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Community-Based Natural Resource Management (CBNRM) in southern Africa: history, principles, evolution and contemporary challenges

M Foyet

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Department of Geography, Catastrophes, Conservation, and Conflict, LifeThroughWildlife Lab, University of Florida, Gainesville, FL 32611, USA; m.foyet@ufl.edu

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Abstract

Community-Based Natural Resource Management (CBNRM) is arguably the most important tool for simultaneously driving rural development and improving community livelihoods and biodiversity conservation in Southern Africa. However, persistent challenges prompt a crucial inquiry: what strategies can ensure CBNRM's relevance in reconciling the competing demands of development and conservation while guaranteeing fair benefit-sharing among local communities and achieving sustainable conservation outcomes?

If the region is to continue its success story as an African anomaly, it will have to (i) close the gaps in digital access and readiness which threaten to hold it back; (ii) skilfully manage its transition to sustainable local funding mechanisms, alternative biodiversity markets and robust equitable benefit distribution schemes; (iii) adeptly navigate power dynamics and cultural sensitivities on the global stage; and, in its avant-gardist and pioneering spirit, (iv) boldly address critically overlooked mental health aspects within conservation in rural settings. This essay, therefore, explores the evolution, principles, and application of CBNRM across the region, set against a backdrop of historical exploitation and exclusionary practices. By examining the roots of CBNRM in indigenous stewardship, its development through colonial and post-colonial periods, and its contemporary challenges and opportunities, the paper argues for a shift from the traditional dichotomous view of natural resource management to an alternative perspective encompassing the dynamic and complex nature of managing natural resources in a way that is socially equitable, economically viable, and ecologically sustainable.

Drawing on previous studies and recent interviews conducted in Southern Africa, this paper adopts a methodological approach that combines critical discourse analysis with a thorough review of the literature to highlight the connection between CBNRM and formal (state apparatus) and informal (Web 3.0, social media) institutions and their role in shaping modern rural development. The analytical framework of the paper is firmly anchored in the Common Property Resource (CPR) theory. Overall, I contend that the goals of biodiversity conservation, poverty alleviation, rural development, and sustainable natural resource use are intertwined and mutually reinforcing in the quest to improve community well-being and protect biocultural heritage. Central to the analysis is the hypothesis that communities will actively manage their environment when the benefits outweigh the costs, suggesting that devolving management rights and responsibilities to local communities leads to better conservation outcomes because of their direct interest in the sustainability of resources. The future of CBNRM in southern Africa is presented as promising yet contingent on embracing innovations such as the utilisation of artificial intelligence, and the potential of social media for policy decision-making. To achieve its full potential, CBNRM must be supported by strong legal and policy frameworks, greater community engagement, and international partnerships that foster knowledge exchange and resource mobilisation. Ultimately, findings indicate that, despite its challenges, CBNRM offers a sustainable pathway for reconciling conservation and community development, underscoring the importance of continued exploration, support, and refinement of this model to ensure its success in fostering an equitable and sustainable present and future for southern Africa's socio-economic and ecological landscape.

Keywords: AI-powered conservation, CBNRM, conservation and the digital wild, Common Property Resource (CPR) Theory, Intersectional Conservation Paradigm (ICP), learning-by-doing approach, mental health in conservation, social media, southern Africa

Introduction

Brief overview of natural resource management in southern Africa

The vast and diverse landscapes of southern Africa are rich in natural resources, including wildlife, fisheries, forests, grazing lands, irrigation waters, and mineral deposits. These resources are not only crucial for the ecological balance and biodiversity of the region but also form the foundation of the livelihoods, cultures, and economies of its people. Historically, natural resource management in southern Africa has traversed various models and philosophies, from indigenous community stewardship to colonial exploitation, and post-independence state-centric conservation efforts. These approaches have often oscillated between the extremes of unrestricted use and strict preservation, leading to numerous challenges in balancing human needs with environmental sustainability.

CBNRM as a concept and its relevance to southern Africa

In this context, CBNRM emerges as a transformative concept that seeks to reconcile these challenges by involving local communities in the stewardship of their natural resources. CBNRM is grounded in the understanding that communities living closest to natural resources are the most affected by their management outcomes and, therefore, have a vested interest in their sustainable use. Following the hypothesis that 'people seek to manage the environment when the benefits of management are perceived to exceed its costs' (Murphree 1991), this approach represents a radical departure from traditional top-down management models, advocating for the devolution of management rights and responsibilities

to local communities. It operates on the premise that when communities benefit directly from the sustainable management of (authority to use, benefit from, sell, and manage) natural resources, they are more likely to invest in long-term conservation efforts (Muyengwa, Child & Lubilo 2014). CBNRM in southern Africa is not a monolithic concept but a dynamic and evolving practice, shaped by the unique socio-political, cultural, and ecological contexts of the region. It encompasses a wide range of initiatives, from wildlife conservation and forestry management to fisheries and water resources, each adapted to local conditions and needs. The principles of benefit, empowerment, and conservation are central to CBNRM, aiming to ensure that communities not only have a say in resource management decisions but also share in the economic benefits derived from these resources. This participatory approach seeks to build local capacity, foster environmental stewardship, and promote socio-economic development, all within the framework of sustainable resource use (Ngwira, Mbaiwa & Kolawole 2013).

Thesis statement

CBNRM represents a pivotal shift from traditional conservation approaches towards more inclusive, sustainable, and locally driven resource management practices—supported by principles of benefit, empowerment, and conservation—that aim to reconcile human livelihood needs with biodiversity conservation, making it more equitable, resilient, and sustainable for current and future generations. It challenges the historical paradigms of exclusion and control, offering a pathway to reconcile the often-competing demands of development and conservation. This essay draws upon the foundational principles, history, and insights from pivotal works in the field, particularly those by Marshall Murphree and the contributions of the Southern Africa Sustainable Use Specialist Group (SASUSG) and Brian Child, among others.

Historical context and evolution of CBNRM in southern Africa

The history of natural resource management in southern Africa is a tale of transformation, rooted in indigenous practices, reshaped by colonial policies, and reimagined in the post-colonial era through CBNRM (USAID undated). This evolution reflects broader socio-political changes and the search for models that balance conservation with human development. CBNRM's roots in southern Africa can be traced back to the early recognition of the limitations and failures of exclusionary conservation models that restricted local community access to natural resources. The economist Marshall W. Murphree highlights the "mixed profile of success and failure" in CBNRM, attributing much of its complexity to the challenge of implementing community-based approaches within a politico-legal framework that was often indifferent, if not outright hostile to communal resource management (Murphree 1995). This historical backdrop sets the stage for understanding CBNRM not just as a conservation strategy, but as the foundation of an indigenous socio-political movement aimed at redefining the rights and roles of local communities in the custodianship, management, trusteeship, and stewardship of their natural resources (Table 1).

Table 1: *Role of local communities in CBNRM.*

Role	Focus	Usage
Custodianship (cultural)	• primarily emphasises safekeeping and preservation. • responsible for looking after something or someone but not necessarily for making strategic decisions about its future.	• term used in contexts involving the protection and maintenance of physical (e.g. wildlife, forest, etc.) and abstract (e.g. cultural symbols, rituals, etc.) properties, artifacts, or even digital assets [e.g. indigenous non-fungible tokens (NFT), etc.].
Management (managerial)	• involves planning, organising, leading, and controlling resources and operations to achieve specific goals. • action-oriented and focuses on efficiency, effectiveness, and achieving objectives.	• used in business, organisational, and project contexts, management encompasses a broad range of activities, including financial management, human resources, and operational management for physical [e.g. Namibian Association of CBNRM Support Organisations (NACSO), etc.] and virtual [e.g. cultural decentralised autonomous organisations (DAOs), etc.] institutions and systems [e.g. CBNRM, community-based decentralised finance (DeFi), etc.]. • have authority over their domain and are expected to make decisions that influence outcomes.
Trusteeship (legal)	• about holding and managing assets on behalf of others. • have a fiduciary duty, which means they must act in the best interest of the beneficiaries, often with a legal or moral obligation to do so.	• used in legal, financial, and charitable contexts. • manage trusts, estates, or act on behalf of nonprofit organisations, ensuring that resources are used according to the trust's terms or the organisation's mission (e.g. conservancies, conservation metaverse, etc.).
Stewardship (cautionary)	• emphasises responsible overseeing and protection of something considered worth caring for and preserving. • involves a broader sense of duty that includes ethical considerations, sustainability, and the welfare of future generations.	• used in a variety of contexts, including environmental, corporate, and financial. • suggests a commitment to managing resources wisely, ethically, and sustainably, often with a long-term perspective. • may not own the resources they oversee but are tasked with ensuring their wellbeing and responsible use.

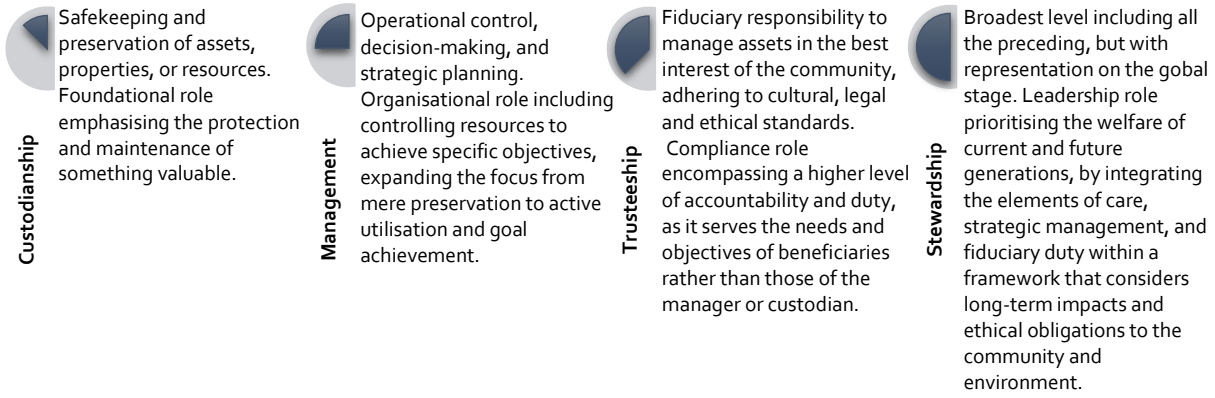

Figure 1: *Difference between local communities' roles in CBNRM.*

While all these roles involve some form of care and oversight, custodianship focuses on safeguarding; management emphasises operational skills; trusteeship involves legal or ethical obligations to others, and stewardship encompasses a broad leadership attribute (Figure 1).

It can thus be inferred from the above that the roles of local communities in CBNRM are a movement from direct care and preservation of assets (custodianship), through the strategic and operational decision-making involved in their use (management), to a responsibility for managing on behalf of others with their best interests in mind (trusteeship), and a comprehensive ethical obligation to safeguard resources for the broader good and future sustainability (stewardship).

Pre-colonial resource management practices and community stewardship

Before the advent of colonialism, southern African societies had established intricate systems of resource management, characterised by communal stewardship, rotational farming, seasonal hunting bans, and sacred groves (Foyet & Louis 2023). These practices were governed by traditional laws and cultural norms, ensuring sustainability and equitable access (Foyet & Mupeta-Munyama 2023). Communities lived in harmony with their environment, utilising resources judiciously and maintaining ecological balance through indigenous knowledge systems (Louis 2024).

Impact of colonialism on traditional resource management and community rights

The colonial period marked a significant disruption to these traditional practices. European powers imposed new land tenure systems, reallocating communal lands to settlers and introducing commercial farming and mining. Another novelty was introduced: fortress conservation. It involved creating protected areas such as national parks and wildlife reserves from which local people were excluded. Rooted in the early national park movements of the United States, notably marked by the establishment of Yellowstone National Park in 1872, the fortress conservation model was popularised by Gifford Pinchot, John Muir and Theodore Roosevelt in the early 20th century and influenced by the notion of preserving nature in its pristine state, free from human interference (Marsh 2003). This reallocation often led to the eviction and displacement of local communities and the erosion of traditional management practices (Carruthers 1989), without compensation or alternative livelihoods. Furthermore, the establishment of protected areas and game reserves, under the guise of environmental protection, restricted local access to vital resources and hunting grounds, severing the deep-seated connection between communities and their natural environment (Suich & Child 2008).

Post-colonial shifts and the emergence of CBNRM as a response to the failures of top-down conservation models

The post-colonial period saw a gradual recognition of the limitations and failures of state-centric, top-down conservation models. In the 1980s, these models were criticised for excluding local communities and often leading to conflicts, poaching, environmental degradation – factors that all contributed to worsening poverty conditions and erupting from social fragmentation (e.g. resentment, distrust, economic injustice, disintegrated family units). In response, the late 20th century witnessed the emergence of CBNRM as a paradigm shift towards more inclusive and sustainable resource management approaches. CBNRM sought to re-engage local communities in conservation efforts, recognising their rights, knowledge, and vested interest in the sustainability of resources.

However, CBNRM early initiatives were supported by large organisations. The Natural Resource Management Project (NRMP) funded by the USAID provided technical assistance and financial support to Governments, NGOs and communities until the late 90s (Jones 1999). Working with NORAD and the World Bank, CBNRM practitioners reduced poaching in Zambia's Kafue National Park by 80% in three months using data (operational research) and participatory governance rather than guns, helicopters and human rights abuses, leading to a US$45 million investment (Child 2023). In Botswana, the IUCN and the SNV— both organisations which supported CBNRM stakeholders in mapping out post-NRMPs—backed the establishment of the Botswana Community-Based Organization Network (BOCOBONET), an advocacy group and platform for communication among community organisations involved in CBNRM activities (Jones 1999). Nevertheless, in the early 21st century, academic criticism of the donor-designed CBNRM model led to a renewed interest in previously neglected oral and grey literature, as well as in the insights gathered by committed rural

practitioners in southern Africa and economists, who, over time through practical application, argued that: "all people affected by the rules should participate in making them" (Ostrom 1990, Hulme & Murphree 2001).

CBNRM the people's way

The aspiration to amplify community voices has been a longstanding one. Unlike previous initiatives directed by larger NGOs, today's CBNRM in southern Africa is a more localised approach, propelled by local actors themselves, under an umbrella movement known as Community Leaders Network (CLN). This self-driven movement has established a robust platform for communities to advocate for common interests across the region and globally, underscoring the strength of a united community voice. The distinct impetus for the current movement is the shift towards self-representation (Louis 2024). This journey from a vision to a tangible, impactful organisation, initiated and driven by the community itself, marks a significant departure from externally led initiatives, highlighting a new era of grassroots empowerment and solidarity (Lubilo 2024).

Principles of CBNRM

The optimal principles of CBNRM are deeply rooted in the recognition of the rights of local communities to manage and benefit from the natural resources upon which they depend. These principles are encapsulated in the legislation and policies that govern communal lands in countries like Zimbabwe and Namibia, where CBNRM prototypes were established. Murphree highlights the critical role of "strong property rights" over wildlife and other natural resources as foundation for sustainable community-based management (Murphree 1995) and emphasises the integration of financial benefits, authority, and responsibility (as strategic pillars) to generate significant increments in social capital (Bowles & Gintis 2002, Murphree 2009).

The Southern Africa Sustainable Use Specialist Group (SASUSG) further elaborates on these principles, emphasising the importance of tenure, economic benefits, ecological sustainability, and participatory and adaptive management. SASUSG argues for a model of resource management where use and conservation are not mutually exclusive but are integrated into a sustainable land-use framework that benefits both people and ecosystems (SASUSG 1996). Berkes identifies these principles within the context of southern Africa's particular brand of community conservation, which integrates economic, political, and organisational strategies within a devolutionary framework (Berkes 2010). This rights-based approach is instrumental in ensuring that communities are not merely participants but have substantial control and stake in resource management outcomes (Suich & Child 2008).

"For wildlife and protected areas to survive on a significant scale, they must be socio-politically acceptable, economically viable and ecologically sustainable" (Child 1955). This statement by Graham Child, one of Africa's premier wildlife conservationists, succinctly summarises CBNRM principles detailed as follows:

- **Benefit sharing (price)** refers to the distribution of the gains from natural resource management among local communities. CBNRM emphasises the importance of tangible benefits to local communities from the sustainable use of natural resources. By pricing products and services derived from natural resources, communities are able to receive tangible and measurable value in the form of financial income, improved living conditions, or access to resources. The benefits derived from guarding and managing wild resources need to be concrete and substantial enough to motivate community involvement and support for sustainable practices.

- **Community empowerment (governance)** translates into enhancing the capacity of local communities to manage their natural resources effectively. Strengthening local governance structures and systems, decision-making processes, ownership, accountability, and leadership over natural resources implies a shift towards local autonomy, where (a) communities have authority, knowledge, and skills to make decisions that affect their environment and well-being; and (b) their sovereignty over their land and resources is acknowledged and respected.

- **Sustainable conservation (tolerance and inclusion)** refers to aligning conservation efforts with community development and livelihood activities. Recognising the interconnectedness of ecological health and human prosperity, CBNRM advocates for solutions that serve both environmental and socio-economic objectives. Integrating conservation and sustainability objectives with livelihood enhancement strategies guarantees that initiatives aimed at restoring and protecting natural habitats and biodiversity simultaneously reflect the interests and needs and bolster the well-being of communities co-existing with wildlife and living alongside areas rich in biodiversity and vulnerable to climate change.

- **Ownership (proprietorship)** translates into ensuring the active involvement of community members in the management and decision-making processes of their natural resources. CBNRM, a model that emerged from the new conservation movement centred on the notion of new institutionalism or institutional economics (North 1986, Williamson 2000, Child *et al.* 2012), emphasises moving from participation (passive involvement) to active engagement. This profound empirical difference between participatory and representational governance at community level (Child 2012, Child 2019, Child 2023) marks the major intellectual contribution to CBNRM of wildlife

economist Brian Child: "When community members own the resources and are co-creators of the initiatives undertaken, they have a stake in the outcome of resource management processes, boosting their commitment to sustainable management practices".

Implementation of CBNRM across southern Africa

Several countries in southern Africa have been pioneers in adopting and shaping CBNRM frameworks, each tailoring the concept to fit their unique environmental, social, and political landscape, concurrently contributing to its evolution as a recognised management model (Muyengwa, Child & Lubilo 2014). This widespread yet varied implementation of CBNRM attests to the region's innovative approach to conservation and community development (Smith 2019). This section discusses the diverse experiences of CBNRM programmes, the enabling or restrictive role of legal and policy frameworks, and the challenges faced in the implementation process.

Early development of CBNRM in southern Africa

Zimbabwe's CAMPFIRE (Communal Areas Management Programme for Indigenous Resources), initiated in the 1980s, became one of the earliest and most celebrated examples of CBNRM (Taylor 2009). It focused on wildlife management and revenue sharing with rural communities, enhancing conservation and providing economic benefits from trophy hunting and tourism (Bond 2001). Namibia's Conservancy Programme, established post-independence in the 1990s, enabled communities to (a) create over 80 conservancies and (b) sustainably manage and benefit from wildlife on their lands, contributing significantly to the recovery of wildlife populations (Nuding 2002), enhanced community incomes and community development (Jones & Weaver 2009) through ecotourism and sustainable use (conservation hunting, also known as sustainable hunting). Botswana's CBNRM Programme has successfully integrated community participation in wildlife tourism, crafts, and veld products (Mbaiwa 2004), demonstrating the economic and conservation viability of community-led conservation efforts (Mbaiwa 2014). In Zambia's CBNRM, communities earn through conservation hunting, tourism, or carbon projects (Lubilo 2024). These milestones, among others, illustrate the region's leadership in adapting CBNRM to diverse ecological and social contexts. They demonstrate a collective move towards rectifying historical injustices and recognising the indispensable role of communities in conservation and sustainable development.

To circumvent political challenges, pioneering countries had to employ pragmatic strategies, focusing on ground-level implementation and leaving unresolved many of the broader political battles surrounding community rights and resource tenure (Murphree 1995). Such strategies are grouped under "social expediency", a term referring to actions or policies that are chosen or implemented because they are deemed beneficial or practical in terms of social outcomes, rather than based on principles or ethical considerations. Often applied in contexts where immediate, pragmatic solutions are prioritised to address social issues, challenges, or needs, this concept emphasises the usefulness or effectiveness of decisions in achieving desired social results, particularly focusing on the greatest good for the greatest number of people or the smooth functioning of social systems. This expediency-based conservation approach—focusing on policy and practice rather than addressing politico-legal challenges upfront—while yielding notable successes, has also set forth the need for a more concerted effort to tackle underlying politico-legal issues to ensure the long-term sustainability of CBNRM initiatives.

The role of legal and policy frameworks in facilitating or hindering CBNRM

CBNRM has shaped and been influenced by policy reform in the region. The recognition of community rights in legislation, such as land and forest laws, reflects a shift towards more inclusive governance of natural resources. The role of CBNRM in promoting local democratic governance through policy reform (Nelson & Agrawal, 2008), underscores the need for policies that support community participation and benefit-sharing to ensure the sustainability of conservation efforts (Nelson 2010).

Given that the primary challenge lies in the ability to persuade central wildlife authorities to relinquish control over wildlife and its associated benefits to local communities, the success of CBNRM in southern Africa is closely tied to the existence of supportive legal and policy frameworks (Chishakwe, Murray & Chambwera 2012). These frameworks provide the foundation for community rights to manage and benefit from local resources. CBNRM programmes in Zimbabwe and Namibia, where devolution was legislated in the primary wildlife legislation in 1982 and 1996 respectively, did achieve some success (Muyengwa, Child & Lubilo 2014); For example, Namibia's CBNRM policy and the Nature Conservation Amendment Act empower communities to form conservancies with legal rights to use and manage wildlife. Another example is the Makuleke Contractual Park in South Africa, a landmark case where the Makuleke community regained land rights within the Kruger National Park and has since engaged in successful CBNRM public private partnerships (Foyet & Louis 2023) such as ecotourism ventures, balancing conservation and development.

Conversely, in places where legal frameworks are weak or non-inclusive, CBNRM initiatives have struggled to gain traction, facing challenges in securing land rights, accessing resources, and achieving formal recognition. Two decades ago, in Botswana where communities were granted land leases, and in Zambia where contestation over who gets the benefits from wildlife were an ongoing issue, CBNRM witnessed less success (Muyengwa, Child & Lubilo 2014).

Nevertheless, recent developments signal positive progress. In Zambia, the failing South Luangwa National Park was brought to sustainability by establishing it as a devolved cost centre that retained its income, and by outsourcing all commercial activities to the private sector (Dalal-Clayton & Child 2003). The country's national CBNRM policy advancements have actively been advocated for throughout the years and are on the verge of being implemented (Lubilo 2024). The forthcoming launch of the CBNRM policy in the country was driven by an indigenous-led movement known as Community Leaders Network (CLN) and exemplifies how grassroots demands can shape government policy (Homer-Dixon, 1996). Members of CLN's Zambia Chapter equally advocated for the review of the Wildlife Act and spearheaded the establishment of a zero draft bill. Zambia's rural actors played a central role in the policy's development by rallying resources, engaging with stakeholders, advocating nationwide and placing the government at the heart of the initiative, given the latter's formal hold of the policy-making apparatus. This collaborative effort, sparked by the demand of the country's local communities for clear operational guidelines, has led to a policy that not only the government will take pride in but also marks a significant achievement for the communities. Given the country's historical feud between the government and local communities, which escalated during the 2016 series of disputes and again in 2023 when Zambia's CBNRM Association took the government to court, such positive progress observed in 2024 are all the more remarkable. It is a testament to community-driven advocacy, and it reflects the drive of Zambia's CBNRM actors for a framework that enhances their interaction with the government and industry stakeholders, highlighting the instrumental role of CBNRM's institutions in fostering conservation policies.

Historically a frontrunner in CBNRM initiatives (Jones 1999) that experienced setbacks (Chevallier & Harvey 2016), Botswana is now revitalising its CBNRM policies (Stone *et al*. 2020). Also inspired by CLN's initiatives, Botswana expressed interest in revising its CBNRM policy and sought insights from Namibia. This represents a form of cross-pollination, where successful strategies and policies from one country can inform and improve practices in another. Through such exchanges, CBNRM actors from both countries analyse policies to understand what makes them successful or where they fall short. These activities underscore the importance of creating strong connections with governments to influence policy and political discourse positively. This has resulted in ongoing discussions with the government aiming to improve governance and engagement strategies, exemplified by a recent formal petition by hunting communities to the British High Commission. Malawi has seen the establishment of a national CBNRM forum, while South Africa has initiated a community conservation network to address CBNRM-related issues. Similar efforts in Lesotho have led to the formation of a national working group for CBNRM, with plans to replicate these successes in Eswatini and Madagascar, following their request for assistance to bolster their local conservation strategies. In Tanzania, CLN members have engaged with the government on benefit sharing and funding distribution. Additionally, the Kruger border in Mozambique has recently been serving as a demonstration teaching site for a novel learning-by-doing CBNRM programme (Merz 2014, Vundla 2019). Accordingly, by facilitating community stewardship of natural resources through the implementation of community-led governance and management structures, CBNRM embodies the common property resource (CPR) theory.

CBNRM and the Common Property Resource (CPR) theory

CPR theory addresses how communities manage natural resources that are accessible to all members of the community but are susceptible to overuse and depletion. Contrary to the "tragedy of the commons" narrative, which predicts that individual self-interest would lead to the overexploitation and degradation of shared resources, CPR theory explores how groups can develop collective arrangements that allow for the sustainable management and conservation of these resources. It focuses on the rules, norms, and institutions that communities establish to regulate access to and use of shared resources. These arrangements are often complex, reflecting the ecological characteristics of the resource, the socio-economic needs of the community, and historical and cultural factors. The theory underscores the importance of local governance, the participation of community members in decision-making processes, and the enforcement of agreed-upon rules to prevent resource degradation.

CPR theory has been significantly influenced by the works of Elinor Ostrom and other scholars, who have documented cases around the world where communities have successfully managed common resources over long periods without depleting them. Ostrom identified several design principles common to successful CPR management, including clearly defined boundaries, collective-choice arrangements, monitoring and sanctioning mechanisms, and conflict resolution processes. The theory challenges the assumption that centralised government control or privatisation are the only effective means to manage natural resources, highlighting the potential of community-based management approaches.

By aligning with CPR's emphasis on local governance, CBNRM empowers communities to establish their own rules and norms for resource management, ensuring that decision-making reflects the community's socio-economic and cultural contexts. Moreover, in line with CPR's collective participation tenet, CBNRM promotes the active participation of all community members in managing shared resources, fostering a sense of ownership and responsibility towards sustainable use. Also, by reflecting CPR's principles on monitoring and sanctioning, CBNRM involves local surveillance of resource use and adherence to community-established regulations, helping to maintain resource sustainability. Finally, consistent with CPR's emphasis on conflict resolution processes, CBNRM provides mechanisms for addressing disputes within the community, ensuring equitable access and use of resources.

By applying these CPR principles, CBNRM effectively demonstrates how community-led approaches to resource management can overcome the challenges of overuse and depletion, offering a sustainable alternative to centralised control or privatisation. The success of CBNRM initiatives, as seen in various case studies similar to those documented by Elinor Ostrom, underscores the viability and effectiveness of applying CPR theory in real-world contexts, highlighting the critical role of community governance in the sustainable management and conservation of natural resources.

Challenges in implementing CBNRM

Despite these successes, CBNRM's journey in southern Africa has also encountered a range of challenges and criticisms that question its efficacy, equity, and sustainability. Some of these challenges include:

a) **Legal barriers:** In some cases, such as that of Angola, national laws and regulations have not fully supported community ownership and management rights, limiting the scope of CBNRM initiatives (Saruchera & Manzana 2013).

b) **Governance issues:** Effective CBNRM requires strong local governance structures. In some instances, as depicted in the case of Zambia, weak institutional capacity, lack of transparency, and internal conflicts have undermined community management efforts.

c) **Economic viability:** Ensuring that CBNRM contributes to tangible economic benefits for communities is crucial. However, the economic sustainability of some initiatives remains a concern, particularly in areas with limited wildlife such as island countries within or neighbouring southern Africa (Kull 2002) or nations with low tourism potential such as Lesotho (Makwindi & Ndlovu 2021).

d) **External pressures:** Land grabbing, resource competition, and external investment interests can threaten the integrity of CBNRM areas, requiring robust legal protections and community advocacy. Such is the case of the Democratic Republic of Congo (DRC), where rural members of CBNRM associations (Lubilo 2024) work with communities around Virunga National Park amidst political unrest (Bickford 2016). In scenarios where a country may be under authoritarian rule or experiences a coup, the dilemma arises whether to continue operations.

One of the core critiques of CBNRM is its variability in ensuring equitable distribution of benefits among community members. In some instances, the benefits accruing from CBNRM initiatives have been unevenly distributed, favouring local elites or those in governance structures over the wider community (Jones & Murphree 2013). Such disparities in benefit distribution can erode the legitimacy of CBNRM projects and diminish support within communities, highlighting a significant challenge in implementing these initiatives in a way that is both inclusive and fair.

Furthermore, economic sustainability also poses a dilemma, as CBNRM projects often rely on external funding and are subject to the vicissitudes of tourism markets and the challenge of developing local and/or regional sustainable income streams. The surge and continuous push from Western-initiated anti-trophy hunting legislation endanger aspects of CBNRM and necessitate the exploration of new markets, such as Asia, or the development of intra-continental trade within Africa.

Moreover, criticism regarding the lack of digital literacy among rural populations in the conservation sector, as well as the digital unpreparedness of government officials and institutional actors in the field, highlights a significant challenge facing contemporary conservation efforts. On one hand, the concern over digital literacy in biodiversity-rich rural communities touches on a crucial gap in empowering key populations to participate effectively in conservation initiatives at the local, national, regional and global levels. Digital tools and technologies have become central to modern conservation strategies, from data collection and monitoring of biodiversity to community engagement and education. The absence of digital skills not only sidelines rural communities from actively engaging in these modern conservation practices but also limits their access to information, resources, and networks crucial for sustainable management and advocacy of natural resources. On the other hand, the lack of digital readiness of government officials and institutional actors exposes a broader issue of adaptability and responsiveness within the conservation sector. Digital readiness is not merely about the adoption of technology but also reflects an institution's ability to leverage digital tools for better policy formulation, enforcement, and engagement with stakeholders. This lack of preparedness can result in inefficient conservation practices, missed opportunities for innovation, and a disconnect between conservation policies and the on-ground realities they aim to address.

Together, these criticisms suggest a pressing need for targeted digital education and capacity-building initiatives in conservation finance, local resource mobilisation, and digital conservation within the conservation sector. By enhancing these skills among rural communities and government and institutional actors, there's an opportunity to bridge critical gaps in conservation efforts. Such advancements would not only enable more inclusive and participatory conservation strategies but also foster a more dynamic and effective use of technology and finance in protecting natural resources and improving livelihoods.

The future of CBNRM in southern Africa: strategies to ensure CBNRM's relevance in reconciling development and conservation

The experience of implementing CBNRM has underscored the need for a supportive politico-legal environment, clear property rights, and effective governance structures at the community level. Murphree (1995) and SASUSG (1996) both point to the essential role of adaptive management, where decisions are informed by ongoing monitoring and engagement with the communities involved. Furthermore, there is a call for broader integration of CBNRM principles into national and regional policies, underscoring the need for political advocacy and the mobilisation of rural communities to demand stronger tenurial rights and a greater say in how natural resources are managed. Despite these growth areas, the future of CBNRM in southern Africa holds promise, with several innovations and trends poised to enhance its impact and sustainability.

Innovations and emerging trends

Intersectional Conservation Paradigm (ICP)

Coined by legal scholar Kimberlé Crenshaw in the late 80s, intersectionality is a conceptual framework that analyses how various social and cultural identities—such as race, gender, class, sexuality, ability, language, and more—intersect and overlap to create unique modes of discrimination and privilege. Generally, it highlights that social inequalities are not experienced in isolation. They are interconnected and therefore cannot be examined separately from one another. It emphasises the need to consider multiple facets of identity when understanding social issues, policies, and the lived experiences of individuals, arguing that traditional approaches to social justice and anti-discrimination, which focus on single categories of identity, are inadequate (Crenshaw 2013). I could argue that although this framework has significantly impacted numerous disciplines such as sociology, feminist studies, critical race theory, and beyond, its application within the conservation field has yet to be observed. But I would frame it differently: our failure, as conservation scholars, to closely look at intersectionality has limited our ability to see the framework in places in which it is already doing work and to imagine other places to which it might be taken. Intersectionality is particularly relevant to conservation, especially from an institutional perspective, where it can (and already has) profoundly inform(ed) and transform(ed) institutional paradigms in natural resource management, offering a distinct understanding of the complexities of power, oppression, and privilege both within the miso (rural), in the meso (national) and across the macro (global) discursive geographies of conservation.

While climate change adaptation in CBNRM is trendy, the concept is not new, as CBNRM promotes solutions that are inherently climate resilient. However, lately, a heightened emphasis has been placed on the global dimension of CBNRM. Predominantly analysed as a domestic policy for conservation, scholars have underestimated CBNRM's global power dynamic (Swatuk 2005) and oversimplified dichotomy between consumptive (e.g., trophy hunting) and non-consumptive (e.g., photographic tourism) uses of natural resources. Nevertheless, CBNRM is increasingly being understood as a global assemblage in which competing actors exercise various forms of power that are at times synergistic and at other times in opposition to one another (Heffernan 2022). Between the localisation of global norms and the globalisation of local norms discourse (Madzwamuse 2010, Acharya 2011), CBNRM has evolved into a discursive junction where various stakeholders employ distinct power/knowledge disparities to advance specific agendas. While CBNRM's components such as trophy hunting are generally framed in contrast to photographic tourism, seen widely as a 'non-consumptive' form of conservation, recent literature challenges this conventional classification by demonstrating that all forms of tourism are in fact consumptive and that all variables need to be accounted for in labeling practices as either consumptive or non-consumptive (Heffernan 2022). This approach, which can be coined as the intersectional conservation paradigm, promotes a non-dichotomous view of conservation that acknowledges the complexities of global influences and power imbalances.

Wildlife economy

Traditionally, wildlife, among other natural resources, has been viewed merely as an input rather than an asset in a national economy. This perspective has resulted in minimal government investment in the wildlife sector and insufficient resource allocation of resources to support wildlife conservation. Reversing this position requires an illustration to state and non-state actors using compelling evidence about the economic contribution of wildlife resources to local, national and regional economies (ALU/AWE-COP 2023). Should the preservation of biodiversity hinge on our ability to actively enhance conservation initiatives (ranging from protected areas to land-use policies) across 44% (64 million square kilometres/home to over 1.8 billion people) of the world's terrestrial regions (Allan *et al*. 2022), Namibia stands at the forefront of this endeavour. With the world's most effective conservation programme already safeguarding significantly more than the international target of at least 30% of its land, Namibia is uniquely equipped to lead the way in these efforts. The theory of change is that southern Africa is the only place on the planet where wildlife is increasing, as a result of policy experiments that have deliberately (but partially) replaced exclusionary, non-economic conservation models with inclusionary market-led conservation (Child 2023).

This new paradigm of inclusive, market-led wildlife governance in southern Africa, a global outlier where the expansion of wildlife and wildlife-based livelihoods contrasts starkly to the global loss of 84% of mammal biomass under a business-as-usual paradigm, remains unripe. The wildlife economy is operating at about 10% of its potential, with considerable scope

to expand wildlife numbers and habitats through community empowerment and poverty reduction (Snyman *et al*. 2021). There are many talented Africans who are well-placed and eager to unlock this potential (ALU/AWE-COP 2023). By consolidating the knowledge that led to the rewilding of southern and eastern Africa's drylands, and by developing a quantitative vision of the status and potential of the wildlife economy, wildlife economist Brian Child and his collaborators are building an emerging community of practice, through the establishment of an adaptive research-into-practice programme aiming to (a) transform the regional wildlife economy from US$3 to US$30 billion and (b) develop demonstration sites for participatory governance across the southern African region. Some outputs include the establishment of village based PEESG monitoring (policy barriers – economic/livelihood performance and impact; environment; social; governance) based on monitoring tools such as hunting management systems (Child 1995), investor performance systems (WWF/SARPO 1997, Child & Weaver 2006, Child & Wall 2009), governance dashboard (Child, Muyengwa, Lubilo & Mupeta-Muyamwa 2014), livelihoods survey (Mulindahabi 2017) administered by national and regional CBNRM associations and supported by technical training based on key books (Child 2019, Child & Wojcik 2014). Another area for development is the establishment of real time feedback mechanisms providing data to develop a financial topography map/model of the wildlife economy (US$/ha) to benchmark current performance, envision potentials, and identify barriers, as the foundation for selling a "regional wildlife economy vision and strategy" to key decision-makers (Child 2023). This process of co-learning by co-doing – with an emphasis on empowering communities to enter the wildlife economy as participatory village companies – requires an African conservation scholarship and leadership armed with theoretical and practical experience and proficient in navigating the digital wild.

Social media and the digital wild

Although data-driven approaches (i.e. remote sensing) have enhanced the precision of policy decisions (Vinuesa 2020), they do not always enable more effective allocation of resources for conservation initiatives, due to factors often overlooked such as social media influence. Conservation messaging has often faced gaps, not only in effectively engaging wider and more diverse audiences but also in effectively reaching and resonating with specific, targeted audiences. While valuable, traditional methods, such as print media or in-person campaigns may not always resonate with digitally savvy generations and, arguably, policy and law makers (Louis 2024), for whom social media has evolved into a crucial component of political discourse (Straus 2018) - enabling them to voice their perspectives (Devlin, Widjaya & Cha 2020), disseminate information (Knight First Amendment Institute 2020), and engage with constituents (Van Kessel & Hughes 2018) online – a revamp in conservation communication is necessary.

In this era of computational public policy (Solo 2011), there is a growing need for wildlife conservation efforts to adopt virtual strategies, to better align with the evolving landscape of policymaking and stakeholder engagement (Miao, Holmes, Huang & Zhang 2021). Features are embedded in social media platforms for a reason, and leveraging them and others social media hacks – responsibly - can serve conservation efforts effectively (Foyet 2024). Also, harnessing digital technologies, such as culturomics (e.g. social media data analytics) in the conservation field will allow policymakers to gather real-time, comprehensive data on sentiments, wildlife populations and ecosystems (Foyet 2024).

AI- powered conservation

AI is emerging as a powerful ally for communities engaged in conservation efforts — and it is coming at a time in which we face increasingly complex ecological challenges (Potts 2017) and the urgent need to protect our natural world (Martin, Maris & Simberloff 2016) and respective biocultural heritage (UNESCO 2023). The synergy between AI and conservation has the potential to enhance our ability to monitor and safeguard ecosystems, mitigate human-wildlife conflicts (RESOLVE 2020), optimise resource management and foster sustainable coexistence between people and wildlife. Despite these myriad uses of AI in conservation, its integration in conservation citizen science and engagement remains relatively new. There is a pressing need for more professionals in the fields of conservation culturomics and computational sustainability who possess local knowledge to establish the linkages between semantics, social behaviour and conservation patterns (Foyet 2024). Additionally, several urgent areas within conservation are expected to undergo significant developments, including technology-driven advancements in conservation planning and decision support (Justeau-Allaire 2023), the tourism, hospitality, and event management industry (Foyet 2024), AI-powered Natural Language Processing (NLP) and Communication, public engagement, and education: AI-powered chatbots and virtual assistants will be used to engage the public (Khan *et al*. 2024) and answer conservation-related questions (Chi 2022). Leveraging AI tools to facilitate interactive learning experiences (Reyhani Haghighi, Pasandideh, & Johnson 2023) and disseminate accurate information (Egon & Rosinski 2023) about conservation issues will lead to a more informed and engaged public, freeing up resources for addressing other pressing human-centred concerns (Gomes *et al*. 2019).

Mental health in conservation – generational burdens

Acknowledging that environmental challenges like drought can significantly impact behaviours is crucial. For instance, in Namibia, drought conditions compel people to undertake activities they wouldn't normally consider, driven by the need to secure their livelihoods. The emotional toll on those working in conservation, such as rangers, is profound, illustrating the mental and emotional challenges faced in balancing human needs with wildlife preservation. This highlights the broader, often overlooked, mental health aspects within conservation, suggesting a need for greater empathy and understanding in addressing both human and environmental needs.

"People's behaviours are shaped by their environments, isn't it? For instance, in Namibia, if there is the drought, people start moving and doing things that they are not supposed to do because they need to survive. It's like, me not having food in my house. I will do anything to put food on the table for my family and my children. Sometimes, when you are desperate, your behaviour also changes. And it's not because you wanted to change, but because you are forced by circumstances to change. So we do have some of those behaviours. But as I said, and that's where [CBNRM] comes in, to address those livelihood issues, otherwise behaviours will change. Some of it is not just because of certain external factors. Some of them, sometimes it's also just greed. People poaching that for me is greed, a behaviour that needs to change. You know, if I was a psychologist, I would probably give you 100 reasons. There's a big debate now, people are saying that we need more psychologists and anthropologists in conservation because people are mentally affected. **We need anthropologists to understand the history, psychologists to understand behaviours, economists to create the market, and social marketing to market. The world of conservation is not managed by a computer. We sit here, we make decisions. That's the real difference. So because it is still very heavily dependent on people, mentally it gets to you. You don't want to be in the unsafe shoes of a ranger, but you want to save the elephant. So when you see the elephant dying, you get so angry, it gets mentally to you, but you don't want to be there physically.** There's a lot of these issues mentally that is making people mad, both in the West and here."

Maxi Pia Louis, 2024

Generational burdens refer to the various challenges and conditions passed from one generation to the next, significantly impacting lives and futures. These burdens are (a) **economic and financial** [debts, unfunded liabilities (i.e. pension obligations and healthcare benefits), and the overall economic conditions inherited by the affected generation], limiting their economic opportunities and standard of living and affecting their ability to achieve economic stability, afford education, or access housing; (b) **environmental** [consequences of previous generations' environmental beliefs, policies and practices, and long-term effects of pollution, climate change, loss of biodiversity and natural resource depletion], posing significant challenges to their future prosperity and well-being: affected generations inherit a planet that requires immediate and substantial action to mitigate environmental crises, often without the necessary resources or political will from preceding generations; (c) **social and psychological pressures** (i.e. societal expectations, cultural norms and taboos, notions of weakness, shame, curse, silence and unspoken truths) shaping how a generation lives, works, and engages with society. Added to it is the mental health impact of facing uncertain futures, higher rates of anxiety and depression, and the pressure to solve complex global issues left by previous generations; (d) **technological and employment shifts**: rapid technological advancement and changes in the job market mean a generation must adapt to a world vastly different from their parents'. They face the challenge of navigating the gig economy, automation, and the digital transformation of the workplace, often without the security of traditional employment models; (e) **political and institutional legacy** (i.e. political systems, structures, and policies) inherited and which may no longer be effective in addressing contemporary challenges. This includes outdated educational systems, healthcare, and governance models that do not meet the needs or values of current generations. Generational burdens thus encapsulate a wide range of issues, demanding innovative solutions and a collaborative approach across ages to ensure a sustainable and equitable future for all.

The complexity of human behaviour in conservation underscores the growing call for a multidisciplinary approach I call human-centred conservation. This approach incorporates insights from anthropology, psychology, economics, computer science and social marketing. This diversity of perspectives is essential for understanding the multifaceted relationship between humans and their environment, from the historical context of communities to the cultural values that underpin people's interactions with nature, the economic drivers of conservation efforts, the technological innovations that can support sustainable practices, and the mental models and cognitive biases that influence individual and collective decisions regarding environmental stewardship and conservation actions. The necessity for mental health support services in conservation has become as fundamental as other basic needs, such as water, in our communities and even within our own homes. Mental health care should be integrated into conservancies' daily activities, programmes, and household routines. This approach is becoming increasingly important as we recognise the significant impact of societal stresses on well-being, especially in rural areas where such pressures are often unseen or disregarded.

In the past, African culture may have viewed the expression of psychological distress as a sign of weakness. However, there's a growing recognition of the deep-seated effects of stress on rural individuals. The daily lives of rural dwellers are marked by rigorous physical tasks, and they bear and transmit to their offspring the weight of scarcely examined burdens, rooted in historical, cultural, and family legacies. These inherited challenges significantly impact this marginalised population in manners yet to be fully comprehended. Addressing these needs involves acknowledging and addressing the psychological support required by rural individuals, thereby enriching the well-being of entire communities. This shift towards recognising and treating mental health issues in rural settings as an integral part of overall health and wellness, and an integrated part of One Health initiatives marks a significant step forward in how we care for ourselves and each other through a "leaving no one behind" policy of human-centred conservation.

Finally, international support and partnerships play a vital role in advancing CBNRM. This includes technical assistance, capacity building, and financial support from development agencies, conservation organisations, and research institutions

in support of CBNRM goals, among others. Such partnerships can facilitate knowledge exchange, promote best practices, and provide the resources necessary for scaling successful CBNRM models (Foyet 2023).

As CBNRM in southern Africa evolves, addressing its critiques and challenges while leveraging emerging opportunities and innovations will be key to its future success. By strengthening policy frameworks, enhancing community engagement and economic viability, and fostering international support, CBNRM can continue to offer a sustainable pathway for conservation and community development in the region.

Brief critical analysis of CBNRM discourse

Critical Discourse Analysis (CDA) is a methodological approach to studying language in its social context, focusing on the ways that discourse (written, spoken, or visual communication) shapes and is shaped by power relations within society. It examines how language is used to construct social identities, dominate or marginalise certain groups, and influence beliefs and behaviours. CDA goes beyond the textual analysis of language to include consideration of the cultural, political, and historical contexts in which discourse occurs, aiming to uncover the underlying power dynamics and ideological processes at play. An examination of the language, power dynamics, and social practices within understandings of CBNRM in southern Africa reveal the following key themes:

- **Power and ideology in language usage**: CBNRM literature repeatedly emphasises *empowerment*, *benefit-sharing*, and *community participation* as central to CBNRM. This choice of language promotes an ideology where local communities are not just beneficiaries but also active participants in resource management. This reflects a shift from traditional, top-down conservation approaches to more inclusive strategies that recognise the rights and knowledge of local communities.

- **Discursive construction of social identities**: CBNRM discourse constructs a positive identity for local communities by highlighting their roles as custodians, managers, trustees, and stewards of natural resources. This portrayal challenges historical narratives that marginalised these communities from conservation efforts, presenting them instead as key actors in sustainable resource management.

- **Representation of social practices**: CBNRM is represented as a practice that integrates conservation with socio-economic development. The discourse constructs a narrative where conservation and community development are not only compatible but mutually reinforcing, thus challenging traditional conservation practices that often excluded human needs and rights from environmental protection efforts.

- **Mental health and conservation**: The inclusion of mental health aspects introduces a novel dimension to the discourse on conservation, advocating for a holistic approach that considers the well-being of those involved in conservation efforts. This reflects an expanding understanding of conservation that encompasses human well-being alongside environmental sustainability.

Overall, the primary difference between local and external views of CBNRM lies in the emphasis on community empowerment, cultural integrity, and economic development versus a primary focus on biodiversity conservation and

Table 2: *Contrasting CBNRM perspectives between local and external actors.*

Aspect	Local Actors' View (Within)	External Actors' View (The West)
Objective	Conservation for local benefits (improving livelihoods, preserving biocultural heritage).	Conservation of biodiversity for global environmental benefits. Improvement of local livelihoods is seen as a beneficial outcome but not the primary goal.
Benefit sharing	Prioritisation of equitable distribution of benefits among community members to ensure livelihood improvements.	Emphasis on effectiveness of conservation outcomes, with benefit sharing seen as a means to incentivise local conservation efforts.
Governance	Advocacy for locally driven governance structures reflective of community needs and contexts.	Advocacy for governance models supporting centralised oversight & international standards unsuited to local realities.
Economic Development	CBNRM as poverty alleviation tool (broader economic need).	View CBNRM as a tourism enhancer / investor vs community oriented (narrow economic goal).
Cultural Practices	Integration of traditional knowledge and cultural practices in natural resource management = biocultural protocols.	Interest in cultural practices to the extent that they contribute to or do not hinder conservation objectives.
Legitimacy and Rights	Assert legitimacy of rights to manage and benefit from local resources as fundamental to sovereignty and cultural identity = principled.	Recognition of local rights as important for gaining community buy-in and support for conservation initiatives = instrumental.
Perception of challenges and solutions	Concerns over governance issues focusing on solutions enhancing local capacity and securing legal rights.	Concerns around scalability of CBNRM; focus on solutions involving technical assistance, capacity building, monitoring and funding.

global environmental benefits (Table 2). Local actors view CBNRM as an integral part of their socio-economic fabric and cultural identity, whereas external actors often approach it from a conservation-centric perspective, sometimes underestimating the complex interplay of local social, economic, and cultural factors. Applying CDA, it's evident that the discourse on CBNRM in southern Africa reflects shifts in power dynamics towards more inclusive and participatory approaches. The text uses language and legitimation strategies that promote an ideology of empowerment, sustainability, and integration of human and environmental well-being, challenging traditional conservation narratives and practices.

Conclusion

In this essay, we have journeyed through the historical evolution, principles, and contemporary implementation of CBNRM in southern Africa, highlighting its role in bridging and reconciling conservation with community development. From its roots in pre-colonial stewardship practices, through the dislocations of colonialism, to its emergence as a counterpoint to top-down conservation models in the post-colonial era, CBNRM has evolved as a critical framework for sustainable natural resource management globally and holds profound significance for southern Africa's socio-economic and environmental landscape in particular. It represents a paradigm shift towards more inclusive, democratic, and sustainable approaches to natural resource management. By foregrounding the rights and knowledge of local communities, CBNRM offers a model for managing the region's rich natural resources in a way that respects cultural heritage, promotes social equity, and preserves ecological integrity. The principles of CBNRM—benefit sharing, community empowerment, conservation, and participation—provide a foundation for initiatives that aim to enhance both environmental sustainability and socio-economic development. Programmes like Zimbabwe's CAMPFIRE, Namibia's conservancies, and Botswana's CBNRM projects exemplify the diverse applications of these principles, demonstrating the potential for CBNRM to deliver tangible conservation and community benefits.

However, the implementation of CBNRM is not without its challenges. Experimenting with adaptively improving community governance necessitates a combination of information technology and peer review, while issues of equity, economic sustainability, legal and digital barriers, and mental health remain significant hurdles. Balancing conservation objectives with community development needs requires careful negotiation and adaptive management, highlighting the complexity of CBNRM as a practice. Despite these challenges, the future of CBNRM in southern Africa is ripe with opportunity. Innovations in climate change adaptation, social media, AI, and CBNRM PPPs, supported by robust policy frameworks and international partnerships, present pathways for strengthening CBNRM.

Looking ahead, the prospects for CBNRM in fostering sustainable development and conservation are promising. As the region faces increasing environmental pressures and socio-economic challenges, the need for integrated, community-driven resource management strategies has never been greater. With continued innovation, support, and commitment from all stakeholders, CBNRM can play a pivotal role in shaping a sustainable and equitable future for southern Africa. The journey of CBNRM is far from complete, but its contributions to the region's socio-economic and environmental well-being are undeniable, marking a path forward that merits continued exploration, support, and refinement.

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