

Preservation of Knowledge Systems through Integration of Indigenous Knowledge System: A Case Study of Ogiek Community in Mau Forest, Kenya

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Abstract

Colonialism attempts to impose one's way of dominion on another person's way of life in order to subjugate them to the control of the foreign power through social, economic, judicial, and cultural inequalities. In the past, colonization destroyed indigenous knowledge, which functioned as a sustainable source of subsistence, causing cultural diversity to be fragmented. This calls for the conservation of this indigenous knowledge. The Ogiek Community, who are hunter-gatherers residing in Kenya's Mau Forest, is used in this case study to illustrate how indigenous knowledge can be used as a tool to promote decolonization by providing a framework for a lifestyle distinct from that of the western imperial system. They have long relied on their ancestors' traditional knowledge to lead sustainable lives, with little to no impact from western culture. An ethno-historical approach was employed in the design, data collection, analysis and interpretation. This study employed qualitative data collection methods intermittently between March and August 2022 for a period of six months. A total of 50 interviews were conducted for this research, consisting of 13 cultural consultants, 27 elders, 6 local administrators and 4 Kenya Forest Service Officers (KFS). The qualitative interviews were complemented by participant observations and twelve focus group discussions. The qualitative data from the interviews and focus group discussions was transcribed, coded and analyzed thematically. The chi-square tests revealed a significant relationship between age and indigenous knowledge ($\chi^2 = 15.263$, $p = 0.003$). Results also revealed a significant relationship between an individual's years of residence in the area and indigenous knowledge ($\chi^2 = 17.847$, $p = 0.004$). It was found that the integration of indigenous knowledge in preservation of knowledge systems of the Ogiek community was effective. This knowledge is key for contextualizing curricula as learning materials, practices and languages for learning.

Keywords: *Indigenous knowledge, colonialism, conservation, Ogiek community, Mau forest, decolonization.*

1. Introduction

The Mau Forest (MF) is both the largest single block of closed-canopy forest ecosystem in East Africa and the largest indigenous forest block in Kenya (Nkako, et al., 2005). The MF is said to be a protected public forest and is located between 1,200 and 2,600 meters above sea level with an average annual rainfall of 2,000 millimeters. The Ogiek term "Moouu," which means "coolest of the coolest" to denote the "cooled," is where the name "Mau" originates (Sena, 2006). The Ogiek people have historically lived in the forest, but in recent years, many other groups have illegally

migrated there without taking into account the Ogiek people, who have lived there from the beginning of time (Nkako, et al., 2005; Sena, 2006).

The Ogiek people are thought to be the biggest group of East African forest dwellers, numbering about 20,000 and possessing a unique language and culture (Kiage, 2009). Economic, political, and cultural way of life that is totally reliant on the forest for its civilization, livelihoods, and very survival.

Colonial educational structures' reliance on cultural norms that were at odds with indigenous knowledge was their main flaw. The persistent social, economic, and scientific linkages between African nations and their former colonial powers contribute to the lack of relevance.

The integration of African cultural values and indigenous languages into the educational system at all levels is still marginalized since reforms in African learning systems are still conceptualized and carried out within the context of this relationship (Smith, 2002). Separating theory from practice was emphasized in Western education throughout colonialism. This was critiqued by the former president of Tanzania, (Nyerere, 1967), who questioned the value of education in a developing nation with high levels of poverty and inequality.

Indigenous peoples' lives are closely entwined with their environment, which not only provides for them but also serves as a source of spiritual inspiration. Their locales and territories, which connect their social and natural worlds, are the foundation of their cultural diversity (IUCN, 1997).

The IK of the Ogiek people is distinct from other cultures because of their traditional management practices, which allowed them to sustainably protect Mau Forest and continue to pursue their livelihoods of honey production, hunting, and gathering of wild fruits and nuts. Even though this paper aims to present a case study on the Indigenous Knowledge Systems (IKS) of the Ogiek, it is essential to review major ideas to provide the readers with a feeling of direction.

Learning is an integral part of life in any society. According to indigenous learning, people's learning is influenced by the social and cultural influences in their environment. According to Hinzen (1988), humans were able to adjust their way of life to their surroundings across generations during the prehistoric eras because they were able to learn from others' mistakes and successes.

Indigenous education adapted to societal shifts and was consequently linked to social advancement. Depending on the historical and cultural context, it took on various shapes. Indigenous knowledge is said to be influenced by the current political, social, religious, and economic systems (Ishumi, 1976). The transmission of knowledge and values was achieved primarily through apprenticeship and experiential learning, whether from subsistence activities or cultural practices. In this way, most of the successes in sustaining Ogiek culture and indigenous knowledge (IK) conservation

have been through the practice of keeping children close to their parents, with transmission occurring both passively and actively through imitation, copying, apprenticeship and practice. However, a widespread aspect of formal education was provided through apprenticeship schemes. Their knowledge system was carefully constructed around observing natural processes, adapting models of survival, obtaining sustenance from the plant and animal world. They did use natural materials to make their tools and implements.

All these were made understandable through thoughtful stories and demonstration. Indeed, the Ogiek people have traditionally acquired their knowledge through direct experience with the natural environment (Kratz, 1989). Ideally, Ogiek indigenous education was meant for their immediate induction to the society and it was strictly utilitarian in nature.

2. Materials and methods

2.1 Study area

Fieldwork was conducted between March and August 2022 among Ogiek communities living in the Eastern Mau Escarpment. The study area is in Nakuru County and covers 345.5 km², extending from 2100 to 3000 m above sea level (Force, 2009). Seven locations in the Mau highlands were used to create the research sample: Teret, Sururu, Nessuit, Mariashoni, Bararget, Tinet, and Kiptororo. The bulk of the Mau Ogiek live in these locations (Towett, 2004).

The major geomorphological features include escarpments, hills and plains. The area has a bimodal rainfall pattern, with rains between May and June and between September and November. Mean annual precipitation is 1200 mm and mean annual temperatures range from 12 to 16 °C, with the greatest diurnal variation occurring during dry seasons (Zochi *et al.*, 2020). The Eastern Mau Complex can be vertically divided into four ecological areas: an open bushy forest at the edge of the plains (up to 2100 m a.s.l.), a more dense forest with large evergreen, semi-deciduous and deciduous trees (2100–2600 m a.s.l.), an upper bamboo forest (higher than 2600 m a.s.l.) and open grassland (2800–3000 m a.s.l.) (Trivellini *et al.*, 2018).

2.2 Data Collection

The relevant research design for this study was an ethno-historical design. This is the systematic and objective location, evaluation and synthesis of evidence in order to establish facts and draw conclusions concerning the past events. The study sought to investigate the preservation

of knowledge systems through integration of indigenous knowledge of the Mau Ogiek. This design typically combined two research strategies, the emic (local viewpoint) and the etic (scientist-oriented) approach. On the one hand, the emic approach investigated how the local people explained, thought, perceived and categorized their worldview. From this, the researcher identified the rules of behavior and the meanings attached to them. Non-probability sampling strategy's snowball and purposive sample procedures were used to select 50 study respondents.

The study employed field observations, oral interviews and focus group discussions. The data sought to answer three questions; the data was collected using semi-structured questionnaire to collect the needed information. The questionnaire consisted of four main sections for capturing (i) demographic characteristics of the respondents (ii) indigenous knowledge systems of the Ogiek community (iii) indigenous concepts and strategies to preserve knowledge systems (iv) threats to indigenous knowledge system. The questionnaire was pretested to get rid of any potential issues local authorities and the community. The interviews were only conducted after getting consent from the respondents, expressing their willingness to be part of the study.

2.3 Data Analysis

The data was analyzed using IBM SPSS 25 and Microsoft Excel® (version 2019). The data was organized, classified, synthesized, and interpreted over the course of several stages. Each of these procedures was discovered to be iterative in an ongoing endeavor to focus on and understand

the new affects and categories that made up the framework for structuring this study. In this study, the four procedures of qualitative data analysis—reading or memoing, describing, classifying, and interpreting—were ultimately used. Pearson's chi-square tests were conducted on variables that were predicted to influence the indigenous knowledge systems to determine whether there were significant relationships between indigenous knowledge and the various variables, at 5% significance level.

3.0 Results

3.1 Demographic characteristics of the respondents

The characteristics of the respondents included gender, age and the level of education in the study area are shown in Table 1. The vast majority of respondents were male (72%). They were mostly between 20-30 years, accounting to almost half of the respondents (34%), with majority having no formal education (36%). Age and years spent living in a particular environment are good indicators of an indigenous people's familiarity with its resources (Khamati, 2015). The age of the respondents and their level of education are important considerations when examining how IK might be retained. Pearson's chi square test revealed that age and the indigenous people's knowledge of MF had a significant relationship ($\chi^2 = 15.263$, $p = 0.003$). The test also revealed a significant relationship between the individual's years of residence in the area and IK ($\chi^2 = 17.847$, $p = 0.004$). The results of this study demonstrate a significant correlation between indigenous peoples' age, degree of education, and knowledge of cultural preservation.

Table 1: Demographic characteristics of the respondents.		
Characteristics	Frequency (n)	Percentage (%)
Gender		
Male	36	72
Female	14	34
Age (years)		
20-30	17	34
31-40	14	28
41-50	11	22
50>	8	16
Level of education		
No formal education	18	36
Primary level	16	32
Secondary level	12	24
Tertiary level	4	8

3.2 Indigenous knowledge systems of the Ogiek community

Respondents reported that their traditional patriarchal and patrilineal style of governance predominated (92%) in their society, followed by beekeeping (90%) as shown in (figure 1) and traditional medical practice (85%), as indicated in Table 2. According to the findings, handcraft production (82%) is still profitable due to the preservation of culture, whereas the practice of animal hunting (76%) has declined over time as a result of government restrictions on the activity. They stated that the government's ban on farming activities inside Mau Forest reduced farming activities inside MF (60%), while the ongoing effects of climate change, resulted to low application of ecological knowledge on habitats' (73%) and consequently, destruction of habitats through illegal logging reduced the ecological knowledge on habitats (73%).

Indigenous knowledge (IK) is one type of knowledge that describes knowledge and expertise specific to a particular culture, have been passed down through the generations, and direct human societies in their interactions with one another, the cosmos, and their environment (Warren, 1987; World Bank, 1998). IK studies local knowledge that is specific to a given culture or society and incorporates the spiritual, environmental, technological, social, economic, and political components of society (Dounias *et al.*, 2016, Jilo, 2021, Olokesusi, 2006). These lessons have helped communities

build strong social networks based on interdependence, manage resources sustainably, especially in the areas of food, water, and healthcare, and develop effective natural disaster preparation and response plans (Makondo and Thomas, 2018, Shilabukha, 2015). IK has been critiqued to the extent that it now has multiple meanings in the current African development discourse, especially since the start of formal decolonization programs around the world (Mawere, 2010).

The introduction of non-indigenous faiths gravely undermined the spiritual foundation of African cultures and traditions, beginning a process of 'dismemberment,' first through enslavement and then through colonialism (wa Thiong'o, 2009). The disruption of family and community structure, as well as the loss of land, livelihoods, memories, and customs, are all examples of the "dismemberment" of African peoples as a result of colonialism (wa Thiong'o, 2009). Nevertheless, African Indigenous spiritualities and traditional practices have endured to varied degrees in civilizations and form the cornerstone of communities' everyday existence, particularly in rural regions, despite historical persecution. Indigenous knowledge has given communities a safe refuge to preserve their way of life and social cohesion (Makondo and Thomas, 2018).

Table 2: Indigenous knowledge system of the Ogiek Community	% of respondents
Farming	60
Traditional medicine	85
Bee-keeping	90
Animal tracking and hunting	76
Gathering wild fruits	57
Handicraft production	82
Traditional climatic classification system	75
Ecological knowledge on habitats	73
patriarchal and patrilineal system of governance	92



Figure 1: A traditional beehive set by the Ogiek community.



Figure 2: An Ogiek elder harvesting honey.



Figure 3: Community members dressed in animal skins.

cute certain ceremonies, harvest, hunt, collect, and make tools from plants and animals. Numerous events, such as the funeral ceremony, distinguished the Ogiek culture.

The Ogiek also performed marriage, which included: choosing a wife, getting engaged, haggling over the bride price, and having a wedding ceremony. A couple was viewed as blessed if they had children of both sexes; the more children the couple had, the more blessed they were. Polygamy was used in the community and divorce was uncommon.

The Ogiek performed the naming ceremony, which entailed chanting ancestor names until a child sneezes to indicate acceptance of that name. All the young males in Ogiek were traditionally grouped together for leisure activities including dancing, collecting honey, and hunting under the age-set (*ipinda*) system. The oldest living group of people was and is still regarded as the intermediary between the spirits of the living and the dead.

The Ogiek social structure is made up of clans. A clan (*Gaita*) is made up of two families or somewhat more. Each clan in a sub-tribe had an animal totem that it was responsible for protecting and could not be hunted. For instance, the lion (*Ngetuindo*) represented the Kiptieromu clan, while the elephant represented the Kimeito. An elder chosen from the head of the eldest family led the region of each clan. No clan was allowed to go hunting in their neighbor's region according to the community's code.

More importantly, Ogiek parents tried their best to provide their children and teenagers with a solidly practical

3.3 Indigenous concepts and strategies to preserve knowledge systems

The Ogiek employed a number of ideas and techniques to help save their traditional knowledge. They created their own clothing from wild animal skins (figure 3), such as hyrax (*inderit*) and antelope (*poinet*). *Muito* fashioned his shoes from tough animal skins that were stitched together with straps for flexibility. The nature of the physical world as people have experienced it and the significant events of their historical journey are explained through oral traditions, which are a "loosely held collection of anecdotal material". The Ogiek preserved their IK through culture in a variety of ways, including traditions, conventions, folklore, legends, proverbs, myths, songs, and dramas.

Oral traditions included greater details about places, birds, plants, and animals from particular habitats and locales in addition to information about ancient periods. Majority of the members relied on this oral history knowledge for their instruction and guidance on how to live in harmony, exe-

education. As shown by this study, the nature and content of this practical schooling were obviously gender-focused and were heavily influenced by the nearby environment. The occupation of a boy's father had a significant impact on his education, but the mother's gender obligations had a significant impact on a girl's education. Parents of Ogiek children provided the majority of their training and direction, while there was a big emphasis on participant observation during the learning process.

3.4 Threats to indigenous knowledge systems

The study also assessed threats to indigenous knowledge systems of the Ogiek. Based on the responses as shown on Table 3, 87 % of the respondents identified colonialism as the major threat seconded by 84% of the respondents acknowledging ignorance as a threat too.

Threats to IK systems have a variety of ecological and sociocultural repercussions that spread through intricate channels. These sociocultural effects have gender- and age-specific effects, and can affect people, groups, and regions (Turner and Turner 2008).

Changes in IK transmission patterns, beliefs, and livelihood practices resulted to intentional or compelled non-indigenous immigration as well as indigenous emigration.

For instance, the migration of indigenous youth to urban areas in quest of better employment prospects and educational opportunities was impacted by the desire to study IK (Lizarralde, 2001; Reyes-Garcia *et al.*, 2007). Young people from the Ogiek community who spent a lot of time outside lacked the ability to communicate in their own tongue and obtain knowledge from elders.

Government rules and restrictions can sometimes push an indigenous tribe or people to leave their native territory and relocate to a new area (Tang and Gavin, 2010). Non-indigenous group immigration also exposes people to their beliefs, cultures, and customs (Case *et al.*, 2005; Zent and Maffi, 2009). Forced migration (Figure 4 & 5), caused the indigenous population to settle in a new setting, which caused a decline in their IK as they adjusted to the norms of the new setting. This serious threat to indigenous culture and ways of life was recognized in the United Nations' State of the World's Indigenous Peoples report (WGIP, 2006).

Colonization, particularly the upkeep, acquisition, establishment, and expansion of colonial regions, resulted in the loss of IK transmission pathways, the divergence of traditional ways of life, the loss of traditional religion and convictions, the loss of traditional privileges, and

Table 3 : Nature of Threat	% no of respondent
Migration and Forceful evictions	76
Inter-marriages	68
Colonialism	87
Globalization	71
Government policies	65
Discrimination and marginalization	82
Lack of rights to land	74
Ignorance towards own tradition and cultural practices	84
loss or misappropriation of digitized indigenous knowledge	64
Deforestation (illegal logging)	78
Pressure from economic development	66
War	70
Influence by invaders	61



Figure 4: A man standing beside his destroyed house.



Figure 5: Showing a disappointed lady after eviction.

the destruction of traditional institutions. Indigenous populations were forced off their ancestral lands and denied access to resources due to colonial regional development. Compulsory education programs that obstructed conventional transmission methods were frequently incorporated in colonial and postcolonial laws and policies (Cruz Garca, 2006).

In addition to the many immediate threats to IK, such as changes in traditional livelihood practices, the abolition of traditional institutions, the loss of traditional rights, and the abolition of traditional means of IK transmission, legislation and policies that repress or degrade indigenous groups' culture and tradition pose additional risks. Indigenous dialects and the IK imparted via them have been significantly impacted by government prohibitions on the use of native dialects in state-funded schools. Government rules and policies have frequently undermined native peoples' rights to self-association, access to resources, and ownership of land (Tang & Gavin, 2016).

Changes in IK have been influenced by ecological disturbance (Rocha Silva & Cavalcante Andrade, 2006; Harrison, 2007). Population growth, resource misuse, and conflicts caused by immigrants using native resources caused natural change (Rocha Silva & Cavalcante Andrade, 2006). Additionally, relocation of indigenous people caused alterations to the ecological foundation of IK (Tang & Gavin, 2010).

Because the Ogiek people's education was ultimately derived from their immediate heritage and natural surroundings using realistic and situational learning that was constrained by their physical surroundings, they also placed a strong emphasis on protecting the environment and cultural heritage.

Conclusion

The study aimed at understanding the role of indigenous peoples' knowledge in preservation of IKS. The study found out that the Ogiek have their own distinctive IK. For example, the collection of experiences created by the residents through social customs, institutions, connections, and rituals led to innovations, and collective knowledge. Through various solutions for dealing with environmental conservation and catastrophe management, IK has over the years advised Ogiek people on how to exploit their natural resources in a sustainable manner. It was clear that the Ogiek people are still using IK today.

Limitations of Indigenous Knowledge

IK does have its limitations, much like scientific knowledge, and these must be acknowledged. IK is occasionally accepted without question due to misguided beliefs that everything indigenous people do is inherently harmonious with the environment. Indigenous peoples have allegedly violated environmental laws by overgrazing, overhunting, or overcultivating the land, according to historical and modern evidence. To assume that IK is always "good," "right," or "sustainable" is misguided.

Recommendations

- The Kenyan constitution should be amended to recognize the existence and protection of indigenous people in Kenya through parliament in accordance with Article 256(4) and (5), or to the people in a referendum;
- Collecting, documenting and disseminating Indigenous Knowledge System (IKS) which is also called oral libraries creating an environment which permits face-to-face forums and network formation to discuss and debate on issues that might be useful to members of the communities;
- Promoting and enhancing IKS through the development of partnerships, stakeholder networks, recognizing the market value of IKS by Lobbying with relevant departments of the government and policy makers at local and national levels to integrate learning from communities;
- Legally recognize and respect the rights of the Ogiek community to live in their ancestral home by withdrawing government's plan to evict the Ogiek community from the Mau Forest;
- Indigenous communities and civil society actors should employ innovative measures, in partnership with development partners, aimed at addressing the socio-economic needs of the communities such as training, development of tools and infrastructure in order to strengthen the capacity of indigenous communities to respond to the challenges they meet;
- There should be a dialogue with the government of Kenya, civil society and indigenous communities in the country to ensure that the rights of indigenous peoples in all fields are respected.

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