org/10.1371/journal.pone.0040851

Nuulimba, K., & Taylor, J. J. (2015). 25 years of CBNRM in Namibia: A retrospective on accomplishments, contestation and contemporary challenges. *Journal of Namibian Studies, 18*, 89–112. https://namibian-studies.com/index.php/JNS/article/view/110

Nyamamu, E. J., Nchimbi, C. S., Mteti, S., & Ndimbo, G. K. (2025). Potentials and challenges for rural livelihood diversification and poverty alleviation in sub-Saharan Africa: A systematic review. *SAGE Open*, 15(4). https://doi.org/10.1177/215824402513790

Ogwu, M. C., Izah, S. C., & Iyiola, A. O. (2022). An overview of the potentials, threats and conservation of biodiversity in Africa. *Biodiversity in Africa: Potentials, threats and conservation*, pp. 3–20.

Ostrom, E. (2009). A general framework for analysing the sustainability of social-ecological systems. *Science, 325*(5939), 419–422. https://doi.org/10.1126/science.1172133

O'Sullivan, J. N. (2020). The social and environmental influences of population growth rate and demographic pressure deserve greater attention in ecological economics. *Ecological Economics, 172*, 106648. https://doi.org/10.1016/j.ecolecon.2020.106648

Owen-Smith, G. (2011). *An arid Eden: A personal account of conservation in the Kaokoveld*. Jonathan Ball Publishers.

Palmeirim, A. F., Monadjem, A., Vaz Pinto, P., Taylor, P. J., Svensson, M. S., & Beja, P. (2023). Mammal endemism in the highlands and escarpments of Angola and Namibia. *Namibian Journal of Environment, 8,* 311–322. https://doi.org/10.64640/3dnb4c71

Palmer, A. R., Samuels, I., Cupido, C., Finca, A., Kangombe, W. F., Yunusa, I. A., Vetter, S., & Mapaure, I. (2016). Aboveground biomass production of a semi-arid southern African savanna: Towards a new model. *African Journal of Range & Forage Science*, *33*(1), 43–51. https://doi.org/10.2989/10220119.2015.1043647

Palmer, B. J., Assad, Y., Corey, J., Kerr, D., Scully, P., Tran, Q., & Bourne, A. R. (2026). An AI-operated smart gate system for increasing the permeability of conservation fences. *Wildlife Research,* 53(6), WR26033. https://doi.org/10.1071/WR26033

Paksi, A., & Pyhälä, A. (2018). Socio-economic impacts of a national park on local indigenous livelihoods: The case of Bwabwata National Park in Namibia. *Senri Ethnological Studies, 99*, 211–228.

Parliamentary Standing Committee on Natural Resources. (2025). *Report on the motion on human-wildlife conflict*. National Assembly of Namibia. https://www.parliament.na/wp-content/uploads/2025/03/REPORT-ON-THE-MOTION-ON-HUMAN-WILDLIFE-CONFLICT.pdf

Park, M., Wu, S., & Funk, R. J. (2025). Regulation and innovation revisited: How restrictive environments can promote destabilising new technologies. *Organisation Science, 36*(1), 240–260. https://doi.org/10.1287/orsc.2023.1718

Parmar, I., & Parmar, I. (2004). The Role and Influence of Chatham House in the Making of British Foreign Policy. *Think Tanks and Power in Foreign Policy: A Comparative Study of the Role and Influence of the Council on Foreign Relations and the Royal Institute of International Affairs, 1939–1945*, 77–107.

Partelow, S. (2018). A review of the social-ecological systems framework: applications, methods, modifications, and challenges. Ecology and Society 23(4):36. https://doi.org/10.5751/ES-10594-230436

Partelow, S., Villamayor-Tomas, S., Eisenack, K., Epstein, G., Kellner, E., Roggero, M., & Tschopp, M. (2024). A meta-analysis of SES framework case studies: Identifying dyad and triad archetypes. *People and Nature, 6*(3), 1229–1247. https://doi.org/10.1002/pan3.10630

Paskins, D. (1997). Thinking futures. How to survive and thrive in a fast-changing (business) world. Futures, 29(3), 257–266. https://doi.org/10.1016/S0016-3287(97)00005-0

Pecl, G. T., Araújo, M. B., Bell, J. D., Blanchard, J., Bonebrake, T. C., Chen, I. C., Clark, T. D., Colwell, R. K., Danielsen, F., Evengård, B., Falconi, L., Ferrier, S., Frusher, S., Garcia, R. A., Griffis, R. B., Hobday, A. J., Janion-Scheepers, C., Jarzyna, M. A., Jennings, S., Lenoir, J., Linnetved, H. I., Matin, Y. V., Mccormack, P. C., Mcdonald, J., Mitchell, N. J., Mustonene, T., Pandolfi, J. M., Pettorelli, N., Popova, E., Robinson, S. A., Scheffers, B. R., Shaw, J. D., Sorte, C. J. B., Strugnell, J. M., Sunday, J. M., Tuanmu, M., Verges, A., Villanueva, C., Wernberg, T,. Wapstra, E., & Williams, S. E. (2017). Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being. *Science,* 355(6332), eaai9214. https://doi.org/10.1126/science.aai9214

Pereira, L., Kuiper, J. J., Selomane, O., Aguiar, A. P. D., Asrar, G. R., Bennett, E. M., Biggs, R., Calvin, K., Hedden, S., & Hsu, A. (2021). Advancing a toolkit of diverse futures approaches for global environmental assessments. *Ecosystems and People*, *17*(1), 191–204.

Perumal, L., O'Keeffe, J., & Cumming, G. S. (2021). The impact of roads on sub-Saharan African ecosystems. *Environmental Research Letters, 16*(11). https://doi.org/10.1088/1748-9326/ac2ad9

Petinrin, O. O., Saeed, F., Toseef, M., Liu, Z., Basurra, S., Muyide, I. O., Li, X., Lin, Q., & Wong, K. C. (2023). Machine learning in metastatic cancer research: Potentials, possibilities, and prospects. *Computational and Structural Biotechnology Journal*, 2454–2470. https://doi.org/10.1016/j.csbj.2023.03.046

Petriello, M. A., Redmore, L., Sène, A. L., Katju, D., Barraclough, L., Boyd, S., Madge, C., Papadopoulos, A., & Yalamala, R. S. (2024). The scope of empowerment for conservation and communities. *Conservation Biology*, 1–22. https://doi.org/DOI: 10.1111/cobi.14249

Pfenning-Butterworth, A., Buckley, L. B., Drake, J. M., Farner, J. E., Farrell, M. J., Gehman, A. L. M., Mordecai, E. A., Stephens, P. R., Gittleman, J. L., & Davies, T. J. (2024). Interconnecting global threats: Climate change, biodiversity loss, and infectious diseases. *The Lancet Planetary Health, 8*(4), e270–e283. https://doi.org/10.1016/S2542-5196(24)00032-1

Planet, L., Ham, A., Bainbridge, J., Corne, L., Fitzpatrick, M., Holden, T., & Sainsbury, B. (2017). *Lonely Planet Southern Africa* (10th ed.). Lonely Planet.

Pooley, S., Bhatia, S., & Vasava, A. (2021). Rethinking the study of human–wildlife coexistence. *Conservation Biology*, 35(3), 784-793.

Powell, L. A., Kazahe, U., & Kharuxab, R. (2017). Livestock farmers engage in ecotourism as a result of beliefs and attitudes toward wildlife on communal lands in Namibia. *Human Dimensions of Wildlife, 22*(3), 217–230. https://doi.org/10.1080/10871209.2017.1295495

Powers, R. P., & Jetz, W. (2019). Global habitat loss and extinction risk of terrestrial vertebrates under future land-use-change scenarios. *Nature Climate Change, 9*(4), 323–329. https://doi.org/10.1038/s41558-019-0406-3

Pullin, A. S., Bangpan, M., Dalrymple, S., Dickson, K., Haddaway, N. R., Healey, J. R., Hauari, H., Hockley, N., Jones, J. P., & Knight, T. (2013). Human well-being impacts of terrestrial protected areas. *Environmental Evidence*, *2*, 1–41

Ranius, T., Widenfalk, L. A., Seedre, M., Lindman, L., Felton, A., Hämäläinen, A., Filyushkina, A., & Öckinger, E. (2023). Protected area designation and management in a world of climate change: A review of recommendations. *Ambio,* 52(1), 68–80. https://doi.org/10.1007/s13280-022-01779-z

Raphaely, T. (1997). *Conservancies as a vehicle for achieving sustainable development: With reference to a case study in the Nyae-Nyae area of Eastern Otjozonjupa, Namibia*.

Ravenelle, J. & Nyhus, P. J. (2017). *Global patterns and trends in human–wildlife conflict compensation*. Conservation Biology, 31(5), 1247–1256. doi: 10.111/cobi.l

Redpath, S. M., Young, J., Evely, A., Adams, W. M., Sutherland, W. J., Whitehouse, A., Amar, A., Lambert, R. A., Linnell, J. D. C., Watt, A., & Gutiérrez, R. J. (2013). Understanding and managing conservation conflicts. *Trends in Ecology & Evolution,* 28(2), 100–109. https://doi.org/10.1016/j.tree.2012.08.021

Republic of Kenya. (2013). *Wildlife Conservation and Management Act No. 47 of 2013*. Nairobi: Government Printer.

Republic of South Africa. (2003). *National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003).* Government Gazette, Pretoria: Government of South Africa.

Retief, F. P., Alberts, R. C., Hanekom, C. C., & Tembe, M. (2025). 100 Years on: Exploring Stakeholder Perspectives on the Future of Ndumo Game Reserve, South Africa. *African Journal of Wildlife Research*, *55*(sp1).

Roe, D., Nelson, F., & Sandbrook, C. (Eds.). (2009). *Community management of natural resources in Africa: Impacts, experiences and future directions* (No. 18). IIED. Available online: https://pubs.iied.org/17503iied

Roney, C. W. (2010). Intersections of Strategic Planning and Futures Studies: Methodological Complementarities. *Journal of Futures Studies, 15*(2), 71–100.

Rooikat Trust. (2019). *Conservation Partnerships to Combat Wildlife Crime in Namibia*. Namibian Partnerships Against Crime. https://www.nacso.org.na/sites/default/files/2019_Conservation-Partnerships_Brochure.pdf

Rossberg, A. G., O'Sullivan, J. D., Malysheva, S., & Shnerb, N. M. (2021). A metric for tradable biodiversity credits linked to the Living Planet Index and global species conservation. *Ecological Indicators, 124*, 107405.

Ruppel, O. C., & Ruppel-Schlichting, K. (Eds.). (2013). *Environmental law and policy in Namibia: Towards making Africa the tree of life*. Nomos.

Saliu, A. O., Komolafe, O. O., Bamidele, C. O., & Raimi, M. O. (2023). The value of biodiversity to sustainable development in Africa. In *Sustainable utilisation and conservation of Africa's biological resources and environment* (pp. 269–294). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-99-0367-5_12

Sandbrook, C., Fisher, J. A., Holmes, G., Luque-Lora, R., & Keane, A. (2019). The global conservation movement is diverse but not divided. *Nature Sustainability, 2*(4), 316–323. https://doi.org/10.1038/s41893-019-0267-5

Sarker, A. K., Azad, A. K., Rasul, M. G., & Doppalapudi, A. T. (2023). *Prospect of Green Hydrogen Generation from Hybrid Renewable Energy Sources: A Review*. *16*, 1556. https://doi.org/10.3390/en16031556

Sayer, J., Sunderland, T., Ghazoul, J., Pfund, J. L., Sheil, D., Meijaard, E., Venter, M., Boedhihartono, A. K., Day, M., Garcia, C., van Oosten, C. & Buck, L. E. (2013). Ten principles for a landscape approach to

reconciling agriculture, conservation, and other competing land uses. *Proceedings of the national academy of sciences*, *110*(21), 8349-8356.

Scherr, S. J., & McNeely, J. A. (2008). Biodiversity conservation and agricultural sustainability: towards a new paradigm of 'ecoagriculture' landscapes. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *363*(1491), 477-494. doi:10.1098/rstb.2007.2165

Schiffer, E. (2004). Community-based *natural resource management in Namibia: how does it influence local governance*? (Doctoral dissertation, Bochum, Univ., Diss., 2004).

Schneider, R. (2022). *Emerging conservation landscapes: Community-based natural resource management in Namibia*. Open Book Publishers. https://doi.org/10.11647/OBP.0402

Schoemaker, P. J. (1995). Scenario planning: a tool for strategic thinking. *MIT Sloan Management Review*.

Severn, A. (2015). The Chatham House rule. *Morecambe Bay Medical Journal*, *7*(4), 87–87.

Shaimemanya, T. N. (2024). *Unlocking climate-resilient infrastructure in Namibia through adaptation financing* (Policy Paper Issue). European University Institute. https://doi.org/10.2870/1024565

Sheikh, P. A., & Bermejo, L. F. (2019). *International trophy hunting* (CRS Report No. R46530). Congressional Research Service. https://crsreports.congress.gov/product/pdf/R/R46530

Shiimi, D. K., Charamba, V., Bello, H. M., & Lutaaya, E. (2023). Factors affecting smallholder subsistence farmers' drought adaptation and resilience: A case study from northern-central Namibia. *Journal of Agriculture and Environment for International Development, 117*(1), 39–56.

Shikangalah, R. N. (2020). The 2019 drought in Namibia: An overview. *Journal of Namibian Studies*, 27, 181–196. https://namibian-studies.com/index.php/JNS/article/view/198

Shikangalah, R. N., & Mapani, B. S. (2020). A review of bush encroachment in Namibia: From a problem to an opportunity. *Journal of Rangeland Science, 10*(3), 251–266. https://doi.org/10.22059/jrangeland.2020.296525.674

Shikongo, A. (2020, November 12). *N$132m to rehabilitate Etosha roads*. *The Namibian*. https://www.namibian.com.na/n132m-to-rehabilitate-etosha-roads/

Shume, T. J. (2017). Mapping conceptions of wolf hunting onto an ecological worldview conceptual framework—Hunting for a worldview theory. *Animals and Science Education: Ethics, Curriculum and Pedagogy*, 223–241. https://doi.org/10.1007/978-3-319-58545-1

Silva, J. A., & Mosimane, A. W. (2013). Conservation-based rural development in Namibia: A mixed-methods assessment of economic benefits. *The Journal of Environment & Development*, *22*(1), 25–50.

Sinthumule, N. I. (2023). Traditional ecological knowledge and its role in biodiversity conservation: A systematic review. *Frontiers in Environmental Science, 11*, 1164900. https://doi.org/10.3389/fenvs.2023.1164900

Sitta, F. A., Maddox, B., Casebourne, I., Hughes, S., Kuvalja, M., Hannam, J., & Oates, T. (2023). *The Futures of Assessments: Navigating Uncertainties through the Lenses of Anticipatory Thinking.* Cambridge: Digital Education Futures Initiative (DEFI) & Cambridge University Press & Assessment. ISBN: 978-1-7384336-0-5.

Skrindo, H. (2024). *Empirical analysis of the Voluntary Carbon Market: Impact of project characteristics on carbon credit projects* (Master's thesis, NORWEGIAN SCHOOL OF ECONOMICS).

Smit, E. (2024, October 30). *Etosha's poor roads drive operators away*. *Windhoek Express*. https://www.we.com.na/tourism-we/etoshas-poor-roads-drive-operators-away2024-10-30

South African National Parks. (2025). *Strategic plan 2025/2026–2029/2030*. https://www.sanparks.org/wp-content/uploads/2025/04/2025-2030.pdf

Spenceley, A., McCool, S., Newsome, D., Báez, A., Barborak, J. R., Blye, C. J., ... & Zschiegner, A. K. (2021). Tourism in Protected and Conserved Areas During the COVID-19 Pandemic. *Parks, 27*(Special Issue), 103–118. https://doi.org/10.2305/IUCN.CH.2021.PARKS-27-SIAS.en

Stefanova, K. (2005). Protecting Namibia's Natural Resources. *Economic Perspectives*, 42–44.

Stem, C. J., Lassoie, J. P., Lee, D. R., Deshler, D. D., & Schelhas, J. W. (2003). Community participation in ecotourism benefits: The link to conservation practices and perspectives. *Society &Natural Resources*, *16*(5), 387–413.

Stoldt, M., Göttert, T., Mann, C., Zeller, U., et al. (2020). Transfrontier conservation areas and human–wildlife conflict: The case of the Namibian component of the Kavango–Zambezi (KAZA) Transfrontier Conservation Area. *Scientific Reports*, 10, 7964. https://doi.org/10.1038/s41598-020-64537-9

Störmer, N., Weaver, L. C., Stuart-Hill, G., Diggle, R. W., & Naidoo, R. (2019). Investigating the effects of community-based conservation on attitudes towards wildlife in Namibia. *Biological Conservation*, *233*, 193-200. https://doi.org/10.1016/j.biocon.2019.02.033

Stringer, L. C., Fraser, E. D. G., Harris, D., Lyon, C., Pereira, L., Ward, C. F. M., & Simelton, E. (2020). Adaptation and development pathways for different types of farmers. *Environmental Science and Policy, 104*, 174–189. https://doi.org/10.1016/j.envsci.2019.10.007

Sullivan, S. (2006). Elephant in the room? Problematising 'new'(neoliberal) biodiversity conservation. In *Forum for Development Studies*. Taylor & Francis Group, 33 (1), 105-135). Taylor & Francis Group. https://doi.org/10.1080/08039410.2006.9666337

Sullivan, S. (2023). "Hunting Africa": How International Trophy Hunting May Constitute Neocolonial Green Extractivism. *Journal of Political Ecology, 30*(1), 1-20. https://doi.org/10.2458/jpe.2023.32535

Sutherland, W. J., Clout, M., Depledge, M., Dicks, L. V., Dinsdale, J., Entwistle, A. C., ... & Wintle, B. C. (2015). A horizon scan of global conservation issues for 2015. *Trends in ecology & evolution,* 30(1), 17-24.

Tavolaro, F. M., Woodgate, Z., Brown, C., Redpath, S. M., & O'Riain, M. J. (2022). Multispecies study of patterns and drivers of wildlife impacts on human livelihoods in communal conservancies. *Conservation Science and Practice, 4*(9), e12773. https://doi.org/10.1111/csp2.12773

Taye, M. (2006). *Evaluating capacity development for local participation: The #Khoadi||Hôas Conservancy experience*. Final report for International Development Research Centre (IDRC). University of British Columbia School of Community and Regional Planning.

Teece, D. J. (2010). Business models, business strategy and innovation. *Long Range Planning, 43*(2–3), 172–194. https://doi.org/10.1016/j.lrp.2009.07.003

The Brief. (2025, March 6). *What you need to know about Shafudah's N$106.3 billion national budget*. The Brief Namibia. https://thebrief.com.na/2025/03/what-you-need-to-know-about-shafudahs-n106-3-billion-national-budget

Thouless, C., Diggle, R. W., & Sikoppo, C. (2014). New tourism concessions in National Parks to benefit community conservancies in Namibia. *Oryx*, *48*(3), 327–328.

Tilman, D., Clark, M., Williams, D. R., Kimmel, K., Polasky, S., & Packer, C. (2017). Future Threats to Biodiversity and Pathways to Their Prevention. *Nature, 546*(7656), 73–81. https://doi.org/10.1038/nature22900

Tlhage, O. (2025, July 16). *Mining sector frustrated as Minerals Bill faces ongoing delays: Long wait—Industry frustrations mount as ministry delays key mining legislation*. Republikein (Market Watch). https://www.republikein.com.na/mw-main/mining-sector-frustrated-as-minerals-bill-faces-ongoing-delays2025-07-16163647

Turner, W. C., Périquet, S., Goelst, C. E., Vera, K. B., Cameron, E. Z., Alexander, K. A., Belant, J. L., Cloete, C. C., du Preez, P., Getz, W. M., Hetem, R. S., Kamath, P. L., Kasaona, M. K., Mackenzie, M., Mendelsohn, J., Mfune, J. K. E., Muntifering, J. R., Portas, R., Scott, H. A., Strauss, W. M., Wachter, B., Versfeld, W., Wittemyer, G., & Kilian, J. W. (2022). Africa's drylands in a changing world:

Challenges for wildlife conservation under climate and land use changes in the Greater Etosha Landscape. *Global Ecology and Conservation, 38*(1), e02221. https://doi.org/10.1016/j.gecco.2022.e02221

Turpie, J., & Letley, G. (2021). Would community conservation initiatives benefit from external financial oversight? A framed field experiment in Namibia's communal conservancies. *World Development, 142*, 105442. https://doi.org/10.1016/j.worlddev.2021.105442

UNCED. (1992). *Report of the United Nations Conference on Environment and Development: Resolutions Adopted by the Conference.* https://documents-dds-ny.un.org/doc/UNDOC/GEN/N92/836/55/PDF/N9283655.pdf?OpenElement

UNICEF Namibia. (2021). *Namibia multidimensional poverty index report*. Windhoek: UNICEF Namibia. https://www.unicef.org/esa/media/9041/file/UNICEF-Namibia-Multidimensional-Poverty-Index-2021.pdf

United Nations Framework Convention on Climate Change (UNFCCC). (2015). *Paris Agreement*. https://unfccc.int/sites/default/files/english_paris_agreement.pdf

Valavanidis, A. (2022). Extreme weather events exacerbated by the global impact of climate change. *Available Online: Chem-Toxecotox. Org/ScientificReviews (Accessed on 28 May 2023)*.

van Norren, D. E., & Seehawer, M. (2025). The Future of Sustainable Development Goals and Culture: Addressing Missing Dimensions from Four Cosmovisions African Ubuntu, Latin-American Buen Vivir, Buddhist Happiness and Nordic Sami Arbediehtu: DE van Norren and M. Seehawer. *The European Journal of Development Research*, 1-24.

van Rij, V. (2010). Joint horizon scanning: Identifying common strategic choices and questions for knowledge. *Science and Public Policy*, *37*(1), 7–18. https://doi.org/10.3152/030234210X484801

van Vuuren, D. P., Edmonds, J., Kainuma, M., Riahi, K., Thomson, A., Hibbard, K., Hurtt, G. C., Kram, T., Krey, V., Lamarque, J.-F., Masui, T., Meinshausen, M., Nakicenovic, N., Smith, S. J., & Rose, S. K. (2011). The representative concentration pathways: An overview. Climatic Change, 109(1–2), 5–31. https://doi.org/10.1007/s10584-011-0148-z

Venter, O., Laurance, W. F., Iwamura, T., Wilson, K. A., Fuller, R. A., & Possingham, H. P. (2009). Harnessing carbon payments to protect biodiversity. *Science, 326*(5950), 1368. https://doi.org/10.1126/science.1180289

Victor, D. G., Akimoto, K., Kaya, Y., Yamaguchi, M., Cullenward, D., & Hepburn, C. (2017). Prove Paris was more than paper promises. *Nature, 548*(7665), 25–27. https://doi.org/10.1038/548025a

Villamor, G. B., Palomo, I., Santiago, C. A. L., Oteros-Rozas, E., & Hill, J. (2014). Assessing stakeholders' perceptions and values towards social-ecological systems using participatory methods. *Ecological Processes, 3*, Article 22. https://doi.org/10.1186/s13717-014-0022-9

Prokhorova, V. V. (2020). Business Models as a Tool for Improving the Strategic Positions of Enterprises in a Competitive Market. *Problems of Economics*, *44*(2), 274-280. doi.org/10.32983/2222-0712-2020-2-274-280

Verschueren, S., Briers-Louw, W. D., Torres-Uribe, C., Siyaya, A., & Marker, L. (2020). Assessing human conflicts with carnivores in Namibia's eastern communal conservancies. *Human Dimensions of Wildlife*, 25(5), 452–467. https://doi.org/10.1080/10871209.2020.1758253

Waidelich, P., Batibeniz, F., Rising, J., Kikstra, J. S., & Seneviratne, S. I. (2024). Climate damage projections beyond annual temperature. *Nature Climate Change*, *14*(6), 592-599. doi.org/10.1038/s41558-024-01990-8

Warikandwa, T. V. (2023). Fighting fisheries crimes in the fisheries industry. *Cogent Social Sciences, 9*, 2286043. https://doi.org/10.1080/23311886.2023.2286043

Weaver, L. C., & Petersen, T. (2008). Namibia communal area conservancies. *Best practices in sustainable hunting*. pp. 48–52.

Weaver, L. C., & Skyer, P. (2003). *Conservancies: Integrating wildlife land use options into the livelihood, development and conservation strategies of Namibian communities*. 5th World Parks Congress, Durban.

Weinzierl, T., Wehberg, J., Böhner, J., & Conrad, O. (2016). Spatial Assessment of Land Degradation Risk for the Okavango River Catchment, Southern Africa. *Land Degradation & Development*, *27*(2), 281–294.

Weise, F. J., Wessels, Q., Munro, S., & Solberg, M. (2014). Using artificial passageways to facilitate the movement of wildlife on Namibian farmland. *South African Journal of Wildlife Research,* 44(2), 161–166. https://doi.org/10.3957/056.044.0213

Weise, F. J., Kilian, J. W., & Périquet, S. (2021). Of teeth and claws: Taking stock of carnivore research in the greater Etosha landscape. *Namibian Journal of Environment, 5*, A-24.

Wenborn, M., Svensson, M. S., Katupa, S., Collinson, R., & Nijman, V. (2022a). Lessons on the community conservancy model for wildlife protection in Namibia. *The Journal of Environment & Development*, *31*(4), 375–394.

Wenborn, M., Svensson, M. S., Katupa, S., Collinson, R., & Nijman, V. (2022b). Lessons on the community conservancy model for wildlife protection in Namibia. *The Journal of Environment & Development*, *31*(4), 375–394.

Wenborn, M., Nijman, V., Parton, A., Svensson, M. S., Nashongo, A. N., & Hauptfleisch, M. (2025). Local ecological knowledge on preferred vegetation of African savanna elephants in the semi-desert highlands of northwest Namibia. *Journal of Arid Environments***,** 227, doi.org/10.1016/j.jaridenv.2024.105309

Werner, W., & Odendaal, W. (2010). Resettlement: How Viable is the Small-Scale Farming Model? *Legal Assistance Centre. Windhoek*.

Whitfield, S., & Hofmann, M. A. (2023). Elicit: AI literature review research assistant. 19(3), 201–207. https://doi.org/10.1080/15228959.2023.222412

Wiersum, K. F., & Shackleton, C. M. (2005). Rural Dynamics and Biodiversity Conservation in Southern Africa. *African Studies*, 81, 67–84.

Wilson, G. V. E., & Anthony, B. P. (2023). Opportunities and barriers to monitoring and evaluating management effectiveness in protected areas within the Kruger to Canyons Biosphere Region, South Africa. Sustainability, 15(7), 5838. https://doi.org/10.3390/su15075838

Wingate, V. R., Phinn, S. R., Kuhn, N., Bloemertz, L., & Dhanjal-Adams, K. L. (2016). Mapping decadal land cover changes in the woodlands of north eastern Namibia from 1975 to 2014 using Landsat satellite archived data*. Remote Sensing, 8*(8), 681. https://doi.org/10.3390/rs8080681

Witter, R. (2021). Why militarised conservation may be counter-productive: Illegal wildlife hunting as defiance. *Journal of Political Ecology*, *28*(1), 175–192.

Wudu, K., Abegaz, A., Ayele, L., & Ybabe, M. (2023). The impacts of climate change on biodiversity loss and its remedial measures using a nature-based conservation approach: A global perspective. *Biodiversity and Conservation*, *32*(12), 3681–3701.

Wyborn, C., Kalas, N., & Rust, N. (2019, September 11). Seeds of change: Provocations for a new research agenda [Online post]. In *Biodiversity Revisited Symposium Conference Proceedings*.

Young, S. (2021). Portable CCTV for mammal monitoring: New survey technology. *Mammal Communications*, *7*, 29–37.

Younger, P. (2010). Using Google Scholar to conduct a literature search. *Nursing Standard, 24*(45), 40–46. https://doi.org/10.7748/ns2010.07.24.45.40.c7906

Zang, E., Yahia, A. R., Djellouli, S., & Guermat, C. (2023). Multimodal assessment of political corruption worsening national poverty: Evidence of mediating and moderating effects from global panel data. *SAGE Open, 13*(1), 1–14. https://doi.org/10.1177/21582440231166714

Zimmermann, A., McQuinn, B., & Macdonald, D. W. (2020). Levels of conflict over wildlife: Understanding and addressing the right problem. *Conservation Science and Practice*, 2(10). https://doi.org/10.1111/csp2.259

Zvidzai, M., van der Merwe, P., & du Plessis, E. (2025). Paradigm shifts in the management of protected areas in southern Africa: A narrative review. *Sustainable Environment, 11*(1). https://doi.org/10.1080/27658511.2025.2556366

Appendix 1 : NCRST permit granting authorisation to conduct this research in EWSL

NCRST

AUTHORIZATION OF RESEARCH PROJECTS

Authorization is hereby granted in terms of section 21 of the RST Act No. 23 of 2004, to:

Name: Namibia University of Science and Technology

Address: Private Bag 13388, Windhoek,
Namibia

Coworkers: M. Hauptfleisch, E. Gunther, J. Muntifering, C. Bauer, I. Guillemon, [redacted] M. Shikongo, T. Schemmer, M. Mubinda, T. Moyo, D. Shagama, J Hamutenya, J. Fennessy, J. Nangolo, N. Blaum, R. Hering, B. Groom, C. Winter, C. Pitot, R. Harris, S. Ferguson, M. Wenborn, Y. Smith, K. Shikongo, D. Tembo, A. Namushinga

Certificate Number (if applicable): RCIV00032018 **Authorization No:** AN202204018

Type of research

Non-Commercial research and the use of the resources be limited to what is specified in the proposal

Title of Research authorized:

Biodiversity Economy in Selected Landscapes in Namibia

Locality:

The Ombonde People's Park, The Etosha South-West Landscape, The Brandberg Landscape & The Greater Waterberg Landscape.

Duration: 25 April 2023 - 30 April 2024

Research/Sample collection conditions:

Insects, small mammals (one per species), and plant specimens for identification purposes only.
Refer to research conditions on the next page.

Yours sincerely,

National Commission on Research Science & Technology
26 APR 2023
P/Bag 13283
Windhoek, Namibia

Prof. Anicia Peters
Chief Executive Officer

Head Office *Innovation Hub*

Appendix 2 : NUST Ethical Clearance Certificate

NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

13 Storch Street
Private Bag 13388
Windhoek
NAMIBIA

T: +264 61 207 9111
F: +264 61 207 2444
W: www.nust.na

FACULTY OF HEALTH AND APPLIED SCIENCES

DECISION/FEEDBACK ON RESEARCH PROPOSAL ETHICAL CLEARANCE

Dear Prof/Dr/Mr/Ms/Other(s): Mr Jeremia KL Amutenya

Student No (if applicable): 200764012

Research Topic:	Exploring the Perceived Future of Namibian Conservation: A case study of the Etosha West and South Landscape
Supervisor (if applicable):	Prof. Morgan Hauptfleisch
Co-supervisor(s): if applicable	Prof. Francois Retief
Qualification registered for (if applicable):	Doctor of Philosophy in Natural Resources Science (10DNRS)

Re: Ethical screening application No: FHNRAS: 04/2025

The Research Ethics Screening Committee has reviewed your application for the above-mentioned research project. Based on the recommendation of the expert reviewer, the research as set out in the application is hereby:

(Indicate with an X)

Approved: i.e. may proceed with the project	X	
Approved provisionally: i.e. may proceed but subject to compliance with recommendation(s) listed below		
Not approved: Not to proceed with the project until compliance with recommendation(s) listed below and resubmit ethics application for consideration		
IS MINISTRY OF HEALTH & SOCIAL SERVICES (MoHSS) APPROVAL REQUIRED?	YES:	NO: X

It is important to note that as a researcher, you are expected to maintain ethical integrity of your research, strictly adhere to the ethical policy of NUST, and remain within the scope of your research proposal and supporting evidence as submitted to the REC. Should any aspect of your research change from the information as presented, which could have an impact or effect on any research participants/subjects/environment, you are to report this immediately to your supervisor or REC as applicable in writing. Failure to do so may result in withdrawal of approval. Kindly consult your supervisor or HoD if you need further clarification.

We wish you success in your research endeavour and are of the belief that it will have positive impact on your career as well as the development of NUST and the society in general.

Ethical issues that require compliance/ must be addressed		
No.	**Ethical issues**	**Comment/recommendation**
1.	None	None
2.		
	Others	

NB: May attach additional page as required

Full Name (reviewer): Clarence Ntesa **Signature:** **Date:** 12/02/2025

Full Name: L. AKU-AIKAI **Signature:** **Date:** 13/02/2025

Chair: Ethics Screening Committee

Appendix 3 : Summary of literature reviewed for the Literature Review Section

Authers	Article Title	Sector	Year Published
Saija Toivonen	Advancing futures thinking in the real estate field	Urban development & Construction	2021
Sajida Perveen, Md. Kamruzzaman and Tan Yigitcanlar	Developing policy scenarios for sustainable urban growth management: A Delphi approach	Planning, Policy and Risk Analysis	2017
Pierre Benckendorff	Envisioning Sustainable Tourism Futures: An Evaluation of the Futures Wheel Method	Business Management	2007
Olivia Bina and Andrea Ricci	Envisioning Sustainable Tourism Futures: An Evaluation Exploring participatory scenario and storyline building for sustainable urban futures – the case of China in 2050	Urban development & Construction	2016
Wongphat Chudam, Jirawat Khajornsilp, Sobsun Mahaniyom	Future Scenario of Faculty of Physical Education, Thailand National Sports University in the Next Decade (2023-2032)	Education and Research	2023
Felix Anand Epp Tim Moesgen, Antti Salovaara, Emmi Pouta and Idil Gaziulusoy	Reinventing the Wheel: The Future Ripples Method for Activating Anticipatory Capacities in Innovation Teams	Education and Research	2022
Sibylle Breiner, Kerstin Cuhls, Hariolf Grupp	Technology foresight using a Delphi approach: a Japanese-German co-operation	Technology and Artificial Intelligence	1994
Marieke Verschuuren, Henk B.M. Hilderink and Robert A.A. Vonk	The Dutch Public Health Foresight Study 2018: an example of a comprehensive foresight exercise.	Health	2019
Johanna Nalau and Gemma Cobb	The strengths and weaknesses of future visioning approaches for climate change adaptation: A review	Biodiversity Conservation	2022
Peter Saul	Using futures studies to design tomorrow's products: a case study	Business Management	2002

Theo J.B.M. Postma, Thijs L.J. Broekhuizen and Frank van den Bosch	The contribution of scenario analysis to the front-end of new product development	Business Management	2012
Stephen M. Millett	Futuring and visioning: complementary approaches to strategic decision making	Business Management	2006
Mejia Sarmiento, Ricardo Hultink, Erik-Jan Pasman, Gert Stappers and Pieter Jan	Concept Cars as a design-led futures technique	Technology and Artificial Intelligence	2016
Buhring Jorn	Design-inspired Foresight: Strategic foresight techniques for preferred futures	Business Management	2017
Martyn Evans	Designing Next-next Generation Products and Services: A design-led futures framework	Business Management	2012
Hugh M. Pattinson and Suresh C. Sood	Marketers expressing the future: Scenario planning for marketing action	Business Management	2010
Stefanie Ollenburg	Beyond Futures: Designing Futures by Educating Future Designers	Education and Research	2018
Ruth Saurin and John Ratcliffe	Tomorrow's workplace: a futures approach using prospective through scenarios	Urban development & Construction	2008
George Aichholzer,	Delphi Austria: An example of tailoring foresight to the needs of a small country.	Technology and Artificial Intelligence	2001
Gunther Tichy	The decision Delphi as a tool of technology policy - the Austrian experience	Planning, Policy and Risk Analysis	2001
Taeyoung Shin	Using Delphi for a Long-Range Technology Forecasting, and Assessing Directions of Future R&D Activities: The Korean Exercise	Technology and Artificial Intelligence	1998
Ingrid Hegger, Maarten O. Kok, Susan W.J. Janssen, Albertine J. Schuit and Hans A.M. van Oers	Contributions of knowledge products to health policy: a case study on the Public Health Status and Forecasts Report 2010	Health	2016
Claudia Wild and Helge Torgersen	Foresight in medicine. Lessons from three European Delphi studies	Health	2000

Jennifer M Gidley, John Fien, Jodi-Anne Smith, Dana C. Thomsen and Timothy F. Smith	Participatory futures methods: towards adaptability and resilience in climate-vulnerable communities	Biodiversity Conservation	2009
Lauren Rickards, Ray Ison, Hartmut Fünfgeld and John Wiseman	Opening and closing the future: climate change, adaptation, and scenario planning	Planning, Policy and Risk Analysis	2014
Leila Saari, Tanja Suomalainen, Raija Kuusela, Marko Juntunen and Sara Moqaddamerad	A cookbook for predicting the future: Introduction of foresight tools	Business Management	2017
Jorn Buhring and Ilpo Koskinen	Beyond Forecasting: A Design-inspired Foresight Approach for Preferable Futures	Business Management	2019
Caracol Intergalactika	The Future of the World Social Forum	Education and Research	2005
Forum for the Future	The Future Leaders Survey 2006/07	Education and Research	2007
Wyborn Carina, van Kerkhoff Lorrae, Dunlop Michael, Dudley Nigel and Guevara, Oscar.	Future-oriented conservation: knowledge governance, uncertainty and learning	Biodiversity Conservation	2016
Forum for the Future	The Future Leaders Survey 2007/08	Education and Research	2008
Chris Sandbrook, Janet A. Fisher, George Holmes, Rogelio Luque-Lora and Aidan Keane	The global conservation movement is diverse but not divided	Biodiversity Conservation	2019
George Holmes, Chris Sandbrook and Janet A. Fisher	Understanding conservationists' perspectives on the new conservation debate	Biodiversity Conservation	2016

Helen Kopnina, Haydn Washington, Joe Grey and Bron Taylor	The 'future of conservation' debate: Defending ecocentrism and the Nature Needs Half movement	Biodiversity Conservation	2018
Thaddeus R. Miller, Ben A. Minteer and Leon-C. Malan	The new conservation debate: The view from practical ethics	Biodiversity Conservation	2011
Sandbrook, C., Fisher, J., Holmes, G., Luque-Lora, R., Keane, A., Ingle, R., Calcada, S., Carter, M.	The Group and Organisation Future of Conservation Survey. www.futureconservation.org	Biodiversity Conservation	2019
Gene Rowe, George Wright and Fergus Bolger	Delphi: A Reevaluation of Research and Theory	Education and Research	1991
Martin Zimmermann, Inga-Lena Darkow and Heiko A. von der Gracht	Integrating Delphi and participatory back casting in pursuit of trustworthiness — The case of electric mobility in Germany	Planning, Policy and Risk Analysis	2012
Malcolm Eames and Jonas Egmose	Community foresight for urban sustainability: Insights from the Citizens Science for Sustainability (SuScit) project	Urban development & Construction	2011
Mattias Höjer, Anders Gullberg and Ronny Pettersson	Backcasting images of the future city—Time and space for sustainable development in Stockholm	Urban development & Construction	2011
Robin Hickman and David Banister	Looking over the horizon: Transport and reduced CO2 emissions in the UK by 2030	Planning, Policy and Risk Analysis	2007
John Robinson, Sarah Burch, Sonia Talwar, Meg O'Shea and Mike Walsh	Envisioning sustainability: Recent progress in the use of participatory backcasting approaches for sustainability research	Biodiversity Conservation	2011
Christoph Markmann, Inga-Lena Darkow and Heiko von der Gracht	A Delphi-based risk analysis — Identifying and assessing future challenges for supply chain security in a multi-stakeholder environment	Planning, Policy and Risk Analysis	2013

Ruth Jiang, Robin Kleer and Frank T. Piller	Predicting the future of additive manufacturing: A Delphi study on economic and societal implications of 3D printing for 2030	Business Management	
Md. Abdul Moktadir, Syed Mithun Ali, Sachin Kumar Mangla, Tasnim Ahmed Sharmy, Sunil Luthra, Nishikant Mishra and Jose Arturo Garza-Reyes	Decision modelling of risks in pharmaceutical supply chains	Health	2018
Andrew Flostrand, Leyland Pitt and Shannon Bridson	The Delphi technique in forecasting– A 42-year bibliographic analysis (1975–2017)	Education and Research	2020
Felipe Alexandre de Lima and Stefan Seuring a	A Delphi study examining risk and uncertainty management in circular supply chains	Planning, Policy and Risk Analysis	2023
Yuri Calleo and Francesco Pilla	Delphi-based future scenarios: A bibliometric analysis of climate change case studies	Biodiversity Conservation	2023
Barbara Jane Holland	Strategic Foresight Tools for Planning and Policy	Planning, Policy and Risk Analysis	2021
Danny Coenen, Ignacio Porzecanski and Thomas L. Crisman	Future directions in conservation and development: Incorporating the reality of climate change	Biodiversity Conservation	2008
Siobhan B. Sharkey and Ann Y. Sharples	An approach to consensus building using the Delphi technique: developing a learning resource in mental health	Health	2001
Alison Margaret Walker	A Delphi Study of Research Priorities in the Clinical Practice of Physiotherapy	Health	1994
Steven Sanderson	The Future of Conservation	Biodiversity Conservation	2002
Bart Édes	Learning from Tomorrow: Using strategic foresight to prepare for the next big disruption.	Planning, Policy and Risk Analysis	2021
Jason McGrath and John Fischetti	The future of compulsory schooling: Participant-developed scenarios from a modified Delphi survey	Education and Research	2021

Georg Aichholzer	The Delphi Method: Eliciting Experts' Knowledge in Technology Foresight	Technology and Artificial Intelligence	2009
Tim C.E. Engels and Holly Powell Kennedy	Enhancing a Delphi study on family-focused prevention	Health	2007
European Union	New horizons: Data from a Delphi survey in support of future European Union policies in research and innovation	Planning, Policy and Risk Analysis	2017
Nicole L. Klenk and Gordon M. Hickey	A virtual and anonymous, deliberative and analytic participation process for planning and evaluation: The Concept Mapping Policy Delphi	Planning, Policy and Risk Analysis	2011
Rasa Tapio, Palmgren, Elina and Laherto Antti	Futurising science education: students' experiences from a course on futures thinking and quantum computing.	Education and Research	2022
Kelly L. Wester and DiAnne Borders	Research Competencies in Counselling: A Delphi Study	Health	2014
Tolera Senbeto Jiren, David James Abson, Jannik Schultner, Maraja Riechers and Joern Fischer	Bridging scenario planning and backcasting: A Q-analysis of divergent stakeholder priorities for future landscapes	Biodiversity Conservation	2023
Hardie Bethany, Lee Kerry and Highfield Camilla.	Utilisation of a Delphi study to understand effective entrepreneurship education in schools	Education and Research	2023
Nibedita Mukherjee, Jean Huge, William J. Sutherland, Jeffrey McNeill, Maarten Van Opstal, Farid Dahdouh-Guebas and Nico Koedam	The Delphi technique in ecology and biological conservation: applications and guidelines	Biodiversity conservation	2015
Elias Simon Bibri	Backcasting in futures studies: a synthesised scholarly and planning approach to a strategic, smart, sustainable city development.	Urban development & Construction	2018

Jennifer Mankoff and Carnegie Mellon	Looking Past Yesterday's Tomorrow: Using Futures Studies Methods to Extend the Research Horizon	Education and Research	2013
Abdul Khakee	Scenario construction for urban planning	Urban development & Construction	1991
Jaco Quist, Crelis Rammelt, Mariette Overschie and Gertjan de Werk	Backcasting for sustainability in engineering education: the case of Delft University of Technology	Education and Research	2006
John Bridger Robinson	Future subjunctive: back casting as social learning	Education and Research	2003
Mary Cutia-Pluff	A Delphi Study of Possible, Probable, and Desirable Futures at 4-Year U.S. Higher Education Institutions by 2035	Education and Research	2023
Robert Freestone	Futures Thinking in Planning Education and Research	Education and Research	2012
John Ratcliffe and Lorcan Sirr	Futures Thinking for the Built and Human Environment: the Prospective Process Through Scenario Thinking for the Built and Human Environment: a Tool for Exploring Human Futures	Urban development & Construction	2003
Angela Wilkinson and Diana Mangalagiu	Learning with futures to realise progress towards sustainability: The WBCSD Vision 2050 Initiative	Planning, Policy and Risk Analysis	2012
John Ratcliffe and Ela Krawczyk	Imagineering city futures: The use of prospective through scenarios in urban planning	Urban development & Construction	2011
David Hicks	The future only arrives when things look dangerous: Reflections on futures education in the UK.	Education and Research	2012
Audrey Coreau, Gilles Pinay, John D. Thompson, Pierre-Olivier Cheptou and Laurent Mermet	The rise of research on futures in ecology: rebalancing scenarios and predictions	Biodiversity conservation	2009
Kuo-Hua Chen and Li-Ping Hsu	Visioning the Future: Evaluating Learning Outcomes and Impacts of Futures-Oriented Education	Education and Research	2020

George Cairns, George Wright, Ron Bradfield, Kees van der Heijden and George Burt	Exploring e-government futures through the application of scenario planning	Planning, Policy and Risk Analysis	2004
Douglas K.R. Robinson, Antoine Schoen, Philippe Larédo, Jordi Molas Gallart, Philine Warnke, Stefan Kuhlmann and Gonzalo Ordóñez-Matamoros	Policy lensing of future-oriented strategic intelligence: An experiment connecting foresight with decision-making contexts	Planning, Policy and Risk Analysis	2021
Conway Maree.	Sustainable Futures: What higher education has to offer	Education and Research	2012
Rocco Scolozzi, Elisa Morri and Riccardo Santolini	Delphi-based change assessment in ecosystem service values to support strategic spatial planning in Italian landscapes	Biodiversity Conservation	2012
Ndour B, Force J. E. and McLaughlin W. J.	Using the Delphi method for determining criteria in agroforestry research planning in developing countries	Education and Research	1992
Robert Freestone	Futures Thinking in Planning Education and Research	Education and Research	2012
Araitz Uskola and Blanca Puig	Development of Systems and Futures Thinking Skills by Primary Pre-service Teachers for Addressing Epidemics	Education and Research	2023
Kaihua Chen, Zhipeng Ren, Tara Qian Sun and Rongping Mu	Future-oriented policy instrument choice for national technology development: A Delphi survey approach for advanced energy technology fields	Planning, Policy and Risk Analysis	2017
Carly Cook, Bonnie Wintle, Stephen Aldrich and Brendan Wintle	Using Strategic Foresight to Assess Conservation Opportunity	Biodiversity Conservation	2014
Garry D. Peterson, Graeme S. Cumming and Stephen R. Carpenter	Scenario Planning: A Tool for Conservation in an Uncertain World	Biodiversity Conservation	2002

George R. Hess and Terri J. King	Planning Open Spaces for Wildlife: I. Selecting focal species using a Delphi survey approach	Biodiversity Conservation	2022
Jessica P. Fefer, Sandra De-Urioste Stone, John Daigle, and Linda Silka	Using the Delphi Technique to Identify Key Elements for Effective and Sustainable Visitor Use Planning Frameworks	Planning, Policy and Risk Analysis	2016
Anna Filyushkina, Niels Strange, Magnus Löf, Eugene E. Ezebilo and Mattias Boman	Applying the Delphi method to assess the impacts of forest management on biodiversity and habitat preservation	Biodiversity Conservation	2018

Appendix 4: Detailed analysis of the number of responses contributed by each participant to the different conservation orientations, when trying to determine the most dominant conservation orientation practised at present.

Participants	Land useType	Land useSubsidiary	Conservation Orientation			
			Critical Social Science	Market Biocentrism	New Conservation	Traditional Conservation
CMC-P1	Conservancy	Members	0	0	0	2
CMC-P2	Conservancy	Members	2	0	0	0
CMC-P3	Conservancy	Members	1	0	0	0
CMC-P4	Conservancy	Members	1	0	1	0
CMC-P5	Conservancy	Members	0	0	1	0
CMC-P6	Conservancy	Members	1	0	0	0
CMC-P7	Conservancy	Members	1	1	0	0
CMC-P8	Conservancy	Members	2	0	2	2
CMC-P9	Conservancy	Members	0	0	2	0
CMC-P10	Conservancy	Members	1	1	2	1
CMC-P11	Conservancy	Members	1	0	0	0
CMC-P12	Conservancy	Members	1	0	0	0
CMC-P13	Conservancy	Members	0	0	1	1
CMC-P14	Conservancy	Members	1	0	0	1
CMC-P15	Conservancy	Members	0	0	0	0
CMC-P16	Conservancy	Members	2	0	0	1
CMC-P17	Conservancy	Members	2	0	0	0
CMC-P18	Conservancy	Members	0	1	1	0
CMC-P19	Conservancy	Members	0	1	0	0
CMC-P20	Conservancy	Members	2	0	0	0
CMC-P21	Conservancy	Members	1	1	1	1
CMC-P22	Conservancy	Members	2	1	0	0
CMC-P23	Conservancy	Members	2	0	0	0
CMC-P24	Conservancy	Members	0	2	0	0
SO-01	Conservancy	Support Organisation	2	1	0	0
SO-P6	Conservancy	Support Organisation	1	0	0	0
SO-P5	Conservancy	Support Organisation	1	0	0	0
SO-P3	Conservancy	Support Organisation	0	1	0	0
SO-P4	Conservancy	Support Organisation	0	0	1	0

SO-P2	Conservancy	Support Organisation	3	1	0	0
SO-P7	Conservancy	Support Organisation	2	0	4	0
SO-P11	Conservancy	Support Organisation	0	1	2	4
SO-P8	Conservancy	Support Organisation	2	1	1	0
SO-9	Conservancy	Support Organisation	0	0	2	1
SO-10	Conservancy	Support Organisation	0	0	3	0
SO-P11	Conservancy	Support Organisation	0	0	1	0
SO-P12	Conservancy	Support Organisation	2	0	0	0
SO-P15	Conservancy	Support Organisation	0	2	0	0
SO-P14	Conservancy	Support Organisation	0	0	3	0
MLF-P1	Freehold Farms	Mixed Famer	1	1	1	1
MLF-P2	Freehold Farms	Mixed Famer	0	1	0	0
MLF-P3	Freehold Farms	Mixed Famer	0	2	0	1
MLF-P4	Freehold Farms	Mixed Famer	0	2	0	0
MLF-P5	Freehold Farms	Mixed Famer	1	0	0	0
SLF-P1	Freehold Farms	Single Farming	1	0	0	0
SLF-P2	Freehold Farms	Single Farming	0	2	1	1
SLF-P3	Freehold Farms	Single Farming	0	2	1	0
SLF-P4	Freehold Farms	Single Farming	0	2	1	0
SLF-P5	Freehold Farms	Single Farming	0	0	1	0
SLF-P6	Freehold Farms	Single Farming	0	3	0	0
SLF-P7	Freehold Farms	Single Farming	0	0	2	0
SLF-P8	Freehold Farms	Single Farming	0	2	0	0

SLF-P9	Freehold Farms	Single Farming	0	0	4	0
SLF-P10	Freehold Farms	Single Farming	0	1	0	0
SLF-P11	Freehold Farms	Single Farming	0	2	0	0
GM-P1	Protected Area	Ground Management	0	1	1	1
GM-P2	Protected Area	Ground Managers	0	0	0	1
GM-P3	Protected Area	Ground Managers	0	0	0	4
GM-P4	Protected Area	Ground Managers	1	0	1	1
GM-P5	Protected Area	Ground Managers	0	0	2	0
GM-P6	Protected Area	Ground Managers	2	0	0	0
GM-P7	Protected Area	Ground Managers	0	0	0	3
GM-P8	Protected Area	Ground Managers	3	0	0	0
GM-P9	Protected Area	Ground Managers	0	0	0	2
GM-P10	Protected Area	Ground Managers	0	0	2	4
GM-P11	Protected Area	Ground Managers	0	0	2	4
GM-P12	Protected Area	Ground Managers	0	0	1	1
GM-P13	Protected Area	Ground Managers	4	0	0	0
NLMS-P1	Protected Area	National-level Ministerial Support	1	0	0	3
NLMS-P2	Protected Area	National-level Ministerial Support	1	0	0	0
NLMS-P3	Protected Area	National-level Ministerial Support	0	0	0	6
NLMS-P4	Protected Area	National-level Ministerial Support	0	0	1	6
NLMS-P5	Protected Area	National-level Ministerial Support	1	2	0	1

NLMS-P6	Protected Area	National-level Ministerial Support	1	0	1	6
NLMS-P7	Protected Area	National-level Ministerial Support	0	1	2	2
NLMS-P8	Protected Area	National-level Ministerial Support	2	0	2	0
NLMS-P9	Protected Area	National-level Ministerial Support	2	0	0	2
NLMS-P10	Protected Area	National-level Ministerial Support	0	0	0	3
NLMS-P11	Protected Area	National-level Ministerial Support	0	0	0	2
NLMS-P12	Protected Area	National-level Ministerial Support	1	0	0	4
NLMS-P13	Protected Area	National-level Ministerial Support	0	1	1	1

Appendix 5: Detailed analysis of the number of responses contributed by each participant to the different conservation orientations, when trying to determine the most dominant conservation orientation under the Most Probable Future Scenario.

Participants	Land useType	Land useSubsidiary	Conservation Orientation			
			Critical Social Science	Market Biocentrism	New Conservation	Traditional Conservation
CMC-P1	Conservancy	Members	0	0	3	0
CMC-P2	Conservancy	Members	1	1	2	0
CMC-P3	Conservancy	Members	0	0	1	0
CMC-P4	Conservancy	Members	1	1	0	0
CMC-P5	Conservancy	Members	1	0	1	0
CMC-P6	Conservancy	Members	2	0	0	0
CMC-P7	Conservancy	Members	0	0	2	0
CMC-P8	Conservancy	Members	1	0	2	0
CMC-P9	Conservancy	Members	0	2	0	0
CMC-P10	Conservancy	Members	1	1	1	0
CMC-P11	Conservancy	Members	1	0	1	0
CMC-P12	Conservancy	Members	1	0	1	0
CMC-P13	Conservancy	Members	1	0	2	0
CMC-P14	Conservancy	Members	0	1	0	0
CMC-P15	Conservancy	Members	0	1	1	0
CMC-P16	Conservancy	Members	0	2	3	0
CMC-P17	Conservancy	Members	0	1	2	0
CMC-P18	Conservancy	Members	1	0	0	1
CMC-P19	Conservancy	Members	0	1	2	0
CMC-P20	Conservancy	Members	1	0	1	0
CMC-P21	Conservancy	Members	0	1	3	0
CMC-P22	Conservancy	Members	1	1	1	0
CMC-P23	Conservancy	Members	0	1	2	1
CMC-P24	Conservancy	Members	1	0	0	0
SO-01	Conservancy	Support Organisation	0	0	2	0
SO-P6	Conservancy	Support Organisation	0	0	1	0
SO-P5	Conservancy	Support Organisation	0	0	2	0
SO-P3	Conservancy	Support Organisation	0	1	3	0

SO-P4	Conservancy	Support Organisation	0	0	1	0
SO-P2	Conservancy	Support Organisation	1	4	3	0
SO-P7	Conservancy	Support Organisation	0	3	0	0
SO-P11	Conservancy	Support Organisation	0	0	2	0
SO-P8	Conservancy	Support Organisation	0	0	3	0
SO-9	Conservancy	Support Organisation	0	0	6	0
SO-10	Conservancy	Support Organisation	0	1	1	0
SO-P11	Conservancy	Support Organisation	0	0	1	0
SO-P12	Conservancy	Support Organisation	3	0	0	0
SO-P15	Conservancy	Support Organisation	2	0	2	0
SO-P14	Conservancy	Support Organisation	3	1	1	0
MLF-P1	Freehold Farms	Mixed Famer	2	2	1	0
MLF-P2	Freehold Farms	Mixed Famer	0	0	1	2
MLF-P3	Freehold Farms	Mixed Famer	0	2	0	0
MLF-P4	Freehold Farms	Mixed Famer	0	1	0	0
MLF-P5	Freehold Farms	Mixed Famer	0	0	0	1
SLF-P1	Freehold Farms	Single Farming	0	0	0	0
SLF-P2	Freehold Farms	Single Farming	1	0	0	2
SLF-P3	Freehold Farms	Single Farming	1	2	1	0
SLF-P4	Freehold Farms	Single Farming	0	1	1	0
SLF-P5	Freehold Farms	Single Farming	1	0	1	1
SLF-P6	Freehold Farms	Single Farming	0	1	1	0
SLF-P7	Freehold Farms	Single Farming	0	0	0	2

SLF-P8	Freehold Farms	Single Farming	1	1	1	0
SLF-P9	Freehold Farms	Single Farming	0	0	0	1
SLF-P10	Freehold Farms	Single Farming	0	1	1	0
SLF-P11	Freehold Farms	Single Farming	0	4	1	0
GM-P1	Protected Area	Ground Managers	0	0	3	0
GM-P2	Protected Area	Ground Managers	0	0	0	1
GM-P3	Protected Area	Ground Managers	3	0	0	1
GM-P4	Protected Area	Ground Managers	0	0	2	0
GM-P5	Protected Area	Ground Managers	0	0	2	1
GM-P6	Protected Area	Ground Managers	2	0	2	2
GM-P7	Protected Area	Ground Managers	2	0	2	0
GM-P8	Protected Area	Ground Managers	1	2	0	0
GM-P9	Protected Area	Ground Managers	0	0	1	0
GM-P10	Protected Area	Ground Managers	2	0	2	2
GM-P11	Protected Area	Ground Managers	1	1	3	2
GM-P12	Protected Area	Ground Managers	0	0	1	3
GM-P13	Protected Area	Ground Managers	0	0	2	0
NLMS-P1	Protected Area	National-level Ministerial Support	1	0	2	0
NLMS-P2	Protected Area	National-level Ministerial Support	0	0	0	2
NLMS-P3	Protected Area	National-level Ministerial Support	0	0	2	2
NLMS-P4	Protected Area	National-level Ministerial Support	1	0	1	4

NLMS-P5	Protected Area	National-level Ministerial Support	4	1	7	2
NLMS-P6	Protected Area	National-level Ministerial Support	1	0	2	0
NLMS-P7	Protected Area	National-level Ministerial Support	2	1	4	1
NLMS-P8	Protected Area	National-level Ministerial Support	2	0	2	2
NLMS-P9	Protected Area	National-level Ministerial Support	0	1	2	0
NLMS-P10	Protected Area	National-level Ministerial Support	1	1	1	1
NLMS-P11	Protected Area	National-level Ministerial Support	0	0	2	1
NLMS-P12	Protected Area	National-level Ministerial Support	0	1	0	2
NLMS-P13	Protected Area	National-level Ministerial Support	1	1	2	1

Appendix 6: Detailed analysis of the number of responses contributed by each participant to the different conservation orientations, when trying to determine the most dominant conservation orientation under the Most Feared Future Scenario.

Participants	Land useType	Land useSubsidiary	Conservation Orientation			
			Critical Social Science	Market Biocentrism	New Conservation	Traditional Conservation
CMC-P1	Conservancy	Members	1	0	0	0

CMC-P2	Conservancy	Members	3	0	0	0
CMC-P3	Conservancy	Members	1	0	0	1
CMC-P4	Conservancy	Members	0	1	1	0
CMC-P5	Conservancy	Members	0	0	0	1
CMC-P6	Conservancy	Members	1	1	0	0
CMC-P7	Conservancy	Members	3	0	0	0
CMC-P8	Conservancy	Members	1	1	1	0
CMC-P9	Conservancy	Members	1	0	1	0
CMC-P10	Conservancy	Members	1	1	0	1
CMC-P11	Conservancy	Members	1	0	0	0
CMC-P12	Conservancy	Members	1	0	1	0
CMC-P13	Conservancy	Members	0	1	0	1
CMC-P14	Conservancy	Members	1	0	1	1
CMC-P15	Conservancy	Members	0	0	1	1
CMC-P16	Conservancy	Members	2	0	1	0
CMC-P17	Conservancy	Members	2	0	1	0
CMC-P18	Conservancy	Members	2	0	0	1
CMC-P19	Conservancy	Members	1	1	1	0
CMC-P20	Conservancy	Members	1	1	2	0
CMC-P21	Conservancy	Members	2	1	0	0
CMC-P22	Conservancy	Members	2	1	1	0
CMC-P23	Conservancy	Members	1	2	0	0
CMC-P24	Conservancy	Members	1	0	1	0
SO-01	Conservancy	Support Organisation	3	1	2	0
SO-P6	Conservancy	Support Organisation	4	0	0	0
SO-P5	Conservancy	Support Organisation	2	0	2	0
SO-P3	Conservancy	Support Organisation	1	0	0	1
SO-P4	Conservancy	Support Organisation	5	0	2	0
SO-P2	Conservancy	Support Organisation	6	1	4	0
SO-P7	Conservancy	Support Organisation	4	0	0	0
SO-P11	Conservancy	Support Organisation	0	0	3	0
SO-P8	Conservancy	Support Organisation	0	0	2	0
SO-9	Conservancy	Support Organisation	7	0	8	0
SO-10	Conservancy	Support Organisation	1	0	2	0

SO-P11	Conservancy	Support Organisation	2	0	0	0
SO-P12	Conservancy	Support Organisation	1	1	2	0
SO-P15	Conservancy	Support Organisation	2	0	0	0
SO-P14	Conservancy	Support Organisation	1	0	3	0
MLF-P1	Freehold Farms	Mixed Famer	1	1	2	0
MLF-P2	Freehold Farms	Mixed Famer	0	1	0	0
MLF-P3	Freehold Farms	Mixed Famer	2	0	0	0
MLF-P4	Freehold Farms	Mixed Famer	2	0	0	0
MLF-P5	Freehold Farms	Mixed Famer	3	4	2	1
SLF-P1	Freehold Farms	Single Farming	1	0	1	0
SLF-P2	Freehold Farms	Single Farming	2	1	1	0
SLF-P3	Freehold Farms	Single Farming	3	2	0	0
SLF-P4	Freehold Farms	Single Farming	2	0	0	0
SLF-P5	Freehold Farms	Single Farming	2	0	0	0
SLF-P6	Freehold Farms	Single Farming	1	0	0	0
SLF-P7	Freehold Farms	Single Farming	2	0	1	0
SLF-P8	Freehold Farms	Single Farming	3	0	0	0
SLF-P9	Freehold Farms	Single Farming	0	0	2	0
SLF-P10	Freehold Farms	Single Farming	1	0	1	0
SLF-P11	Freehold Farms	Single Farming	2	1	0	0
GM-P1	Etosha National Park	Ground Managers	3	0	0	0
GM-P2	Etosha National Park	Ground Managers	1	0	1	0

GM-P3	Etosha National Park	Ground Managers	2	0	1	0
GM-P4	Etosha National Park	Ground Managers	4	0	1	0
GM-P5	Etosha National Park	Ground Managers	1	0	2	0
GM-P6	Etosha National Park	Ground Managers	1	1	3	1
GM-P7	Etosha National Park	Ground Managers	3	0	1	0
GM-P8	Etosha National Park	Ground Managers	0	0	1	0
GM-P9	Etosha National Park	Ground Managers	2	0	0	0
GM-P10	Etosha National Park	Ground Managers	1	1	3	0
GM-P11	Etosha National Park	Ground Managers	3	0	2	0
GM-P12	Etosha National Park	Ground Managers	1	0	1	0
GM-P13	Etosha National Park	Ground Managers	1	0	3	0
NLMS-P1	Etosha National Park	National-level Ministerial Support	1	0	5	0
NLMS-P2	Etosha National Park	National-level Ministerial Support	3	0	0	1
NLMS-P3	Etosha National Park	National-level Ministerial Support	0	0	1	2
NLMS-P4	Etosha National Park	National-level Ministerial Support	3	0	4	1

NLMS-P5	Etosha National Park	National-level Ministerial Support	4	1	2	1
NLMS-P6	Etosha National Park	National-level Ministerial Support	1	0	2	1
NLMS-P7	Etosha National Park	National-level Ministerial Support	0	2	1	1
NLMS-P8	Etosha National Park	National-level Ministerial Support	3	0	1	1
NLMS-P9	Etosha National Park	National-level Ministerial Support	0	0	4	1
NLMS-P10	Etosha National Park	National-level Ministerial Support	3	0	1	2
NLMS-P11	Etosha National Park	National-level Ministerial Support	1	0	1	0
NLMS-P12	Etosha National Park	National-level Ministerial Support	2	1	2	0
NLMS-P13	Etosha National Park	National-level Ministerial Support	0	2	1	1

Appendix 7: Detailed analysis of the number of responses contributed by each participant to the different conservation orientations, when trying to determine the most dominant conservation orientation under the Idealised Future Scenario.

Participants	Land useType	Land useSubsidiary	Conservation Orientation			
			Critical Social Science	Market Biocentrism	New Conservation	Traditional Conservation
CMC-P1	Conservancy	Members	0	1	3	1
CMC-P2	Conservancy	Members	0	1	1	0
CMC-P3	Conservancy	Members	2	0	0	0
CMC-P4	Conservancy	Members	3	0	2	0
CMC-P5	Conservancy	Members	3	0	2	0
CMC-P6	Conservancy	Members	0	2	2	0
CMC-P7	Conservancy	Members	1	2	0	0
CMC-P8	Conservancy	Members	1	1	2	0
CMC-P9	Conservancy	Members	3	0	0	0
CMC-P10	Conservancy	Members	3	0	1	0
CMC-P11	Conservancy	Members	0	0	1	0
CMC-P12	Conservancy	Members	0	0	2	0
CMC-P13	Conservancy	Members	2	1	1	0
CMC-P14	Conservancy	Members	1	1	2	0
CMC-P15	Conservancy	Members	1	0	2	0
CMC-P16	Conservancy	Members	1	1	2	0
CMC-P17	Conservancy	Members	0	0	1	0
CMC-P18	Conservancy	Members	2	0	1	0
CMC-P19	Conservancy	Members	1	0	2	0
CMC-P20	Conservancy	Members	5	1	2	0

CMC-P21	Conservancy	Members	0	2	3	0
CMC-P22	Conservancy	Members	1	1	1	1
CMC-P23	Conservancy	Members	0	1	2	1
CMC-P24	Conservancy	Members	3	0	1	0
SO-01	Conservancy	Support Organisation	0	1	2	0
SO-P6	Conservancy	Support Organisation	1	1	2	0
SO-P5	Conservancy	Support Organisation	0	0	4	0
SO-P3	Conservancy	Support Organisation	1	0	2	0
SO-P4	Conservancy	Support Organisation	2	0	4	0
SO-P2	Conservancy	Support Organisation	1	4	3	0
SO-P7	Conservancy	Support Organisation	5	0	0	0
SO-P11	Conservancy	Support Organisation	0	0	3	0
SO-P8	Conservancy	Support Organisation	0	0	4	0
SO-9	Conservancy	Support Organisation	3	3	8	0
SO-10	Conservancy	Support Organisation	1	0	2	0
SO-P11	Conservancy	Support Organisation	1	1	0	0
SO-P12	Conservancy	Support Organisation	0	2	2	0
SO-P15	Conservancy	Support Organisation	1	1	1	0
SO-P14	Conservancy	Support Organisation	2	2	6	0
MLF-P1	Freehold Farms	Mixed Famer	0	3	0	0
MLF-P2	Freehold Farms	Mixed Famer	1	2	0	0
MLF-P3	Freehold Farms	Mixed Famer	3	2	2	0
MLF-P4	Freehold Farms	Mixed Famer	1	2	1	0
MLF-P5	Freehold Farms	Mixed Famer	1	3	1	0
SLF-P1	Freehold Farms	Single Farming	1	0	1	0

SLF-P2	Freehold Farms	Single Farming	1	2	0	0
SLF-P3	Freehold Farms	Single Farming	0	4	2	0
SLF-P4	Freehold Farms	Single Farming	2	2	1	0
SLF-P5	Freehold Farms	Single Farming	2	1	3	0
SLF-P6	Freehold Farms	Single Farming	1	2	1	1
SLF-P7	Freehold Farms	Single Farming	1	0	1	0
SLF-P8	Freehold Farms	Single Farming	1	2	0	0
SLF-P9	Freehold Farms	Single Farming	2	1	0	0
SLF-P10	Freehold Farms	Single Farming	0	2	0	0
SLF-P11	Freehold Farms	Single Farming	1	2	0	0
GM-P1	Etosha National Park	Ground Managers	1	0	2	0
GM-P2	Etosha National Park	Ground Managers	1	0	0	1
GM-P3	Etosha National Park	Ground Managers	1	0	5	1
GM-P4	Etosha National Park	Ground Managers	0	1	1	0
GM-P5	Etosha National Park	Ground Managers	2	1	3	0
GM-P6	Etosha National Park	Ground Managers	2	0	2	1
GM-P7	Etosha National Park	Ground Managers	0	1	1	1
GM-P8	Etosha National Park	Ground Managers	1	0	4	1
GM-P9	Etosha National Park	Ground Managers	0	0	3	0

GM-P10	Etosha National Park	Ground Managers	1	0	4	2
GM-P11	Etosha National Park	Ground Managers	0	1	4	2
GM-P12	Etosha National Park	Ground Managers	0	0	1	2
GM-P13	Etosha National Park	Ground Managers	0	0	3	0
NLMS-P1	Etosha National Park	National-level Ministerial Support	0	1	2	0
NLMS-P2	Etosha National Park	National-level Ministerial Support	0	2	0	1
NLMS-P3	Etosha National Park	National-level Ministerial Support	0	1	1	2
NLMS-P4	Etosha National Park	National-level Ministerial Support	0	3	4	0
NLMS-P5	Etosha National Park	National-level Ministerial Support	0	0	0	0
NLMS-P6	Etosha National Park	National-level Ministerial Support	0	2	4	1
NLMS-P7	Etosha National Park	National-level Ministerial Support	1	1	3	0
NLMS-P8	Etosha National Park	National-level Ministerial Support	2	0	0	1
NLMS-P9	Etosha National Park	National-level Ministerial Support	0	1	4	0
NLMS-P10	Etosha National Park	National-level Ministerial Support	2	1	2	0
NLMS-P11	Etosha National Park	National-level Ministerial Support	1	1	1	1

NLMS-P12	Etosha National Park	National-level Ministerial Support	0	1	2	0
NLMS-P13	Etosha National Park	National-level Ministerial Support	0	1	1	2