

Indigenous Education System and Environmental Conservation Initiatives for Sustainable Development: Experiences from Nyamwezi in Uyui District, Tanzania

Paschal J. Mheluka

The Open University of Tanzania

paschalmjr@gmail.com

Reguli Baltazar Mushy

The Open University of Tanzania

Abstract

For centuries, African communities in their localities have co-existed with their natural environment in a harmonious manner leading to sustainability of both, the humans and the natural resources base. This co-existence is enabled by what is referred to as the indigenous environmental knowledge system. Indigenous knowledge has always been transferred from one generation to the next through norms, stories and cultural practices. This paper explores Indigenous Education systems and their implications to the conservation practices of the environment in Uyui district in Tabora region. The paper dwells on both primary and secondary data to provide insights on how Indigenous Education Systems embedded with traditional, initiation and local religious affiliation, have been used since time immemorial as one of the indirect initiatives of preserving, protecting and managing natural catchment forests. Random, Snowball and purposive sampling techniques were used to get a total of 120 respondents for this study. The study revealed that local communities in Uyui district have their system of knowledge affiliated with traditions, rituals and taboos which have been used to protect environmental and natural resources since the pre-colonial era up to the post-colonial epoch in Tanzania. The majority of respondents argue that the indigenous knowledge system was practical in protecting the natural resources in the local areas as it was embedded in the taboos, traditional rituals and religious beliefs. Failure or abandonment of the indigenous traditions has led to mismanagement of forest resources and other natural resources. The paper recommends both local and central government incorporate Indigenous knowledge and experiences in their endeavors of protecting and preserving the Environment in Uyui district in Tabora region for sake of sustainable development in Tanzania.

Keywords: *Indigenous Education Systems, Traditional and Rituals, Environment, Sustainable development, Environmental conservation*

INTRODUCTION

Indigenous and local people all over the world, particularly in developing nations, have developed ‘a science’ through the annual cycles of subsistence activities that have given rise to knowledge systems and technologies helpful in preserving the natural environment within such a community (Burgos-Ayala et al., 2020). As a result, over time, local communities have amassed a wealth of knowledge about local flora and fauna. They have also created their classification schemes, as well as adaptations of meteorology, astronomy, pharmacology, physics, biology, and the sacred, also known as the inner world (IPCC, 2014). However, it has been a continuing struggle for indigenous communities around the world to uphold their rights, traditions, and knowledge in a system that is heavily influenced by Western knowledge system. Indeed, Indigenous knowledge is not just the ‘knowledge component’ but the way of life of the local people in their local environments, and therefore cannot be separated from the people who hold it (McGregor, 2021). Consequently, the promotion of sustainable development and environmental management, particularly in rural areas, benefits greatly from the inclusion of indigenous populations and their indigenous knowledge (Brondizio & Le Tourneau 2016; Lam et al., 2020). Indigenous education places a strong emphasis on learning practical skills and acquiring knowledge that is beneficial to the individual and society. It is also concerned with the systematic socialization of the younger generations into the norms, religious and moral beliefs, as well as the collective opinions of the wider community. Similar to the native Alaskans, the Ogiek of Mau Forest each had their unique perspectives on the world, the cosmos, and one another. The Ogiek people in Kenya continued to uphold the communal nature of knowledge and the idea that riches should be shared for the good of all (Towett, 2004).

Indigenous knowledge systems (IKSs) come in many different forms, and they have been used by communities in Africa and the rest of the world for a variety of requirements since the dawn of time (McGregor, 2021; Burgos-Ayala et al., 2020). To engage in agriculture and other activities that assure their comfort and subsistence, a significant portion of traditional cultures in Africa still rely on indigenous knowledge that has been passed down from generation to generation (Chikaire et al., 2012). The degradation of the state of the earth and awareness of indigenous communities' sustainable way of life has recently piqued the interest of the international community in indigenous knowledge and practices.

Thus, Indigenous peoples and the surrounding communities have deep connections to their natural surroundings. Through the ages, they have amassed a comprehensive body of knowledge that has enabled them to sustain a balanced social-environmental structure. They have also triumphed over numerous crises and obstacles, such as shifting livelihoods, shifting climate and ecosystems, and changing resource use and availability (Pearce et al., 2015; Berkes, 2018). According to a study by Eneji (2012), indigenous natural resource management techniques have developed as a result of historical interactions between communities and their surroundings, giving rise to customs and cultural landscapes like sacred groves and forests, sacred corridors, and a variety of ethno forestry techniques. Indigenous environmental knowledge is not stored in books; rather it is retained and transmitted through the indigenous education system mostly verbally, through subsistence practices and cultural myths and taboos (Obiora and Emeka, 2015).

Indigenous education's potential contribution to improving understanding of sustainable development was sparked by the UN Conference on Environment and Development in 1992. It brought to light the pressing requirement for creating systems to safeguard the biological diversity of the planet using local knowledge. To achieve sustainable development, Agenda 21 of the UNCED conference placed a strong emphasis on the need for governments to work toward integrating indigenous environmental management knowledge systems into current socio-economic development programs (Helvetas, 2011; Gaillard & Mercer, 2013).

Indigenous groups view education as a way to learn from life's experiences. Through methods based on learning by doing which include observations, actions, and interactions with both adult members of the community and the environment (UNESCO, 2009), they thus ensure that the individual is adequately prepared to become a member of their community. Indigenous groups view education as a way to learn from life's experiences (Kanstrup-Jensen, 2016).

It is important to note that Tanzania's indigenous communities for many years have used indigenous knowledge to utilize their natural resources in a communal manner, and this practice has promoted the sustainability of those resources in their surroundings. The Iraqw people of Northern Tanzania in Tanzania, for example, have excellent traditional knowledge

of how to utilize the environment and resources in their entirety. They separated the many use zones in their landscape (Lawi, 2002). According to Nyanto (2015), indigenous practices and beliefs have historically played a significant role in protecting natural resources like land, water, and natural forests in western Tanzania. Africans did not completely abandon their traditions, even though they were reviled. Natural woods are revered and viewed as sacred spaces throughout Tanzania and the rest of Africa because it is thought that they are the homes of ancestor spirits, thence people are not allowed to conduct any activities around those areas. The majority of locals in Africa continue to conduct traditional worship in natural forests despite the influence of modernization (Mangizvo, 2013). This study sought to explore how the Nyamwezi community of Tabora region, Tanzania, has been using the indigenous education system to conserve their environment for the sake of sustainable development.

This multidimensional study is based on two theoretical views, namely; the institutional theory and social learning theory. Institutional theory is a collection of conventional reasoning, normative and regulative elements, organized and associated with activities and resources that bring depth and meaning to communal life. Scott (2004) claims that institutions are social entities that attain resistance and flexibility. The theory considers the procedures by which institutions and societies are embedded with customs, guidelines and plans that come to be recognized as authoritative standards for social conduct. It also considers the processes through which agreements made up of rules, norms, and practices become accepted and followed (Scott, 2004). Social learning theory, on the other hand explains how people learn social conduct through seeing and copying the actions of others. The social learning theory was developed by Albert Bandura as an alternative to the previous work of Skinner, whose explanation of learn as a result of reinforcement of behavior. Unlike Skinner, Bandura argued that people can learn behavior through observation. He asserted that learning happens as a result of responses based on experience and directly seeing the unique effects on the communal and social mood of other members of the public. These theories are significant in this study as they do expose how indigenous education can be transferred from one generation through apprenticeship, and community discourse through oral tradition.

Studies conducted in this area mainly focused on indigenous knowledge and the protection of natural forest resources (Sanga & Haulle, 2022). However, the role of indigenous education and the preservation of the environment by using local recollections for sustainable development is missing. Therefore, to fill this knowledge gap, this study probed and explored Indigenous Education systems and their implications in the conservation practices of the environment in Uyui district in Tabora region.

METHODOLOGY

A case study design was used in this study. A qualitative approach was employed to collect and analyse data. The paper used both primary and secondary data to collect tangible facts on how Indigenous Education Systems have been used as one of the indirect initiatives for preserving, protecting and managing natural catchment forests. Snowball and purposive sampling techniques were used to get a sample of 65 respondents. The selected respondents consisted of elderly with 65 years and above who comprised senior elders, religious leaders, pastoralists, hunters and peasants, both females and males. The main instruments that were used to collect data were unstructured interviews, focus group discussions and observation. The observation was used to supplement the interview schedule and was administered in conjunction with it.

THE STUDY AREA

The study was conducted in Tabora region in Uyui district. According to the 2022 Census report, Tabora region has a total population of 3,391,679 people, where males are 1,661,161 and females are 1,730,505 with average growth rate of 3.9 per year. The region has a total of 598,659 households, with an average household size of 5.7 (URT, 2023). A territory in the current Tabora administrative region is referred to as Unyamwezi. Tabora was chosen because it is among the regions endowed with plenty of natural forest resources, which have been preserved and managed through rich indigenous education systems that have been used since time immemorial. The most prevalent ethnic group is the Nyamwezi, the Konongo, Sumbwa, and Kimbu are among the minor ethnic groups that live in Unyamwezi region. All these ethnic groups learn the conservation of natural environment through traditional practices and initiation ceremonies.



Figure 1: Map of Tanzania showing the Tabora region.

Source: Google map

FINDINGS AND DISCUSSION

Indigenous Knowledge and Environmental Conservation Initiatives

The study sought to explore how indigenous knowledge has been used to protect, conserve and manage natural forest in Uyui. Specifically, the study explored how indigenous knowledge has been used to protect and conserve natural forests; sacred areas; and totemic and how it has been used to combat fire.

How Indigenous Knowledge has been used to Protect and Conserve Natural Forests

Local communities in Uyui district have been using Indigenous knowledge as one of their initiatives to conserve the natural forests in

their areas. This, in turn, has played a great role in protecting and preserving the environment in Uyui district. The study has found that 51% of the interviewed key informants affirmed the existence of indigenous practices of planting natural trees which are very scarce and valuable. Uyui district is one of the areas where valuable natural trees for timber can be found. Local communities in Uyui district do have tradition traditions of rejuvenating natural trees which appear to be diminishing. One of the elders argued that:

The families that have trees such as 'Mninga' and 'Mkora' in their farms are very respected in the community. They are taken as good examples and if one wants to marry, he or she would prefer a partner from a family with those types of trees, with a belief that the children must have strong knowledge that can sustain the new family.

Hence the traditional knowledge of planting and preserving valuable natural trees in Uyui become a symbol of power and prestige and at the same time, contribute to sustainable development to Tabora region (Plate 2).

One of the participants in the focus group discussion asserted that:

Although we are capable of replanting very precious natural trees known as mninga, those trees which are essential for timber products, we have the knowledge of replanting natural trees, those who concern with trees (mabwana misitu) and agriculture officers have never come to ask us concerning this practice, that implies we are being ignored as laymen who know nothing about reforestation (Quoted one of the participants in the focus group discussion at Igalula in Uyui).



Plate 2: Natural tree (Mninga and mkola) in Uyui District in Tabora
Source: Field data (2023).

The above discussion implies that the knowledge and the practice of tree planting in Uyui district played a crucial part in rejuvenating natural precious tree resources which have diminished due to excessive timber demands. Even though the said indigenous and local people's illumination is essential for the protection and preservation of natural precious trees has been negated and not being incorporated by agricultural officers and those who are concerned with forest affairs in Uyui district.

How Indigenous Knowledge has been used to Protection Sacred areas in Uyui

The study found that indigenous knowledge is directly connected with the protection and preservation of sacred areas known as “*Ikulu*,” the areas were surrounded by local chiefs’/ancestors’ graves. 82% of the interviewed respondents asserted that sacred places were protected and people are prohibited from cutting trees, or engaging in any economic activity around these areas. Sacred areas have been used since pre-colonial and recently for praying and asking ancestors to provide rainfall and protect the Nyamwezi community against natural disasters such as locusts and drought. Local communities in Tabora been using many methods to maintain and conserve their environment; for example, elders forbade human activities in certain areas, such as ritual forests, and people were not allowed to hunt animals found in those areas for fear of angering ancestral spirits. Fishing was also prohibited in sacred ponds to avoid offending ancestors, who could then punish the society by sending various misfortunes like as floods and drought. One of the elders aged 90 said:

Human activities such as gardening, hunting and grazing animals (cattle) are strictly prohibited in area surrounded by ponds or water bodies. It is believed such areas and spaces are sacred and are normally used to pray. People believe that any against harm or draught can be mediated in sacred spaces (Interview with a female elder aged 90 years).

Indigenous knowledge is also to teach people on ways of combating fire. Also clearing the land using fire is considered as a taboo and local people are being taught to save particular species that were regarded as totemic symbols. (Interview with an 89-year-old elder, 2023 Fieldwork).

The indigenous knowledge in Tabora which is affiliated with ritual activities is synonymous with those of local people in Zimbabwe as affirmed by Manwa who argued that it is believed that ancestral spirits of the people live among the hills and those areas are being preserved and

eligible for human economic activities (Manwa, 2007). According to Hiwasaki *et al.* (2014) and Cunningham (2010), indigenous populations depend on their territories for the execution of social, economic, cultural, and environmental activities. These activities include sustainable production and consumption practices, resource conservation, and management strategies, the majority of which are based on traditional knowledge and customary systems of governance.

How Indigenous Knowledge has been used to Protection Totemic (Flora and Fauna) in Uyui

The study has found that 60% of the interviewed respondents testified to the existence of the practice of protecting totemic symbol in Tabora region particularly among the Nyamwezi community in Uyui districts. This was affirmed by the following Focus Group Discussions which were conducted at Kigwa B and Igalula ward. Respondents argued that some of the trees are being preserved and people are being warned not to cut them to avoid bad fortunes. For example, “*Mputika*” is associated with the death of relatives or siblings, and “*Mmwaga*” is associated with the separation of the family (divorce) (Plate 1). These illuminations about totemic symbols are imparted to the young generation through the narration of the stories by the elders. On the other hand, some animals such as hyenas, lions and porcupines are regarded as totemic thence local communities are prohibited from hunting them. One of the interviewed senior elder argued that:

Some of the natural trees in Uyui are regarded as totemic since they tend to be associated with misfortune; for instance, "Mputika" is associated with death, so people are being warned not to cut them to avoid deaths in their families. "Mmagwa" is also associated with chaos in the family, which may end up with the family separation. Due to this traditional knowledge, local people in Uyui respect and protect those trees"(Quoted one of the senior respondents at Igalula in Uyui).



Plate 1: Natural forest (Mitundu and Mmwaga) at Igalula in Uyui District
Source: Field data (2023).

The protection of totemic trees and animals is seen as the indirect initiative of preserving natural resources which in turn has profoundly contributed to sustainability of the environment in Uyui district in Tabora region. According to Eneji *et al.* (2012), the protection of totemic symbols includes the ideological, sentimental, respectful, and ancestor-based connections that certain individuals or social groups have with animals or other natural objects. Members of the Teso community saw these creatures and things as friends, family, protectors, ancestors, or helpers (Eneji *et al.*, 2012). They were also typically given magical abilities and treated with a mixture of reverence, respect, wonder, and dread. Before Kenya gained independence, the African Mourning Dove, the Half-Collard Kingfisher, the Nubian Nightjar, and the Barn Swallow, locally known as Akabulutu, Amuruon, Asulwenyi, and Emelete, were held in high regard by the Teso people of Busia County. These birds were considered symbols for various clans and were also linked to good fortune. As a token of appreciation, none of the Iteso ancestors who revered the aforementioned birds as totems were able to harm, kill, or consume these birds. Additionally, some tree species were never cut down because it was thought that they were connected to water supplies, had therapeutic qualities, were ancestors, had terrible omens, or brought money and good fortune. For example, the fig tree known as Ebule in the area was thought to be spiritual and was a place where people in the community used to worship under, and felt protected and nobody was allowed cut them. Similarly, the *Kigelia Africana* tree, sometimes referred to as Edodoi in the area, was thought to have a successful mumps remedy; thence the mentioned protected symbol has contributed to the preservation of the environment among the Teso community in Kenya (Eneji *et al.*, 2012).

How Indigenous Knowledge has been used to Combat Fire

The study found 90% of the interviewed respondents depicted the existence of indigenous education as being connected with the knowledge of firefighting among the Nyamwezi community since the large area visited by researchers showed the stability of the firefighting among the local people in Uyui. The existence of indigenous knowledge among the Nyamwezi community has played a great role in conserving the environment due to prevailing initiatives of combating and controlling the eruption of fire in Uyui district. Elders tend to transfer the illumination on how fire can be prevented and controlled in Uyui district. The

knowledge of combating fire has played a great role in conserving the environment in Tabora. One of the seniors responded said that:

Fire is regarded as the first enemy of the environment and natural resources, thence community is urged to combat the eruption of fire together in their surroundings (Quoted one of the senior respondents at Kigwa B in Uyui).

The above assertion indicates that indigenous knowledge in Uyui district is embedded with the initiatives of firefighting. The knowledge of controlling and combating fire has played remarkable endeavors in preserving natural surroundings in Uyui district, thence facilitating sustainable development in Uyui district in Tabora region. The local people are aware that action must be taken to put out a fire that poses a threat to the community, its belongings, and people's lives. Traditionally, people only come together to fight a fire when it is threatening both life and property. When there is no danger to people or property, a forest fire is allowed to burn until it runs out of fuel or is put out by the elements or by natural firebreaks like rivers and rock outcrops. After someone detects a fire and yells for assistance, others assemble (FAO, 2013).

CONCLUSIONS AND RECOMMENDATIONS

The role played by indigenous education in conserving the environment by the Nyamwezi community in Tabora region particularly in Uyui district. 90% of the interviewed respondents testified that there was the existence of indigenous education which is embedded with the conservation of the natural environment among the Nyamwezi community in Tabora region. The relational viewpoint can be added to environmental management. According to Berkes (2018), when it comes to nature, indigenous peoples frequently lack words like 'management'. The terms 'reciprocity', 'respect', and 'stewardship' might be more appropriate in their place. According to Enqvist *et al.* (2018), these three instances highlight the relational aspect of engaging with nature and might serve as an inspiration for relational approaches in environmental management and protection. Protection of totemic animals and trees, and protection of sacred areas for rituals was among the crucial activity in the Nyamwezi community. Local people in Uyui are prohibited from conducting any activity in reserved areas for traditional rituals, thence the mentioned indigenous knowledge has played an essential indirect role in preserving the environment in Tabora.

The study concludes that the Indigenous education among the Nyamwezi community in Uyui district has played a vital role in conserving the environment in Tabora region, though some of the indigenous enlightenment pertaining to the conservation of natural resources such as natural precious trees has been negated to be incorporated by environmental stakeholders hence led to the marginalization of this knowledge and the precious natural resources. The indigenous knowledge in Tabora region is associated with religion, tradition and norms and this has an impact on long-term and short-term ecological preservation in the Uyui district. Nyamwezi native culture which is part of indigenous education had a tremendous impact on, sustainable ecological conservation in Tabora region in Tanzania.

Based on the findings from this study it is recommended that; the stakeholders of forest conservation should incorporate indigenous education which is concerned with the illumination of plating precious and scarce and diminishing tree resources as “*mininga*” and ‘*mikora*’ which are very useful for timber production. The study recommended that there is a need for local people and local government to uphold indigenous education which is directly connected with the conservation of the environment, since this will lead to sustainable development in Tabora and Tanzania at large. The study also recommended that there is a need for the government of Tanzania to incorporate indigenous knowledge relating to environmental conservation initiatives into the recently developed education curriculum for the sake of sustainable development in Tanzania.

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