



**CONTEXTUALIZING HISTORICAL AND
SOCIO-ANTHROPOLOGICAL LITERATURE ON INDIGENOUS
EDUCATION IN ENHANCING ENVIRONMENTAL
CONSERVATION: CASE OF OGIEK OF MAU FOREST, KENYA**

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Abstract:

A critical analysis and reflection of the literature was reviewed regarding the Ogiek system of indigenous education as it existed from the eve of colonial intrusion with special emphasis on environmental conservation. The literature reviewed was aims at expounding the influence of indigenous learning and training activities as conducted by the Ogiek during the period of initiation. It aptly provides a critical examination of the part played by indigenous Ogiek gender-based learning and training activities, including apprenticeship schemes, on sustainable conservation of environmental resources. The article further highlighted the influence of White Settlers and successive governments on the Ogiek indigenous education systems of environmental management. Arguably, the influence of indigenous education on environmental conservation among the Mau Ogiek has been discussed with the context of two theories, namely; general systems theory and cultural ecology theory.

Keywords: indigenous education, multilingualism, apprenticeship, Mau Forest, Ogiek people

1. Introduction

The anthropological and historical studies that have been carried out on the Ogiek, especially by Blackburn (1983) and Kratz (2001) concern their origins, migration,

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political, social and economic organization. However, little attention has been paid to their indigenous education in relation to environmental management. In this chapter, the literature has been divided into four sub-sections, with a view of analyzing Ogiek indigenous socio-cultural patterns of environmental management. These include: indigenous education and environmental conservation; initiation, religious beliefs and gender-based knowledge on environmental management; apprenticeship schemes and environmental management; and lastly environmental management, indigenous and western education as practised by the Mau Ogiek.

2. Indigenous Education and Environmental Conservation

A critical examination was made of the Ogiek system of indigenous education as it existed from the eve of colonial intrusion with special emphasis on environmental conservation. According to Blackburn (1976), the lineage was and still is the land-holding unit, the social unit responsible for giving girls in marriage, negotiating and paying compensation in legal cases, and the unit of residence among the Mau Ogiek. Indeed, the lineage is the principal social institution of the Ogiek under which their indigenous education forms the focal point.

Huntingford (1955) studied the history of the Ogiek on the edge of Tinderet Forest and found out that the lineage was the most important social unit which underlay their indigenous education. Generally, from these studies it is clear that all the Ogiek people identify themselves not only as Ogiek but also by their local group affiliations. In these studies, Huntingford (1955) and Blackburn (1976) did not address the issue of how the Ogiek manage the environment.

While analyzing the origin and migration of the Ogiek, Hopley (1908) asserted that the Ogiek community migrated from the Mount Kenya region during the seventeenth century when the Kikuyu arrived there and cleared the forest for cultivation. Hopley concluded that this deprived them of their livelihood. Consequently, many died while others took to other regions where they formed colonies in Baringo, Naivasha, Eldama Ravine, Kijabe, Laikipia, Taveta and the Mau Highlands.

Blackburn (1983) and Kratz (1993) observed that each forest zone in the Mau Highlands was owned by an Ogiek lineage and ownership of those territories (*konoito*, sing; *Konoituek*, pl.) entailed the right of a lineage to use the forest for the purpose of collecting honey. Kratz (1990) acknowledges that each territorial strip (*konoito*) was held by only male members of a patrilineage. In order to manage the forest, the Ogiek

allocate blocks of forest to the lineages or clans to use. Blackburn (1982) and Kratz (1993) note that such occupation by the clan involves subdividing it according to their family tree. The Ogiek thus hold their land collectively while individual community members enjoy subsidiary rights to use and occupancy. A proper understanding of how the Ogiek interacted with the natural environment requires an examination of their various social institutions.

In his study, Blackburn (1971) asserts that to understand hunting-gathering tribes, knowledge of their natural environment is essential. Blackburn (1976) also notes that the environment in which the Ogiek of Mau lives is more complex than that of most other hunting and gathering communities. The Ogiek utilize several environments, which occur at different altitudes from about 6,500 feet to 10,000 feet on the Mau escarpment. Because of varied climate, vegetation and animals characterize each natural zone, Ogiek exploitation of all these zones thus significantly increases their access to different types of food during the varying climatic conditions throughout the year.

Blackburn (1983) and Kratz (1990) identify five zones of forest type on the Mau Highlands. These zones correspond to different elevation levels and reflect the consequences of higher annual rainfall in the upper forest and more sporadic rainfall in the lower forests. Reflecting on these ecosystems, Blackburn (1983) and Kratz (1999) acknowledge that different species of flowering plants and trees, which grow in each forest zone, correspond to different species of animals that tended to be found in each forest zone depending on their preferred plant food. From these studies on the Ogiek, we get valuable information regarding some aspects of their indigenous system of education. However, none of these scholars has specifically focused on how this system of education relates to the management of environmental resources. These authors outline the different ecological zones distinguished by the Mau Ogiek but do not relate them to matters regarding their indigenous education and environmental conservation.

In order to manage their environmental resources, the Ogiek sub-divided the forest among their clans using natural features like rivers, valleys or hills as boundaries recognized according to their customary land tenure system (Blackburn, 1971; Kratz, 1993). While making such demarcations, they took into cognizance the organization of the productive resources and issues involving land, hives, labour and legal status. The forest itself, where meat and honey were sought, was divided into parcels cut along the slope of the escarpment (Kratz, 1990).

The Ogiek protected the streams and rivers by ensuring that no cultivation was done within fifty metres on both sides of the river (Hobley, 1908 and Kratz, 1999). As

well as acknowledging this intricate social arrangement on land occupancy, Kratz contends that the forest areas where the Ogiek live, and their way of conceptualizing and inhabiting that space strikes one of the deepest chords in the community's sense of themselves. Kratz (1981) also emphasizes that the forest and the life of the forest runs through Ogiek life symbolically, ceremonially and economically.

Numerous studies concern the Ogiek and their neighbors. For instance, Blackburn's (1977) study of the Mau Ogiek observed that Ogiek clan names are the same as those for the Kipsigis, and that Ogiek and Kipsigis identify themselves as being of the same clan. According to him, both the Kipsigis and the Ogiek recognize a feeling of commonality. From this study, we can infer some similarities between the Kipsigis and the Ogiek in so far as their indigenous education is concerned. Ronoh (2000) touches on some aspects of Kipsigis indigenous education, which were useful in drawing parallels to this study.

Anthropological and sociological studies have carried out on other African communities, which address the same issues as those that were researched in this study. In the case of the Keiyo, a sub-group of the Kalenjin, Chesang (1967) argues that they shape their ideas, institutions and beliefs so as to conform to their natural environment. He stresses the role of the environment in determining the socioeconomic activities to which education belongs. Similarly, Kenyatta (1938), observed that the youth learnt from the elders the names of trees, plants, animals and insects as well as the dangers and uses of each. But his concern was especially focused on understanding the Kikuyu heritage rather than on identifying and examining environmental issues. Ocitti (1993), who also studied Kikuyu indigenous education, its natural setting and dominant cultural values, emphasizes the community's ecological and survival mechanisms. Likewise, Ogeno (1993) examines the philosophical foundation of African indigenous education. He focuses directly on the complex nature of philosophy of education in the African context with particular reference to the Luo of Kenya. These studies were useful in identifying fundamental issues that have been pointed out in passing regarding environmental conservation.

Closely related to this study in most respects is Ocitti's (1993) work on the indigenous education of the Acholi of Uganda. Ocitti (1993) views Acholi indigenous education as the sum total of the experiences of the family, clan, chiefdom and the tribe. He emphatically states that the curriculum for indigenous education grew out of the immediate environment. Learning took the form of inculcation of knowledge about the weather, types of landscapes, as well as their associated animal and insect life. Ocitti (1993) further asserts that because of the difficult aspects of the environment, certain

emotional attitudes and sentiments were developed around them. His work was useful in shedding light on the evolution of Ogiek indigenous education in relation to environmental adaptation.

Castle (1966) concurs with Ocitti (1972) that the content of native education grew naturally out of the physical and social environment. He stresses that an individual's habitat was dominated by mountain, plain, river or tropical forest. Besides the acquisition of practical skills, an individual in traditional society was expected to achieve an awareness or understanding of his place in the society, his role in the same society and what the environment (both natural and human) offered for his personal and community utilization (Ocitti, 1993).

In summing up this sub- section on indigenous education and environmental conservation, Ocitti notes of the Acholi:

...as they made an ecological adjustment to their natural environment and neighbouring societies, they made what may be termed as an environmental evaluation i.e. of their own surrounding, knowledge of this environmental evaluation, which in turn helped the leadership of the Acholi society in general and of the clans in particular thus making crucial value judgement and hence they were able to develop their world outlook, which formed the basis for evolving their survival mechanism or culture based on the most cherished or dominant value.

(1993:41)

Thus, the development of Acholi values was intertwined with the environment, just as was the case among the Ogiek.

Those who have carried out research on indigenous education in other parts of East, West and Southern Africa include Griffith (1930), Raum (1938), Indire (1974), Bartes (1975), Cameroon (1975), Hakes (1975), Johnson (1975), Levine (1980) and Bogonko (1987). In the case of Southern Africa, the studies that have been conducted in this field of indigenous education include Njobe's (1970) extensive study among the Zulu. He affirms that the Zulu people had a well-defined system of indigenous education which was admirable in forming character and imparting knowledge. This led to the evolution of Zulu 'race' that was noble of heart, dignified and learned in natural resources with particular emphasis on their conservation.

In the case of Central Africa, Brown (1991) observes that the Congo River Basin is home to two hundred distinct tribes, each with its own dialect. Each tribe developed its own pattern of life, until the diversity among rain forest people came to rival the

biological diversity of their environment. He further acknowledges that the ecological wisdom of rain forest people dwarfs the scientific knowledge of tropical biologists and botanists.

In his study of the San, Makombe (1993) notes that archaeological work in Botswana and Zimbabwe shows that the community of hunters and gatherers did not cause any significant changes to the environment since its population was small and their daily needs were relatively few. Musonda (1993), also observes that records from archaeological sites more than 2,000 years old show that san use of the environment often revolved around procurement of food, firewood and raw materials for weapons.

Concerning the Western Cape, Parkington (1993) shows that hunter-gatherer groups moved with the seasons between the mountain and the coast because this was the best way to make use of seasonal fluctuations of resources in different eco-zones: coastal plain, mountains and Karoo. Benson (1969) and Musonda (1993) generally state that traditional societies in Southern Africa practiced and enforced wildlife conservation measures with varying degrees of effectiveness through seasonal hunting and trapping of animals and birds for home consumption. This practice discouraged indiscriminate hunting and further encouraged selectivity in capturing wildlife. The two scholars also concur that there was a cultural belief in abstinence from unwarranted killing of wild animals, especially those that the society held in contempt such as hyena and monkey as well as the young of all species.

A comparative study carried out by Makomba (1993) in 1958 shows that 614 out of 740 ethnic groups in Africa and Madagascar derived at least part of their livelihood from the wild woods around them. While few communities showed a major dependence, more than half gave some degree of importance to hunting, fishing and gathering of wild plant products. These studies carried out in Southern Africa illuminate various issues that are common to all hunter-gatherer groups in Africa including the Mau Ogiek.

Turnbull's (1960) study also offer useful contribution to this work. He emphatically points out that the tropical rain forest of the northeast Congo offers a very special example of the determining effect of the environment on humanity. His study centered on Ituri forest, which is inhabited by both Mbuti pygmies and pygmy hunters; each of these groups had made a different adaptation to the forest with that of the Mbuti being more complete.

In his discussion, Turnbull (1964) examines the nature of the terrain, the migrations of the game, the availability of vegetable foods, and other environmental factors that directly influence the social organization, the political system, and the

religious beliefs of the Mbuti. It could be inferred from Turnbull's work that the controlling force was not only the egalitarian totality of the band, but the forest itself. Various African societies have applied differing mechanisms in order to come face to face with nature and thus develop harmony with it. Among the works reviewed, none has addressed Ogiek indigenous education with specific emphasis on environmental conservation. This study is therefore an attempt to fill that gap.

3. Initiation, Religious Beliefs and Gender-Based Knowledge on Environmental Management

The paper aims at expounding the influence of indigenous learning and training activities as conducted by the Ogiek during the period of initiation. It also discusses religious practices that focused on environmental conservation. An attempt has been made to investigate whether the Ogiek integrated gender-based knowledge with environmental issues. Kratz (1985) has done extensive work on the Ogiek ceremonies.

According to Kratz (1990), initiation is an important process through which Ogiek concepts of gender and gender relations are expressed and produced. Kratz looks at shifting gender relations among the Ogiek of Kenya as they diversified their forest-based hunting and honey gathering economy. She also examines the role of initiation ceremonies in creating and legitimating the structures of Ogiek gender relations.

Kratz (1986) further observes that the complementarity and hierarchy of gender relations are represented and created through initiation in many ways. According to Kratz (1990), male and female initiations reproduced the division of male and female domains of work in the different locations while in their secluded houses. She further asserts that Ogiek gender relations are founded on a contradiction between complementarity at the level of household production and hierarchy in access to and control of material and social resources.

Forest conservation measures were also inculcated in Ogiek youth during the period of initiation (OWC, 2002). During this period, they were taught about important tree species such as *Dombeya goetzeni*, *Olea euro* and *olea hocksietteri* which were used for herbs and honey (KFMP, 2001). Kratz (1981) notes that the lessons were imparted during initiation in to adulthood. However, her study did not fully illuminate how the ceremonies inculcated knowledge concerning environmental conservation. This study therefore provided the missing link.

Various studies, including Blackburn (1971), and Kratz (1999) acknowledge that the Mau Ogiek, even those closest to the Kipsigis, have a Maasai type age-set system

with the same organizational terminology and generally performing the same functions. Mwanzi (1977) contends that the Kaplelach age set symbolized the period when a group of Ogiek came into contact with a group of Gusii in Sot and intermarriage occurred between the two, producing the section of the Kipsigis who dwell in Sot. In his study, Sutton (1967) reveals that the Ogiek age-set system was cyclic. He observes that the length of an age set depended on the behaviour of the warriors belonging to it. Sutton (1967) further claims that the notion of circularity may have arisen from environmental factors. The study therefore, would assist in shedding light on how the Ogiek superstructure integrated environmental issues.

Female clitoridectomy among the Nandi and the Christian impact upon it has been extensively discussed by Cherotich (1967), who found that the community had great attachment to initiation such that they strongly resisted the introduction of the alien culture aimed at eliminating their age-old practices of great educational significance. Fish (1990 and 1994) has also published general works on the religious and social practices that underlay Kipsigis indigenous education.

On the whole, in Kipkorir's (1978) words, the Kalenjin are bound together as much by their culture as well as traditions. The central feature of Kalenjin life is the rite of initiation. Kipkorir (1979) states that this was like a crash educational programme during which rules of social behaviour were inculcated. From Kipkorir's (1973, 1976, and 1979) works, we get valuable information concerning the development of Kalenjin pre-colonial education, but none of these studies have addressed the issue of how each of these communities have interacted with their natural environment over time.

Anthropological and sociological studies addressing issues similar to those researched in this study have been done on other Kenyan communities. Mahinda (1967) and Murray (1971) have paid attention to the question of female initiation among the Kikuyu. Others who have specifically addressed this subject of indigenous education among various communities in Kenya include Monyenye (1971) on the Abagusii, Wamahu (1973) on the Digo, Sifuna (1977) on the of Abaluyia, and Ronoh (2008) on the Maasai. The concern of all these scholars have been broad-based issues of indigenous education without the specific focus on environmental conservation that this study addresses.

A study similar to this one has been conducted in Southern Africa by Benson (1969). Benson notes that totems, which prevented certain communities from eating some fish, animals or birds, promoted resource conservation. He asserts that these strategies emanated from the people who had concern for their environment and its ecosystems, an attitude which enabled societies to conserve their resources without

written legislation. According to him shared beliefs provided a strong sense of group solidarity, even if its members came from different background. In the case of the traditional African community, he points out that a shared pattern of beliefs has always affected decisions about the use of the natural environment.

In support of Benson's assertions that cultural taboos put restrictions on the use of certain plants, animals or areas, Musonda (1993) stresses that these taboos have been helpful in curbing the depletion of natural resources. Benson (1969) further asserts that from customary laws, people developed traditional management systems that were effective mechanisms in environmental conservation. Emphasizing the institutional curbs, such as the creation of sacred areas for purposes of worshipping ancestral spirits, spirit mediums and rain-making oracles. Musonda (1993) contends that these restrictions served to regulate societal attitudes toward the preservation of the natural environment.

In the same light, Benson (1969) observes that the spirit mediums controlled large ritual groves and protected forests where no one was allowed to hunt, graze livestock or cultivate the farm thus facilitating the conservation of environmental resources. According to him, the management of resources under customary laws endured for centuries mainly due to the strong link with the ancestors and the low population densities, which helped them to maintain a sound ecological balance.

Likewise, in his study of the Aborigines of Australia, Meggit (1964) demonstrates that all ethnic groups subscribed to a variety of totemic beliefs and the rituals associated with the religious philosophy thus providing a substitute for empirical techniques of food production, and the beliefs system itself that effectively inhibited technological innovation. Nevertheless, Meggit (1964) noted that the underlying local modification of the economy and technology thus emerged as a response to ecological differentiation. This was a generalized way of life, which may be called Australia Aboriginal culture. All these studies helped to raise fundamental issues concerning environmental management from the Ogiek's perspective that formed an organizing frame for this study. The studies clearly demonstrated that there is a clear link between socio-political, religious and economic influence on a people's response to their immediate environment.

4. Apprenticeship Schemes and Environmental Management by the Mau Ogiek

This paper provides an analysis of the part played by indigenous Ogiek gender-based learning and training activities, including apprenticeship schemes, on sustainable

conservation of environmental resources. Kratz (1981) acknowledges that forest life is an alternative mode of production that has long been known and practised by the Ogiek. Hunting and honey-gathering are part of Ogiek subsistence, along with farming and herding, according to Kratz (1990). For the Ogiek, Kratz (1981) argues that '*mabwaita*' (shrine) condenses and recreates the significance of their special categories, to their hunting and honey-gathering life within their social domains and the complementary meanings of maleness and femaleness that pervade their life.

More precisely, Kratz (1999) acknowledges that both hunting and honey gathering are considered men's work, along with the manufacture and repair of beehives as well as certain tools. Women's work included house-building, fetching firewood and water, childcare, food preparation, and the manufacture and repair of hide clothing and bags, personal ornaments, basketry, pottery, and various other household goods. Kratz's studies demonstrate how the community's apprenticeship schemes were hierarchically structured along gender lines but she does not show how these activities relate to issues of environmental management.

Recognizing the role of gender relations in economic diversification, Kratz (2000) observes that men were considered the prime providers of food, while women's work chiefly involved processing products that men brought home. In support of Blackburn's (1982) assertions, Kratz (1990) points out that men's roles entailed providing meat and honey. These roles were fundamentally related to the organisation and control of productive resources (both material and social) as well as the control and disposal of surplus. Kratz (1990) identifies that among Kaplelach and Kipchornwonek Ogiek, hive placement, honey gathering and the use of materials (such as cedar barks) for hives were the primary rights involved in the lineage forests. Kratz (1990: 25) states that if those rights 'were to be granted to someone else, or part of the land was to be transferred by sale or in some form of compensation, the matter would be discussed, decided and acted upon by the family men.

Blackburn (1983) argues that the Ogiek displayed a "honey complex" analogous to the pervasive importance of the cattle complex in Eastern African pastoral tribes such as the Nuer and Maasai. Similarly, in his study of the Ogiek Culture, Society and Personality, Blackburn (1971) attests that honey is such an important substance that its uses and significance exceed those of any other commodity. Kratz (1990) acknowledges therefore that women's rights to and use of land and hives were the essential means of production that were mediated through male relatives throughout their lives, whether fathers, brothers or husbands and other affines. Indeed, women themselves were (and still are) considered a kind of family property. These studies facilitated in

understanding how the Ogiek were able to entrench themselves in economic diversification with lesser exploitation of natural resources as well as illuminating their gender roles and relations.

Other scholars who have discussed the same issues in an East African perspective include Kjeksus (1977) who asserts that East African people had maintained an ecological control system throughout the nineteenth century in spite of inter-ethnic warfare and slave raiding. Others related works are by Ford (1979), Matheka (1992) and Waweru (1992). These studies were useful in informing this study as each scholar has stressed the role of ecology in historical and sociological processes in their own settings.

A study similar to this one has also been undertaken among the Acholi of Uganda. In many respects, Ocitti's (1973 and 1993) studies were useful to this one. According to Ocitti (1973), hunting among the Acholi was largely organized on a communal basis and usually followed a definite seasonal sequence. He notes that the Acholi learnt about different types of wild animals, their distinctive characteristics and the different parts of their bodies. Above all, Ocitti stresses that:

...something deep rooted in the Acholi nature... something, far more valuable to the people themselves than the horns, skins and meat which were visible results... the importance of these great hunt lies in their spiritual and social values.

(1973: 36-7)

Similarly, Davies (1972), whose study focuses on the San of Southern Africa, notes that generally the boy initiates had to pass a test of their skills as hunters. According to him, the San learnt about the application of medicines to assist them in the hunt, as well as during the period of initiation dances. The author paid close attention to the hunting economy, but did not discuss other aspects of apprenticeship schemes that were widely practiced by other hunters and gatherers such as the Mau Ogiek.

In Brazil in South America, ethno-botanical surveys conducted in the J'au National Park by Oliveira (1999) found that midwives were knowledgeable about certain plants, while traditional medicine men knew about others. As Joekes et al (1994) argue both women and men are sources of knowledge about sustainable resources management practices, but they may know about different practices according to their activities. This study therefore rested on the belief that understanding the different knowledge of men and women in different socio-economic and ecological circumstances would help to determine appropriate and sustainable interventions as for

the case of herbal medicine in this study. This was important for analyzing about apprenticeship schemes in herbal medicine and its related issues.

5. Environmental Management, Indigenous and Western Education as Practised by the Mau Ogiek

The article highlights the influence of White Settlers and successive governments on the Ogiek indigenous education systems of environmental management. Hopley has argued that the colonial administration in Kenya adversely affected the Ogiek groups. For example, between the 1920s and 1940s, many northern Ogiek lost their land to colonial game and Forest Reserves, as well as to European settlement. In support of Hopley's assertions, Huntingford (1929) and Kratz (1999) contend that some Ogiek returned to ancestral homes repeatedly, despite being transferred to other areas.

These movements really disorganized the Ogiek superstructure, including education. In 1969, further legislation transformed land belonging to both the Kaplelach and Kipchornwonek Ogiek into forest reserves. As a result, the high forested zones of the Mau Highlands came under the Forest Department (Kratz 1990). The Ogiek were thus rendered squatters as their land was taken over by the Forest Department. This further facilitated the already disintegrated social institutions of the Ogiek, including the pillars of their indigenous education.

The relations between the Ogiek and the colonialists, as well as post-colonial government, seem to have been characterized by confrontation and warfare, particularly as pertains to cattle raiding and the occupation of the forest. Due to this conflict, Christian missionary activity was a relatively recent phenomenon in Kaplelach and Kipchornwonek areas, quickening after 1980 with the influx of new settlers who purchased land among the Kaplelach Ogiek (Kratz, 1999). Subsequently, churches had greater influence on the Kipchornwonek Ogiek than among the Kaplelach Ogiek. However, Kratz (1999) observes that other Ogiek groups have had longer involvements with Christian churches, thus influencing the indigenous education systems of these groups.

In the case of Southern Africa, Benson (1969) points out that religion was of primary importance in influencing a change in traditional practices. As people were converted to Christianity, they began to change or severely curtail their traditional roles relating to certain practices, such as worshipping ancestral spirits. As a result asserts Musonda (1993), African traditional values were either suppressed or underwent fundamental transformation in response to influences such as Christianity, imported

values and technocratic approaches to development. This study identified parallel issues that the Ogiek may have encountered with the advent of Christianity, colonialism and independence. Emphasis was put on understanding how these processes transformed Ogiek indigenous education as it related to the protection and utilization of environmental resources.

The influence of colonialism on traditional environmental management varied from one African society to another, depending on their social organization, environmental and cultural factors. For example, the growth of anti-colonial grievances in Southern Africa was in most cases the result of restrictions and regulations aimed at curbing African practices. However, the onset of colonialism in Southern Africa disrupted the delicate balance that existed between traditional communities and their environment, triggering a process of change in all spheres of development.

In support of Benson's (1969) remarks, Musonda (1993) points out that pastoralism assumed greater significance especially during the pre-colonial period in parts of Botswana, Namibia and Tanzania, where the land was not suitable for cultivation. The colonialists later suppressed this pastoralism. Musonda (1993) stresses that although the local people had learnt to exploit in a sustainable way the variations in the ecosystems such as rainfall and soil fertility, colonial administrations came to view indigenous systems of pastoral production as destructive to the environment.

At the same time, colonial chiefs' control over resources varied greatly across the region. In the well-established chiefdoms, Benson (1969) notes that the chiefs enjoyed executive powers over natural resources under their jurisdictions. In the case of the Lozi, the Litunga (king) had territories that were exclusively reserved for his hunting.

While acknowledging the importance of this arrangement, Partington (1993) and Makombe (1993) agreed that in most cases, the system was part of the traditional distribution of wildlife products, particularly during droughts or at times in communal rituals. Therefore, among all the major chiefdoms in the region, rules and regulations governing hunting and exploitation of resources helped to conserve the environment. These studies were useful in informing this work on the indigenous education of the Mau Ogiek although the authors have not specifically addressed indigenous education in relation to environmental management.

Although traditional land management practices were sustainable, Benson (1969) asserts that the colonial administrators condemned traditional hunting practices such as the *chilla* (seasonal expeditions), which were subsequently banned. The colonialists realised too late that the practice had very important ecological implications for the Lechwe and provided the people with rational utilization of available animals and plant

resources. Musonda (1993) attests that Africans were portrayed as poachers ignorant of wildlife management, and thus rules and regulations were imposed on them, which in turn severely restricted their hunting. Because of the colonial entrenchment in these regions, major changes thus took place in the patterns of their social organization and resource exploitation.

Similarly, Benson (1969), Makombe (1993), and Munyaradzi et al, (1993) affirm that traditional systems of communal land management were eroded as a result of new forms of agriculture that came into being due to population pressure and displacement of people. In conclusion, it was the various traditional rules and regulations that governed the use of the environment that existed in most parts of the world before the written constitution was adopted. These indigenous systems though effective were disrupted with the advent of colonialism in Africa. The systems no longer work owing to the transfer of power from traditional leaders to colonial administration and later the post-colonial governments. These premises gave the current study an indication as to why indigenous education has been neglected.

It is imperative to note the various aspects of modernization identified in this study. These include transformation in colonial and post-colonial land tenure systems in Mau Forest and its influence on the Ogiek indigenous environmental conservation strategies; changes in the Ogiek mode of production from hunting and gathering to agro-pastoral economy as a result of influx of pseudo- Ogiek ethnic groups and White settlers in Mau Forest; formulation of new colonial and post-colonial forest policies; and the establishment of new settlement schemes in Mau Forest. Furthermore, the creation and evolution of the shamba (non-residential cultivation) system as well as the introduction of agro-forestry management strategies influenced Ogiek indigenous environmental conservation approaches. There also emerged new government policies in wildlife management strategies that adversely affected the Ogiek hunting economy. Systematic exploitation of the Mau Forest by commercial timber harvesting companies during and after colonial rule changed Mau Forest ecosystem and the Ogiek community. In fact, the colonial and post-colonial systems were all encompassing and integrated political, economic, social and ethnic relations that annexing and controlled of natural resources and nature itself (Adams, 2002) In essence, decolonizing nature, according to Adams (2002) explores the influence of the colonial legacy on contemporary conservation and putting more emphasis on ideas about the relationships between people, politics and nature in countries and cultures that were once part of the British Empire. These issues, discussed by Adam's (2002) and others, will assist in putting into perspective the colonial and post-colonial policies regarding conservation

of the natural resources in the Mau Forest and its subsequent influence on the Ogiek's environmental strategies and more so its need to guide in integrating these concepts with contemporary practice of environmental conservation.

In agreement to this was the contention by the World Commission on Environment and Development (WCED, 1987) that the governing authority should give decisive voice to the indigenous people in order to shape their policies and programmes for the development of their areas. This is because indigenous peoples are the repositories of vast accumulations of traditions and skills that offer useful information in sustainably managing very complex ecological systems. In this way, there is need to integrate or mainstream indigenous knowledge into modern scientific knowledge systems for sustainable development in the continent (Miller, 2004). Such integration would require a blend of approaches and methods from science, technology and from indigenous knowledge systems (Amusan, 2004).

6. Theoretical Imperatives of Indigenous Education in relation to Environmental Conservation

Arguably, the influence of indigenous education on environmental conservation among the Mau Ogiek has been discussed with the context of two theories, namely; general systems theory and cultural ecology theory. The theoretical formulations associated with Buckley's (1967) general systems theory were useful in studying Ogiek indigenous education. General systems theory is interested in the varied relationships of the many aspects of the social world and thus operates against piecemeal analysis of the social system. The argument of the general systems theory is that the intricate relationship of the parts cannot be treated in isolation from the whole. In fact, general systems theorists reflect the idea that society or other large-scale components of society should be treated as unified social facts. The focus is on relationships or processes at various levels within the social system.

Buckley (1967) describes social systems as generally consisting of complex elements or components directly or indirectly related in a causal network. In his view, Ritzer (1992) acknowledges that each component is related to at least some others in a minor or less stable way within any particular period of time. An analysis of the Ogiek superstructure affirmed that the society's institutions must be seen in their totality. Therefore, an understanding of Ogiek life in general is related to how the community interacts with nature.

General systems theory owes its development to Buckley's (1967) formulation of a society at its equilibrium. He views the societal organism as possessing a self-regulating mechanism whose goal is the maintenance of equilibrium. Traditionally, Ogiek have maintained an equilibrium with regard to utilization of natural resources for sustainable development.

He stresses *inter alia*, that general systems theory emphasizes self-regulation, structural integration, adaptation and pattern-maintenance. It is self-regulating (self-directing) in the sense that if a small modification different from that which will otherwise occur when it is impressed upon a system, reaction will at once appear tending towards the conditions that would have existed if the modification had not been impressed. Hence, that small modification leaves the forces substantially intact and that the forces tend to re-establish the state that would have existed if no modification had occurred. This explains how the pre-colonial Ogiek society sustainably conserves the environment. Similarly, structural integration implies a bundle of relations among interdependent elements that constitute an orderly arrangement. In the context of this theory, adaptation implies the mechanics of control whereby in the utility of this principle, the Ogiek have maintained or managed to control the natural environment in a more sustainable way over time. Pattern maintenance as employed in this study denotes the tendency of attainment of an equilibrium or the process of self-direction. As utilized in the context of this study, all these aspects or principles of general systems theory emphasize the need for a social system to be viewed as mainly the major integrative and interrelated sub-systems. Whether there is a tendency toward self-maintenance or self-regulation of the society, the fundamental assumption of the general system theory is that there is an underlying order, pattern, regularity and stabilization of a social system in a continual change. These issues formed the fundamental focus in this study as they relate to environmental conservation by the Ogiek.

In concurrence with Buckley (1967), Giddens (1987) laid the foundation of general system theory in sociology with his formulation of the concept of society as a system in equilibrium. In such a system, change in some parts affects other parts as well as the whole. According to him, the set of forces that maintain social equilibrium involves three types of factors: first, the extra-human environment or physical condition, such as climate, soil and vegetation. Secondly, the external conditions such as a given society's previous state and contact with other cultures and finally the inner elements of the system such as interests, knowledge, values, ideologies and sentiments. Giddens (1987) argues that if the social system is subjected to pressures from external

forces, inner forces will then push toward the restoration of equilibrium, hence restoring society to its normal state. He emphasizes that there are mechanisms in society such as cultural organization that deal with the problem of social disruption. However, according to Giddens (1995), the idea that society forms an 'expressive totality' is in some respects quite different from the view of society as a functional unity. In fact, he attests that those who treat society as an expressive totality see the 'whole' as being in some sense present in its parts. He conceived of a system as a whole consisting of interdependent parts. The whole and parts are connected in a dialectical relation.

Perhaps the most important approach to general systems theory is inherently integrative (Buckley, 1967). In Buckley's view of this theory, he sees it as involving the integration of large-scale objective structures, symbol systems, action and interaction, as well as consciousness and self-awareness. The theory is so attuned to integration that Buckley (1967), criticizes the tendency of other sociologists who make analytical distinctions among levels. However, criticisms have been leveled on this theory. Accordingly, Olsen (1978) presented a capsule summary of general systems model. Olsen (1978) asserted that as applied to social phenomena, the general system model was not a substantive theory of social organization. He argued that while closed mechanistic systems work only in accordance with predetermined internal programmes, general systems theory is continually influenced by external and internal forces.

Danhrendorf (1967) further provided the main criticism of general systems theory in which it portrayed a fully integrated utopian society based on universal consensus and no scope for change. In spite of these criticisms, Maclver (1964) and Theodore (1970) have contended that every social system is at every moment and in every part sustained by codes, institutions, traditions and interests. Therefore, according to these theorists if a social order or any social situations within it suffered significant change, it must have been caused by some insurgent or invading force and hence the need to break such inertia or the status quo. Furthermore, change is thought of as the disturbance of a persistent equilibrium and this even besets simple or primitive societies and is more obvious in higher civilizations where forces tended to threaten and to create an imbalance or disrupt it altogether. In this context, the nature of equilibrium is in itself for ever changing and its order manifested in its attainment of stability. Hence, the subject of investigation in this study suggested that an integrative approach provided a more relevant means for examining the gender relations and apprenticeship schemes as they relate to the human and natural environment.

This theory views the social world in dynamic terms, with an overriding concern for “socio-cultural emergence and dynamics” in general. This particular approach was useful and relevant in informing this study on the various transformations that the Ogiek underwent during colonialism and subsequently, the intricate Ogiek social institutions as well as their political and economic structures as seen from this theory provided an understanding of the socio-ecological organization of their indigenous education as the society gradually underwent economic diversification, which had closer relations to the adaptation and management of environmental resources.

To supplement the general systems theory in explaining issues touching mainly on the period under colonial domination and the post-colonial period, cultural ecology theory was employed. Cultural ecology theory, according to Turnbull (1963), Hammond (1964) and Kottak (2002), is based on the growing awareness that research on many cultural facts and processes remains incomplete if the interplay with the natural environment is neglected. Thus, cultural ecology was used in this study to show how the Ogiek have, over time, been able to sustainably utilize the environmental resources at their disposal.

Cultural ecology as a theoretical approach sees cultural patterns as adaptive responses to the basic problems of survival and reproduction. Customs and way of life that would be adaptive in one ecosystem would be maladaptive in another. Contemporary cultural ecology grew out of the theories of White (1959) and Steward (1972) and has some links with evolutionary theory according to Nanda (1980). Theoreticians of this school observe that all other aspects of culture are secondary to the material base.

In explaining this theory, cultural ecologists identified cultures primarily as systems that evolved as adaptive responses to specific natural environments. For instance, Steward (1972) held the view that cultural evolution could move along a number of different paths although societies in similar natural environments having similar levels of technology do evolve in similar ways. According to him, the explanation of cultural forms or stages is to be found in the relationship between natural environment, level of technology and patterns of work in a society.

In emphasizing the adaptive nature of different aspects of socio-cultural system, ecologists such as Harris (1979) have showed that beliefs and practices that seem quite irrational to outsiders may still result in rational utilization of the environment. The focus on the adaptive nature of socio-cultural systems, rather than the ways in which such systems are transformed over time, has led to the criticism that cultural ecology is just another form of functionalism (Brown,1991).

This theoretical approach was relevant in informing the study on how beliefs and rituals may function as part of a group's cultural adaptation to its environment. Many studies that have been conducted on cultural ecology theory (Bohannon, 1988; Milton, 1997 and Moore, 1997) have observed that the theory is limited to egalitarian societies. Fundamentally, the theory often runs into difficulties when being applied to more complex societies that have adequately solved their subsistence problems (Moore, 1997). The application of this theory on complex society's experiences difficult in ascertaining the effects on ecology.

Furthermore, Hammond (1964) has criticized cultural ecology theory claiming that it puts less concern with the origin and diffusion of technologies than with the fact that they may be used differently and entail different social arrangements in each environment. Other critiques have acknowledged that the theory has been employed to explain how things stay the same maintaining the status quo as opposed to how things can change (Milton, 1997; Roy, 1982). Avoiding the inherent weaknesses of this theory, the interpretation of data findings took into cognizance the holistic concept approach that emphasized that such factors as demography, settlement patterns, kinship structures, land tenure, land use and other key cultural features were not considered separately from their interrelationships to one another and to that of the environment.

The combination of the above two theoretical approaches thus provided the study with guidelines on how indigenous education has influenced environmental conservation as practised by the Ogiek of the Mau Forest in Kenya.

7. Conclusion

The paper discusses the literature on the influence of indigenous education on environmental conservation as practiced by the Ogiek of the Mau Forest. It was noted that there was a relationship between indigenous education and environmental conservation among the pre-colonial Ogiek of Mau Forest. Similarly, the literature found that there was a link between the impacts of modernization on Ogiek's environmental conservation strategies. The nature of Ogiek responses to externally engineered environmental conservation in Mau Forest was extensively discussed. Finally, the paper analyses the integration of Ogiek indigenous knowledge systems into modern environmental management strategies. In nutshell, the paper's discourse was guided by two theoretical framework namely; general systems theory and cultural ecology theory.

The literature demonstrates that there was a clear link between Ogiek's indigenous education and environmental conservation. It was noted that the traditional Ogiek were specialists in hunting and bee-keeping. They also had unusual sensitivity to their forests and the creatures which inhabited them. Their Ogiek familiarity and awareness of the balance between themselves and nature as evidenced by the complex socio-political and economic superstructures made them peaceful and happy as they co-existed with plants and wildlife in the forest. They hunted wild animals selectively as long as they were obtained in bountiful amounts. However, their dedication to maintaining harmony and balance of their ancestral habitat yielded unconditional principles within the community for the protection and safety of their environment. And, whenever the scale of supply and demand of resources were tipped, adjustments were made within the community until the balance could be restored within an integrative framework.

The Ogiek were uniquely specialized people and were intimately related to the Mau Forest ecosystem in many respects. In cognizance of this fact, the literature revealed that the Ogiek were incapable of retaining their essential characteristics, if that ecosystem was eventually destroyed. This was in tandem with the fact that the Ogiek indigenous education put much emphasis on the normative and expressive goals whereby their educational theory holds the view that each individual's relationship affects and is affected by that of the others and subsequently that of its immediate ecological settings.

The paper discusses the impact of various aspects of modernization on Ogiek environmental conservation strategies such as colonial government changes in land tenure policies, encroachment of Mau Forest by 'Pseudo' Ogiek and other ethnic groups; White Settlers' annexation of Mau Forest and its agro-ecological effects on the Ogiek; Transformation of the Ogiek mode of production from Hunting-Gathering to Agro-pastoral based economy; Changes in Government Forest Policies; 'Systematic' deforestation of Mau Forest by Commercial Timber Harvesting Companies and other related activities and lastly, the emergence of 'newly' created Settlement Schemes in Mau Forest by post-independence government. All these factors significantly influenced Ogiek environmental conservation strategies as embodied in their indigenous education. As contextualized in the literature, government land and resource tenure laws as well as policies have influenced Ogiek indigenous environmental strategies thus affecting their livelihood as a hunter-gatherer community.

The article addressed the Ogiek's responses to externally engineered environmental conservation strategies in the Mau Forest. It was noted that the Ogiek of Mau Forest have developed an elaborate and complex system of self-sustaining, spiritual refinement and preservation of their heritage. Thus, their cultural spirit found its expression and gratification in their own indigenous forms of environmental education rather than the externally engineered environmental conservation methods. Indeed, environmentalists and cultural ecologists have learnt a great deal from the Ogiek people. The latter have manipulated their local knowledge of the environment and have perfected the means of living in it. In this way, the Ogiek people have been able to use the resources available in a more sustainable manner. However, the Ogiek and environmental organizations are challenging the forest destruction edict in the courts and seeking international support.

Finally, the paper examines the integration of the Ogiek indigenous knowledge systems on modern environmental management strategies. In this context, the Ogiek as a community have sustained their unique worldviews and associated knowledge systems since time immemorial. They have perfected the same even while undergoing major social upheavals as a result of transformative forces beyond their control. Many of their core values, beliefs and practices, associated with the Ogiek worldview have survived through centuries and are beginning to be recognized as having an a valid strategy for sustainable conservation of resources for future generation. In fact, their broad based contextualization of their indigenous knowledge that was deeply rooted in the long habitation of their ancestral homeland of Mau Forest presents a clear testimony of how a community has ultimately utilized and appreciated the aesthetic values of their natural habitat and resources thereof without causing any significant imbalance in the biosphere and its rich biodiversity.

Despite all these, the Ogiek had a strong background and well-developed indigenous knowledge systems in environmental management. They had devised a variety of coping strategies that made them resilient to environmental change. Evidently, their expertise and well versed knowledge of environmental conservation as practiced by the pre-colonial Ogiek society had and still has a high degree of acceptability amongst them.

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