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Low-Income Earners Housing Affordability Issues in Nigeria: A Systematic Review of Sustainable Approaches

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Abstract:

Studies have revealed that the proportion of persons displaced owing to housing is growing significantly. This affects developing countries like Nigeria and other similar African countries. Low-income earners (LIEs) are observed to be severely afflicted by this global threat. The LIEs who are said to account for more than 90 percent of Nigeria's population have been alleged to live in slums, blighted areas, and unplanned settlements. This study investigates sustainable approaches to addressing LIEs' housing affordability issues in Nigeria. This study is based on a systematic review of relevant literature, and its findings show that sustainable options for addressing Nigerian LIEs' housing affordability difficulties are examined using technological, institutional, economic, social, and environmental approaches to sustainable housing affordability (SHA). This paper urges the government, stakeholders, policymakers, and property developers in Nigeria and other developing nations to implement sustainable housing policies for low-income housing affordability. It contributes to the frontiers of knowledge by providing helpful information on low-income housing provision, challenges of affordability, sustainability, and management approaches, and at the same time, gives direction to research interest on low-income housing in Nigeria and other developing countries.

Keywords: Low-income earners, Housing provision, Housing affordability issues, Sustainable approaches, Nigeria

1. Introduction

Worldwide, housing is a component of man's growth and evolvement, it is not just viewed as providing a roof over one's head. Thus, practically every human undertakings on the globe revolve around a house (Ibem & Aduwo, 2015). In every nation, housing is often adopted to measure the progress and welfare of the inhabitants (Hamnett & Ward, 2012; Smith, 2012; Dania et al., 2021). Also, various researchers observed that housing develops the economy as it tends to generate employment (Glaeser & Joshi-Ghani, 2014; Amoatey et al., 2015; Hamman, 2015). Though, Collier and Venables (2015) were of the view that not all classes of houses will key into the assertion of providing economic benefits. It segregates between decent and indecent dwellings as the latter has no value when compared to the former both to the occupier and the users. Generally, every human needs a decent house as a necessity (Jamaludin et al., 2018).

Despite the benefits associated with housing, there is still a widespread scarcity of housing to accommodate the growing population. Hence, researchers observed that in Africa alone 61.7% of persons are homeless while worldwide it's already about 863 million people who are homeless because they live in informal settlements such as shanties and squatters (Un-Habitat, 2013, Dania et al., 2021). A recent study carried out in Nigeria confirms that residents who are homeless fall between 17-20 million. Therefore, various scholars are of the view that the most vulnerable groups of the populace that suffers homelessness are the LIEs (Igwe et al., 2017; Adabre & Chan, 2019; Fitzpatrick et al., 2021; Morgan, 2021). This assertion is in line with what is experienced in many developing countries not excluding Nigeria. In general

terms, Nigeria's LIEs record a high index linked with housing inadequacies. This is as a result where 90% of the populace are the LIEs who are homeless because they are unable to afford either the cost of outright building purchase or the cost of renting a building due to the skyrocketed cost of land for residential purposes, high cost of building materials, interests on land sale, dwindling rate of inflation and very stringent policies on residential housing provision (FGN, 2012; IHEME et al., 2015; Olotuah & Taiwo, 2015; Oni-Jimoh & Liyanage 2018; Bons et al., 2019).

However, the 2012 housing policy of Nigeria made provisions that Nigerians should have access to affordable housing with the interest of the LIEs to tackle the difficulties they face in terms of affordability, but its implementation has been hampered as a result of a dysfunctional strategy to promote action (Oni-Jimoh & Liyanage, 2018; Afolabi et al., 2019; Ebekozi et al., 2020; Olujimi et al., 2021;). The struggles of past government administrations in providing the LIEs with affordable housing have not been felt due to the issue of paucity of funds and conflict of the best approach that could be adopted (Muhammad et al., 2015; Ocholi et al., 2015; Rowley et al., 2021). Though, a debate is ongoing that even if the 2012 housing policy in Nigeria is enacted to make affordable housing available for the LIEs, it does not assure feasible housing delivery for LIEs. On this note, researchers opined that concentrating on just affordability without considering issues that bother on sustainability and the social well-being of the LIEs will be geared towards housing provision short of the necessary services and the basic infrastructures (Turok, 2016; Yuan et al., 2018; Sodi et al., 2019). Besides, recent contributions that focus on the LIEs housing provision are made such that affordability and sustainability are combined while being tackled since the basic housing needs have evolved from just affordability to issues of sustainability (Ezennia & Hoskara, 2019; Adabre et al., 2020; Moghayedi et al., 2021).

The concerns of LIEs sustainable housing affordability have not been adequately researched in developing nations, especially in Nigeria not minding its abilities in tackling housing issues for LIEs (Adabre & Chan, 2019; Dania et al., 2021; Olanrewaju et al., 2018). Because of this, this paper attempts a systematic review strategy that emphasizes sustainability to help reduce the issues of housing affordability for low-income groups persistently with developing nations and particularly Nigeria. This study proposes a strategy that is achievable taking into consideration the shortfalls of the Nigeria 2012 National housing policy, and at the same time harnessed the research interest to incorporate sustainability in the delivery of affordable housing in Nigeria particularly for the low-income group.

2. Materials and Methods

A systematic review of the literature was used to undertake this study to attain the aim as it is considered the most appropriate strategy. This conforms to studies made by Aduwo (2016) and Dania et al. (2021) that a systematic review connotes a mechanism that is scientifically essential by researchers of the social sciences to provide results that are prompt and can be adopted in research as a ground in taking decisions requiring enormous publications. It also coheres with Barbeito-Caamano and Chalmers (2020) on the use of a five-stage technique for data gathering that is, to first develop the research questions; identify interrelated researches; evaluate the content and worth of the researches identified; outline and synthesize the results of the research and fifth, to comprehensively describe the adopted research results. Consequently, a systematic review was carried out to research for published articles between 2008 and 2021. A 14-year duration (from 2006 to 2020) is considered suitable to see the progression of past interrelated publications on low-income earners' sustainable housing affordability issues in Nigeria. The conditions for search inclusion include a study on Nigeria and other developing countries; papers in Scopus and Google Scholar databases; publications or conference proceedings whose findings are empirical; and above all paper should be relevant.

Low-income group housing in Nigeria, constraints of housing provision for low-income earners, the concept of sustainable development, and SHA in Nigeria were inputted into the search space, 47, 38, 42, and 204 articles were respectively retrieved. Summarily, the searches carried out in the aforementioned two online databases generated 331 articles. The abstracts were reviewed to select the articles that were used for the study and reviewed. The selected 162 articles were rated using 3 to tag for very significant, 2 to tag for significant, and 1 to tag for not significant. The articles within the rating of 3 considering their objectives and significance were used and reviewed for the study. Thematic content analysis was employed to explain the data from the systematic review process. This involved highlighting the themes based on technological, institutional, economic, social, and environmental approaches that were presented from the discussion addressing sustainable approaches for LIEs housing affordability issues in Nigeria.

3. Sustainable Housing Affordability (SHA)

The notion of SHA is formed by merging sustainable housing and housing affordability (Adabre & Chan, 2019; Debrunner & Hartmann, 2020). The Brundtland/United Nations World Commission on Environment and Development (WCED) report defined sustainable development as the development determined to secure the needs of today's generation and preserve the arising needs of generations yet to come (WCED, 1987). The aforesaid report was mainly intended to proffer solutions to the environmental, economic, and social demands that consider the future generation while attending to the present (Lee & Park, 2010; Ibem & Azuh, 2011; Saidu & Yeom, 2020).

Sustainable housing when compared to sustainable development simply involves combining the house with the environmental, cultural, economic, and social fabric of communities; that is, the house location, construction procedures, and pattern of building implemented (UN-Habitat, 2012; Surya et al., 2020; Moghayedi et al., 2021). Besides, the strategy of sustainable housing arose while promoting environmental goals in the United Kingdom (UK) to continually publicize environmental, economic, and social stability in developing sustainable housing as an achievable need (Bibri et al., 2020; Velenturf & Purnell, 2021). This is in line with (Adabre & Chan, 2019; Sanchez-Garrido & Yepes, 2020; Kim et al., 2021) who also observed that sustainable housing is dependent on balancing housing criteria based on economic, environmental, and social need. Furthermore, the sustainable housing concept is seen as households' ability to occupy a decent dwelling

without battling with financial stress (Makinde, 2014; Lazarescu et al., 2020). On the other hand, affordable housing entails the relationship between the households' income and the housing cost (Adabre et al., 2020; Saidu & Yeom, 2020). Also, adopting the 30% yardstick as a percentage that is suitable for the cost of housing to meet the required standard for classifying affordability specifically for the LIEs (Adeogun & Taiwo, 2011; Alemzero et al., 2021; Domene & Sauri, 2021). There have been speculations on merging cost with a view of streamlining the required cost, particularly for the LIEs been practiced without considering the location, features in the neighbourhood, house size, house quality, and households composition. Elavarasan et al. (2020), and Rowley and Ong (2012) observed that factors in place to realise the goals of affordable housing, the analysis and assessment should take into consideration other issues rather than costs alone.

Moreover, Coelho et al. (2020), Gurran et al. (2021), Marietta et al. (2021) reported the emphasis on adequate housing provision worldwide, particularly for low-income dwellers. While other studies highlighted SHA as being dependent on when housing inadequacies, sustainable housing, as well as income are tackled simultaneously with affordable housing as the main focus (Nubi & Afe, 2014; Ezennia & Hoskara, 2019; Adabre et al., 2021; Odefadehan, 2021) Moghayedi et al., 2021; Mulliner et al., 2016;). Jutte et al. (2021) reported that dynamism of sustainability and affordability requires both to be tackled at the same time provided it is solely for the betterment of the citizens, particularly the LIEs. Some previous studies identified some shortfalls inhibiting the implementation of sustainable housing affordability, where the type of housing is solely for the LIEs as a method to tackle global housing provision difficulties (Olanrewaju & Woon, 2017; Gan et al., 2019; Adabre et al., 2020; Galster & Lee, 2021; Moghayedi et al., 2021; Shamsuddin & Srinivasan, 2021). Additionally, the studies emphasized that consumption of energy can be reduced by 80% as well as promote and improve the provision of amenities and infrastructures. Notably, other studies affirmed that with SHA there can be some sense of balance among humans and their activities concerned with nature without severely conceding the environmental, economic, and social benefits of future generations (Crane et al., 2021; Lubowiecki-Vikuk et al., 2021).

However, following the reports of some developing nations like Nigeria is yet to incorporate sustainable housing affordability in housing provision for low-income dwellers. According to Abidin et al. (2013), Olanrewaju et al. (2018), and Dania et al. (2021), developments that are concerned with the term sustainable housing affordability for citizens that have been classified as LIEs in developing nations with Nigeria do not exist, and if it does, it is still at the infant stage, and not yet prevalent. Moreover, researchers asserted that in developed regions SHA is practiced as a result of increased awareness of the idea, and are mostly used interchangeably to confirm that the components from the concepts are still yet to be fully understood (Abidin et al., 2013; Adabre & Chan, 2019).

For a proper understanding of the components and the scope of the term sustainable housing affordability, Boamah (2010) and Munaro et al. (2020) emphasized that additional tools as a matter of necessity are required to address SHA with housing and building developments influencing the environment. Corroborating the assertion of Boamah (2010), Jamaludin et al. (2018) stated that if technology is not considered, sustainability to be integrated into housing affordability would rather be problematic. As well, Adabre et al. (2020) observed that it is imperative to deliberate on the environmental, social, economic, and institutional involvement for positive results while gaining the attention of SHA. Against this backdrop, this study examines SHA through technological, institutional, economic, social, and environmental themes as reported by Boamah, 2010, Jamaludin et al. (2018), Adabre et al., 2020, and Razmjoo et al., 2021). On this premises, the sustainable approaches to tackle low-income groups' housing affordability issues in Nigeria will be discussed following the mentioned themes that cohere with previous studies.

4. Sustainable Approaches to Tackle Low-Income Housing Affordability Issues in Nigeria

Table 1 presents a list of sustainable approaches to tackle LIEs housing affordability issues in emerging economies like Nigeria. Considering the findings from some relevant literature reviewed, a five-stage approach of sustainable housing affordability was recognised and discussed based on technological, institutional, economic, social, and environmental concepts.

Author	Approach	Main Findings
Boamah (2010), and Griffiths and Sovacool (2020)	Technological	Promoting undeveloped/local technologies growth
Oke and Fernandes (2020)		Advancement of technological inventions
Boamah (2010), Gautham et al. (2021)		Promoting recyclable, renewable and reusable material usage
Dania et a. (2021)		Organising special trainings and re-training sessions for personnel
Agyemang and Morrison (2018), and Kryshstanovych et al. (2020)	Institutional	Decentralising duties and powers of authority.
Tan et al. (2018), Alkhani et al. (2020), Agrawal et al. (2020), and Black et al., 2021;		Promoting active participation of private sector involvement
Czischke and Van Bortel (2018), Saidu and Yeom (2020), and Alqahtany (2021)		Transparent and robust process of materials purchases
Charoenkit and Kumar (2014)		Formulating comprehensive/workable housing plans/policies

Author	Approach	Main Findings
Yang and Timmermans (2020)	Economic	Improved provision of housing grants/incentives/subsidies for households
Czischke and Van Bortel (2018), and Tan et al. (2018)		Advancement of developing a financial/robust marketplace
Trudeau (2018), and Mahat et al. (2021)		Providing developers with easy access of subsidies/incentives and grants
Twumasi-Ampofo et al. (2014), Wade et al. (2021), and Zhang et al. (2021)	Social	Retrofitting of ancient buildings
Choi (2020)		Promoting an avenue for social cohesion, social inclusion and social capital
Adabre et al. (2020), and Bibri et al. (2020)		Promoting housing diversity and specifically prioritizing high density development
Chan et al. (2017), Wang et al. (2020), and Guo et al. (2021)	Environmental	Promoting the utilization/development of local resources
Mondal and Das (2018), Sarabia et al. (2020), and Tripathi et al. (2020)		Reduction and control of wastes / natural catastrophes
Abdul-Aziz and Kassim (2011) Ganiyu et al. (2017), and Lu et al. (2020)		Promoting adequate energy conservation in buildings
Roufehaei et al. (2014), Mondal and Das (2018), Liu et al. (2020), and Xie et al. (2020)		Promoting proper planning and efficient use of land

Table 1

Source: Authors' Systematic Review Compilation

4.1. Technological Method -An Approach to Sustainable Housing Affordability

Goh et al. (2015), and Ugonabo and Emoh (2013) reported indicative difficulties associated with growing technological usage that hinders SHA in developing nations such as the erroneous impression of sustainable technological practices, the pervasiveness of insufficient technological expertise, unprecedented advancing technology, and doubt regarding technological performances. Likewise, skills are threatened due to the rate of advancing technology (Jamaludin et al., 2018). These concerns can be addressed by organising special skilling and up-skilling sessions for personnel and promoting local technologies growth to approach SHA (Boamah, 2010; Griffiths & Sovacool, 2020; Qureshi et al., 2020). This will encourage direct employment of skilled personnel thereby addressing skilled labour, making the hiring of experts that will cope with the technological changes expensive. This eventually makes the product meant for the low-income group rather impossible due to the cost of production.

Besides, there is an urgent need to develop local resources to sustainable standards as the environment is gradually becoming filthy because of degradation, developmental activities, and the astronomic rise of building materials prices. In the same way, technology is required to improve local resources to sustainable standards (Boamah, 2010). Hence, the technological approach is to promote the advancement of technological interventions and inventions of SHA (Obeng-Odoom, 2010; Oke & Fernandes, 2020) to foster awareness needed to record success. Another technological approach to SHA is by promoting recyclable, renewable, and reusable materials (Gautham et al., 2021; Tsai et al., 2021). This technique eventually would curb disasters and promote conservation. Thereby reducing the construction cost of houses and eventually allowing access to housing for inhabitants that are grouped under the LIEs.

4.2. Institutional Method -An Approach to Sustainable Housing Affordability

Agyemang and Morrison (2018) Ogunsanmi (2013) Kryshatanovych et al. (2020) stated that the decentralisation of duties and powers of the planning authorities saddle with the responsibility of convening planning approval as an institutional approach to SHA would make approval easier, save time and encourage developers. Thus, in the long run, motivate the delivery of more accommodation units for groups within the low income. In Nigeria, the LIEs are often affected by political factors where housing delivery is often politicised with high corrupt practices and neglecting the role of the private sector (Huang et al., 2015; Ocholi et al., 2015; Afolabi et al., 2019). The low-income group is neglected in terms of housing opportunities because housing units developed for the low-income groups were eventually allotted to the middle and high-income groups because they are friends to stakeholders in the housing sector in Nigeria, they may put it up for rent or outright sale because they likely do not need such houses. Consequently, motivating the inclusion of the private sector could be a vital strategy to achieving SHA. This is done by permitting the private sector to actively take part in the delivery of housing in mass (Tan et al., 2018; Ebekozi et al., 2019; Alkhani et al., 2020; Agrawal et al., 2020; Black et al., 2021). This approach would dissuade political maneuvering and other corrupt occurrences. Ocholi et al. (2015), Tang et al. (2010), Muhammad et al. (2015), Adegun et al., (2019) reported that in Nigeria, social hazard occurrences are a

result of the quest for additional profit, exorbitant charges by professionals, and employment of non-professionals to head agencies responsible for housing delivery are responsible for some challenges of low-income housing delivery over the years. More importantly, is the irregularities in the award of housing contracts.

Some proactive institutional approaches adaptable SHA is the practice of a transparent and robust process of materials purchases (Czischke & Van Bortel, 2018; Saidu & Yeom, 2020; Alqahtany, 2021). When purchases are transparent, issues of incompetence, the quest for extra profit, and favoritism may not arise, and allotment of Government projects to the LIEs would be as it was originally meant to. Besides, the low-income housing supply in Nigeria is affected by the duration to obtain a permit for development (Ezeigwe, 2015; Adabre et al., 2020). Olotuah and Taiwo (2015), and Oni-Jimoh and Liyanage (2018) have criticized the National Housing policy in Nigeria for not being able to meet up the demands of low-income housing due to a poor operational framework. It was affirmed by Itheme et al. (2015) that the government is in charge of housing policies formulation, hence the effect of the existing housing policy in Nigeria on LIEs has not been felt. Constant update, review, and development of housing policies are additional institutional workable plans for SHA (Charoenkit & Kumar, 2014). Ogunsanmi (2013) stated that only the housing policy charged with tackling housing issues with a link to housing provision for all income groups, housing types, building materials, and land for housing is considered comprehensive.

4.3. Economic Method -An Approach to Sustainable Housing Affordability

Garde (2016) observed that one of the reasons why housing delivery for the LIEs is lacking is because of the LIEs' financial status. Many available housing units' fees and rent are beyond what the LIEs can afford because their financial status is poor. Hence, where there is improved delivery of housing grants for households of LIEs at low-interest rates is an economic approach that could be adopted to strategise SHA (Onu & Onu, 2012; Yang & Timmermans, 2020). Likewise, Mulliner & Maliene (2015) stated that the economic concern for SHA is to ensure that LIEs are provided with subsidies to enable them to cover the costs that are not housing-related like transport reduction. This will serve as a form of motivation for the LIEs with better housing conditions achieved.

According to Muhammad et al. (2015) and Alam et al. (2019) inflation, high-interest rates, and the high cost of building materials as an impedance to housing for LIEs in Nigeria. These issues contributed to making housing provided for the LIEs to be unaffordable. However, with the availability of a well-developed financial programme and a robust marketplace as an economic approach to serving as a strategy for SHA for the LIEs. The issues of exorbitant interest rates, high cost of building materials, and increased cost of houses could therefore be tackled (Czischke & Van Bortel, 2018; Tan et al., 2018). Irregularities associated with the system in the marketplace make a majority of the property developers lose interest leaving few people in the system. If the marketplace is favorable, housing investors will be confident and willing to be part of the system that will eventually curb inflation and other issues associated with market instability, and the low-income group would gain access to affordable housing.

In developed economies, the private sector involvement in the provision of housing for the LIEs has been recognised and empowered to an extent with the government playing the role of an advocate. Tan et al. (2018) remarked that housing development globally is influenced by the encouragements needed by private inventors to function optimally. If the private investors are not encouraged, they will develop unaffordable houses for the LIEs because they are always mindful of profit. Hence, the cost of housing is transferred to the household through an increase in rents or may decide to make the housing unit outright purchase that will not be affordable by the LIEs (Murphy, 2016; Trudeau, 2018; Mahat et al., 2021). Motivation factors like designs flexible may not ease the challenges faced by investors but may lead to a drop in the price of housing units thereby becoming affordable to the low-income group (Chan et al., 2018).

4.4. Social Method -An Approach to Sustainable Housing Affordability

Gianfrate et al. (2017) and Massey et al. (2009) reported that poor maintenance culture and inadequate management patterns are concerned that deprive the LIEs access to housing universally. Many African countries as well as Nigeria are challenged with poor management patterns and neglect of public facilities (Gooding, 2016). This is because abandoning facilities and poor maintenance habits is a contributory factor to infrastructure deficiency in Nigeria (Okoro & Anichebe, 2020). These obsolete infrastructures are regrettably for LIEs. There have been debates on how to make the deficient infrastructure functional and suitable for the low-income groups. Hence, the need to retrofit old buildings becomes a social method that would cushion the effects of SHA because the approach is cheaper when compared to the process of reconstruction (Twumasi-Ampofo et al., 2014; Wade et al., 2021; Zhang et al., 2021). It further stated that if buildings are retrofitted, the facades of the infrastructure are retained, reducing the use of energy by 80% and creating employment opportunities so that the housing conditions of the LIEs are improved, and more chances are created. On this basis, Alam et al. (2019) Sulemana et al. (2019) reported that one of the difficulties encountered in ensuring that LIEs' housing is tackled is the prevalence of income discrimination. The Federal Government of Nigeria (FGN, 2012), and Olotuah and Taiwo (2015) observed that LIEs are being displaced during housing allocation in Nigeria because of their financial status.

Income segregation can strive well where low financial status is obtainable. On this premise, Choi (2020) observed that when wealth segregation is practiced or even if income is reduced, one of the social methods to ensure SHA is by promoting an avenue for social cohesion, social inclusion, and social capital. Social cohesion encourages solidarity, improves social interaction with other community members, and as such promotes a sense of belonging. On the other hand, social inclusion promotes household participation in social, political, and economic activities to ensure easy access to resources. While social capital supports the preservation of properties, needs, and safety of households to establish

cooperation amongst them. Given the aforementioned, income segregation are under control because both the low-, middle-, and high-income earners between the households will further strengthen their relationship.

Similarly, Gan et al. (2019) and Power (2008) observed that another constraint encountered by the LIEs in many African countries is identified to be the prevalence of disadvantaged supply of infrastructural facilities. Some countries in Africa especially developing nations still experience poor supply and development of infrastructural facilities because they are remarkable homes for LIEs. Nevertheless, Adabre et al. (2020) and Bibri et al. (2020) stated that a social method that is charged with promoting housing diversity and prioritising high-density development to produce affordable and sustainable housing could be practiced to reduce issues associated with infrastructural supply deficiency facing the LIEs. This is to ensure that the LIEs spend little on costs not related to housing because of the nearness to infrastructures provided. Alternatively, through reducing segregation of income, mixed housing is encouraged as a workable approach.

4.5. Environmental Method -An Approach to Sustainable Housing Affordability

Ugochukwu and Chioma (2015) reported that one of the causes of the scarce supply of housing to the LIEs in some Africa countries especially Nigeria is because local resources are inappropriately utilised irrespective of their availability. Not minding the fact that building materials imported are not affordable by the low-income group. Promoting the utilisation of local resources is an environmental approach that enhances the affordability of sustainable housing (Chan et al., 2017; Wang et al., 2020; Guo et al., 2021). Local resources could be incentives and non-payment of tax as an environmental strategy to help achieve sustainable housing affordability. This eventually lead to the reduction of prices of materials used for buildings, particularly those imported that will provide employment opportunities because of the value attached to materials of local content and eventually make the low-income housing affordable.

Furthermore, Taylor (2011) reported that buildings are the highest consumer of energy with 40% of the energy consumed worldwide. Perez-Lombard et al. (2008) however added that the world over, one-third of the Green-House Gas (GHG) emissions are contributed by the construction industry. It is therefore worrisome for stakeholders and households that have a role to play in the building industry. Unfortunately, the low-income groups have not been exempted, they are often in the picture of the aforesaid scenario. For this reason, there is a need to embrace the system that supports the efficient use of energy in buildings especially those provided for the low-income group (Pearce & Ahn, 2013). As well, Abdul-Aziz & Kassim (2011), Nielsen et al. (2016), Ganiyu et al. (2017), and Lu et al. (2020) emphasized that promoting adequate energy conservation in buildings can be done by adopting effective solar heating methods, installing efficient water equipment while considering improved technology for rainwater harvesting. Stressing further that introducing air condition and ventilation systems that are energy-friendly to improve housing packages are an essential environmental approach useable for affordable housing sustainably. Even though the said approach could increase the cost of providing housing that would be unaffordable to the LIEs, an increase in the price of the housing market can be checked by adequately providing incentives (Trudeau, 2018). Yet on the highlighted environmental approach, Twumasi-Ampofo et al. (2014) opined that energy consumed can be reduced by 80% if it is properly followed, and this will eventually make the LIEs enjoy an environment that is friendly and favourable.

On the availability of land for development, Sharifzai et al. (2016) and Twumasi-Ampofo et al. (2014) posited that one of the constraints hindering the adequate provision of housing for the LIEs is land scarcity for housing development. The prices of lands available are outrageous outside the limits of the low-income group. Notwithstanding the increased price of land for development, it is still scarcely available, and this hinders affordable housing because LIEs cannot pay for it (Adediran et al., 2020; Uwayezu & de Vries, 2020). The chaotic land use planning process could also be a contributory factor for this development (Ogunsanmi, 2013). Therefore, Promoting proper planning and efficient use of land is another environmental approach, and possibly a method for SHA (Roufechaei et al., 2014). This can be achieved where landowners and communities in collaboration with the government are charged to give out lands in bond to enable developers upon completion to earmark some housing units to the land providers and/or owners. Such lands could be tagged low-income housing if provided by the government. This is in line with Adabre et al. (2020) whose report canvassed for effective land use planning and housing development for mixed-income groups.

Additionally, the internal displacement of low-income households in Nigeria is a result of the various occurrences of natural disasters (Afolabi et al., 2019). This is majorly attributed to where the LIEs houses are located. This trend can be avoided by conducting environmental assessments to check the incidences of natural disasters before any actual development is carried out, this could be considered another environmental approach to stimulate SHA (Ross et al., 2010; Liu et al., 2020; Mondal & Das, 2018; Roufechaei et al., 2014; Xie et al., 2020). When assessments are undertaken, immediate and future impacts are noted with steps to lessen the burden and incidences. It becomes worthwhile even though the benefits outweigh the cost of carrying out the assessments which may be high but the incentives provided would minimize the burden.

5. Conclusion

With the failing state of housing provision for LIEs in Nigeria, it becomes pertinent that sustainability is seen as a focal factor that is required when housing affordability is envisaged. This study provides proof that the provision of affordable housing for the LIEs in Nigeria has not been incorporated into the concept of sustainability. It is a matter of urgent consideration when housing affordability is envisioned. Emphasis on SHA for the low-income groups is essential to addressing housing issues by adopting technological, institutional, economic, social, and environmental approaches jointly. This will improve the well-being of the LIEs and the quality of housing provided. Both the government and stakeholders that are actors in the construction industry should carry out vigorous public awareness campaigns on the benefits of SHA as a concept in the delivery of housing units to LIEs. The different actors in the housing industry in Nigeria must as a

matter of insistence encourage low-income housing involvement that is futuristic and promotes practices geared at sustainable affordability. Besides, this study has reported on the approaches that could drive SHA in Nigeria. Yet, there is a need for further research on the adaptation of sustainable building materials as it relates to the concept of sustainable housing affordability for LIEs. Also, a framework for SHA using quantitative and qualitative studies to investigate the strategies, mechanisms, components as well as indicators for low-income housing in developing nations as well as in Nigeria is hereby canvassed.

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