PLASU Journal of Environmental Sciences, E-ISSN 2360-9222, Vol.2, No. 2, June 2026, Published by the Faculty of Environmental Sciences, Plateau State University, Bokkos. https://www.pjes.ng
DOI: 10.5281/zenodo.19414923

INVESTIGATING STAKEHOLDERS TOWARDS UTILSATION OF ALTERNATIVE BUILDING MATERIALS IN THE FEDERAL CAPITAL TERRITORY, ABUJA NIGERIA

[1]Marut Johnson Josiah, [2]Adeleye, Adedeji Paul [3]Dang Dahmawur Jim

[1]Department of Building, Plateau State University Bokkos, Nigeria. [2]Clearview Construction & Consultancy Ltd, Plateau state Nigeria [3]Architecture Department, Plateau State University, Bokkos, Nigeria
Corresponding Author's email: marutjosiah@plasu.edu.ng
https://orcid.org/00000001-7037-6888

ABSTRACT

Identification of stakeholders is a necessity towards successful strategy for utilisation of Alternative Building Materials. The study was aimed at identification of stakeholders towards utilisation of Alternative Building Materials in the Federal Capital Territory Abuja, Nigeria. The relationship between the stakeholders was established. Mixed research was employed for data collection. A random sampling method was used in administering the questionnaires to a total of 115 respondents. Convenience sampling was used to interview the interviewees. Both descriptive and inferential statistics were used to analysed the data. For questionnaire mode, relative index, mean rating, Kruskal-Wallis's test, Analysis of Variance (ANOVA), and Analyses of Frequencies was used. The interview was analysed using thematic content analysis using Nviovo 12. The highest-ranked stakeholders include architects, builders, research institutes, quantity surveyors, researchers, and universities while the lowest-ranked stakeholders were mortgage banks, clients, and policymakers. The interview results shown that government and government agencies, contractors and construction professionals, researchers and research institutes, academics, professional societies, real estate developers, citizens and end users, and national assembly and legislators are the stakeholders towards utilisation of Alternative Building Materials in the FCT, Abuja. The study recommends the establishment of a multi-stakeholder ABM steering committee through the Federal Ministry of Works and Housing, who should convene a national ABM steering committee comprising representatives from the highest-ranked stakeholders: architects, builders, quantity surveyors, researchers, universities, SON, NBRRI, and RMRDC.

Keywords: Identification, Stakeholders, Utilisation, Alternative Building Materials, Federal Capital Territory

1. INTRODUCTION

The global construction industry is one of the most resource-intensive sectors, responsible for approximately 40% of worldwide carbon emissions and the consumption of nearly 50% of global raw materials (Muhammad et al., 2026). Given the substantial environmental burden of cement production which alone contributes about 8% of global CO_2 emissions, releasing an estimated 11 million tons of CO_2 daily (Souza, 2023). The pursuit of readily available Alternative Building Materials (ABM) is imperative. Notably, certain ABM can function as carbon sinks, absorbing more CO_2 during their lifecycle than is emitted during production. To support stakeholders including engineers, industry leaders, and policymakers in meeting global sustainability targets such as the Paris Agreement, actionable insights on ABM utilisation are essential (Steyn et al., 2025).

In response to these critical challenges, the transition toward low-embodied-energy ABM is no longer a matter of choice but a necessity for sustainable development. These materials not only substitute conventional options but often exceed them in performance. For instance, innovative waste-based composites have achieved a compressive strength of 38.4 MPa significantly higher than the 8–12 MPa typical of lightweight masonry while offering a three-fold improvement in noise reduction and exceptional thermal stability in tropical climates (Muhammad et al., 2026). Integrating such materials into building cycles bridges the gap between urgent waste management needs and the demand for high-performance, sustainable infrastructure, fostering a circular economy that advances both environmental restoration and economic growth (Asha Sapna & Anbalagan, 2023). Despite these advantages, the utilisation of ABM remains negligible (Kaburu, 2020). One illustrative example involves repurposing fine waste from coal processing by mixing it with clay and firing at varying temperatures to produce ceramic products. Such environmentally and economically viable waste valorisation is crucial for achieving the Sustainable Development Goals (Region et al., 2024).

Interest in ABM within the construction industry has grown, yet their introduction presents both opportunities and challenges for researchers and build environment professionals worldwide. The construction sector involves diverse stakeholders, each holding different perceptions of the value and potential of ABM. Identifying these stakeholders is a prerequisite for effective ABM utilisation, as stakeholder engagement is critical to the success of any innovation (Morphy & Mostafa, 2021). Innovators must actively harmonise divergent interests for the collective benefit of all parties. Stakeholder theory posits that each group is vital to business success, and understanding how to integrate or reconcile their interests is key (Gwendolyn, 2016).

Although waste fiber-reinforced composites are increasingly recognised as viable sustainable construction solutions, a significant research gap persists regarding their theoretical integration into building systems and the systematic identification of stakeholders to drive their adoption (Muhammad et al., 2026). The development of ABM such as textile waste and resin composites can achieve a 25–45% reduction in carbon footprint compared to conventional masonry. These materials transform 80–120 kg of waste per cubic meter into value-added construction products, often with superior functional properties: compressive strength of 38.4 MPa, three-fold better sound absorption than conventional concrete blocks, and excellent thermal stability with minimal mass loss under operational temperatures, making them highly suitable for tropical environments. Standardized guidelines and predictive mathematical models for these materials are urgently needed (Steyn et al., 2025). Such innovations support a circular economy, potentially lowering construction costs while creating new job opportunities for micro, small, and medium enterprises (MSMEs) in the sustainable building sector (Muhammad et al., 2026).

The benefits of ABM utilisation are threefold. Environmentally, they offer a pathway to convert 80–120 kg of waste per cubic meter into building products, addressing the projected 3.9 million tons of annual textile waste by 2030, and achieving a 25–45% reduction in carbon footprint. Technically, ABM demonstrate superior performance, exemplified by a 1:10 textile-to-resin composite attaining 38.4 MPa compressive strength, far exceeding the 8–12 MPa of lightweight masonry. Economically and strategically, ABM support a circular economy value chain involving textile manufacturers, material producers, and MSMEs (Muhammad Fikram et al., 2026).

Furthermore, the use of metakaolin (MK) and diatomaceous earth (DE) in Ultra-High-Performance Concrete (UHPC) presents a promising route for advancing sustainable construction (Yeluri et al., n.d.). As eco-friendly materials, MK and DE can partially replace cement and conventional supplementary cementitious materials (SCMs), reducing the carbon footprint of UHPC production. They enable non-proprietary UHPC mixtures using locally available, cost-effective resources without compromising

performance. Beyond environmental gains, MK and DE mitigate health risks associated with traditional cement manufacturing. Technically, they maintain or enhance compressive strength while promoting microstructural densification, which is expected to improve long-term durability through increased resistance to chloride ingress and sulfate attack (Yeluri et al., n.d.). Similarly, corncob (CC) as an ABM represents a major shift toward sustainable, cost-effective, resource-efficient construction through agricultural waste valorization and alternative mineral binders (Okeke et al., 2026a). This approach directly mitigates climate emergencies, provides thermal and acoustic insulation, transforms agricultural residues into construction intermediates, creates new revenue streams for farmers, and reduces pollution from open-field burning (Okeke et al., 2026b). Hempcrete, used for in-situ casting, projection, and prefabrication, has been successfully applied in projects such as the Hemp Hotel in South Africa and the Science Museum storage facility in the UK, demonstrating its viability in modern, large-scale construction (Steyn et al., 2025). Identifying and engaging stakeholders is critical to realising these innovations and meeting sustainable development goals for affordable housing in both developed and developing countries.

Need for Identification of Stakeholders in the Utilisation of ABM

Identification of stakeholders and understanding of their needs and wants is a necessity of successful marketing strategy towards utilisation of ABM (Gwendolyn, 2016). Stakeholders include: customers, employees, competitors, suppliers, government, banks, owners, transporters, media, management, educational institutions, consultancy firms, local communities, local communities, suppliers and distributors, shareholders, media, the public in general, business partners, future generations, past generations (founders of organisations), academics, competitors, NGO or activists, stakeholder representatives such as trade unions or trade associations of suppliers or distributors, financiers, competitors, government, regulators and policymakers (Perace & Robinson, 2014). In addition to the internal stakeholders, external stakeholders whose roles are not central but must never be ignored because of their influence on any innovation eandeavour. It is therefore crucial to identify them as well. External stakeholders include local community members, non-governmental organisations (NGO), media, lobbying organisations, public and governmental authorities (mandated by law) and sponsors (Cova & Salle, 2008).

External stakeholders can be further divided into two separate groups: tertiary and extended (Engle, 2001). Tertiary stakeholders provide inputs (regulations) and even some resources (financial and logistics) that have to be considered so that the innovation can be implemented. Extended stakeholders, such as media, NGO, and local residents do not have direct control over resources, but they may have an interest in the innovation (Bernard Kiongera et al., 2024). Each stakeholder usually has their own interest in the innovation which may cause different priorities, conflicts and dramatically increase the complexity of the situation (American Institute of Architects, 2013). Hence an innovation is more likely to be successful especially in the long-term, if it takes into consideration the expectations of the stakeholders and endeavours to meet their needs (Karlsen et al., 2008). This means that stakeholders need to be categoresised to understand their priority as well as their role toward implementation of innovation on materials in the construction industry. Stakeholders that are without knowledge management principles on how the ABM can be utilised can cause a huge challenge to the effort towards the utilisation of the ABM. Therefore, there is the need to understand knowledge management theory for the effective management of stakeholders towards utilising ABM. Empirical evidence and existing research suggest that interactions between stakeholders are an important element of innovation processes. Interactions between stakeholders, such as customer involvement and open innovation practices are crucial towards the utilisation of Alternative Building Materials. Interactions between

stakeholders are one of the driving and characterising elements of innovation processes (Nardelli et al., 2014).

Architects and engineers are the first port of call for materials selection in building construction (Oladiran, 2015). An architect has always been an interdisciplinary field, drawing upon mathematics, science, art, technology, social sciences, politics and history, and often governed by the architect's personal approach or philosophy (Cadima, 2007). Builders and quantity surveyors sometime assume the role of specifiers by virtue of their role as professional advisers to the contractors on construction matters and producers of the bills of quantities respectively (Oladiran, 2015). It must be stated that this role is particular for primary stakeholders while the secondary stakeholders too can play a vital role as far as utilisation of Alternative Building Materials is concerned especially in the cause of production, supply as well as distribution by creating awareness on the existence of these materials. Professionals should be able to communicate and use the same vocabulary of the various stakeholders especially on materials specifications having in mind those materials that are environmentally friendly (Cadima, 2007).

The relationships between stakeholders in the utilisation of Alternative Building Materials sector are characterised by high fragmentation and a predominantly linear flow of information (Kręt-Grześkowiak & Baborska-Narożny, 2026). Architects, builders, Engineers and others are described as the "brokers" of Alternative Building Materials (ABM) strategies due to their influential position in the early stages of project decision-making. While architects are vital for incorporating "Design for Adaptability for the ABM " and "Design for Disassembly" into the initial concepts, builders and engineers provide the technical expertise necessary for use, such as assessing the load-bearing capacity of the materials. However, a lack of practical experience among architects can sometimes hinder the actual implementation of Alternative Building Materials utilisation (Kręt-Grześkowiak & Baborska-Narożny, 2026). Prefabricated House Manufacturers (PHM) are central figures because they often take on the dual role of manufacturer and project manager, effectively acting as Supply Chain Managers. They challenge traditional linear business models by integrating upstream and downstream processes. This central position allows them to foster better communication among stakeholders and facilitates the implementation of ABM utilisation, such as utilising reclaimed elements or optimising material dimensions to minimise waste. Investors (Owner-Builders) are the primary drivers of market expansion and often lead "self-built" or "self-managed" projects. Their strong engagement, especially during the construction stage, can facilitate the utilisation of Alternative Building Materials because they are more likely to make ad-hoc decisions to use available salvaged materials. Conversely, their preference for individualised designs and traditional "wet masonry" technologies can be a barrier to top-down circular strategies like standardisation. General Contractors are essential for the precise execution of circular designs on-site. They are well-positioned to coordinate with subcontractors to ensure that Alternative Building materials strategies requiring high technical accuracy such as lean design or reversible joints for future disassembly are correctly implemented. Subcontractors perform the actual construction work and have a high level of interaction with investors in self-managed projects. Their traditional "craft-in-hand" approach can sometimes resist new technologies (switching from steel to composite reinforcements). Because the sector is fragmented, their participation is necessary for systemic change, yet their rotating nature often disrupts the learning processes needed for innovation (Kręt-Grześkowiak & Baborska-Narożny, 2026). Building Material (BM) Manufacturers are the sources of the physical components used in construction. Their cooperation with PHM is vital for minimising waste through the creation of bespoke production lines or standardised, compatible dimensions for various materials.

The slow utilisation of Alternative Building Materials (ABM) in the construction industry, despite their potential to address environmental sustainability and housing affordability challenges, is partly

attributed to a lack of understanding of the stakeholders involved in their utilisation (Emblem, 2022). Identifying and engaging stakeholders is crucial to address the barriers to ABM utilisation (Lokesh et al., 2018). There is the need for the identification, classification, and management of the stakeholders towards utilisation of ABM because they are pivotal to the success of an innovation (Aapaoja et al., 2013). Therefore, this study aims to identify the stakeholders towards the utilisation of Alternative Building Materials in the construction industry. By identifying stakeholders, this research will provide a foundation for developing effective strategies to promote the utilisation of Alternative Building Materials, ultimately contributing to a more sustainable, affordable, and resilient built environment (Hayes, 2014).

As important as Alternative Building Materials (ABM) are there is slow utilisation of the Materials in the construction industry, despite their potential to address environmental sustainability and housing affordability challenges. This is partly attributed to a lack of understanding of the stakeholders involved in their utilisation (Emblem, n.d.) . There is a critical lack of technical standardisation and official building code provisions for these materials which has led to multi-stakeholder technical committees required to develop framework needed for utilisation of Alternative Building materials currently and evidently lacking (Steyn et al., 2025) . Identifying and engaging stakeholders is crucial to address the barriers to ABM utilisation, there is a gap in knowledge on who these stakeholders are, their roles, interests, and influence on the adoption process (Lokesh et al., 2018) . There is the need for the identification, classification, and management of the stakeholders towards utilisation of ABM because they are pivotal to the success of an innovation (Aapaoja et al., 2013).

The study is aimed at quantitively and qualitatively identifying stakeholders towards the utilisation of Alternative Building Materials in the Federal Capital Territory (FCT), Abuja. While the objective is to establish relationship identified between the stakeholders. This research provided a foundation for developing effective strategies to promote the utilisation of Alternative Building Materials (ABM), ultimately contributing to a more sustainable, affordable, and resilient built environment.

2. METHODOLOGY

Abuja lies between latitude 8.25^0 and 9.20^0 north of the equator and longitude 6.45^0 and 7.39^0 East of Greenwich meridian. Abuja is where the headquarters of United Nation habitat and Sustainable Development Goals (SGD) is located also the city's Central Area contains the city hall, national cultural institutes, and other government-related offices (Adedara et al., 2023). The type of data and source for this study are primary. For primary data, questionnaire and interview was administered and conducted to obtain information from the respondents. The questionnaire and interview identified stakeholders towards utilisation of Alternative Building materials, and establish relationships between the stakeholders towards utilisation of Alternative Building materials. A random sampling method was used in administering the questionnaires to a total of 115 respondents. Convenience sampling was used to interview the interviewees (participants) United Nations Habitat (UN Habitat), Standard Organisation of Nigeria (SON), Nigeria Building and Road Research Institute (NBRRI), Raw Materials Research and Development Council (RMRDC), Council of Registered Builders of Nigeria (CORBON), Nigerian Institute of Architects (NIA), Nigerian Institute of Building (NIOB), Nigerian Society of Engineers (NSE), Nigerian Institute of Quantity Surveyors (NIQS), and Nigeria Institute of Estate Surveyors and Valuers (NIESV). Both descriptive and inferential statistics was used to analysed the data. For questionnaire mode, relative index, mean rating, Kruskal-Wallis's test, Analysis of Variance (ANOVA), and Analyses of Frequencies was used (Bello, Eje, Idris, Semiu, & Khan, 2023). The interview was analysed using thematic content analysis using Nviovo 12. (Sichnyi, 2020).

3. RESULTS AND DISCUSSION

The demographic information of the respondents are presented in Table 1. The table shows, that 36.50% of the respondents were construction managers, 20.00% were project supervisors, others were project quantity surveyors, building/estate officers, directors/property managers and principal partners/chief executive officer, head of valuation, site engineers, academics, procurement officers, and surveying geo-informatic specialists. In terms of length of work/practice in the construction industry majority of the respondents have put up between 11-15 years and 21-25 years. Regarding the professional field of the respondents, 32.20% were in building, 21.70% were in estate management and valuation, 19.10% were in architecture, 14.80% were in engineering (civil, structural, mechanical and electrical), quantity surveyors, and other professional fields. The result also, shows the highest academic qualification of each respondent in which 33.00 % of the respondents both have a BSc/BEgr and a MSc/MBA respectively, 20.90% have higher national diploma, 7.80% have a PhD while 5.20% of the respondents have Diploma. By incorporating expert opinions and meticulously assessing their credentials, the study fortifies the validity, credibility, and pragmatic relevance of its findings. This approach not only enhances the overall robustness of the research but also furnishes a nuanced comprehension of the subject matter.

Table 1: Respondents' Demographic Information

Summary of Information	Frequency	Percentage (%)	Cumulative Percentage
Role of Respondents in their Organisation			
Construction Manager	42	36.50	36.50
Project Supervisor	23	20.00	56.50
Site Engineer	04	03.50	60.00
Head of Valuation	05	04.30	64.30
Building/Estate Officer	09	07.80	72.20
Director/Property Manager	08	07.00	79.10
Principal Partner/ Chief Executive Officer	08	07.00	86.10
Surveying Geo-Informatics	01	00.90	87.00
Project QS	12	10.40	97.40
Procurement Officer	01	00.90	98.30
Academics	02	01.70	100.00
Total	115	100.00	
Length of Work/Practice in Construction Industry			
1-5 Years	22	19.10	19.10
6-10 Years	20	17.40	36.50
11-15 Years	33	28.70	65.20
16-20 Years	19	16.50	81.70
21-25 Years	14	22.20	93.90
26-30 Years	04	03.50	97.40
Greater than 30 Years	03	02.60	100.00
Total	115	100.00	
Professional Field			
Architecture	22	19.10	19.10
Building	37	32.17	51.30
Engineering (Civil, Structural, Mechanical, Electrical)	17	14.78	66.10
Quantity Surveying	12	10.43	76.50
Estate Management and Valuation	25	21.70	98.30
Others	02	01.70	100.00
Total	115	100.00	
Highest Academic Qualification			
Diploma	6	05.20	5.20
Higher National Diploma	24	20.90	26.10
BSc/BEgr	38	33.00	59.10
MSc/MBA	38	33.00	92.20
PhD	9	07.80	100.00
Total	115	100.00	

5.1 Identified Stakeholders towards Utilisation of Alternative Building Materials in the Federal Capital Territory, Abuja Nigeria

Identification of the stakeholders towards utilisation of Alternative Building materials (ABM) in the Federal Capital Territory (FCT) Abuja, Nigeria construction industry is important towards meeting affordable housing needs of Nigerians as stakeholders are well-positioned to contribute to the development and application of ABM practices as shown in Table 2. This highlights the significance of collaboration with high-ranking stakeholders in the utilisation of ABM in the construction industry, while also pointing to the need for engagement and education to raise the awareness and involvement of lower-ranked stakeholders. The highest-ranked stakeholders include architects, builders, research institutes, quantity surveyors, researchers, and universities while the lowest-ranked stakeholders were mortgage banks, clients, and policymakers. This is in support of earlier findings that the level of adoption of ABM is negligible (Reid, 2013; Kaburu, 2017; Duna, 2018). The interview results shown that government and government agencies, contractors and construction professionals, researchers and research institutes, academics, professional societies, real estate developers, citizens and end users, and national assembly and legislators are the stakeholders towards utilisation of Alternative Building Materials in the FCT, Abuja. On which stakeholder should lead the way in the utilisation of ABM, government leadership, professional societies, research institutes and experts, contractors and builders, and real estate developers should lead the way. Ways both Government and Private Organisations can Play towards Utilsing ABM include; coordination, prioritization, and investment, government policies and supervision, research and development support, incentives and collaboration, demonstration and commercial viability, encouraging research and academics, collaboration with financial institutions, and collaboration as a driver as shown on Figure 1.

The successful utilisation of Alternative Building Materials (ABM) requires collaboration among governments, professional bodies, private organisations, and other stakeholders. Key players include government agencies, policymakers, enforcement bodies, engineers, builders, architects, town planners, researchers, academia, contractors, developers, manufacturers, NGO, and marketers (UN Habitat, SON, NBRRI, RMRDC, CORBON, NIA, NIOB, NSE, NIQS, NIESV). Governments must provide an enabling environment, while private sectors and professional associations can support through advocacy and dedicated collaboration.

Table 2: Identified Stakeholders towards Utilisation of ABM in the FCT, Abuja Nigeria

S/N	Stakeholders	Mean Score	Rank	Standard Deviation
1	Architects	2.810	1st	0.330
2	Builders	2.790	2nd	0.410
3	Research Institutes	2.770	3rd	0.400
4	Quantity Surveyors	2.580	4th	0.590
5	Researchers	2.580	5th	0.690
6	Universities	2.570	6th	0.540
7	Polytechnics	2.570	6th	0.560
8	Estate Managers	2.510	8th	0.660
9	Engineers (Civil/Structural/Mechanical/Electrical)	2.470	9th	0.550
10	Regulating Bodies	2.460	10th	0.610
11	Marketers/Distributors	2.440	11th	0.650
12	Estate Developers	2.430	12th	0.660
13	Customers	2.410	13th	0.810
14	Suppliers	2.410	13th	0.660
15	Nigerian Industrial Standard (NIS)	2.400	15th	0.640
16	Professional Bodies	2.400	15th	0.600
17	Manufacturers	2.400	15th	0.610
18	Standard Organisation of Nigeria (SON)	2.400	15th	0.580
19	Government Agencies	2.380	19th	0.680
20	Procurement Bodies	2.360	20th	0.650
21	Non-Government Organisation (NGO)	2.360	20th	0.630
22	Media	2.350	22nd	0.680
23	UN Habitat	2.340	23rd	0.640
24	Business Partners	2.330	24th	0.660
25	Investors	2.310	25th	0.560
26	Local Residents	2.270	26th	0.830
27	Cultural Organisatons	2.270	26th	0.620
28	Labour Unions	2.260	28th	0.710
29	Local Craftmen	2.260	28th	0.730
30	Policy Makers	2.240	30th	0.560
31	Clients	2.230	31st	0.690
32	Mortgage Banks	2.150	32nd	0.720

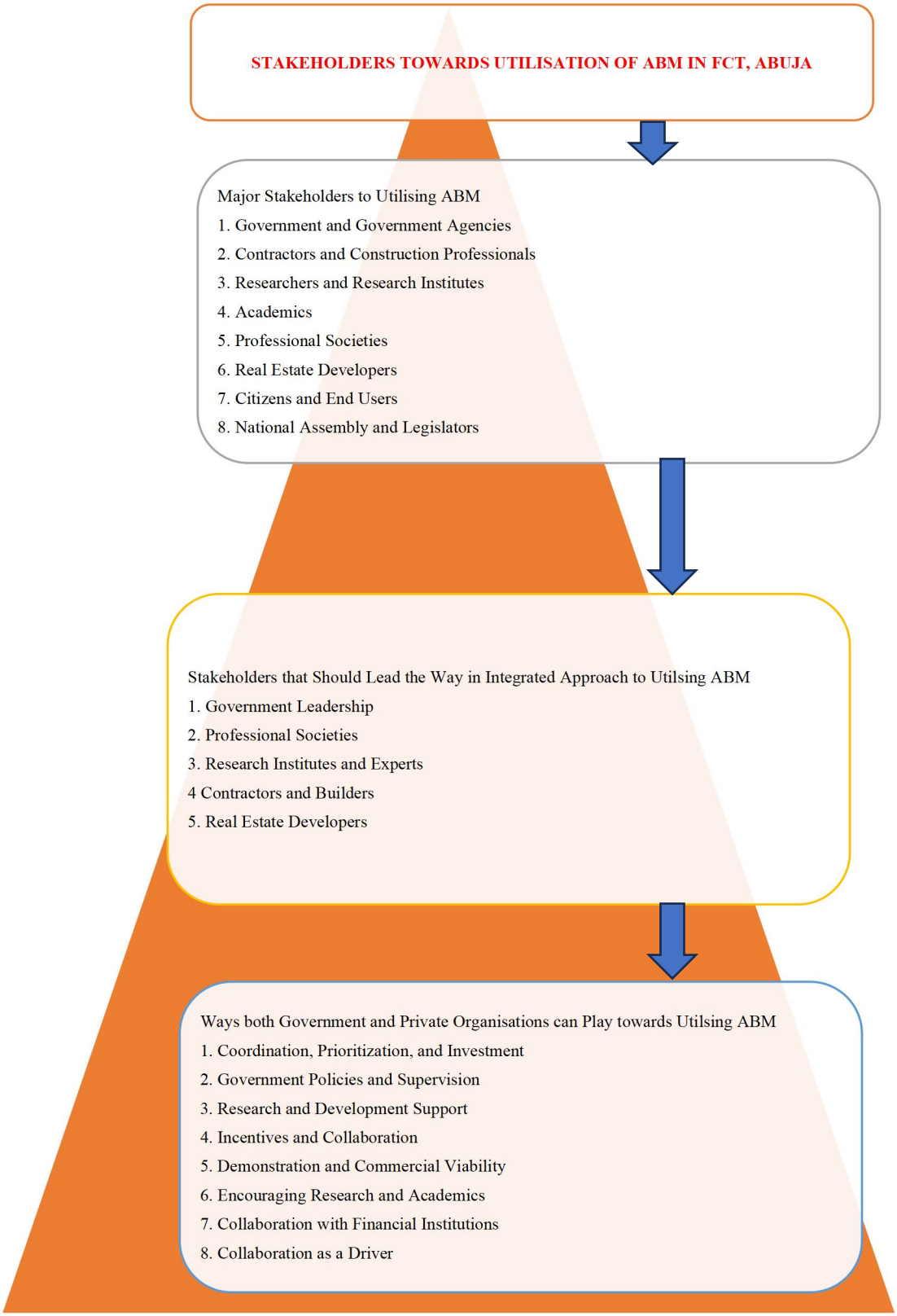

Figure 1: Qualitative Identified Stakeholders Towards Utilisation of ABM in the FCT, Abuja

5.2 Relationships Between the Identified Stakeholders

Questionnaire survey administered to sample of construction industry professionals shows that architects are the major stakeholders in the utilisation of ABM. With a significant majority (80%) of respondents identifying architects as the primary influencers, it is clear that they play a vital role in the utilisation of ABM. This is due to their position as design leaders and specifiers of building materials. In contrast, the in-depth interviews with industry experts and stakeholders told a different story. The government emerged as the major stakeholder in the utilisation of ABM as emphasised by interviewees citing its crucial role. This is attributed to the government's ability to create policies, regulations, and incentives that can either hinder or promote the adoption of ABM. The disparity between the quantitative and qualitative findings highlights the complexity of stakeholder influence in the Nigerian construction industry. Architects, as design professionals, have significant control over material specifications, while the government, as a regulatory body, has the power to create an enabling environment for ABM. This paradox underscores the need for a collaborative approach, where architects, other professionals in the construction industry, and the government work together to promote the utilisation of ABM. This mixed-methods study has provided valuable insights into the stakeholder dynamics influencing the utilisation of Alternative Building Materials in Nigeria. The findings suggest that a multi-faceted approach, engaging Architects, other professionals in the construction industry, and the government, is necessary to overcome the barriers to ABM utilisation. By understanding the distinct roles and influences of various stakeholders, the Nigerian construction industry can transition towards a more sustainable and environmentally friendly future with the development of integration of stakeholders towards utilisation of Alternative Building Materials in the Nigerian construction industry.

4. CONCLUSION

The identification of stakeholders for ABM utilisation in the FCT Abuja is a critical prerequisite for meeting Nigeria’s affordable housing needs. The persistent negligible adoption of ABM, consistent with earlier findings (Reid, 2013; Kaburu, 2017; Duna, 2018), underscores the urgency of stakeholder engagement. The paradoxical findings architects dominating quantitative rankings versus government emerging as the qualitative leader reveal the complexity of stakeholder influence in the Nigerian construction industry. This paradox does not represent a contradiction but rather a complementary dynamic: architects control material specifications at the project level, while government shapes the broader regulatory and economic environment. Consequently, no single stakeholder can drive ABM utilisation in isolation. A collaborative, multi-faceted approach that harmonises the design authority of architects, the regulatory power of government, and the technical and financial contributions of research institutes, professional bodies, developers, and financial institutions is essential. The successful integration of these stakeholders, as summarised in the stakeholder map (UN Habitat, SON, NBRRI, RMRDC, CORBON, NIA, NIOB, NSE, NIQS, NIESV, among others), will determine the trajectory of sustainable construction and affordable housing delivery in Nigeria.

5. RECOMMENDATIONS

The study recommends the establishment of a multi-stakeholder ABM steering committee through the Federal Ministry of Works and Housing, who should convene a national ABM steering committee comprising representatives from the highest-ranked stakeholders: architects, builders, quantity surveyors, researchers, universities, SON, NBRRI, RMRDC, CORBON, NIA, NIOB, NSE, NIQS, NIESV, real estate developers, and mortgage banks. This committee shall coordinate ABM policy, research, demonstration projects, and market uptake. Government should enact enforceable policies mandating ABM content in public housing projects, provide tax incentives and subsidies for ABM manufacturers

and users, and establish building codes that recognise and standardise ABM performance criteria. Regulatory agencies such as SON and NBRRI must accelerate the development of ABM standards and certification protocols.

Professional bodies (NIA, NIOB, NIQS) should mandate ABM training as part of continuing professional development (CPD) for architects and builders. Design competitions and model ABM building guidelines can empower architects to confidently specify ABM in affordable housing projects. Government and private organisations should jointly fund R&D initiatives at universities and research institutes, focusing on locally available agricultural and industrial waste materials, performance optimisation, and life-cycle assessment of ABM under Nigerian climatic conditions.

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