

## Assessing the Effectiveness of Community-Based Natural Resource Management

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### Abstract

**Introduction** - CBNRM is an emerging global model for conserving and administering natural resources, and the concept has received enormous attention. Contemporary CBNRM initiatives confirm the value of local control of natural resources. They make an effort to imitate or reproduce the circumstances that permit communities to effectively handle their assets.

**Objective** - In this research, the main intention is to provide some key success factor of the CBNRM by exploring a number of case studies and project consequences. Further explore the CBNRM from a distinct perspective like how it assists in accomplishing SDG goals and deal with the vulnerability of climate challenges.

**Methodology** - The paper chooses a secondary research approach to accomplish this research, which is based on collecting information from already-existing similar studies. To evaluate the success rate of

CBNRM, this research explored several case studies from different countries and determined common variables to identify the impact of CBNRM.

**Results** - The study emphasises on exploring distinct case studies, and finding indicates the prominent variables that play crucial roles in effectively managing natural resources and uplifting the community from a social and economic perspective without sacrificing their cultural values. Further the research also demonstrates how CBNRM could play a major role in achieving SDG based on the success factors of CBNRM.

**Keywords** : Community-Based Natural Resource Management, Success factors for community-based natural resource management, CBNRM and SDG.

## 1. Introduction

“Community-Based Natural Resource Management” (CBNRM) has gained acceptance as a board composition that addresses sustainability practices while giving local people greater degrees of autonomy over the utilisation of natural resources (Addison, J. et al., 2019). The CBNRM is alluded to as a cooperative administration of natural resources, including wildlife, forests, water, and land, by local organisations for their own advantage and interest. A number of theories are put forth to support CBNRM, including the collaborative theory (Colbry, S et al., 2014) and the theory of common property resources (Ostrom, E., 1990). These theories are thought to be referred to as "fundamental" for CBNRM because it incorporates strong social norms and standards for the consumption of natural resources that are more likely to result from clearly defined and respected local authority over resource use (Ostrom, E., 1990). These theories support empowering and involving residents in the management and use of their local environmental assets. Nonetheless, the CBNRM's efforts at collaboration have been marked by notable power disparities, which have led to ongoing confrontations between community members and leaders.

CBNRM is an emerging global model for conserving and administering natural resources, and the concept has received enormous attention since the beginning of millennia, prominently because the aspect behind CBNRM is to encourage social justice and environmental sustainability. This approach can be visualised as a substitute for the centralised approach to resource management, as scholarship indicates that models lead to dismal and inappropriate consequences after years of intrusive systems of sanction and top-down decree, prominently because of flawed, ineffective, and occasionally corrupted processing (Gruber, J. S., 2010). On the other hand, CBNRM was developed on the foundation of transforming the dynamic between anthropogenic and the environment and based on the principles of egalitarianism . It embraces several stakeholders for multidisciplinary collaboration, the development of networks and connections among various constituency groups, multilayer government, and financial institutions (Addison, J. et al., 2019). CBNRM can be recognized as a diverse disciplinary field with the intention to promote and improve the environment, financial feasibility, preserve biology, ecology, effective organisation management, leadership satisfaction, and awareness related to environmental education (Milupi, D. I et al., 2023). Effective CBNRM projects have been developed through collaboration between experts from these disciplines and with non-experts and members of other constituency groups.

Significance of CBNRM (USAID, n.d)-

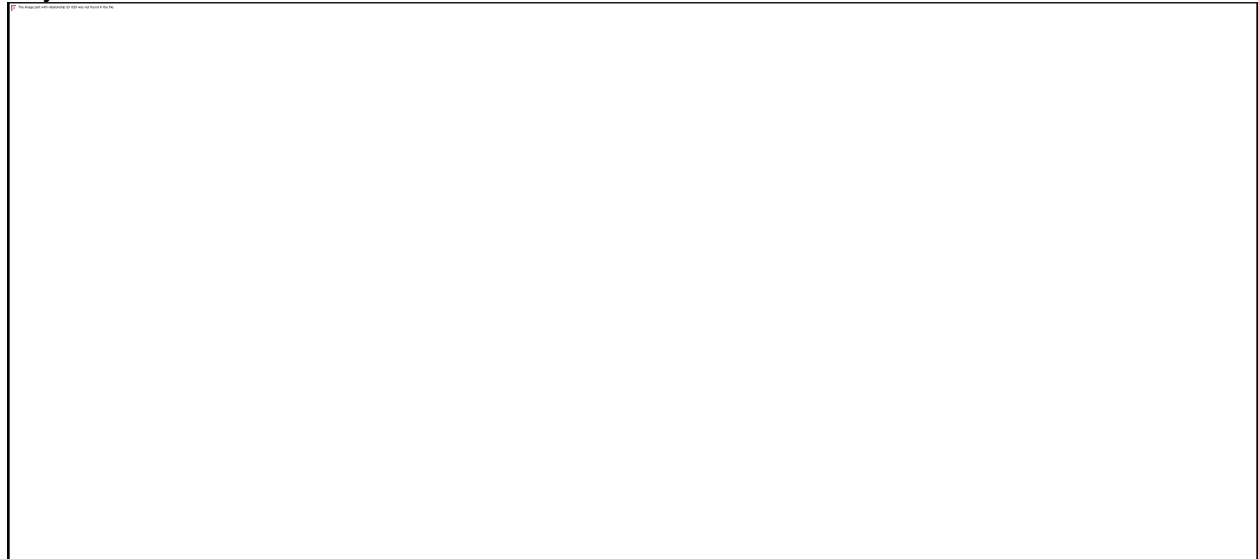
1. CBNRM encourages communities to deal with severe poverty by assisting in eradicating poverty and promoting rural development in an inclusive manner such as: provide opportunities to earn income by social welfare projects or infrastructure development. Further employment possibilities improve the income that can increase household assets and raise standard of living.

2. CBNRM empowers communities by granting rights over assets such as land and water, fostering skill development, reinforcing decision-making bodies, fostering community engagement, and allowing women to hold positions of leadership.
3. Through the administration of sustainable resources, CBNRM encourages conservation. CBNRM areas are effectively working to increase wildlife populations and natural habitats are being preserved. Communities are preserving forests and reserving property for wildlife and tourists. Community game guardians, scouts, and resource monitors keep an eye on the environment, carry out yearly wildlife counts, and fight poaching.
4. CBNRM assists decision-makers in achieving legislative targets and desired outcomes that rely on strategies and plans with the objective of national growth. CBNRM helps with rural growth, food and nutrition security, and eradicating poverty are the crucial components of achieving the SDG. Besides that, CBNRM aids in upholding obligations under relevant international treaties (biodiversity, desertification, and climate change).

## 1.1 Background

CBNRM is not unknown to us. Rural communities since long practising and managing their natural resources for ages by employing conventional tactics such as religious principles, and cultural norms. However, in numerous instances, circumstances like colonialism, administrative monopoly, the deterioration of traditional authorities, demographic change, and conflict have made governance mechanisms feeble. Contemporary CBNRM initiatives confirm the value of local control of natural resources (Measham, & Lumbasi, 2013). They make an effort to imitate or reproduce the circumstances that permit communities to effectively handle their assets.

### Key element of CBNRM



CBNRM is frequently practised on privately owned land where groups of nearby landowners work together for preservation and social goals, such as when their decisions taken have a significant impact on valuable and important environmental characteristics like lakes, plains, or forests (Rozwadowska, A., 2011). In spite of the promise of CBNRM, there are few loopholes outnumbers achievement. In this research, the main intention is to provide an overview of the CBNRM by exploring a number of case studies and project consequences.

## 2. Literature Reviews

The intention of the research (Stone, M. T., & Nyaupane, G., 2014) is to determine the challenges incorporated with implementing and planning a community that is based on CBNRM. The study uses qualitative methodology that rely on the context of South African countries, specifically Botswana. The findings show that adopting a standard CBNRM deployment model approach and grouping communities into CBNRM beneficiary groups—regardless of their geographical regions, preferences, tribal interrelations, or cultural structures -- is unable to consider regional differences in environmental assets, culture, and socioeconomic conditions. Henceforth, it was extracted that the most critical experience is the inability of an element to CBNRM as a theory despite executing procedure, thus, there is a need to restructure the planning and executing of CBNRM concept. The study also suggests substitution community design to resolve the challenge incorporated with complex formation of CBNRM procedure. The intention of the research (Gruber, J. S., 2010) is to explore CBNRM and review the characteristics and the differences among them based on the multi disciplinary and stakeholders perspective. In order to determine the significant and effective features of CBNRM, the study relies on qualitative assessment of existing studies and the obtained data is compiled in the form of a matrix that seeks organisation value and beneficiary features of CBNRM. The Matrix was then implemented and explored through a number of case studies that was already reported in the World Bank International workshop on CBNRM. The outcome of these case studies were compared with the findings of this study. The outcome of the research is helpful for future research which enhances understanding regarding key characteristics and effectiveness of CBNRM and how to obtain sustainability through planning and implementing vital strategies with strengthening the management of environmental natural resources and leadership capability.

(Measham, T. G., & Lumbasi, J. A. 2013), research depends on the case study (Kenya and Australia) approach to formulate the role of social capital in developing flexibility in community through the administration of sharing of natural resources assets. The finding emphasises community based activities that are considered to be the most significant option for improving community standard of living by appropriate management and use of local resources. Numerous difficulties that have affected other CBNRM projects, such as effects on living standards, complicated governance systems encompassing non-governmental institutions and scientific institutions, have been successfully overcome because of profoundly high standards of "shareholdings" enjoyed by local residents.

Musavengane, R., & Kloppers, R. (2020) utilises an assembly and systematic resilience approach to formula association between social capital and community resilience for implementing effective community based tourism projects. The study took evidence from "Somkhanda Community Game Reserve in the Gumbi community, KwaZulu Natal, South Africa". The outcome determined that there are three prominent resilience features in the community : good governance, economic feasibility and skill development. In order to formulate strengthful human capital, there is a need to empower and promote community flexibility to assure communal management of environmental resources. The study also suggests that there is a requirement to eliminate natural romanticisation because huge efforts are required to effectively manage the complications associated with handling communal natural resources. Milupi, D. et al., (2023) focuses on incorporation between environmental education and CBNRM in Zambia. The finding indicates that environmental education plays a significant role in managing and implementing CBNRM in Zambia and suggested that association of education is effective to formulate sustainable administration of environmental resources. By providing effective environmental knowledge and awareness everyone has an opportunity to conserve and enhance the natural resources and protect the environment based on their skills, behaviour , desire and commitment.

## 2.1 Research Gap

CBNRM is not new from an academic perspective, a series of work already accomplished that indicate the characteristic, success factors of CBNRM along with the challenges and why the concept suffers with failure. However, most of these researches belong to the last decade. The main intention of this study is to explore the CBNRM based on the present scenario and determine the effectiveness of the concept in today's world through the lens of SDG goals.

## 2.2 Research Question

- Explore the impact of Community-Based Natural Resource Management and relation with SDG goals.
- Determine the factors which play a crucial role in CBNRM.

## 2.3 Importance of the Study

CBNRM can be recognized as a diverse disciplinary field with the intention to promote and improve the environment, financial feasibility, preserve biology, ecology, effective organisation management, leadership satisfaction, and awareness related to environmental education. The significance of this research is to explore the CBNRM from a distinct perspective like how it assists in accomplishing SDG goals and deal with the vulnerability of climate challenges. This makes it noble and one of its kind which can be further used as evidence and a suitable resource from academic and business perspective.

## 2.4 Research Objectives

- The impact of Community-Based Natural Resource Management and relation with SDG goals.
- To explore the factors which play a crucial role in CBNRM.

## 2.5 Scope and Limitation

The scope of the study places its only emphasis on the positive side of the CBNRM, as the topic is highlighting the effectiveness of the CBNRM. For this perspective, the study tries to look forward and understand how CBNRM can pave the way for achieving SDG goals. As well as discuss the success factor of CBNRM by comprehensively analysing different case studies that take place over a wide time span. However, this creates some limitations to the study, such as this research excluding the parameters that are responsible for the ineffectiveness of CBNRM. Look past the CBNRM's positive attributes as the study's limitation.

## 3. Research Methodology

To evaluate the success rate of CBNRM, this research explored several case studies from different countries and determined common variables to identify the impact of CBNRM. To fulfil the other object of the study, which emphasises the SDG goal, the research uses a secondary approach. The paper chooses a secondary research approach to accomplish this research, which is based on collecting information from already-existing similar studies. The main intention is to select a secondary approach to enhance the understanding of the topic and ensure that all the appropriate and relevant information regarding the theme of the research is included in this work, further enhancing awareness and profound knowledge regarding the subject "SDG" and its association with CBNRM.

## 4. Analysis of Study

To evaluate the success rate of CBNRM, the study emphasises exploring distinct case studies, in order to identify the prominent variables that play crucial roles in effectively managing natural resources and uplifting the community from a social and economic perspective without sacrificing their cultural values.

One of the case studies that was discussed about community resource management programming implemented in Ghana in the year 1990 was explored by the researcher (Baddianaah, I., and Baaweh, L., 2021) to identify the role of the Zukpiri community in the program proposed by the government to protect and enhance the forest area of Ghana. The direct benefit obtained by the community is collecting non-timber for his product, which improves their source of income; the conserved forest area is utilised for tourism activities from a national and international perspective; the region also protects medicinal herbs for the local community with the support of NGO and other governmental and non-governmental organisations. The area was supported by school buildings, health centres, an appropriate water system, a skill training program, electricity, and other basic facilities. Henceforth, it may be extracted, but CBNRM provides multifold benefits to the community. Another case study (Koot, S., 2019) indicates that trophy hunting is one of the most prominent ingredients for encouraging Namibia's CBNRM to uplift local communities with the assistance of NGO and government organisations. Trophy hunting is the source of capital generation and job opportunity for local communities, which eventually enhance their social and economic status.

The study (Musavengane, R., & Kloppers, R. 2020) took evidence from “Somkhanda Community Game Reserve in the Gumbi community, KwaZulu Natal, South Africa”. The outcome determined that there are three prominent resilience features in the community : good governance , economic feasibility, and skill development. In order to formulate strong human capital, there is a need to empower and promote community flexibility to assure communal management of environmental resources. The case study (Camacho, L. D et al., 2020) of Philippines and Myanmar to identify the role of CBNRM in preserving and rehabilitation of mangrove forest. The findings indicate CBNRM positively impacts mangrove forestry and ecological upliftment. Further, there is a need for local communities to cooperate with academic institutions, federal agencies, and other institutions in a community-based model of forest management. Another study (Bardhan, M. 2021), indicating that community support in local regions for protecting the ecosystem is very crucial and successful as the Sundarban forest area is conserved by CBNRM with the support of NGOs, shows promising results from an ecology and financial perspective.

CBNRM assists in providing effective solutions to societal issues exacerbated by climate change situations such as food insecurity, soil degradation, drought, flood, livestock mortality, unusual precipitation, and rising temperatures at worsley impact pastoral livelihood, negatively impact ecosystem and tourism activities, and ultimately jeopardise the country's economy. In these situations (Smith, J et al., 2022). CBNRM can be recognized as a ray of hope which has a potential to align itself with sustainable management and preservation of ecology which thrive the financial advancement and enhancing social and economical upliftment of local people. In the 21st century where evolution of technology makes life easier, in this condition the management of natural resources can be effectively accomplished through utilising technology which supports the harnessing of native knowledge and culture (Khan, A et al., 2023). CBNRM also supports understanding the feelings of local people and using their perception in making robust strategies. It empowers communities by taking part in decision making procedure and effective roles in economies through attracting tourism and enhancing skill development activities. Such community based management activities have vital significance in socio-economic and environmental perspectives. They have a capability to address a large number of sustainable development goals. The SDG was formulated by the UN in order to create a better and sustainable future for everyone irrespective of gender, class, caste, developed and developing countries (Stone, L. S et al., 2020). These goals total 17 numbers and CBNRM has the potential to deal with 9 SDG goals such as-

- CBNRM supports **Life on land** and protects the ecosystem of the land by assisting in replenishing the quality of degraded land and preserving the biodiversity of the land (Smith, J.et al., 2022).
- It plays a significant role in eliminating hunger as it deals with the SDG goal **Zero Hunger** by ensuring food security and uplifting the nutritional intake as it assists to protect the pasture land, enhance their quality and redevelop the food cycle by sustainable approach.



- There is an association between poverty and natural resources as it supports fisheries, forest, and agriculture which not only ensures food security but also provides job opportunities (Khan, A et al., 2023). Economic assistance by the means of local craft, tourism, and indirectly from carbon credit. This makes CBNRM support two prominent goals of SDG like **No Poverty** and **Decent Work and Economic Growth**.
- CBNRM also supports in enhancing decision making quality, participation and representation of local people which effectively provide strengthening in government planning by taking assistants of local people in decision making procedure which eventually meet the goal of **Peace, Justice, and Strong institution**.
- One of the most significant characteristic features of CBNRM is its empowering women to provide the platform of equality in the utility of resources and to take equal participation by raising voice assuring the pathway of **Gender Equality** (Khan, A et al., 2023).
- CBNRM also paves the way for **Quality Education** by providing better grounds for skill development through training programs, fostering infrastructure for education with assistance of NGO and CSO, to increase knowledge and human capital.
- It also assists in formulating the infrastructure of **Health and Well being** along with providing the opportunity for availability and accessibility of health care services, safe drinking water, and maintaining hygienic and sanitation in the surrounding.

Some of the examples of CBNRM and its efforts to provide their support in accomplishing SDG goals-

Factors	CBNRM provides to local communities	References
Income	Botswana: USD 7,400,000 (2006-09) Mozambique: USD2,800,000 (2006-09) Zimbabwe: \$1,184,006 (2006) Namibia: \$4,850,281 (2011)	USAID. (n.d)
Income from Tourism	Kenya: USD 860,000	(Walker, L et al., 2019)
Income from fisheries	Increased by 37%	(Khan, A et al., 2023)
Employment	Zambia: 1,012 village scouts  Zimbabwe: 701 in the CAMPFIRE Program  Namibia: 1,385 permanent and 262 temporary	USAID. (n.d)
Better Governance	Kenya: good governance scores 70% (2017)	(Walker, L et al., 2019)
Protecting live of animals	Incidence of elephants poached for ivory reduced to 97% (2012-	(Walker, L et al., 2019)

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**5. Results**

After thoroughly examining the CBNRM's effectiveness and analysing various case studies that covered various geographic locations, it was determined that CBNRM could play a major role in achieving SDG objectives. The research also shed light on some elements that contribute to CBNRM success factors and support its capacity to deliver socioeconomic and environmental sustainability. These success factors can be broadly classified after comprehensively analyse the data-

CBNRM and their role	Success Factors
Social Development	Preservation of traditional value and culture Encourage Participation Human right Human resource and skill development Local ownership Community distribution of benefits Government sectors and private sector support
Economic Development	Income distribution Transportation Accommodation SME/local business Advertisement
Environmental Development	Preservation and protection of nature (land, water, soil etc) Waste and disposal management Spending natural resources in community

CBNRM can be seen as a glimmer of hope because it has the ability to align with ecological preservation and sustainable management, both of which foster economic growth and social and economic upliftment of communities. In the twenty-first century, where the advancement of technology has made life simpler, it is possible to manage natural resources effectively by utilising technology that supports the exploitation of local knowledge and culture. Additionally, CBNRM encourages recognising community members' sentiments and utilising their insight to develop solid strategies. By participating in the decision-making process and playing productive parts in economies by luring tourists and fostering skill-development initiatives, it gives communities more clout. Such community-based management initiatives are extremely important.

**6. Conclusion**

CBNRM is an emerging global model for conserving and administering natural resources, and the concept has received enormous attention since the beginning of millennia, prominently because the aspect behind CBNRM is to encourage social justice and environmental sustainability. In the 21st century, where the evolution of technology makes life easier, the management of natural resources can be



effectively accomplished through the use of technology, which supports the harnessing of native knowledge and culture.

CBNRM can be recognized as a diverse disciplinary field with the intention to promote and improve the environment, financial feasibility, preserve biology and ecology, effective organisation management, leadership satisfaction, and awareness related to environmental education. The significance of this research is to explore the CBNRM from a distinct perspective, like how it assists in accomplishing SDG goals and deals with the vulnerability of climate challenges.

Eventually, after exploring various case studies that covered various geographic locations, the study also highlighted how CBNRM could play a major role in achieving SDG objectives. The research also shed light on some elements that contribute to CBNRM success stories and support its capacity to deliver socioeconomic and environmental sustainability.

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