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"That Is Still our Tradition but in a Modern Form, but it Still Tells our Story": Transitions in Buildings in Northern Ghana

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ABSTRACT

Traditional building practices, which are typically regarded as repositories of heritage and material culture, are undergoing significant transitions in northern Ghana. This transition is evident in the use of building materials other than locally accessible traditional materials. These transitions are driving creativity and innovation as households strive for continuity of tradition, while at the same time ensuring the sustainability of their buildings. This article analyses the architectural traditions and building practices in northern Ghana using the building work and commentaries of the people of Gbabshe in peri-urban Tamale as a case study. The results show that building practices are transitioning because of environmental changes, migration, wealth accumulation and access to modern building materials and technology. As the peri-urban community becomes urbanised, the people encounter "modern" building styles which are appropriated into their traditional architecture, resulting in a hybridisation of architecture. The innovative tendencies and philosophical continuities of these builders, and the desire to achieve sustainable buildings and the hybridisation of architecture, has implications for the future of earth buildings' relevance, resilience, sustainability, and sociocultural significance in people's everyday lives.

KEYWORDS

Traditional architecture; transition; continuity; hybridity; innovation; Ghana

Ya' mɛbodin doli kaya ni taada soli nyɛla din wuhiri bilichiinsi mini kali, amaa dimbɔŋɔ zaa nyɛla din nyari taɣibu pam tudu polo ŋɔ. Lala taɣibu ŋɔ nyɛla din yi polo, nira yi lihi bɛ ni kpalim m-mali ya' mɛbo neen' shɛŋa din pa bɛ dina m-mɛri yiya shɛm, ka chɛri bɛ maŋmaŋa ya' mɛbo nɛma din be asama ŋɔ. Lala taɣibu ŋɔ nyɛla din ʒi baŋsim mini yɛl' pala niŋbu soya na zaŋ chaŋ ya' mɛbo polo, dama yili kam kpaŋdi bɛ maŋa m-mɛri bɛ yiya n-doli kali maa, ka zaŋdi taɣiri' pala maa m-pahira, din kpaŋsiri bɛ yiya maa. Lahibali ŋɔ nyɛla din vihiri n-kahigiri ya' mɛbo soya mini di baŋsim tudu polo kaya ni taada soli zuɣu Ghana tiŋgbani puuni. Di nyɛla din zaŋ yiya mɛbu mini niriba ni yɛli shɛm zaŋ chaŋ yiya maa polo, tiŋa din yuli booni Gbabshe din be Tamale yaɣili ŋɔ n-niŋ vihigu maa. Vihigu maa wuhiya ni ya' mɛbo soya nyɛla din taɣira, ka di daliri nyɛla ʒileli biɛhigu gba ni taɣiri la zuɣu. Saamba nyɛla ban gɔri kpɛra tinsi ni nti ʒiina, ka arizichi nyamma gba pahi, ka anashaara ya' mɛbo nɛma gba nyabu niŋ bayana, nti pahi tabibitabibi gba ni ʒi taɣiri shɛŋa na. Tiŋa yi kuli lɛbigira n-leeri fɔŋ, niriba tooi nyari ʒaman' pala ya' mɛbo balibubalibu, ka

BACHIKPANA

Kaya ni taada ya' mɛbo; taɣibu; tuɣibu din viɛla; taɣiri pala zaŋ pahi n-niŋ binshɛli; yɛl' pala niŋbu soya; Ghana

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di nyɛla bɛ zaŋdilimi n-gabiri kaya ni taada ya' mɛbo soya puuni, ka dimbɔŋɔ nyɛ din yihiri ya' mɛbo so' pala na. Tammɛriba ŋɔ ni nyari baŋsim shɛŋa zaŋ chaŋ ya' mɛbo polo, bɛ ni na kuli vihira ni bɛ nya baŋsim shɛŋa, ni bɛ suhiri ni yeya ni bɛ zaŋ anashaara baŋsim mini kali ya' mɛbo soya m-me yiya din ni ku sokam bukaata viɛnyɛla ŋɔ nyɛla din mali bukaata zaŋ ti dunia ŋɔ sɔhabiɛɣuni yiya mɛbu, di yuubu, di kpaŋsibu, ni di daanfani zaŋ chaŋ ʒileli mini kali soya niri kam biɛhigu puuni.

Introduction

> Our houses are symbols of our culture because they represent us and who we are so we cannot avoid it but rather be proud of it.
> That is still our tradition yet in a modernised form, but it still tells our story[1]

These two statements were made by two members of a focus group discussion held in 2019 during field work in Gbabshe. Their remarks gave an indication that the traditional buildings that are recognised by the people of Gbabshe as an embodiment of their culture, history and tradition are also undergoing change and becoming "modern". This complicates the UNESCO document for the Implementation of the World Heritage Convention, which states that traditional architectures are a unique form of cultural heritage that could be preserved because they are a repository of the heritage, material culture, history, and traditions of a group of people (UNESCO 2021). Like any cultural element, the traditional architecture of a community is not a static repository but is constantly undergoing change due to socio-political factors and the decisions of the people. Global influences such as modernisation, urbanisation, migration, and environmental change are visibly shaping cultural landscapes. Likewise technological advancement and societal shift continue to influence traditional buildings' forms, construction technology, and building materials. Dioma, Malama, and Munshifwa (2018) in an article on the Lamba people in the Copperbelt Province of Zambia have argued that the pressure to modernise traditional architectures partly stems from countries' obligation to meet the Sustainable Development Goals.

Hence, the research question asked by this article is: to what extent have global influences and social changes produced a hybrid architecture in northern Ghana? The aim of this research project was to study the transitions taking place in the traditional building practices of Tamale in Ghana, and to identify the drivers of the change, while noting the implication of appropriations for the architecture. The findings show that building typologies are transitioning from earth-walled buildings with thatch-roofs to earth-walled buildings with metal roofs, and to cement brick-walled buildings with metal roofs. These changes are driven by several factors including the difficulty in accessing local building materials, builders' exposure to contemporary building designs, materials and construction technology, a desire to modernise and change, and the social standing and status of the developer. These factors have encouraged innovation, yet there are philosophical continuities with existing building practices. This has resulted in the hybridisation of architecture, which has implications for the future of earth buildings' relevance, resilience, sustainability, and sociocultural significance in people's everyday lives. These hybrid building forms, the construction

material, and the construction technologies provide us with rich material through which to study transitions occurring in traditional building practices and how local people understand these changes.

Issues of, colonisation, modernisation, globalisation and sustainability have shaped and continue to shape the traditional building process, space organisation and the material culture of African traditional architectures. Jyoti Hosagrahar (2012) argues that modernisation is continuing, in new ways, the interdependencies between the ex-colonial powers of Western Europe and the colonies in Asia and Africa. Similarly, Victoria Okoye argues that the framing of indigenous spatiality and practices of architecture as primitive and in need of "development" has led to the inevitable adoption of Western designs and aesthetics (2021). In the end modernity is fabricated and not real (Okoye 2021). The flows of goods and capital, labour and information, interactions with other societies (Dioma, Malama, and Munshifwa 2018) as well as climate change are producing a hybrid architecture. Paul Memmott and John Ting have pointed out the tensions brought about by regional and sub-regional modernisation and cultural change and the effect of these tensions on historical morphologies and building typologies of vernacular house architectures (2020).

Change and innovation in traditional architectures are treated with some ambivalence in African architecture literature and discourses. Often the binary opposition between tradition and modernity or tradition and innovation is questioned since such comparison does not appreciate the interdependence of both architectures (Hosagrahar 2012; Voyatzaki 2013). According to Hosagrahar (2012), postcolonial critiques have challenged the notion of a universal modernism while acknowledging the interplay of culture and power in imagining, producing, and experiencing the built environment. Thus any sign of modernity in heritage places cannot just be assumed to be a sign of failure, incompleteness, and inauthenticity because "pictorializing heritage and tradition to give it a visual appeal has often been at the cost of locals compromising their needs and even excluding residents from inhabiting and using certain parts of the city" (Hosagrahar 2012, 77). Maria Voyatzaki has described innovation as creating new values by embedding something from the past into the new, which leads to establishing a synergetic and sympathetic relationship that gives meaning and value to a new creation. She argues that through the act of creation, invention and innovation, change and transformation are introduced as tradition becomes the reference point from which the new defines its proper values (2012).

The case study for my argument is Gbabshe, located in the Tamale metropolis, and one of the 115 communities in the metropolis. The Tamale metropolis has a population of 233,252 representing 9.4% of the population of Northern Region (GSS 2014). Gbabshe is predominantly a farming community with large expanse of land for agricultural activities. Linguistically, the people of Gbabshe are Dagombas belonging to the Gur-speaking group. (Figure 1)

From Table 1 below, we can see that over half of all the dwelling units in the Tamale metropolis are the compound house type. The compound house remains one of the oldest architectural building typologies in West Africa (Korboe 1992; Afram and Korboe 2009), and it offers accommodation and social capital for less endowed households in residential cohabitation (Yakubu and Spocter 2020; Addo 2016; Yakubu, Akaateba, and Akanbang 2014). In the inner city of Tamale and its peri-urban interface, compound houses are built with earth-based materials using local technology.

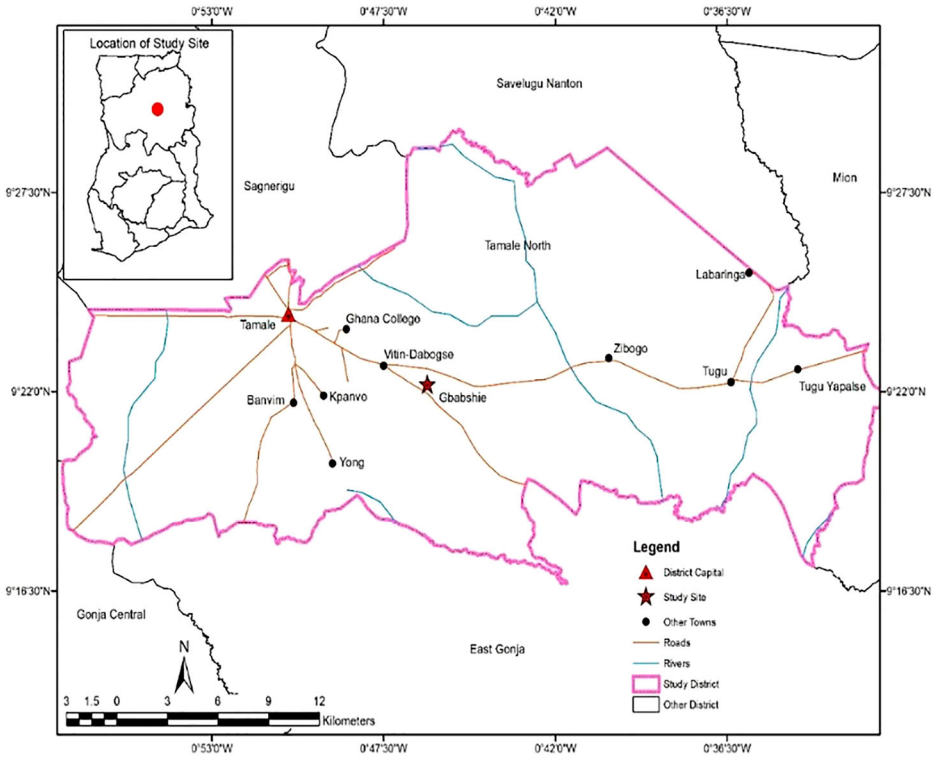

Figure 1. Tamale Metropolitan Area Map showing the location of Gbagshe. Source: Map redrawn in 2019 by Philip-Neri Jayson-Quashigah, Institute for Sanitation Studies, University of Ghana, Accra.

Paul Memmott and Davidson (2008) coined the useful term ethno-architecture, which is derived from ethno-science, as a form of descriptive epistemology that shows the role of indigenous knowledge systems in facilitating sustainable approaches to development. Memmott and Davidson draw upon traditional ethno-architectural principles as a cultural design paradigm and approach to describe the traditional building principles of the Australian Aboriginal people, and to understand the interactions between their architectural values and building traditions. In line with this approach, a culture-centred ethnographic method is employed in this article to understand the architectural realities and the cultural underpinnings of the building culture of the people of Gbabshe.

This approach is committed to multiple views of social reality whereby a researcher's respondent becomes "the expert" – it is his or her view of reality that the researcher

Table 1. Type of occupied dwelling unit in the Tamale Metropolis.

Type of dwelling	Total country	Northern Region	Tamale Metropolis	Percent	Urban	Rural
Compound	2,942,147	208,934	28,528	80.6	85.4	57.2
Separate house	1,471,391	51,622	2,672	7.5	5.8	16.1
Semi-detached	391,548	12,761	1,211	3.4	3.1	4.9
Flat/apartment	256,355	3,360	739	2.1	2.3	1.0
Huts	207,367	37,779	1637	4.6	1.5	19.8
Others	198,246	3,663	621	2.0	2.0	1.0
Total	5,467,054	318,119	35,408	100	100	100

Source: GSS 2014.

seeks to interpret, thus seeking to understand how individuals make meaning of their social world (Hesse-Biber 2010). The approaches used in the data collection included focus group discussions, participant and non-participant observation, photography, video and audio recordings and in-depth interviews. A semi structured interview guide was used for the focus group discussions. The questions, which were asked and answered in Dagbani, examined the concept of culture and tradition as reflected in the architectural traditions of the people, the meanings they attach to their spaces, the issue of sustainability of the earth houses, the perception of the influence of urbanisation and globalisation on their traditional architecture, the issue of modernity, environmental change, and access to local building materials.

The interviews and the building construction processes were recorded after consent was sought from all respondents. In one instance, a group of carpenters refused to grant the research assistant, the community facilitator and the author their consent to interview and photograph them while roofing a building. However, they granted us permission to take photographs of the roofing details. Ethically, the carpenters considered themselves to be hired workmen who could not divulge any information pertaining to the building without the explicit permission of the owner who was absent at the time of the interview. Both participant and non-participant observation was also done, especially with the construction of new and existing buildings. In a particular instance, the researcher briefly participated in the construction of a new building by helping to carry some "cobs" of earth to the builders.

The preparation and the field research were conducted between September 2018 and January 2019. The study sites were identified between September and December 2018 with the help of the research assistant who is resident in Tamale. A community facilitator in Gbabshe helped us to gain access to the community, organise the elders of the community, and to identify focus group discussants. The community facilitator also made arrangements for us to experience two building construction processes during our one week in the field, 12–19 January 2019. The respondents spoke Dagbani which was interpreted by the research assistant who is a Dagomba. In all, we had one focus group at one of the construction sites and four in-depth interviews with two master builders and one young builder. Each of the builders was interviewed twice, the first interview was conducted while they were building to get a better understanding of the construction process and the second was a follow-up interview to understand the cultural and traditional implications of the building process.

The focus group had nine members aged between 60 and 80 years-old. The two master builders were over 70 years-old while the young builder was in his mid-thirties. The focus group comprised of only male members of the community. The author was the only female among the three-member research team. Culturally, men led the construction process while women and children supported the men by carrying water and cooked food for the men. Traditionally, the women also plastered the buildings. However, during our visit, the women cooked for the participants and the male children, and the youth carried the building materials to the builders. The focus group discussion lasted about 45 minutes. The in-depth interviews with the two master builders together lasted about 15 minutes each while the interview with the young builder lasted about 20 minutes during the construction and 10 minutes after construction. All the interviews were recorded using an audio recorder and brief video recordings were also made to

capture the construction process. We decided not to include any of this material to illustrate the article, as it was difficult to obtain permission from each of the persons represented.

The findings show that traditional building practices in the peri-urban community in Tamale is transitioning from the use of locally accessed building material to the use of modern building materials. Although the respondents recognised that the buildings are an embodiment of their culture, the desire to prolong the life span of their buildings, and the desire to be "modern", that is having a building that is constructed of cement, roofed with metal sheets, built with a large room and producing a building that can be described as beautiful and dignifying like the chief's house, compelled them to incorporate new construction technologies and building materials in their traditional building practices. In addition, their inability to easily access local building materials within their vicinity made it more affordable to use modern building materials than having to transport the traditional building materials such as thatch from neighbouring regions and further afield from Burkina Faso.

The people were asked if they recognised traditional architecture as part of their culture, according to popular discourse. The elders confirmed that the buildings are an embodiment of their culture, philosophy, and worldview when they recounted how their forefathers had built and lived in these structures for many generations saying that:

> Our houses are symbols of our culture because they represent us and who we are, so we cannot avoid it but rather be proud of it. We were born into this custom and grew up to know that our forefathers lived in this house so if we don't recognise it as a symbol of our culture, what exactly can we ever assume to be an embodiment of our culture?[2]

> Ti yiya nyɛla din za ti kaya ni taada zaani damaŋa n nyɛ din wuhiri ti ni nyɛ ninvuɣu shɛba, di zuɣu ti ku tooi zaŋ ŋa n-labi, m-pahila ti yɛn malila ŋa n-ŋmɛri nyɔɣu. Bɛ dɔɣi timi n-niŋ kali maa puuni, ka ti yiɣisina nti nya ti yaannima ni be lala yiya maa puuni, di zuɣu ti yi bi lihi nya ŋa ka di nyɛ ti kaya ni taada, bɔ ka ti lee lahi yɛnzaŋ zali ti kali zaani?

They further explained that apart from the mode of construction, the organisation of spaces, the orientation of the buildings, the shape of the buildings, all attest to the fact that their building practices were unique to the Dagombas.

According to tradition, all Dagomba houses should be north facing. From the field it was observed that most of the entrances or hallways were orientated in the north–south direction. According to the elders, this kind of orientation is maintained even outside the community differentiating them from other ethnic groups in the northern part of Ghana. The rationale for such a building orientation was explained by the elders:

> The reason we construct our houses to face the north direction is that the winds blow from north to south. So, if the *zɔŋ* (main entrance) is facing that direction, there will always be constant flow of fresh air to keep the landlord comfortable while resting in the *zɔŋ* with his friends and visitors. Again, if you build your house to face the east direction, when the sun rises, it is going to warm up your rooms quickly. Also, when it rains, the winds blow from east to west and will drive the rainwater into your rooms if facing the east or west. Strong winds also come in the direction of east or west. So, if you have your house facing any of these directions, the wind can destroy your house.[3]

> Daliri shɛli din che ka ti mɛri ti yiya ka di kpari nudirugu maa nyɛla pɔhim yirila nudirigu maa polo n-kuni nuzaa. Di zuɣu zɔŋ maa yi kpa nudirigu polo maa, di yɛn chɛmi ka di puuni maha

> sahashɛlikam n-ti yili yidana maa mini o saamba. Di ni lahi nyɛ shɛm, a yi me a yili n-kpa wulumpuhili polo, wuntaŋ yi ti puhi, tulim ni duɣi duri maa yomyom. Yaha, di yi ti niŋ ka saa mira, pɔhim yirila wulumpuhuli polo na n-kuni wulunluhuli polo dinzuɣu, di ni ʒi kom n-kpɛhi a duri maa ni di yi niŋ ka di tuhi wulumpuhili bee wulinluhili polo. Pɔhim kpiɛŋ tooi yiri wulimpuhili bee wulinluhili polo na. Di zuɣu, a yi me a yili n-kpa lala yaɣa ŋɔ nii shɛli, pɔhim kpiɛŋ maa ni tooi tum a barina.

The respondents were able to link the orientation of their buildings to the science of construction. Environmentally, the building orientation allows the *zɔŋ* (main entrance hall) to remain ventilated throughout the day. Architecturally, the north–south orientation of buildings is also optimal for buildings with the north-easterly winds. The bioclimatic approach to architectural design identifies orientation, house forms, air movement and ventilation as necessary functions to achieve good thermal comfort in buildings (Olgyay 2015). In addition, thick mud walls and thatch roofing reduce or eliminate the need for auxiliary cooling and promote thermal comfort in buildings (Widera 2021).

Building of houses in Tamale is seasonal. January is usually the month for building because it is the dry season, and the children are on vacation and there is no Muslim fasting. In trying to understand the traditional building process, I experienced the construction of two types of buildings, one using *tambuli* (cob or wet earth balls) in the construction of the walls, and the other using sun-dried earth bricks to construct the walls. In both cases, the preparation of the ground was similar. The buildings did not have foundations, and construction began from the ground level. However, before construction begins, materials are acquired, the earth mixture of plant biostabilisers and sometimes cow dung are soaked in water or moulded into bricks. A great deal of preparation and planning goes into the building process. The elders described the preparatory stage:

> You must first clear the land of all shrubs, debris and other obstacles and level it. After that, you mix the sand with water to form the *tambuli* (earth) and leave it to soak overnight to soften it for easy moulding. You then mark out the foundation, *tandɔɣu*, of the rooms.[4]

> Di kpa talahi ni a tuui m-mali polo maa zaa, n-yihi tigbura ni kuɣa bee saɣiri kam din be di ni. Di nyaaŋga, ka a naanyi kpaai kom m-pɔli tankpaɣu maa m-bu tambuli, ka che li n-sɔŋ ka biɛɣu neei, din ni che ka di puɣibu bi to. Dimbɔŋɔ nyaaŋga, ka a naanyi booi tandɔɣu maa n yihi duri maa zaa.

The next stage is the setting out of the rooms which follows the traditional family system. The people explained that the first room that should be constructed is the kitchen (*duduhugu*). The kitchen is referred to as the "elder" of the house (*yilikpɛma*), The elder is usually referred to as the older person in the house relative to other age groups in an extended family. Tradition demands that the landlord is the first to occupy the kitchen because that is where life emanates. This is followed by the first wife's (*walijira*) room, then the other wives. The entrance hall (*zɔŋ*) is next to be constructed, followed by the landlord's room with his animal pen. The male children's rooms are located next to their mother's unit. The elders explained:

> You need to understand that the small room over there (pointing to the kitchen) is called the "elder" of the house *(yilikpɛma)*. This is because, it should be the first room you mark out and build. The landlord must sleep in the kitchen first before he moves into his own room. It is believed that the kitchen is the "heart"*(shɛli)* of the house and so the lives of the entire

household depend on the kitchen. It commands a lot of significance as far as our tradition is concerned. The next room to mark out and build is the first or only wife's room on the left side of the entrance (*zɔŋ*), followed by the landlord's room on the right side together with his animal pen.[5]

Di tuya ni a baŋ ni dubila shɛli din ʒiyaŋɔ maa (tiriti wuhiri duduhugu) yuli m-booni yilikpɛma. Dimbɔŋɔ daliri ni nyɛ shɛli m-bɔŋɔ; dina n-nyɛ di ni tu ni a tuui n-kpa ka me du' shɛli. Talahi n-nyɛ li ni yili yidana tuui gbe lala duduhugu ŋɔ ni pɔi ka naanyi kpe o maŋmaŋa duu. Dagbamba gbibimi ni dina n-nyɛ yili maa "suhi" dama yili maa zaa nyɛvuya paladuduhugu maa zuɣu. Di mali zaashee pam ti kali puuni. Du'shɛli din paya ka di tu ni a kpa ka me n-nyɛ walijira duu, ka di tu ni di zani zɔŋ maa nuzaa zuɣu. Dimbɔŋɔ nyaaŋga, yili yidana duu m-paya, ka di mi za nudirigu zuɣu m-pahi napɔɣu zuɣu.

They explained that once these rooms are completed, the house is regarded as complete, unless you decide to add more rooms for your sons. Figure 2 shows the layout of the compound of one of the elders we spoke to in Gbabshe. In the layout, we find the rooms of the male children grouped together while there are no designated rooms for women. The Dagombas' system of inheritance is patrilineal, thus inheritance of property, titles, names, rights is through the male kin. Women are required to move to their husband's house after marriage. The wives view the kitchen as a female space. The worldview and religion of the people underpin the arrangement of their spaces. Other elements of modernisation are the cement walled rectangular houses, the electric poles for electricity connection from the national grid and a polytank for water harvesting. Figure 3 shows the aerial view of the compound. Some of the buildings have been roofed with metal

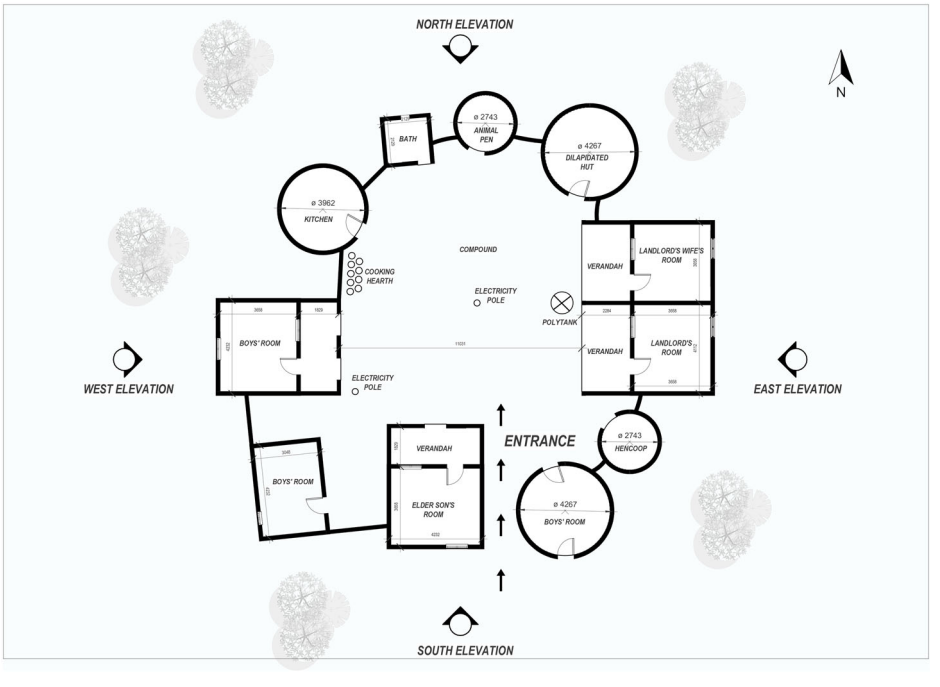

Figure 2. Layout of a compound in Gbabshe. Source: Drawing prepared in 2022 by Kwabena Appeaning Addo, Department of Architecture, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

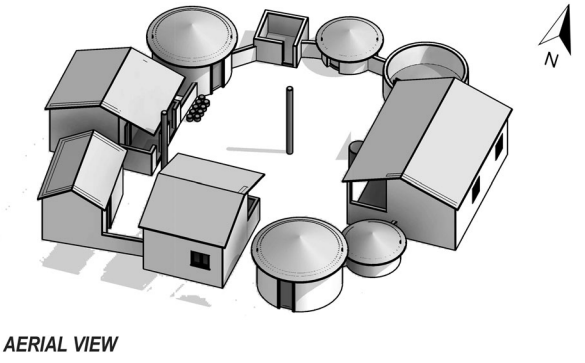

Figure 3. Aerial view of the compound. Drawing prepared by Kwabena Appeaning Addo, 2022.

sheets while others have maintained the thatch roofing. The respondents reported that the thick layered thatch roofs keep the rooms cool during the daytime as compared to the metal roofing, but it is easier, cheaper and feels modern to use the metal roofing sheets. Figure 4 shows two differently shaped buildings that were under construction during my fieldwork in 2019 in Gbabshe. The rectangular building is the unit for the eldest son. The circular building was initially planned to be the *zɔŋ* (entrance hall) and so has two doors, and entrance and an exit door but its use has changed and it now serves as a sleeping unit for some of the boys in the house.

Before an individual starts building, he is expected to gather all the building materials, sticks, thatch, bricks, or sand as is shown in Figure 5. The thatch for the roofing is usually acquired from the vicinity, or from outside the community. The respondents explained

Figure 4. New buildings under construction. Photograph taken by the author, 2019.

that the kind of thatch growing in the vicinity is not of the best quality and that high-quality thatch can only be sourced from the Upper East region or Burkina Faso. The master builders also explained that most of the trees within the community have been cut down and so they are not able to access long sticks to support the central point of the thatch roofing. Hence, their buildings are becoming shorter in height.

Communalism is an integral part of the traditional building practices. This, however, does not mean that people do not have their individual preferences. Kwame Gyekye (1997) explains that communal and individualistic values co-exist ensuring the overall success and well-being of the community. Thus, the community comes together to assist a prospective developer and to ensure that the house is built according to the tenets of the culture while bearing in mind that support is reciprocal. One of the benefits of the communal building process is the transfer of knowledge and skills to the youth. The elders begin the building process on the first day, with the children and youths observing. In the subsequent days the moulding of the earth *(tambuli)* is left for the youths and children. Participation of the community is through their communal work through which wet earth balls are shaped and used to construct the walls, as compared to sundried earth brick construction. A 1200 mm wall height is constructed on the first day and then left to dry for about three days in the case of the cob construction. Subsequently, the walls are built in 600 mm layers until completion. This is because, as the wall height increases, the builder is required to sit on the wall to continue with the construction. Wet walls are likely to collapse under pressure.

Discussions with respondents revealed that the desire to learn the traditional building skill among the youth was diminishing due to poor remuneration, educational pursuit, and migration. Skilled builders are not adequately remunerated because of the nature

Figure 5. Bundles of thatch to be used for roofing. Photograph taken by the author, 2019.

of reciprocity. Most of the youth were enrolled in schools outside the community and others have migrated to the urban areas. Upon their return they bring along new ideas preferring to use cement and metal roofing instead of mud and thatch for their buildings. According to them, mud houses are outmoded and not modern. The stigmatisation associated with mud houses can thus be seen to pose a threat to the culture and traditional building practices of the people.

From the field, it was observed that people were introducing and appropriating other building materials and incorporating different designs into the traditional buildings. They explained that it was becoming difficult to access local building materials such as earth, sticks, thatch, cow dung and plant extracts. While previously homeowners had access to earth and sticks from their backyard, changes in land use are making it difficult to access these local building materials. The elders commented:

> Some of the plants are becoming extinct. For example, thatch (*mɔri*) is very difficult to come by these days. What we have around is not good quality but because of scarcity, we are compelled to use it. It is very difficult to access the good thatch. You must travel a long distance to get them, and the cost of transportation is equally high. Again, we used to have a lot of trees growing around here for the *yɔɣara* (wood for roofing) but today we don't have enough for our construction. So, we travel long distances to obtain them and that makes roofing very difficult and expensive.[6]

> Tihi maa shɛŋa yirila biɛhigu ni. Misaale kamani mɔri ni ʒiya ŋɔ, di niŋ tom pam ni a tooi nya li saha ŋɔ. Ti ni mali shɛŋa bee din miri ti maa pala zaɣ' viɛla amaa di ni kani maa zuɣu, talahi n-nyɛ ni li ti zaŋ lala dini maa n-tum tuma. Di niŋ tom pam ni nira tooi nya mo' viɛla n-che. A yi bɔri mo' viɛla faashee a chaŋla katiŋa n-ti che li, ka di ʒi n-kuna gba lahi nyɛ yɛlimuɣisirili Yaha, ti daa yi mali tihi pam ka di gili ti, ka ti -ŋmari yɔɣara di zuɣu amaa zuŋɔ, tihi maa lahi kani ni ti zaŋ pili ti yiya. Di zuɣu, ti gɔri chani la katinsi n-ti bɔri ŋa ka di che ka duu pilibu pa niŋ tom ka diri liɣiri pam.

Similarly, extracts from the *beeni* and *dasande* plants are mixed with earth and used for plastering wall surfaces. The application of this mixture to wall surfaces makes them impermeable to rain. These plants are becoming extinct in the community because of farming and peri-urban development. In recent times climate and environmental change has had an impact on social, cultural, and natural resources in the savannah regions of Ghana, leading to the loss of certain plant species important in the construction industry. Charcoal production has also been identified as one of the causes of plant loss (Antwi-Agyei and Nyantakyi-Frimpong 2021). The absence of these plants has compelled the households to resort to the use of a very thin layer of cement for plastering. The cement does not bond well with the earth, it cracks over time, and it washes away easily, leaving the wall surfaces exposed to the driving rains as can be seen in Figure 6. The information gathered from the field indicates that when the plant mixture is applied to the surface of the wall, it can last for about three years before a re-application is required, while the cement surface may not last for more than a year. The cost of a bag of cement deters the household from thoroughly rendering the wall surface as required.

In the discussions, some of the respondents pointed out that climate change may be contributing to the extinction of the plant stabilisers from the community. This could not be verified, however, since in the rainy season neighbouring communities were able to access these plants. They also mentioned that the intensity of rainfall had increased over the years, and this was taking a toll on the life span of the building walls. Yet

Figure 6. Eroding wall surface. Photograph taken by the author, 2019.

some of the elders explained that the same phenomenon has existed for many years. In the end, there was a consensus that the observed changes in the building types, construction technology and building materials were caused by urbanisation, land use planning, migration, wealth accumulation and exposure to other building types in the urban centres. In terms of land use planning and plot demarcation, landowners were required to develop within the confines of the demarcated rectangular plots, thus influencing the shape of the buildings. They explained:

> Migration indeed affects the way we build our houses today. … We used to plaster our houses with the *beeni* and *dasande* leaves. But today, most people plaster with cement *(siminti)*. That has been borrowed from elsewhere. Again, our villages are demarcated into plot, so you have to build within the plot. This has affected the shape of our buildings … We have started to build big rooms compared to the small rooms and it is due to our desire to possess several items and our tastes have changed.[7]

> Yɛlimaŋli, gɔrim bee tinsi taɣibu nyɛla din mali nuu timbu ti ya' mɛbo taɣibu ŋɔ puuni … . Ti daa yi mali la beeni mini dasande n-tari ti yiya, amaa zuŋɔ, niriba pam malila siminti (cement) n-tara. Dimbɔŋɔ nyɛla ti ni paŋ shɛli luɣushɛli. Yaha, ti tiŋgbana bee paliti ŋɔ pa nyɛla bɛ ni piripiri shɛli n-doli sariya. Lala ŋɔ zuɣu, ti ku tooi lahi me yiya n-doli ti ni daa pun mɛri shɛm, naɣila ti mɛmi n-doli lala piribu maa. Di nyɛla din taɣi ti yiya biɛhigu … .. Pumpɔŋɔ, ti yi pa mɛrila du'kara din bara n-gari ti ni daa pun mɛri shɛm, ka dimbɔŋɔ daliri nyɛla ti ni bɔri ni ti mali nɛma pam la zuɣu.

Paradoxically, the respondents wanted to maintain their building tradition, and at the same time make their buildings durable so that they would requir less maintenance. Meanwhile, they were deterred by the cost of the "modern" building materials, referring to cement and metal roofing sheets, and by the challenges of transporting good quality thatch from other places. According to them, access to such building materials, coupled

with the financial difficulties that most households in the community faced, have prevented them from using contemporary building materials. Some of the home builders, however, have used such materials in combination, a practice which have not been successful and rather resulted in defects and collapse of the buildings.

Recognising that culture is dynamic and not static, we sought the people's opinion on how their traditional houses are changing. In response they stated that.

> As for what people build nowadays, like the block and cement houses, we call them foreign buildings because they deviate from the typical Dagomba house. Because people now have money, they can afford to build "modern" houses with cement *(siminti)* and even roof their buildings with zinc, but those houses do not reflect our culture. They only portray the affluence of some people. But we cannot allow our traditional houses to disappear because one day posterity will judge us and our grandchildren will ask us how our traditional houses looked like, and we need to let them see with their own eyes.[8]

> Ti yi lihi niriba ni yi pa mɛri ya'shɛŋa saha ŋɔmaa, kamani blooki mini simiinti yiya maa, ti booni ŋa la tiŋduya yiya dama, di be di ko ka cheDagbaŋ bilichini yili. Niriba ni yi pa mali arizichi maa zuɣu, bɛ nyɛla ban ni tooi zaŋ simiinti m-me tinduya yiya, ka zaŋ taha bee chɛmsi m-pili li, Amaa lala yiya ŋɔ nyɛla din bi doli ti kaya ni taada ya' mɛbo soya. Di kuli wuhirila niriba ni gbaai buni shɛm. Amaa ti ku tooi che ka ti kaya ni taada barigi, dama ti bihi mini ti yaansi ni ti bɔhi ti ŋa yala. Di zuɣu di tuya ni ti che ka bɛ gba zoona nti nya ŋa ni bɛ nina ayi.

On the other hand, the respondents expressed the desire to use contemporary building materials because of what it expresses of one's status and social standing. Being able to afford materials also strongly influenced the decision to own a modern building. They remarked:

> Do you think if we were capable, we will be building the traditional houses (earth buildings with thatch roof)? Our houses still exist today largely because most people cannot afford to build the cement block houses although they last much longer and especially when roofed with zinc (metal sheets). Its maintenance is not routine and regular like our traditional houses. You don't have to look for thatch to re-roof every year. Even though we hope that our traditional houses will remain, we have no choice than to build the cement houses if we have the means. Can't you see our chief's palace, because he has the means, he has been able to build a cement house that is very beautiful and dignifying.[9]

> A tɛhiya ni ti yi di mali yiko ti naan lahi mɛri mɔri yiyaŋɔ? Mɔri yiya ŋɔ na beni saha ŋɔ maa ka di daliri nyɛla niriba pam ka yiko din ni tooi me simiinti blooki yiya ŋɔ, di mini di kuli yuuri maa zaa yoli, kamani a yi zaŋ taha bee chamsi m-pili li. Di gbubbu mini di maalibu dii bi to nti paai Dagban' yiya maa. Di ka ni a chana nti chɛri mɔri na yuuni kam nti labiri pindi li. Ti ni kuli mali tamaha ka bɔri ni ti Dagban' yiya bee ti kali maa na kuli beni maa zaa yoli, faashee ti mi kuli mɛri simiinti yiya maa ti yi nya di yiko. A bi nya ti nayili ŋɔ? Naa ni mali yiko maa zuɣu, o mɛla o yili maa siminti ni chamsi ka di mali jilma n-ti o.

The time spent, the cost involved in acquiring local building materials. and social standing in the community all are contributing factors to the transitioning from locally accessed materials to the use of cement for construction. The chief's palace in the community, the new mosque and the house of an Alhaji who has been on the hajj pilgrimage have become a new measure of status in the community. The respondents explained that building a cement-based house increases your status in the community and tells a lot about your exposure to "civilised" urban areas, where civilisation is associated with education, development, wealth and living in "good" houses, as seen in the city of Tamale and

other urban areas in Ghana and beyond. Although they expressed great worry that they were losing their traditional building culture, they also asserted that having a circular or hexagonal shaped building with conical metal roof is very similar to their round earth houses and with the conical thatch roof. In a way, their identity has been adapted in new ways (Figure 7). They explained:

> We are worried but there is very little we can do about the phenomena. However, it also presents some hope for the future. You realise that these days most people build our traditional houses with cement blocks and roof them with zinc. That is still our tradition but in a modernised form, but it still tells our story. For instance, if you go to Tamale, most of the Chiefs' palaces are built in this manner and so the culture is still preserved in a different form.[10]

> Di muɣusiri ti, amaa ti ka ti ni yɛn niŋ shɛm zaŋ chaŋ di polo. Amaa, di nyɛla din tiri tahama zaŋ chaŋ sɔhabiɛɣuni polo. A yi lihi zuŋɔ, a ni nya ka niriba pam yi pa mali simiinti mini taha bee chamsi m-mɛri dukpula. Ti kali maa n-na kuli bala amaa ka di lee pahi ʒaamani ninneesim mini baŋsim. Misaale, a yi chaŋ Tamale zuŋɔ, ti nayiya ŋɔ pam pa mɛmi ni siminti mini chamsi, ka di zaa maa na kuli nyɛ ti kaya mini taada amaa ka di lee nya pahigu.

In terms of developing new construction skills, a young builder in the community reported that observing modern construction techniques has improved his skills in the construction of earth buildings and other buildings in the community. He explained that:

> During the olden days, you must look for an old room's broken pieces (foundation) to serve as the base on which to construct your new house/room but these days we construct the foundation ourselves (thanks to the skill acquired from contemporary building construction). Also, in the past, the curves or angles of the circular, square or rectangular shaped buildings were not as perfect and accurate as you see it today. Usually, it was difficult to build a perfect

Figure 7. The Mosque in Gbabshe reflecting the transitioning from traditional earth buildings to cement-based and metal roofed building as a sign of modernity. Photograph taken by the author, 2019.

rectangular room without compromising the angles but these days because of observations from other places and the skills acquired, we have been able to incorporate these skills and mode of construction to perfect our building techniques and construction skills.[11]

Kurumbuna ni ha, a daa yi yɛn mɛ yili/duu, a yɛn bɔla du'shɛli din lu, ka a labi me n-tam di kpabu maa zuɣu amaa zuŋɔ ti yi pa mɛri tandoɣu maa ti maŋmaŋa (puhugu chani ʒaman' pala ni ti ti baŋsim shɛŋa zaŋ chaŋ tandi mɛbu polo). Ti yi lahi lihi, lala saha maa, duri maa boobu maa daa bi tuhi kamani ti ni boori ti zuŋɔ duri ka di tuhi shɛm maa. Di daa niŋ tom pam ni nira tooi me du' mɔɣumɔɣu ka dukpina maa shɛli bi gɔŋ amaa zuŋɔ, ti ni lihiri bɛ ni me yiya shɛm luɣ' shɛŋa, ni ti ni nya baŋsim shɛŋa zaŋ chaŋ ya' mɛbo polo zuɣu, ti nyɛla ban tooi zaŋ lala baŋsim ŋɔ zaa n-laɣim taba ka di sɔŋdi ti pam zaŋ chaŋ ti ya' mɛbo polo.

Conclusion

Issues of modernity, environmental change, and sustainability dominate the reasons for the shift in the traditional building practices of the people. The buildings are changing from earth-walled buildings with thatched roofs to earth-walled buildings with metal roofs, and from there to cement brick walls with metal roofs. By combining local and modern building materials in the construction of the houses, a hybrid architecture is achieved which could ensure the sustainability of the buildings and is likely to prolong the lifespan of the buildings while at the same time continuing the culture of building with earth building.

Yet hybridisation of architecture and the desire to achieve sustainable buildings has implications for the future of earth buildings' relevance. Most of the youths interviewed had ambivalent responses. Respondents regarded the earth buildings as outmoded and not adequate for modern living, preferring to live in "modern" houses, because of the ease in construction, the large space, and the prolonged life span, having all the basic amenities such as electricity and water and not having to maintain the buildings regularly. The younger respondents questioned the sociocultural significance of the traditional buildings in the new millennium while acknowledging that it is part of their culture. Being able to retain their culture while living in these modern buildings can lead to architectural innovation. These innovations are producing new forms of architecture that is situated at the boundaries of modernity and tradition and yet displaying the entanglement and sometimes antagonistic relations between architecture, sustainability, and culture.

An invented hybrid building form attests to the pursuit of continuity of culture and the desire to be "modern" while the construction process remains largely communal. Hybridity, which is a by-product of the transcultural dynamics between tradition and modernity, could promote continuity and cultural resilience. By borrowing ideas from contemporary urban buildings and fusing these with traditional building practices, the people are introducing innovation in their buildings. This system of appropriating and negotiating the boundaries of tradition is resulting in a hybrid architecture. This means that cultures may change due to the transmission mechanisms of ideas, environmental pressures, and ecological conditions. Political attitudes and new technologies could also be vehicles of change. In the case of Gbabshe in Tamale, the notion of change is hinged on new architectural ideas and technology, refinement in building practices and the reactions to shifts in socio-ecological situations.

In conclusion, variations in traditional building culture, socio-ecological changes taking place and the paradoxical position of the people as modern and yet preserving their traditional building practices have created innovation in architecture while at the same time sustaining the building philosophies of the people. This is likely to have implications for the future of earth buildings' relevance and sociocultural significance in the future.

Notes

1. Responses received from the elders we spoke to in a focus group discussion (FGD) held on 8 January 2019 in Gbabshe.
2. A response received from the elders we spoke to in an FGD on 8 January 2019 in Gbabshe.
3. *Ibid*.
4. *Ibid*.
5. *Ibid*.
6. *Ibid*.
7. *Ibid*.
8. *Ibid*.
9. *Ibid*.
10. *Ibid*.
11. *Ibid*.

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