



Enhancing Sustainable Housing Through Women's Cultural Skills, Experiences, and Knowledge

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Abstract

This article focuses on women's thoughts and experiences in relation to sustainable development in the Maasai community. Women in the Maasai culture have been perceived as the key change agents in housing as they transfer design and construction knowledge from one generation to the other. However, the elements of globalization and modernization have transformed the housing sector design and construction to embrace the Western approach, thus creating a cultural requirement gap in the housing design and construction as upheld by the Maasai. This study determines the role of women as change agents in housing in the conventional sector; assesses the relevance of cultural identity presented in the housing design and development; and looks at the threat posed by modernity in conventional housing design and development among the Maasai culture. Qualitative research approach and content analysis were considered as the best methodological approach for the study.

The study selectively identified and analysed reports on housing characteristics in Kajiado County, as presented by the Kenya National Bureau of Statistics (KNBS) and the Society for International Development (SID), 2013 Reports. The assessment criteria identified housing building materials such as, for roofing: tiles, grass, makuti, corrugated iron sheets, tin, asbestos sheets, mud/dung, concrete, among other roofing materials; for the walls: stone, bricks/block, mud/wood, mud/cement, wood only, corrugated iron sheets, grass/reeds, tin, and other; and for the floor: cement, tiles, wood, earth, household, among other materials. Therefore, due to the strong cultural practices that have been relayed over the years, the role of women in housing design and construction is still strong in the Maasai community. However, globalization and, especially urbanization bringing in industrial housing products and legal frameworks and policies that change women's role in housing, have presented a number of challenges to the Maasai women while undermining the local culture.

Key words: *change-agent, cultural identity, housing, social identity, sustainability, women.*

1.0 Introduction

Adam, Othman, and Halim (2021) identify Indigenous knowledge as a recognition of information that is especially associated with unique Indigenous tribes or groups. This knowledge is usually

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conveyed to generations through statements or actions. In the conventional days, the information used to be relayed through verbal communication platforms such as dances and folk songs, rituals, and folklores. As a result, the Indigenous groups or communities participated in the essential role of maintaining cohesive and dynamic association with biodiversity. Ogar et al. (2020) advocate for Western systems to adopt Indigenous knowledge in solving challenges presented in modern emerging issues, such as biodiversity. Therefore, Indigenous knowledge has been deemed critical in the management of natural resources and the conservation of biodiversity in modern days. According to Paniagua-Zambrana et al. (2016), during periods of change and disturbance, Indigenous knowledge transfer is as important as Indigenous knowledge itself as the process benefits the Indigenous people's livelihoods.

The United Nations, through a document titled "*Transforming our World: the 2030 Agenda for Sustainable Development*" support the process of connecting indigenous and modern knowledge through the three sustainable levels of development: environment, social, and economic management as stipulated in 169 objectives and 17 goals (Leal-Filho, 2018). Waage et al. (2015) believe that the Sustainable Development Goals (SDGs) approach focuses on governance, environmental justice, and partnership among member states. This study will focus on knowledge transfer and Sustainable Development Goal number 11 and 13. The United Nations (2016) Report identifies SDG 11 to address issues of human settlements with more focus on vulnerable populations and accessibility to a sustainable environment. This approach emphasises the use of local building materials to boost the local construction firms. In addition, knowledge transfer in local settings is also presented in SDG number 13, advocating for the management of change and the effects of climate change through the introduction of knowledge transfer strategies such as education, training, and capacity-building programs for climate change control.

Women in traditional African settings played a special role in maintaining culture and relaying the same information to the future generation. The Maasai culture mandates women to be at the centre of *manyatta* housing construction where they function as architects and developers of housing. The globalization era has altered traditional cultural requirements in housing construction, thus making it challenging for the locals to ensure the protection of the environment and support sustainable development. Globalization has led to high gender inequality in the modern-day Maasai housing environment because the place of women as key change agents in housing construction has been reduced to being passive participants. This shift in cultural requirements goes against the International Covenant on Civil and Political Rights of 1966, Article 17 (Joseph & Castan, 2013); as well as Articles 17 and 25 of the Universal Declaration of Human Rights of 1948 (Lauterpacht, 1948); Article 13 and 16 of the United Nations Convention on the Elimination of All Forms of Discrimination against Women 1966 (Union, Inter-Parliamentary, & United Nations, 2003); and Article 43, Section 1b of the Kenya Constitution 2010. As a result, the cultural knowledge in housing has been eliminated or static while Western housing culture has been adopted by most members of the Indigenous community in Kajiado County. This study will attempt to address the challenges Maasai women face as housing change agents in their quest for knowledge transfer in existing and future generations in the globalized world.

1.1 The Historical Reflection of Culture in the Construction of Houses

Vuong, et al. (2019) affirm that there has been a slow pace in cultural evolution, especially architectural designs and housing development. The historical reflection of the culture in the construction or design of structures can be seen in the Anglo-American rural cemetery design, the Soviet housing structures under Stalin's leadership, and the wooden longhouses across the Pacific Northwest Coast, among others. The French occupation of Hanoi and Vietnam in 1859 paved the way for the creation of French Indochina in 1887 and thereafter, in 1919, the formulation and implementation of the Cornudet Law to guide urban planning and building of the colonies. This Law advocated for the integration of the modern Western construction approach with native aesthetics as well as considering the humid tropical climate, thus crafting an Indochina style. The

Indochina style fused the conventional Vietnamese housing culture design with the European housing construction design elements for both practical and aesthetic purposes. Vietnamese architecture from the conventional period to modern-day though has faced challenges from European and Chinese culture, especially in interior design, the indigenous housing design has been consistent over the years (Vuong, et al. (2019). In this context of colonialism, Vale (2008) believes that buildings should be in a position to “*express the political balance of power in the society that produces them*” (p. 13). In addition, architecture assists the locals in expressing the importance of issues in a plural and complex society and thus acts as a platform for freedom or democratic ideals.

Shi (2006) identifies that the Chinese culture in architecture has been neutralized by war, political upheaval and Westernization leading to the destruction of the youngest Turk's artwork. There were traces of flourishing modernist art linked with ‘*the Shanghai-based Breakers Society (Juelan She)*’ and some coteries sharing the same interest in the 1930s and 1940s. However, despite the existence of traces of this culture in Shanghai, modernist architecture barely gets registration from histories and architectural guides. The main reason for the lack of listing of the architecturally designed building is due to the belief that conventional architecture should be composed of ancient images or revivalist structures with Baroque, mock-Gothic, or upturned, characterizing Chinese roofing, or neoclassical details. The Chinese in the 1920s and 1930s were able to maintain conventional architectural knowledge by fusing traditional knowledge with modern knowledge in colleges such as Pennsylvania and Beaux Art Bastion. However, the role of women in this culture was limited in transmitting traditional architectural knowledge to future generations.

According to Steinhardt, Jeffrey, and Tony (2011) architecture is among the foundations of Chinese cultural treasures and modernity is only affected by its decorative details. The culture played a key role in shaping the cultural, national, and social identity from 1900 to 1949, portraying a strong cultural heritage across China. Wang (2016) also confirms that during the 1900 to 1949 period Chinese architecture was influenced significantly by foreign culture despite architecture playing a key role in influencing nationalism, national identity, and collective memory. However, Chinese culture was maintained through the development of regulations that governed the construction of houses. Moreover, investing in education for conventional cultural knowledge transfer in building construction designs ensured that the Chinese culture had little foreign infiltration (Carter & Sarvimaki, 2018; Weston, 2002).

Gao and Wu (2017) acknowledge the emergence of global crises in housing development in rural areas as well as in the rural way of life in developing countries in the contemporary world. From 2012 to 2016, there were more than 4000 villages which were designated as national conventional villages in which some of the villages were listed as World Cultural Heritage sites such as Hongcun, Kaiping Dialogue and Xidi (Zhou, Zhong & Liu, 2015). The uniqueness of these villages is that they have artistic, architectural, cultural, and historical value that represents the Chinese way of life in modern society. Despite the government setting up policies governing the construction and design of these houses, globalization has become a major challenge to protecting these cultural village houses as more people move to urban centres in search of greener pastures.

One of the major impacts of colonial rule in the post-colonial globalized world was associated with restructuring the role of women and girls in African society. In this context, Wang (2016) acknowledges that women are able to engage in some tasks, which were initially reserved for men. However, the Maasai have been among the major African cultures that have been able to resist the modernization effect on culture in the post-post-colonial era. This study focuses on the Maasai women's knowledge sharing in developing houses in consideration of sustainable cultural practices in the globalized world.

1.2 Problem Statement

Knowledge sharing has been a key element in African society, used to preserve and relay cultural practices to future generations. This issue affirms Lenku's (2019) analysis stating that omitting cultural knowledge transfer into modern institutions is a practice that most governments and other

actors do not consider. As a result, the place of women as housing change agents in society has been reduced through the elimination of culture in housing construction despite the effort Maasai women have engaged in through information sharing over the years.

1.3 Goal of the Study

The goal of this study is to analyse the Maasai women's role as housing change agents through cultural knowledge and skill transfer over the generations and its implication in modern housing well-being.

2.0 Literature Review

2.1 Diverse Social-Cultural Beliefs on Housing

Heydaripour, Hesamizade and Esfahani (2017) report that what is perceived as quantity and quality by different communities' settlements to be composed of diverse cultural beliefs gradually changes into societies' lifestyle components. Therefore, culture can be defined as an incredibly important aspect of building construction and design. In this context, any house that does not meet the cultural standards in the spatial division is usually rated as improper and thus leads to the locals adjusting some elements in the housing plan. This adjustment is to consider the different sexes, ages, and public or private spaces that are deemed important in housing design and construction (Heydaripour, Hesamizade, & Esfahani, 2017). The approach assists in bringing out the elements of human mentality and habits, lifestyles, as well as adjustment to different environments. In addition, Agboola and Zango (2014) believe that the process of housing should be founded on environmental factors such as the human life cycle, building materials, or physical needs. This view supports Agboola and Zango's (2014) analysis that housing will only be deemed complete when there is population existence that supports the cultivation of close family relationships; and biological, physical, and material needs. The guiding concept behind *wuros*' construction is the pastoralist ecological niche that places focus on community land ownership.

Due to the historical importance of the place of culture in housing, "The City Summit" in 1996 introduced the element of culture in the global debate on urbanization to be part of sustainable development (Duxbury, Hosagrahar, & Pascual, 2016). The Summit believed that conventional culture should be a critical component in building local well-being and promoting equity in society. Therefore, this approach promoted an integrative culture where the locals feel part of the global community via the cultural touch integrated into developing houses. In this context, culture is an essential component that should be considered in dynamic urban development that is in a position of advocating for a participatory construction process by availing local knowledge in the construction of city houses with specific localities (Duxbury, Hosagrahar, & Pascual, 2016). As a result, the integration of cultural elements in city development can support environmental sustainability and unlock locals' inspiration to add local knowledge in improving the environment.

Tjahjono (2000) identifies the emergence of modern construction approaches has exposed local communities to cultural housing behaviours. The major factor that affected the sustainable development advocated by local cultures in the modern-day construction industry, is the notion of equating contemporary housing development to modernity while conventional housing practices are strongly associated with backwardness. This detachment of cultures has led to slack in information relay from one generation to the other in the construction of indigenous houses using Indigenous knowledge thus exposing the future generation to information limitation and lack of positivity towards blending traditional housing knowledge with modernity (Tjahjono, 2000).

The touch of culture was evident in the Fulbe clan of a Nigerian' Fulani pastoral community constructed of tiny tents as well as hamlets as their home to blend with their lifestyle (Daramola, 2006). The homestead design, called *Wuro*, started with a single hut within a larger or smaller compound to form a village, an urban setup or a town. However, the structure would only be considered complete when a woman is engaged in the process of house development. According to

Kintz (1989), a home has a special asset when women infuse their emotions and labour to invest in its physical structural development over the years. Therefore, for a house to become a home, the skills and sensibilities of a woman are needed to design it to be a more intimate environment of reproduction and hierarchy, and this is the knowledge that women relay over generations. Kintz (1989) identifies Fulani women to be at the centre of designing and developing *Wuro* in the conventional practice while also attempting to blend conventional knowledge with modernity through training at colleges.

Chege et al. (2015) describe that the Maasai families reside in a Manyatta-type of enclosed housing where thorny bush fences are erected to protect the community and livestock from predators and intruders. The homestead is surrounded by 10 to 20 huts (*Inkajjik* or *boma*). In the process of design and construction of the homestead men and women have special roles. According to Chege et al. (2015), women are mandated to not only design but also to construct houses, milk the cows, gather firewood, fetch water, and prepare food for the families while the young men look after livestock and maintain security with the guidance of the elders who manage the community's daily operations.

In relation to the Maasai cultural practice that supports women's role in housing development, Ayubu, Cleempoel, Kombe and Janssens (2019) identify a wholesome society culture that includes such aspects as knowledge, art, belief, identity, customs and other practices and capabilities practised by members of the society. In the same context, Ayubu et al. (2019) describe culture as a multifaceted interlinked phenomena that involves the psychological perspective (what individuals think through beliefs, attitudes, and values) and the physiological aspects (what individuals do through life activities, artefacts, cultural products, and artworks). The cultural relevance is presented in its ability to permeate the functional and physical elements of the Maasai homestead. This is supported by the fact that culture assists individuals to associate with their physical phenomenon. Ayubu et al. (2019) affirm that the indigenous Maasai houses, constructed by women, are tangible reflections of the employment of culture to coherently entrench the coexistence of humans and the fragile natural environment.

The sharing of knowledge and experience in the structuring and organization of indigenous Maasai homesteads are usually dictated by social ties, environmental dynamics, cultural practices, folklore, rituals as well as symbolic values (Ayubu et al., 2019). These elements that are shared through generational knowledge of Manyata housing development revolve around the cultural axis "*Kopkop*." In this context, the cultural axis defines the homestead's main gate "*Kishomi o nkishu*" orientation. This is where the design on the main gate subdivides the homestead into two perspectives; the right perspective involves "*entaloishi e tatene*" usually built by the first wife, while on the left side known as "*entaloishi e kedyange*" built by the second wife. There is alternation of wives on either side through a culturally designed structure. The symbolic twig also known as "*Oltim*," represents the elder homestead, the main gate, and the Kraal also known as "*boo o nkishu*" is linked by an axis. On the other hand, the homestead organization designs an ideal homestead to include a fence, a dwelling unit, as well as the livestock's security area organized into three concentric circles for security reasons to restrict attack from potential enemies and carnivores. The third level of hierarchy, presents the cattle kraal as the most sacred environment among the Maasai community, which emerges from Maasai folklore. In this context, the kraal defines the homestead design by presenting the shape, size, and central position, thus Maasai principles requiring one third of the livestock kraal and calves' pen to occupy a quarter diameter of the livestock kraal. Finally, House forms present the last level in Maasai construction where every woman builds her own house.

2.2 Women's Skill and Knowledge Sharing in Housing Design/Construction

Mottaki and Imani (2017) observe that the involvement of women in housing construction is associated with designers of homes. Therefore, the construction of homes is a platform where the Maasai women exchange their Indigenous knowledge in construction (intangible heritage) to future generations. The major types of houses constructed among the Maasai communities are *enkaji*

emodioi (cow dung developed homes); the *enkaji orkujita* (the round thatched homes) and the *enkaji o lamburui* (rectangular thatched huts). However, the oblong-shaped cow dung houses are more common in Kenyan Maasai while the round thatched huts are common along Ngorongoro Tanzania.

The Maasai sub-culture has been identified as one of the most elaborately developed cultures thriving in the modernized world. The women in the Maasai community, with the exclusion of the expectant and the elders in the society, are responsible for the design and construction of family houses. In this process of home building, the elderly in this society act as the custodians of most of the community knowledge, including the design and construction of houses, thus relaying the same information to future consecutive generations of young women in the society. The concept of design and building of manyatta houses gives elderly women an opportunity to teach and give directives to the younger generations on the process of developing good, stable structures. This key information in the design and construction of Manyatta housing ensures that the semi-permanent structures use natural resources such as cow dung, water, mud, small branches, and poles, among others. This housing trend has functioned as a medium for upholding the locals' cultures. However, the semi-permanent structures have been exposed to challenges such as manipulation from the external world, limited space, improper sanitation, security, health, and gender issues (Lenku, 2019). Therefore, there is an urgent need to improve the manyatta houses into more secure, reliable structures using modern technology, and, while eliminating some of the challenges facing Maasai community women, to still maintain some favourable cultural norms like the design. The elderly and expectant are exempted from the responsibility of constructing a house for the family, but they function as a source of knowledge for the young women, teaching and providing direction on how to construct stable and good structures.

3.0 Research Methodology

The study employed quantitative research methodology where content analysis was conducted on available data on housing characteristics from the Kenya National Bureau of Statics and the Kenya Demography and Health Survey reports of 2014 (Republic of Kenya, 2014). The assessment considered the housing characteristics: roofing materials, floor materials, and walling materials as well as the structural design of the housing informed by Maasai cultural requirements. The selective identification of the KNBS 2015 reports the Kenya National Bureau of Statistics (KNBS) and the Society for International Development (SID) 2013 report as essential for the data collection because these are the only available inclusive reports on housing that integrated modern housing technology and conventional knowledge on housing structures in Kajiado County. The content of the report was subdivided into themes such as housing and household characteristics (mud, cement, tiles, wood, grass-thatched, iron sheets, stones, and bricks).

4.0 Data Findings and Analysis

4.1 Conventional and Modern Flooring Housing Technique in the Maasai Community

The Kenya National Bureau of Statistics (KNBS), in collaboration with the Society for International Development (SID) (2013) Report, as shown in Table 1, analysed the characteristics of materials used to build house structures in Kajiado County to reflect the level of both designers and developer's deviation from traditional housing practice as practised by women in Maasai community.

The KNBS/SID (2013) assessment engaged 8,493,380 houses in Kenya. The Report shows that Kajiado County has experienced considerable transformation caused by globalization and modernization. This has led to a shift from traditional architectural design to modern architectural housing design where the use of modern flooring materials, such as cement, was preferred to conventional cultural building materials, such as mud/soil, in floor construction. This is evident where high cement usage in floor construction was witnessed at Kajiado North (80.9%); Kajiado East (72.0%); Kajiado Central (37.5%); Kajiado West (34.3%); and Kajiado South (27.5%)

respectively. In general, Kajiado County's level of modernization on the floor was marked by 57.0% of houses having cemented floors. This is a clear indication of limited cultural integration between modern and conventional architectural and construction approaches in Maasai culture. Therefore, women's engagement in the process of housing construction and design in modern-day Kenya might have reduced greatly the use of cement, thus rejecting foreign cultural influence in construction.

Table 1 also reveals the existence of some conventional architectural design and construction of conventional housing using culturally oriented materials, such as earth, in flooring, commonly used by Maasai women to construct houses. In Kajiado South 71.4% had used earth as a flooring material; in Kajiado West - 63%; in Kajiado Central - 61.3%; Kajiado East - 24.4%; and the lowest being Kajiado North at 10.4%. Therefore, a substantial percentage of the rural regions of Kajiado use a high rate of integrative or retain conventional practices such as soil/mud in floor construction while a significant percentage of regions embracing urbanization experienced the adoption of modern building materials for flooring.

This Report clearly indicates that areas that have embraced modern building techniques have eliminated the conventional approaches used in housing, such as *Manyattas*, while those areas with less penetration or adoption of modernity still embrace the conventional earth building material. This is a clear indication that Maasai women's role in knowledge and skills sharing in conventional architectural and housing design in the modern setting has been limited. Therefore, the traditional cultural settings are left out in the transformation of housing in modern society.

Table 1: Flooring materials used in Maasai households

	Cement	Tiles	Wood	Earth	Other	Household
Kenya	41.2	1.6	0.7	56.0	0.5	8,493,380
Rural	22.1	0.3	0.7	76.5	0.4	5,239,879
Urban	72.0	3.5	0.9	23.0	0.8	3,253,501
Kajiado County	57.0	3.6	0.3	38.5	0.4	170,129
Kajiado North	80.9	7.7	0.4	10.4	0.6	56,678
Kajiado Central	37.5	0.8	0.2	61.3	0.2	22,398
Kajiado East	72.0	3.1	0.2	24.4	0.2	36,689
Kajiado West	34.3	1.4	0.3	63.6	0.4	25,232
Kajiado South	27.5	0.3	0.4	71.4	0.4	29,132

Source 1: (KNBS, 2015)

4.2 Conventional and Modern Roofing Housing Technique in Maasai Community

Table 2 strengthens Table 1 by affirming that conventional housing design on roofing was constructed using mud/dung.

Table 2: Roofing materials used in Maasai households

	Corrugated Iron Sheets	Tiles	Concrete	Asbestos sheets	Grass	Makuti	Tin	Mud/Dung	Other	Household
Kenya	73.5	2.2	3.6	2.2	13.3	3.2	0.3	0.8	1.0	8,493,380
Rural	70.3	0.7	0.2	1.8	20.2	4.2	0.2	1.2	1.1	5,239,879
Urban	79.0	4.6	9.1	2.9	2.1	1.5	0.3	0.1	0.9	3,253,501
Kajiado County	67.0	3.9	3.4	3.2	10.6	0.4	0.4	10.2	0.9	170,129
Kajiado North	82.5	7.7	5.8	3.0	0	0.1	0.2	0.1	0.6	56,678
Kajiado Central	48.9	0.7	0.1	2.5	11.5	0.2	0.1	34.8	1.1	22,398

Kajiado East	77.9	3.0	5.7	4.6	1.7	0.2	0.3	6.3	0.3	36,689
Kajiado West	48.1	3.5	1.3	2.2	18.7	1.0	0.9	23.0	2.2	25,232
Kajiado South	53.3	0.6	0.1	3.0	34.5	1.0	1.1	5.1	1.1	29,132

Source 2: KNBS & SID Report, 2017

The use of the conventional roofing material, that is, mud/dung represented similar distribution trends as those for the conventional floor materials. Kajiado South recorded 5.1% of mud/dung used as a roofing material; Kajiado Central - 34%; Kajiado West - 23.0%; Kajiado East - 6.3%; and Kajiado North only 0.1%. The diversity reflected between the highest-rated sub-county, Kajiado South and Kajiado West, and the lowest-rated sub-county, Kajiado East and Kajiado North, reflected the conventional Manyatta roofing to be only achievable in areas with low levels of modernization. However, the number of houses with roof structures constructed using *Makuti* was also very limited. This a clear indication that the knowledge might be adopted by some residents, but the approach is not a cultural practice among the Maasai community though locally available somewhere else.

The Maasai women are, therefore, in a position to implement cultural architecture in the construction of rural homes and should be supported with technology that makes the construction easier and faster. However, the urbanized areas show a clear indication that women's capability in conventional knowledge transfer of cultural architecture approaches is limited, allowing the adoption of modern alternative roofing materials (corrugated sheets, tiles, Asbestos, and concrete) into the sub-counties and other rural areas.

The major determinant of a shift in roofing materials from culturally conventionally preferred was informed by the level of urbanization in these counties, as presented in Kajiado South and Kajiado North sub-counties which revealed the lowest number of mud/dung roof houses. However, the transformation to modernized roofing materials undermines the Maasai women's skills and knowledge transfer on the relevance of designing Manyatta housing using mud/dung. These resources were aligned to the environment and climatic conditions of the area and thus suitable for the semi-arid environment as they are cool, habitable houses. Moreover, these materials are easily accessible, within the environment and more economical to the pastoral community due to resource abundance. This informed the women to design the mud/dung thatched Manyatta roof into dome shape. This shape differs from the available modernized roofing materials, which deviate from the Manyatta housing architectural designs that adopt the western housing styles that do not take into consideration the local environment and cultural trends.

4.3 Conventional and Modern Walling Housing Technique in Maasai Community

Table 3 identifies the conventional cultural architecture and housing development skills and knowledge consistency relayed by Maasai women and the materials they used to build the walls over the years.

Table 3: Distribution of homes by wall materials

	Stone	Bricks /Blocks	Mud /wood	Mud/Cement	Wood Only	Corrugated Iron Sheets	Grass/Reeds	Tin	Other	Household
Kenya	16.7	16.9	36.5	7.7	11.1	7.0	3.0	0.3	1.2	8,493,380
Rural	5.7	13.8	50.0	7.6	14.4	2.5	4.4	0.3	1.4	5,239,879
Urban	34.5	21.9	14.8	7.8	5.8	13.3	0.8	0.3	0.9	3,253,501
Kajiado County	27.7	7.5	22.6	3.3	8.2	26.6	2.0	0.5	1.6	170,129
Kajiado North	52.4	4.8	1.6	0.9	4.1	35.3	0	0.2	0.7	56,678

Kajiado Central	12.7	10.9	46.7	0.9	1.1	13.0	3.3	0.2	3.0	22,398
Kajiado East	28.8	14.2	13.4	2.6	1.6	38.0	0.4	0.6	0.4	36,689
Kajiado West	12.9	5.1	36.8	4.0	4.0	26.0	6.8	0.4	3.7	25,232
Kajiado South	2.4	3.8	44.4	4.1	4.1	6.0	3.0	1.1	1.9	29,132

Source 3: KNBS & SID Report, 2017

The existence of a substantial house population that considered conventional cultural walling design and construction using mud/dung as their preferred walling material was most prominent in Kajiado Central (46.4%); followed by Kajiado South (44.4%); Kajiado West (36.8%); Kajiado East (13.4%) while Kajiado North trailed at only 1.6%. The trend in using industrial manufactured walling material for housing construction and design among the Kajiado residents is an indication of the influence of globalization over the Maasai women's conventional cultural knowledge transfer capability beyond the rural setting. However, there are some elements of grass as a locally available walling material but not preferred by the Kajiado Maasai women in the construction of culturally oriented homes. Though the place of women still exists in the rural setting, the urban setup promotes the adoption of Western housing culture and design. Thus, a substantial erosion of conventional cultural knowledge in housing is experienced in some sub counties such as Kajiado South (6.0%); Kajiado East (38%); Kajiado North (35%); and Kajiado Central (13%) which prefer to use iron sheets for walling. This trend of adopting modern technology in the construction of western-oriented buildings is a clear indication that the local cultural knowledge is not trained in colleges to integrate Western and local cultural knowledge in housing design and construction.

5.0 Discussion

The study findings revealed a strong existence of Maasai culture over the years, despite the existence of globalization that has affected most African cultures. This is reflected where out of the five counties: Kajiado North; Kajiado Central, Kajiado East, Kajiado West, and Kajiado South only Kajiado North had a low level of houses that embraced local cultural architecture and building approaches. This sub-county adopted mostly the Westernized or industrialized influenced materials and architecture that support modernized construction of buildings. Lenku (2019) supported this argument by noting the existence of a well-structured information flow channel is essential within this community, where elderly women take on the crucial role of teaching and guiding the younger generation in the art of constructing strong, semi-permanent homes using locally available materials. This educational structure has not only preserved their culture but also elevated it to a prominent position among the dominant cultures of the modern world. In addition, the advocacy by women to use locally available products that have limited effect on the environment assists in conserving the environment and reducing the climate change impact that might be associated with industrialization (Duxbury, Hosagrahar, & Pascual, 2016).

However, the rest of the sub-counties, except for Kajiado East, formed the highest number of houses that embraced local cultural-oriented building and construction design using locally available materials. This is a clear indication that the Maasai women's potential in knowledge transfer has been highly effective over the years. On the contrary, globalization has affected its influence in urban centres, thus leading to the adoption of new technology-oriented skills and western-oriented architecture and construction approaches, using industrially produced products. Gao and Wu (2017) found that globalization and modernization negatively influence the construction of culturally oriented houses and the use of locally available materials as more people move in search of better pastures and embrace urbanization. However, though the foundation of Chinese culture in architecture was influenced by colonialism, their will to promote nationalism led the Chinese to use American institutions to advance their knowledge in culturally oriented designs and buildings, using locally available materials.

Vuong et al. (2019) advocated for the creation of legislation by colonial powers as well as governments of the day which should be the major guiding platform for the engagement of the locals and the government in the protection of the local cultural heritage through construction and architecture. The absence of government legislation to guide and support the use of local culture housing knowledge has led to the emerging Western knowledge not considering local culture and preference in building houses in the local environment. Thus, the emergence of urbanization and modernization in the globalized society has undermined women's role and knowledge transfer to the next generation.

The place of women as change agents is being replaced by engaging men in the process of construction, using industrial products to develop local houses. The adopted Western housing knowledge does not consider the environmental and socio-cultural factors governing the construction and design of houses nor does it consider the use of specific locally available materials. The approach of replacing local culture with new culture has been reflected to be an approach embraced by the colonial powers in their colonies, however, the unique element that colonialists like France did to Vietnam was to introduce cultural synergy between local and modern culture to assist in preserving the local practice while considering the political, environmental and socio-cultural factors. This aspect has been absent in the government of Kenya and its agencies in trying to produce a synergistic approach to ensure the Maasai culture and knowledge in housing is considered. This will possibly promote advancing women's knowledge through training and admitting them to higher learning institutions to advance the local cultural practices in housing at the local level.

6.0 Conclusion

Knowledge and skills sharing has been a major communication and means of storing information from one generation to the other, apart from written documents. The African community, such as the Maasai women, functioned as the custodians of housing design and construction information that was relayed from one female generation to the other. This practice has overcome so many challenges associated with globalization, that there is a need for the Kenyan government to collaborate with the local communities to preserve their cultural heritage which is reflected through the design and construction of houses to preserve cultural practices. Therefore, the rapid adoption of the modern model of housing construction should include a cultural touch to ensure that the locals feel that their identity as pastoralists is appreciated by both the government and non-governmental actors engaged in construction.

7.0 Recommendations

There is a problem in bridging the gap created by modern knowledge of housing design and construction that leaves out the element of culture and gender responsibility. Therefore, women's role as change agents in traditional settings and the conventional knowledge and skills transfer should be integrated into the modern knowledge in higher learning institutions and other skill transfer avenues.

The traditional architectural and construction housing approaches among the Maasai community considered factors such as the environment, climate, terrains and lifestyle, an approach equally shared in contemporary knowledge and skills sharing in the building and construction sectors. Therefore, the building construction policies and acts should integrate the local knowledge to protect the cultures of the locals from extinction. This will ensure that the women who are custodians of culture in housing construction among the Maasai community are able to participate in advancing the architectural design, planning, and development of houses in the country while supporting local communities.

There should be well-structured legal and policy frameworks that support the proper development of houses that promote a cultural touch in modern housing design and approaches.

The presence of the right frameworks will assist in strengthening the role of women as change agents in housing not only in Kajiado County but also in other countries and globally.

References

- Adam, A. A., Othman, N., & Halim, A. A. (2021). Indigenous Knowledge Transfer among Dusuns and Bajaus in Kota Belud, Sabah, Malaysia: Approaches and Challenges. *International Journal of Academic Research in Business and Social Sciences*, 11(11), 1722–1734.
- Agboola, P.O. & Zango, S.M. (2014). Development of Traditional Architecture in Nigeria: A Case Study of Hausa House Reform. *International Journal of African Society Cultures and Traditions*, 1(1), 61 – 74.
- Ayubu, G., Cleempoel, K.V., Kombe, W.J. & Janssens, B. (2019). Ambivalence of sustaining cultural heritage through Maasai architecture in cultural villages. 6th UNESCO UNITWIN Conference. Retrieved from <https://ees.kuleuven.be/eng/unitwin2019/proceedings/ProceedingsUNITWIN2019-Ayubul.pdf>.
- Carter, A., & Sarvimaki, M. (2018). Utzon: The Defining Light of the Third Generation. *ZARCH*, (10), 88-99.
- Chege, P. M., Kimiywe, J. O., & Ndungu, Z. W. (2015). Influence of Culture on Dietary Practices of Children under Five Years among Maasai Pastoralists in Kajiado, Kenya. *International Journal of Behavioral Nutrition and Physical Activity*, 12(1), 1-6.
- Daramola, A. (July, 2006). Nomadic homestead and role structure amongst the Fulbe nomads in Nigeria, *FUTY Journal of the Environment*, Vol. 1, No. 1, pp. 86 – 94. Retrieved from <https://www.ajol.info/index.php/fje/article/download/50778/39465>.
- Duxbury, N., Hosagrahar, J., & Pascual, J. (2016). Why must culture be at the heart of sustainable urban development? *Agenda 21 for culture*. Retrieved from http://www.agenda21culture.net/sites/default/files/files/documents/en/culture_sd_cities_web.pdf.
- Gao, J. & Wu, B. (2017). Revitalizing Traditional Villages through Rural Tourism: A Case Study of Yunajia Village, Shaanxi Province, China. *Tourism Management*, 63(2); 223-233.
- Heydaripour, O., Hesamizade, M. A., & Esfahani, N. N. (2017). Comparative Study of Traditional and Contemporary Iranian Housing; Based on Iranian Culture. *International Journal of Scientific Stud*, 5(3); 34 – 42.
- Joseph, S., & Castan, M. (2013). *The international covenant on civil and political rights: cases, materials, and commentary*. Oxford University Press, USA.
- Kenya National Bureau of Statistics (KNBS) and Society for International Development (SID). (2013). Exploring Kenya's inequality pulling apart or pooling together? *Kajiado County*. Retrieved from <http://inequalities.sidint.net/kenya/wp-content/uploads/sites/2/2013/09/Kajiado.pdf> (28/08/2023).
- Kintz, D. (1989). Formal Men, Informal Women: How the Fulani Support their Anthropologists. *Anthropology Today*, 5(6); 12-14.
- KNBS. (2015). County Statistical Abstract, Kajiado County: Exploring Kenya Inequality. *Kenya National Bureau of Statistics (KNBS)/ Society for International Development-East Africa (SID)*.
- Lauterpacht, H. (1948). The universal declaration of human rights. *Brit. YB Int'l L.*, 25, 354.

- Leal-Filho, W., et al. (2018). *Using the sustainable development goals towards a better understanding of sustainability challenges. International Journal of Sustainable Development & World Ecology, 1–12*. doi:10.1080/13504509.2018.1505674.
- Lenku, E. (2019). *An Analysis of Manyatta Housing and Community Wellbeing: A Case for Kajiado County* (Doctoral dissertation, University of Nairobi).
- Mottaki, Z. & Imani, A. (2017). Cultural Sustainability Patterns in Vernacular Architecture: A Case Study of Gilan, Iran. *GSTF Journal of Engineering Technology (JET)*, 2(1)
- Ogar, E., Pecl, G., & Mustonen, T. (2020). Science Must Embrace Traditional and Indigenous Knowledge to Solve Our Biodiversity Crisis. *One Earth, 3*(2). <https://doi.org/10.1016/j.oneear.2020.07.006>
- Paniagua-Zambrana, N., Cámara-Leret, R., Bussmann, R. W., & Macía, M. J. (2016). Understanding transmission of traditional knowledge across North-Western South America: a cross-cultural study in palms (Arecaceae). *Botanical Journal of the Linnean Society, 182*(2), 480–504. <https://doi.org/10.1111/boj.12418>.
- Republic of Kenya. (2010). *The Constitution of Kenya. Nairobi: Government of Kenya.*
- Republic of Kenya. (2014). Kenya Demographic and Health Survey 2014. *Kenya National Bureau of Statistic, Ministry of Health & National AIDS Control Council*. Retrieved from <https://dhsprogram.com/pubs/pdf/fr308/fr308.pdf> (1st January, 2024).
- Shi, Y. (2006). Reconstructing Modernism: The Shifting Narratives of Chinese Modernist Architecture. *Modern Chinese Literature and Culture, 18*(1);30-84.
- Steinhardt, N. S., Jeffrey W. C., & Tony, A. (2011). *Chinese Architecture and the Beaux-Arts: Spatial Habitus: Making and Meaning in Asia's Architecture*. University of Hawaii Press.
- Union, I. P., & United Nations. Division for the Advancement of Women. (2003). *The Convention on the Elimination of All Forms of Discrimination Against Women and Its Optional Protocol*. UN.
- United Nations. (2016). 11 Sustainable cities and communities. *United Nations*. Retrieved from <https://unstats.un.org/sdgs/report/2016/goal-11/#:~:text=SDG%20Goals-,Goal%2011%3A%20Make%20cities%20and%20human%20settlements%20inclusive%2C%20safe%2C,people%20will%20be%20urban%20dwellers>. (1st January, 2024).
- Vale, L. (2008). *Architecture, Power, and National Identity*. 2 ed. London: Routledge.
- Vuong, Q. H., Bui, Q. K., La, V. P., Vuong, T. T., Ho, M. T., Nguyen, H. K. T., & Ho, M. T. (2019). Cultural evolution in Vietnam's early 20th century: A Bayesian networks analysis of Hanoi Franco-Chinese house designs. *Social Sciences & Humanities Open, 1*(1); 1-19.
- Waage, J., Yap, C., Bell, S., Levy, C., Mace, G., Pegram, T. & Poole, N. (2015). Governing the UN Sustainable Development Goals: interactions, infrastructures, and institutions. *The Lancet Global Health, 3*(5); 251-252.
- Wang, Y. (2016). "Chinese Architecture?" *Medium*. Accessed on 7th September, 2023. <https://medium.com/@yugangwang/chinese-architecture-3c465cd2a8f7>.
- Weston, R. (2002). *Utzon: Inspiration, Vision, Architecture*. Blondal.
- Zhou, R., Zhong, L. S. H., & Liu, J. M. (2015). Research on Rural World Heritage Sites: Connotation and Tourism Utilization. *Geographical Research, 34*(5), 991-1000.