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THE ABERDARE FOREST PARADOX: CBNRM FOR SUSTAINABLE ECONOMIC UTILIZATION

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Abstract

Community-Based Natural Resource Management (CBNRM) is a dynamic concept that takes on different interpretations contingent upon geographical boundaries, socio-political dynamics, and bio-physical characteristics. This paper seeks to unravel the multifaceted dimensions of CBNRM, clarifying its essence in diverse contexts. In its essence, CBNRM is the collaborative stewardship of natural resources, encompassing land, forests, wildlife, and water sources, driven by local institutions and communities, with the ultimate aim of yielding localized benefits. By examining the intersections of CBNRM and sustainability, we aim to shed light on the crucial role of these community-driven initiatives in advancing economic sustainability and meeting the needs of present and future generations.

The essence of CBNRM, as articulated by Armitage (2005), is rooted in the collective efforts of local institutions and communities, emphasizing the shared responsibility for preserving and managing vital natural resources. It is imperative to recognize that this concept takes on different hues across various geographical and socio-political landscapes, reflecting the unique challenges and opportunities inherent to each context. In a world characterized by increasing ecological pressures and resource depletion, the relevance of CBNRM as an avenue for local empowerment and resource conservation cannot be overstated.

To contextualize the significance of CBNRM, we draw from the Brundtland Commission's (1987) definition of sustainability, which envisions development as a pursuit that not only satisfies the immediate needs of the current generation but does so without jeopardizing the ability of future generations to fulfill their own requirements. This conceptualization of sustainability extends beyond ecological considerations to encompass the socioeconomic aspects of sustainable development. Adams (2006) elucidates the economic dimension of sustainability, which entails

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the perpetual production of goods and services, enabling the management of debt and the maintenance of equilibrium across sectors, including agriculture and industry.

The conceptual evolution of sustainability has been a product of rigorous discourse and international conferences, which have explored the intricate connection between the environment and development (Ochola, Sanginga, & Bekalo, 2010). It is within this context that we examine how CBNRM, with its emphasis on local control and collective action, plays a pivotal role in achieving sustainability goals, both at the community level and in the broader context of global environmental and development imperatives.

This paper seeks to delve deeper into the dynamic interplay between CBNRM and sustainability, offering insights into how community-based natural resource management can serve as a catalyst for economic sustainability and environmental stewardship. By examining these facets, we hope to contribute to a nuanced understanding of the transformative potential of CBNRM in realizing the principles of sustainability on local and global scales.

1. Introduction

Community based natural resource management (CBNRM) has been found to hold different meanings to different people depending on geographical scope, socio-political context and bio-physical nature (Armitage, 2005). However, CBNRM is simply the management of natural resources like land, forests, wildlife and water sources through collective effort of local institutions and communities in order to achieve local benefits (Armitage, 2005). The Brundtland Commission defines sustainability as development that "meets the needs of the current generation without compromising the ability of future generations to meet their own needs" (Brundtland Commission, 1987). Economic sustainability refers to the ability to make goods and services continually in order to manage debt, avoid imbalances in the different sectors such as the agricultural and industrial sectors (Adams, 2006) The concept of sustainability was an outcome of various international conferences on the connection between the environment and development (Ochola, Sanginga, &Bekalo, 2010).

The first United Nations Conference on Environmental and Development (UNCED) also known as the Brundtland Report was in Stockholm in the year 1972 (Ochola, Sanginga, & Bekalo, 2010). The conference introduced the idea of eco-development which led to the setting up of the United Nations Environmental Programme (UNEP) whereby the definition of sustainable development was established. The next UNCED was held in Nairobi, Kenya in the year 1987 which birthed the idea of sustainable development (Ochola, Sanginga, & Bekalo, 2010). After the Second World War, international donors concentrated their efforts on centralized approaches towards natural resource conservation and development in the developing world (Dressler, et al., 2010). With the rapid spread of modernization and increase in donor aid in 1960s, developing countries used much of the aid to benefit the elite in the society, tourism and conservation; however, this did not work since the practices of protection of resources and restrictions were harmful to the local communities' welfare socially and economically (Dressler, et al., 2010).

Due to the increase in social movement action and a just economic order campaign in the 1970s, conservation efforts began to include community participation, highlighting the importance of indigenous knowledge and community needs. Therefore, there was increased awareness that because local communities had for a long time

in the past managed their resources in terms of use, they were better able to conserve these resources with some external support through community-based approaches like integrated conservation and development programmes (Bidii & Ngugi, 2014).

In Kenya CBNRM is increasingly gaining popularity since it is acknowledged that there is the need to involve local communities in the management of resources. The protectionist approach in managing natural resources also failed to work in Kenya due to the increased poverty rates among communities near protected natural resources as well as continued degradation (Awimbo, Barrow, & Karaba, 2004).It is estimated that Kenya's forests have diminished at a rate of approximately 5000 hectares per annum which is a great cause for alarm since the Forest Sector employs more than 5000 people directly and 300, 000 others indirectly and contributes 62 million Dollars to the economy each year (Ministry of Environment and Forestry, 2018). With the population growth rate of Kenya standing at 3.2% the demand for local resources has also increased especially since only 20% of the land is arable and there is a higher need among rural communities to increase the space for cultivation (Maundu & Tegnas, 2005). In order to facilitate the participation of local communities in the conservation of forests, Section 46 of the Forest Act allows forest communities to register community forest associations (CFAs) under the Societies Act 1998 (Chapter 108) (Matiku, Mireri, & Callistus, 2013). The unsustainable use of the Aberdare Forest necessitates the understanding on how CBNRM is being used as a successful approach in changing the narrative of the forest use in Kenya.

2. Literature Review

Studies show that needs assessment by community members in CBNRM projects is important. Needs assessment is a tool which is used in guiding decision-making in a project where needs are defined and made priorities and solutions are developed (Watkins, West Meiers, &Visser, 2012). A need in this case is a necessity that is the gap between what the current scenario is and what it should be whereby change is required to achieve this (Stephen & Triraganon, 2009). Bidii and Ngugi (2014) note that CBNRM contributes to the benefits that come from the application of indigenous knowledge where the ecological needs of the natural resource can be addressed through local experience and also experiments at the local level. Research shows that the sustainability of natural resources is more guaranteed if the local community is involved in the making of decisions through committees and village institutions (Milupi, Somers, & Ferguson, 2017). Research also indicates that in the process of identifying needs, local knowledge is important in natural resource management since local users have knowledge on their situation especially when these local conditions change (Cox, Arnold, & Tomas, 2010).

According to Bixler et al. (2015) there are various categories of community participation with selfmobilization as one of them where community members take steps independently to make changes in systems and also establish contacts with external agents for the necessary resources and technical advice in CBNRM projects. Bidii and Ngugi (2014) note that many CBNRM projects are funded by donors; which has led to a lot of concern on the effectiveness, continuity and sustainability of these projects. Based on the research findings, it has been recognized that funding affects the implementation of CBNRM projects and when there is adequate funding, the projects are sustainable (Bidii & Ngugi, 2014). However, underfunding has been identified as a challenge in natural resource management especially when community members have minimum control of resources and most of the returns are diverted away from it (Bugembe, 2016). According to Bixler et al (2015) there are various categories of community participation with self-mobilization as one of them where community members take steps independently to make changes in systems and also establish contacts with external agents for the necessary resources and technical advice in CBNRM projects. There are many benefits associated with the community implementation of CBNRM projects despite the many challenges. In order to be effective there has to be a power

transfer to the local stakeholders through democratic processes and procedures, involvement in management decisions, access to natural resources and the local area development using the incomes gained from the sustainable use of these resources (DeCaro & Stokes, 2013). However, with regard to the challenges that arise from the involvement of local stakeholders in CBNRM projects especially with the management of forests, research shows that the diversity of stakeholders with different interests makes the sustainable management of these forests difficult to achieve (Wambugu et al., 2018).

It has also been recognized that the participation of local stakeholders should be transformative in the sense that it should lead to their empowerment (Bixler et al. 2015). It is important to assess the degree to which CBNRM is achieving the objectives of improving peoples' welfare as well as the sustainable use of natural resources which is done through regular monitoring (Danida, 2007). In most cases as research shows, the management and monitoring process of commons is done at a low cost (Cox et al. 2010).

The monitoring of CBNRM projects can either be done by the community members themselves or by external agents (Gruber, 2010). In order to have an effective monitoring system however, collaborative effort such as between local stakeholders and the government is seen as the best way to go about it (Taneja, 2016).

3. Methodology

3.1 Research Design

Research design is the blueprint for the collection, measurement and analysis of data (Schindler, 2011). This research will use the cross-sectional survey which is an observational study which collects data to make inferences about a population at one point in time (Lavrakas, 2008).

3.2 Target Population

The target population for this study was 38 groups registered under the three community forest associations (CFAs) that live within 10 Kilometers around the Aberdare Forest in Murang'a County. The study conducted a census survey in which information was gotten from all the 38 groups in the three CFAs since the population is small where one respondent from each group was selected randomly.

3. Research Findings

A total of 38 questionnaires were administered to respondents in the 38 user groups and 37 were collected hence a response rate of 97 % which was excellent based on the fact that it was above 70% (Mugenda & Mugenda, 2003).

3.1 Community Participation in Needs Assessment and Sustainable Economic Use of the Forest

The first variable of the study which was to assess the effect of community participation in needs assessment on the sustainable economic use of the Aberdare Forest. The study established that members have a number of needs that motivate them to take part in conservation activities in and around the Aberdare Forest in Murang'a County.

Table 1: Needs assessment meetings among User-group Members

Frequency of needs assessment meetings	**Frequency**	**Percent**
Monthly	25	67.6
Bi-annually	1	2.7
Quarter-annually	11	29.7
Total	37	100

The findings showed that majority of the respondents (67.6%) indicated that needs assessment meetings were held monthly while 29.7% indicated members met quarter annually while 2.7% indicated bi-annually. The study found that majority of the community members were able to meet monthly in their respective user-groups to discuss their needs as a community from the conservation and use of the Aberdare Forest. This means that most community members are able to frequently decide on the best course of action to meet needs such as biodiversity conservation. De Caro and Stokes (2013) argue that to be effective, power needs to be transferred to the local stakeholders through democratic processes and structures, participating in the making of management decisions, access to natural resources and the development of local areas using the incomes gained from the sustainable use of these resources. Therefore, regular meetings and democratic processes encourage the sustainable use of resources since members are in control of decisions made concerning the use of the forest.

In addition, the study sought to investigate the needs that group members sought to meet in participating in forest conservation activities. The results are shown in the figure below:

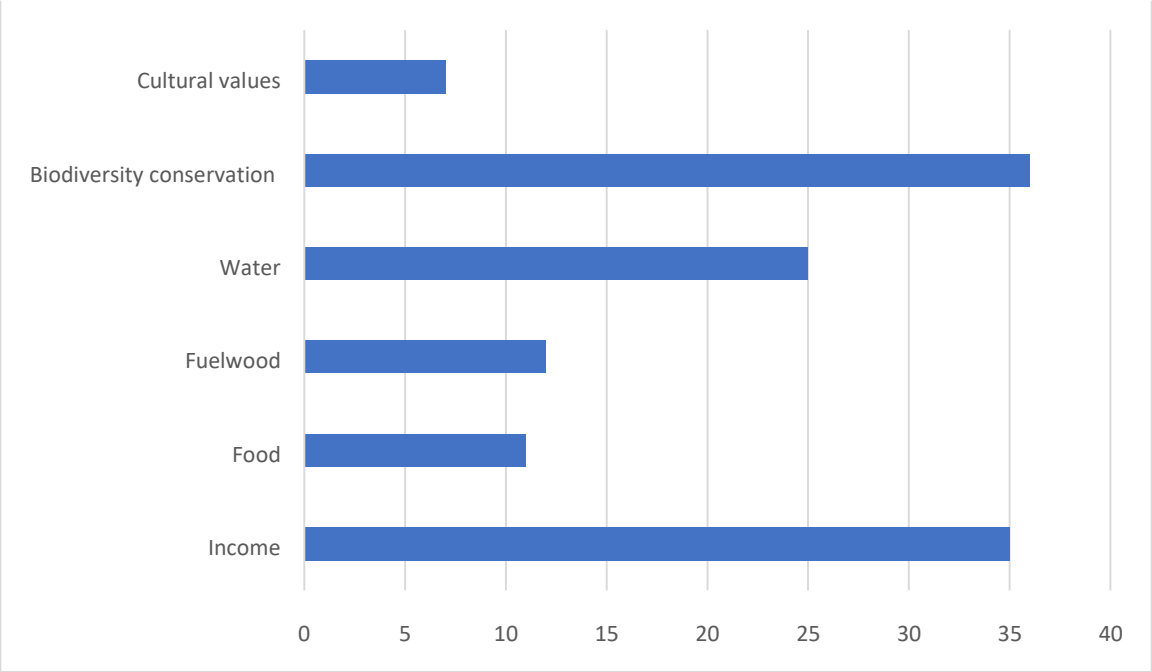

Figure 1: Group needs in forest conservation

From the research findings, the majority of the respondents indicated that biodiversity conservation followed by the need to earn income from forest resource use while the need to conserve the forest due to cultural values had the lowest response as a need. Based on the results, biodiversity and income were the major needs of CFA members. The findings of the study are in concurrence with Ongungo et.al. (2008) who found that 62.5% of the respondents who were members of CFAs in Kakamega had joined the groups in order to access forest products and other benefits that accrued from better management of forests as well as ensuring sustainability of the forests. The results agree with the findings of Wambugu et al. (2018) who found that water was an important forest product derived from the forest ecosystem. The respondents of this study stated that water was important for agricultural production as well as for domestic use.

Bidii &Ngugi (2014) also found that among the respondents around the Karura Forest engaging in the honey project, a majority (59.7%) indicated they were involved for conservation purposes while 29.2% for reasons of livelihood support and 11% to achieve forest management policies. Therefore, the majority of CFA members are more interested in conservation of the forest as research findings show. Uphoff (1998) noted that the identity and values of certain communities are linked to living around and extracting resources from certain ecosystems. This

was evident for respondents whose association with the forest resources mainly had cultural values associated with them.

3.2 Community Participation in Resource Mobilization and Sustainable economic Use of the Forest

The second variable of the study was to examine how community participation in resource mobilization for CBNRM projects affects the sustainable economic use of resources of the Aberdare Forest.

Table 2: Major sources of Funding for CBNRM projects

Source of funding	Frequency	Percent
Donor-funding	8	21.6
User-group activities	26	70.3
Government agencies	3	8.1
Total	37	100

According to the results shown in the table revealed that majority of the respondents (comprising of 70.3%) stated that user group activities were the main sources of funding, 21% noted that donor-funding was the main source of funding while only 3% stated that government agencies were the main source of funding for CBNRM projects. The study revealed that majority of the CBNRM activities are funded by user group activities such as contributions by members and membership fees. These results coincide with previous research findings which show that majority of the forest associations in Kenya get funding mostly from the membership contributions and voluntary contributions amongst themselves, followed by funds from development agencies and also funding from the sale of seeds and seedlings (Ongungo, Obonyo, & Oeba, 2008).

3.3 Community Participation in Implementation of Projects and Sustainable Economic Use of the Forest

The third variable of the study was to establish the effect of community participation of CBNRM projects on the sustainable economic use of the Aberdare Forest in Kenya.

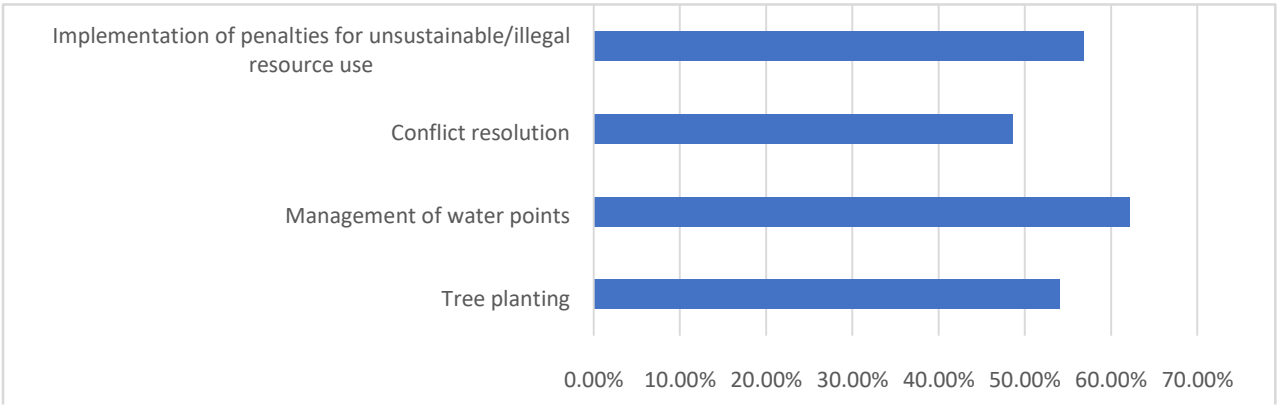

Figure2: Member Involvement in Implementation of Conservation Activities

The results of the study on the table indicate the highest number of respondents (62.2%) indicated that all members were involved in the management of water points, 54.1% indicated that all members were involved in tree planting, 48.6%indicated that they were involved in conflict resolution while 56.8% stated that they were involved in the implementation of penalties for unsustainable or illegal use of resources. The research findings also indicated that majority of the community members participated in the management of water points. These results do not coincide with Ongungo et al. (2008) who found that majority of the members participated in seedling planting and more than half were involved by coordination of conflict resolution.

3.4 Community Participation in Monitoring of Projects and Sustainable Economic Use of the Forest

The fourth variable that guided the study was to investigate how community participation in monitoring of

CBNRM projects.

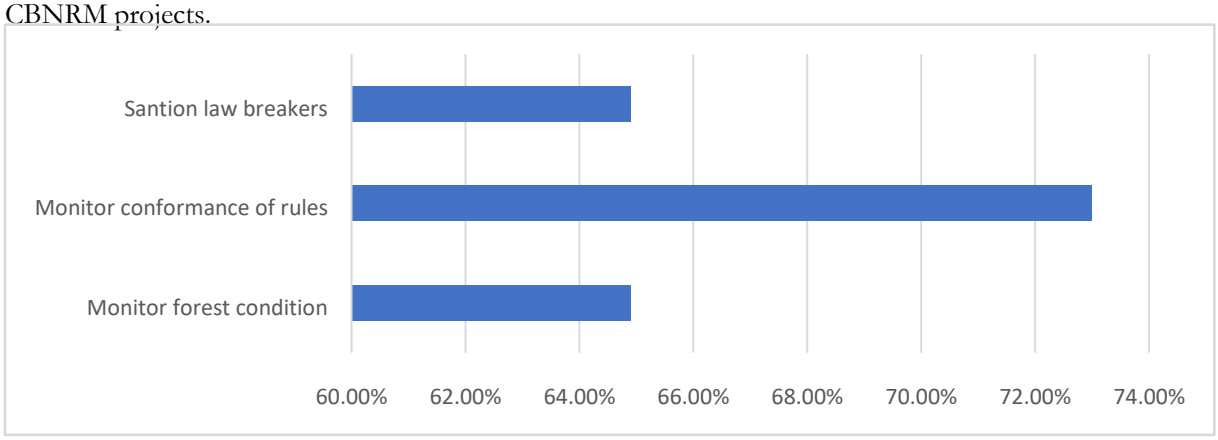

Figure 3: Member involvement in Monitoring Activities

From the results, majority of the respondents (73%) stated that all members in the user groups participated in monitoring the conformance of rules, while 64.9% noted that members were involved sanctioning law breakers and also monitoring forest. The findings also suggest that when it comes to monitoring of CBNRM activities, majority of the respondents participated in the monitoring of the conformance of rules amongst themselves. Cox et al. (2010) noted that monitoring is seen as an important principle in managing common-pool resources because it enhances accountability of community members to each other and helps in the identification of those who do not comply with the rules.

In order to assess whether members were able to benefit economically while ensuring sustainable use of the forest, the study investigated whether they earned income.

Table 3. Method of generating income

Method of generating income	Frequency	percent
Sale of forest resource outputs	7	18.9
Indirect income from the use of forest resources	7	18.9
Sale of products made from forest resources	10	27.0
Sale of tree seedlings	2	5.4
Payments for conservation activities	8	21.6
No income earned	3	8.1
Total	37	100.0

Majority of the respondents (27%) stated that they earned income through the sale of products made out of forest resources, while 21.6% stated that they earned income from participating in conservation activities, 18.9% indicated that they earned income from the selling forest resource outputs, while another 18.9% noted that they earned indirect income from the use of forest resources 5.4 % noted that they earned income from the selling tree seedlings while 8.1% indicated they made no income from forest use. With regard to earning income from the conservation and use of resources, the greatest majority of CFA members indicated that they were able to earn income through various ways with the highest earning from the sale of forest outputs such as firewood, water among other products as well as indirectly such as through agricultural activities.

4. Conclusion

The study concludes that community based natural resource management contributes to the sustainable economic use of the Aberdare Forest in Murang'a County where members are able to take part in needs assessment, resource mobilization, implementation and monitoring of CBNRM projects. Despite the challenges that community members face while conserving forest resources, it has proven to be a better way to enhance sustainability in terms of the use of these resources while at the same time ensuring that resources are not destroyed in the process. This is because when community members are involved in conservation activities they are able to have a sense of ownership and will actively ensure that they protect what they feel they own. It is however important that the necessary support is provided in terms of information and financial support to ensure that they have increased capacities to protect the Aberdare Forest.

References

Adams, W. M. (2006). The Future of Sustainability: Re-Thinking Environment and Development in the Twenty First Century. The World Conservation Union.

Armitage, D. (2005). Adaptive capacity and community-based natural resource management. Environmental Management, 35, 703-715.

Awimbo, J., Barrow, E., &Karaba, M. (2004). Community based natural resource management in the IGAD region. IUCN.

Bidii, H., &Ngugi, P. (2014). Challenges impeding the effective implementation of community-based natural resource management projects in Kenya: A case study of Mji wa Huruma village in Nairobi, Kenya. *International Journal of Social Sciences Management and Entrepreneurship*, 1(2), 141-173.

Bixler, R., Dell'Aneglo, J., Mfune, O. &Roba, H. (2015). The political ecology of participatory conservation: institutions and discourse. Journal of Political Ecology, 22(1), 164-182.

Brundtland Commission. (1987). *Our Common Future*. Oxford University Press.

Bugembe, B. (2016). Natural resource governance framework challenges and opportunities in Eastern and Southern Africa. International Union for Conservation of Nature and Natural Resources.

Cox, M., Arnold, G., & Tomas, S. (2010). A review of design principles for community based natural resource management. *Ecology and Society*, Vol.15 (4), 38.

Danida. (2007). Community-based Natural Resource Management. Ministry of Foreign Affairs of Denmark.

DeCaro, D. A., & Stokes, M. K. (2013). Public participation and institutional fit: a social psychological perspective. *Ecology and Society*, 18(4), 40.

Dressler, W., Buscher, B., Schoon, M., Brockington, D., Hayes, T., Kull, C., Sheathe, K. (2010). From hope to crisis and back again? A critical history of the global community-based natural resource management (CBNRM) narrative. *Environmental Conservation*, 37(1), 5-15.

FAO. (2018).*The state of the world's forests: Forest pathways to sustainable development*. Rome, Italy: FAO.

Gruber, S. (2010). Key principles of Community-Based Natural Resource Management: A synthesis and interpretation of identified effective approaches for managing the commons.

Lavrakas, P. J. (2008). Census. *Encyclopedia of Survey Research Methods*, Vol. 8, No. 5, pp. 01-

Matiku, P., Mireri, C., &Callistus, O. (2013). The Impact of Participatory Forest Management on Local Community Livelihoods in the Arabuko-Sokoke Forest, Kenya. *Conservation and Society*, 11(2), 112-129.

Maundu, P., &Tegnas, B. (2005). Useful trees and shrubs for Kenya. Nairobi, Kenya: World Agroforestry Centre.

Milupi, I., Somers, M., & Ferguson, W. (2017). A review of community-based natural resource management. *Journal of ecology and environmental research*, 15(4).

Ministry of Environment and Forestry. (2018). Taskforce Report on Forest Resources Management and Logging Activities in Kenya. Nairobi: Government of Kenya.

Mugenda, O., &Mugenda, A. (2003). *Research Methods: Qualitative and Quantitative Approaches*. Nairobi: Acts Press.

Ochola, W., Sanginga, P., &Bekalo, I. (2010). Managing Natural Resources for Development in Africa: A Resource Book. Nairobi: University of Nairobi Press.

Ongungo, P., Obonyo, E., &Oeba, V. (2008). Examining the roles of community forest Associations (CFAs) in decentralization process of Kenyan forests. IASC Conference. London: Kenya Foresty Research Institute. Schindler, D. (2011). Business Research Methods. New York: McGraw Hill International.

Stephen, P., &Triraganon, R. (2009). Strengthening Voices for Better Choices. A capacity needs assessment process. Gland, Switzerland: International Union for Conservation of Nature and Natural Resources.

Taneja, J. (2016). Examining the nature and the level of participation in community based natural resource management. Nainatal, India.

Wambugu, E., Obwoyere, G., &Kirui, B. (2017). Socio-economic factors that determine community particpation in forest management and conservation of adjacent systems: A case of Aberdare forest, Kenya. *Journal of ecology and the natural environment*, Vol. 9(10), 165-176.

Wanje, N., Nyiro, A., & Robert, N. (2017). Drivers of success for community based natural resource projects in Coast Region of Kenya. *International Journal of Environmental Sciences & Natural Resources*, Vol.3(5).