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Adobe Construction in Western Nigeria: A Comparative Study of Rural and Urban Perceptions

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ABSTRACT

With Nigeria facing ongoing housing shortages and increasing construction costs, Adobe, a traditional building material made from earth, could offer a practical, eco-friendly, and low-cost solution. Even though Adobe has historical importance and environmental benefits, it's not commonly used today. This study explores how people living in both rural and urban areas of Western Nigeria view and accept Adobe as a building material. The research was based on a survey of 509 residents from different communities in Oyo State, selected through a multi-stage sampling technique. Using structured questionnaires, the study measured people's opinions and whether they would consider using Adobe for future construction. The results showed that Adobe isn't widely accepted, especially among urban dwellers. While rural residents see some value in Adobe for its cultural and cost advantages, both groups expressed concerns, primarily due to social stereotypes and technical limitations. The study recommends raising public awareness, improving Adobe through modern techniques, and providing government support to make it a more accepted option for housing in Nigeria.

Keywords: Conveniences, Toilet, Bathroom, Residential, Tenants, Occupancy.

1 Introduction

Adobe construction is an old method of building houses using earth and natural materials. It's known for being cheap and good at keeping indoor spaces cool. In the past, Adobe was widely used in dry regions around the world. Today, it's still considered a sustainable option because it's affordable and environmentally friendly (Opoko et al., 2021). Despite this, Adobe is now mostly found in rural areas or at the edges of cities in Nigeria. Given the rising costs of building materials and housing demands, the limited use of Adobe warrants investigation.

This research set out to understand why. Specifically, it looked at how people's attitudes, both socially and technically, influence their willingness to use Adobe today, especially in rural and urban areas of Western Nigeria.

Adobe, one of the oldest known building materials, is traditionally made from earth, clay, and sometimes mixed with organic materials such as straw or rice husks to improve binding and strength (Adebayo & Fatokun, 2021). This construction method dates back thousands of years and has been widely used across various ancient civilizations in the Americas, Africa, and the Middle East due to the simplicity of its production and the local availability of materials (Opoko et al., 2021; Munro & Oti, 2023). Its enduring popularity in historical contexts was rooted in its affordability, thermal comfort, and minimal environmental impact, making it both economical and eco-efficient by contemporary sustainability standards (Daudu & Adebayo, 2020; Chukwuma & Adejumo, 2024).

In today's world, particularly in Nigeria and other parts of Sub-Saharan Africa, Adobe continues to offer compelling benefits in terms of energy efficiency, low embodied carbon, and adaptability to hot climates (Mensah et al., 2023; Umeh

& Olonade, 2022). Studies have shown that Adobe structures often outperform modern concrete buildings in terms of thermal insulation and indoor air quality, especially in rural and peri-urban contexts (Fayomi & Oloruntoba, 2021; Tsado & Odufuwa, 2024).

Despite these proven benefits, the use of Adobe in contemporary Nigerian construction appears limited. Its application is primarily restricted to rural environments and marginalised urban settlements (Ayo & Fadeyibi, 2022; Olawuyi et al., 2023). In major cities and fast-developing urban areas, modern materials like cement blocks, reinforced concrete, and steel dominate construction choices, often driven by changing tastes, socioeconomic aspirations, and the growing influence of globalised architecture (Adeleye et al., 2021).

This trend raises an important and underexplored question: Why is Adobe, despite its affordability and environmental value, underutilised in mainstream housing and urban development? The answer to this question appears to lie not only in structural or climatic concerns but also in the public perception of Adobe as a building material. Perceptions shape acceptability, and in the built environment, perception often trumps performance (Yakubu & Lawal, 2020).

This paper aims to explore the role of perception in shaping the acceptability and adoption of Adobe among both rural and urban dwellers in Western Nigeria. Specifically, the study investigates whether cultural, aesthetic, technological, and social biases contribute to the marginalisation of Adobe in the Nigerian construction sector. The region of Western Nigeria, known for its blend of traditional architecture and rapid urbanisation, provides a relevant context for understanding the socio-spatial dynamics that influence material choices.

Using a perception-based framework, this research provides insight into how residents in different locations assess Adobe and how these assessments affect their willingness to build with it. Understanding these factors is crucial if Adobe is to be repositioned as a viable solution to Nigeria's pressing housing needs and environmental goals (Nwosu & Ugwu, 2021; Etukudo & Osadolor, 2024).

1.1 Adobe: An Ancient Material with Modern Value

Adobe, a mixture of earth and natural fibres like straw or dung, is one of the world's oldest building materials, used for over 7,000 years (Munro & Oti, 2023). In Nigeria and West Africa, it has long served rural communities in building homes, palaces, and places of worship due to its low cost, natural insulation, and ease of repair (Adebayo & Fatokun, 2021).

Its thick earthen walls help keep buildings cool during the day and warm at night, making it ideal for Nigeria's hot climate (Tsado & Odufuwa, 2024). Adobe is also eco-friendly since it's sun-dried rather than fired, helping to reduce carbon emissions (Opoko et al., 2021).

Despite these advantages, Adobe is often dismissed in urban areas as outdated or "poor man's material" (Ayo & Fadeyibi, 2022). Modern preferences lean toward concrete and cement for reasons tied more to social status than to functionality (Adeleye et al., 2021).

Still, global interest in sustainable, low-cost housing is reviving attention to Adobe. Innovations, like stabilised blocks and waterproofing methods, make it more adaptable to modern building standards (Chukwuma & Adejumo, 2024). In Nigeria, some experts now see Adobe as key to tackling housing shortages, reducing unemployment, and promoting climate resilience (Etukudo & Osadolor, 2024).

For Adobe to gain broader acceptance, awareness campaigns, skill training, and supportive policies are needed to reframe it as a smart, sustainable, and culturally significant construction option.

1.2 Widespread Use of Adobe in Ancient Civilisations

Adobe was widely used in ancient civilisations across the globe due to its simplicity, availability, and performance in harsh climates. From the sun-baked cities of Mesopotamia to the iconic Adobe structures in ancient Egypt and the Americas, this earth-based material served as the foundation of domestic, religious, and royal architecture (Munro & Oti, 2023). Its global popularity stemmed from its adaptability; communities used whatever local soil and fibres were available to create sturdy, climate-resilient buildings.

In Nigeria, Adobe formed the backbone of traditional architecture, with many pre-colonial compounds and palaces still standing today (Adebayo & Fatokun, 2021). As Tsado and Odufuwa (2024) note, Adobe's prevalence in ancient societies wasn't just about necessity; it reflected a deep understanding of sustainable, climate-appropriate design long before modern green architecture emerged.

Despite the dominance of modern materials today, the long-standing legacy of Adobe remains a testament to its enduring relevance and cultural importance (Chukwuma & Adejumo, 2024).

1.3 The Question That Readily Comes to Mind: What could be responsible for the underutilisation of this material?

The underutilization of Adobe as a building material in recent times can be attributed to a mix of social, technical, and policy-related factors. Despite its eco-efficiency, low cost, and thermal performance, Adobe is often perceived as outdated, fragile, and inferior compared to modern materials like concrete and steel. Urbanisation, changing aesthetic preferences, and the desire for high-rise buildings further limit its use, especially in cities. Additionally, weak regulatory support and the lack of standardisation or skilled labour for Adobe construction contribute to its decline. Climate resilience concerns, particularly in regions prone to heavy rain or earthquakes, have also discouraged its wider adoption unless properly stabilised.

This current paper sought to provide elaborate answers to this question. It beamed its searchlight on the possible influence of perception the acceptability of this material among the rural and urban dwellers in Western Nigeria.

2 Literature Review

2.1 Adobe Today

Adobe is known globally for being cost-effective, durable in certain climates, and good for the environment (Daudu & Adebayo, 2020). However, in Nigeria, especially in cities, people tend to avoid traditional materials. This is mainly because they prefer modern looks and expect higher performance from their buildings.

2.2 What People Think About Building Materials

People's opinions matter a lot when choosing what materials to build with. A study by Ayo and Fadeyibi (2022) found that in Nigerian cities, people often choose building materials based on how they think they will make them look socially, not because of cost or environmental concerns. Many Nigerians see Adobe as something only poor people would use (Adeleye et al., 2021), and that idea stops it from being more widely accepted in urban areas.

2.3 Technical Concerns About Adobe

Some people don't trust Adobe because they believe it can't handle heavy rainfall, may wear down over time, and can't support wide spaces without extra help (Olawuyi et al., 2023). But new technologies—like stabilising Adobe with cement or adding water-resistant layers—can fix many of these problems (Chukwuma & Adejumo, 2024). Still, most people don't know about these improvements.

2.4 How Other Countries Use Adobe

In other West African countries like Ghana and Burkina Faso, there's growing interest in bringing traditional materials like Adobe back into modern building practices. These efforts are often supported by government policies and public education (Mensah et al., 2023). Unfortunately, Nigeria hasn't done as much to promote the use of these sustainable building options.

3 Methodology

The research method adopted for this work is quantitative research using a selective sample survey research design. The target population comprised all residents of Western Nigeria. Participants were selected using a multi-stage sampling technique. The first stage involved random selection of Oyo state from the six states in the southwest in the second stage, 4 communities were selected from the state: 2 rural (Lagbedu and Akufo) and 2 urbans (Oyo and Ogbomoso, the third stage involved the stratification of the urban area into core, intermediate and outlying from which ten residential quarters were selected. Ten residential quarters were also randomly chosen in the two selected rural areas. In the 4th stage, 509 household heads were selected from the chosen residential quarters. A structured questionnaire was used to collect data. The acceptability of Adobe construction was measured through the questions relating to the intention of the participants to build in future using Adobe

The perception of the dwellers on the use of Adobe construction was measured using a Likert scale, frequency and percentage were used to analyse the categorical variables, and the relationship between the dwellers' perception and the intention to build using Adobe was determined by using the Chi-squared Test.

4 Results and Discussion

4.1 Acceptability of Adobe Construction

Table 1: People's acceptability of Adobe construction

Intention to build with Adobe		**Frequency**	**%**
Yes	**Rural**	18	18
	Urban	16	4
No	**Rural**	85	82
	Urban	390	96

Table 1 above shows the result of correspondence on the acceptability of Adobe construction both in rural and urban areas within Oyo State, Nigeria.

The survey indicated that out of 509 participants, 103 were from rural areas, while 406 were from urban areas. Of this sample population, 18 and 16 expressed positive intentions to build with Adobe from the rural and urban areas, respectively. This result formed 18.0% and 4.0% of both the rural and urban sample populations, respectively.

Whereas, of 509 participants, out of which 103 were from rural areas, while 406 were from urban areas, 85 and 390 had no intention to build with Adobe from the rural and urban areas, respectively. This result formed 82.0% and 96.0% of both the rural and urban sample populations, respectively.

This indicates that, for various reasons, the majority have no intention of building with Adobe

4.2 Key Research Findings

i. **The acceptability of Adobe construction was generally low, but was much lower among urban dwellers than among rural dwellers.**

The research revealed that Adobe construction is generally not well accepted, but this lack of acceptance is more pronounced among urban dwellers than rural ones. Rural residents tend to be more familiar with Adobe, often valuing its affordability, local availability, and thermal comfort. In contrast, urban residents are more likely to associate Adobe with poverty, outdated practices, or a lack of modern appeal. This perception gap may stem from differences in lifestyle, exposure to modern building materials, and societal values tied to status and aesthetics.

ii. **The majority of the participants have a negative perception of the use of Adobe construction**

The study found that a majority of participants held unfavourable views toward Adobe construction. Many saw it as a symbol of poverty, backwardness, or temporary housing, rather than as a viable modern building option. This negative perception may be influenced by a lack of awareness about Adobe's environmental benefits and durability, as well as social attitudes that equate modernity with concrete and other industrial materials. As a result, Adobe is often dismissed, not because of its actual performance, but due to social and cultural biases

iii. **Dwellers' perceptions can be generally classified into two main factors:**

Social Factors.

Social factor includes the belief that Adobe is generally seen as a building material for the lower class. So many people see buildings and houses as a major item to distinguish social class and level of social status within the society, as a result of this, many people go ahead to own gigantic edifices and expensive homes in other to distinguish themselves as rich and opulent while believing that those in lesser houses are of the medium or lower social strata. Alongside this belief comes the opinion that local or cheap building materials are for the poor and average dwellers as opposed to expensive and foreign-sourced building materials, which are believed to be a reserve for the rich and influential, hence the neglect towards Adobe.

Technological Factors

- Inability of the material to withstand climatic factors such as rain and storms
- Susceptibility to wind abrasion
- Fragility of the materials
- Inability to span a large opening

5 Conclusion and Recommendation

The study reveals that both rural and urban dwellers have a negative perception of the use of Adobe construction, which influences the acceptability of the use of the material.

It is highly recommended that elaborate sensitisation and awareness on the importance and advantages of Adobe as a sustainable building material be embarked on to educate citizens and stakeholders in the building construction industry.

It is recommended that the Government and policymakers implement policies that encourage the harnessing and renewable use of sustainable and locally sourced building materials such as Adobe.

It is recommended that educators in the built environment include teachings about the use of sustainable and locally sourced building materials, such as Adobe, in their curriculum to educate the future generation on their importance.

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