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Rural Area Infrastructural Challenges and the Role of Architecture in Urban-Rural Development in Nigeria

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Abstract
Urban and rural areas are diametrically opposed but related phenomena. It is often difficult to ascertain where the rural areas end and where the city begins; because in city's growth process, the surrounding countryside is absorbed. Part of it disappears forever, but many of its elements are preserved, fitting into the urban environment with marked differences of infrastructure facilities. These Community infrastructures are the framework of physical facilities needed to support and sustain inhabitants to live and work. However, rural societies suffer neglect. Many elderly people retire and return to rural areas for the comfort, slow and communal lifestyle it offers. Yet, as the world advances at a rapid pace, rural areas and people are left behind. Employing a qualitative literature review, the study delves into the current state of rural infrastructure development in Nigeria, and review various programmes implemented by the government in years past. The findings reveal three phases of rural infrastructural development. It highlights the issues and challenges stemming from the neglect of rural infrastructural needs, and the role of architecture in facilitating urban-rural development. It concludes that focus must be turned to rural areas with architects playing significant role in advancing the quality of rural life.

Keywords: Infrastructure facilities, Rural development, Architecture, Environment, Urban-rural.

1. Introduction

Rural areas are considered as the heart of the nation owing to the significant activities they engage in, which are majorly primary production. In pursuit of sustainable rural development, the socio-economic, political, and physical development of rural villages are paramount. The development objectives are centered on critical domains such as culture, society, economy, health, education, technology, and the built environment (UN, 2020). The process involves the enhancement of human resources by developing and empowering the psychology, skills, knowledge, attitude, and other abilities of individuals. Development is intricately linked to the provision of essential infrastructure facilities and services, such as potable water, reliable electricity, education, health and transportation. These facilities and services form the backbone of a society, enabling it to function smoothly and progress sustainably. Without them, development is hampered, and the ability of rural communities to thrive is severely curtailed. Residents in Africa's rural areas are mostly poor and have a low educational standard. These rural areas have the ability to revolutionize the continent through appropriate agricultural output supported by reliable and effective transportation infrastructure (Olorufemi, & Adenigbo, 2017).

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According to Angmor (2012), appropriate road transportation is critical to agricultural development because it allows farmers to get inputs and data in a reasonable time and sell their harvest at realistic prices to cover their overhead costs and make profits; however, poor infrastructural facilities act as a limiting factor to them.

The majority of Nigeria's population resides in rural areas, which serve as the foundation for food and fiber production. They are also the country's main source of capital formation and a major market for indigenous manufacturers (Olatunbosun, 1975). Primary activities that lay the foundation for all economic development are carried out in rural areas. Nonetheless, despite the value attributed to them, rural areas are not desirable places to reside in. The Rural areas serves as home to more than two-thirds of the country's population. Yet, poverty in the country is increasingly taking on a rural face. Poverty among the rural population rose from 28.3% in 1980 to 51.4% in 1985, then to 69.8% in 1996 and still on the increase till date (Bello and Roslan, 2010). Poverty tends to affect men and women differently. In rural Africa, Infrastructure which improve the standard of living is lacking. Normally, there are poor amenities for feeder roads, potable water, and electricity. The standard of living and purchasing ability of the rural dwellers are at its lowest.

In the context of the current study, infrastructure is defined as a collection of essential systems and amenities necessary to assist on a long-term basis the functioning of homes as well as businesses (Koh, 2018). It encompasses the services and facilities that are critical to the proper functioning of an economy, city, or country (Nurre, 2012). Highways, bridges, train lines, tunnels, water supply systems, sewage systems, electricity grids, and telecommunications networks are examples of public and private physical infrastructure. In general, infrastructure can be defined as "the tangible components of interconnected systems that offer the services and products required to enable, sustain, or improve societal living standards" while also preserving the environment.

According to Okeke (2021), Since the end of the Nigerian civil war in 1970, no area of society has sparked more intense reformist concern than the tremendous population growth, housing conditions, and living standards of the urban poor. These substantial changes have resulted in the expansion of modern-day slums (Okeke et al, 2020). Several government efforts, notably the National Accelerated Food Production Programme (NAFPP), the Directorate for Food, Roads, and Rural Infrastructure (DFRRI), Operation Feed the Nation (OFN), and others, have been put into effect in an effort to solve rural challenges. Yet, their results were found to be marginal. Policy makers have argued that the provision of adequate rural infrastructure is capable of improving the standard of living in rural communities. However, most of the rural development initiatives have had minimal impact on rural populations. Therefore, this paper aims to appraise the different approaches and challenges to rural infrastructural development and propose a new and more practical role for architecture in promoting urban-rural development. The overreliance on secondary data, which is a common limitation associated with archival research was encountered in the present study and the scarcity of current and reliable statistics specifically in the millilumen years was experienced. This limitation posed challenges in obtaining up-to-date and accurate data for analysis and interpretation within the study. The significance of this study, however, is that its findings add to the current

knowledge base, allowing stratic policy creation to accelerate the adoption of sustainable rural infrastructure facilities frameworks across the region.

2. Literature review

The original definition of infrastructure, which has been in use in both French and English since 1875, was "the installations that provide the basis for any operation or system." The expression was borrowed from French, where it had previously been employed to describe the process of laying down a substrate material roadbed that was required before railroad lines or completed pavement could be attached to it. The word is a mixture of the French word "structure" and "infra," from Latin, which means "below," because many of these structures (such as tunnels, water and gas lines, and railways) lie underground. After NATO was formed in the 1940s, the phrase gained popularity among the army in the United States, and by 1970, urban planners had adopted it in its contemporary civilian use (Stephen, 2010). Infrastructure refers to the fundamental systems that support the economy's structure. Understanding infrastructure extends beyond these public works facilities to include operational practices, Management procedures and advancement policies which relates with the needs of society and the physical environment to facilitate the movement of people and goods, the provision of water for drinking and a variety of other uses, the safe disposal of society's waste products, the provision of energy where it is needed, and the transmission of information both within and between communities. Given the extensive societal changes required to address the challenges of climate change, contemporary discussions surrounding infrastructure often centre on the need for sustainable development and green infrastructure. Recognizing the significance of this, the international community has implemented policies aimed at promoting sustainable infrastructure, notably through the Sustainable Development Goals, with particular emphasis on Goal 9, which focuses on "Industry, Innovation, and Infrastructure".

2.1. Types of infrastructure

Infrastructure can be categorized into various types, with one common approach being the classification into hard and soft infrastructure.

- *Soft Infrastructure* - Institutions that support the economy are made up of this kind of infrastructure. They typically call for human resources and aid in providing specific community services. A few examples of these important services include the healthcare industry, financial institutions, governmental organizations, law enforcement, and educational systems.
- *Hard Infrastructure* - They are the physical systems required to maintain a modern, industrialized nation. Examples include the capital/assets required to operate them (oil rigs/refineries, automobiles, transit buses), as well as the roads, highways, and bridges.
- *Critical Infrastructure* - These are resources that a government has determined are necessary for a society's and an economy's survival, these includes buildings for warmth and shelter, telecommunication, public health, agriculture, etc.

The Department of Homeland Security (for government and emergency services), the Department of Energy, and the Department of Transportation oversee critical

infrastructure in the United States. Beyond these sectors, waste disposal services such as garbage collection and local dumpsites also constitute important components of infrastructure. Administrative functions, typically overseen by various governmental bodies, are also seen as essential to the infrastructure. This category may also contain educational and healthcare facilities, certain research and development functions, and necessary training facilities.

2.2. Rural infrastructure planning as a concept

Facilities for infrastructure, according to Hirschman (1958), relate to those essential services that are necessary for Primary, secondary, and tertiary productive activities to be carried out. In its broadest meaning infrastructure facilities encompass all government services, including but not limited to law and order, education, public health, transportation, communication, and water supply, as stated by (Mabogunje, 1974 & Kahn, 1979). In other words, Infrastructure facilities are critical components of a community's basic needs for a higher standard of living. According to Kahn (1979), rural infrastructure can be divided into three types: physical infrastructure, social infrastructure, and institutional infrastructure.

- Physical infrastructure includes facilities like roads, water supply, rural electrification, and storage and processing facilities.
- Social infrastructure comprises health and educational facilities, community centres, fire and security services, and other amenities that support the well-being of rural residents.
- Institutional infrastructure encompasses credit and financial institutions, agricultural research facilities, and other entities that support social and economic development.

These three types of infrastructure are essential components of rural development and are critical for improving the quality of life in rural communities. It is widely assumed that providing basic infrastructure facilities and services can enable the introduction and adoption of innovations given by institutional infrastructure. In practice, urban managers and county planners frequently use rural infrastructure development as a solution to meet the issues of rural communities. The term "development" refers to a deliberate endeavour to effectively utilize the available resources of a specific political unit in a coordinated manner (Bernstein, 1978). The concept of rural infrastructural development is inherently beneficial as it underscores the need to address the issue of deprivation and low quality of life in rural areas. This includes inadequate access to basic amenities such as bridges, hospitals, schools, electricity, and clean water. Rural infrastructural development is a positive step towards enhancing the well-being of the people.

3. Infrastructural development in Nigeria

Infrastructure is typically thought of as the fundamental and necessary services that must exist before development can take place. Authors like Waziri et al., (2014); Oisasoje and Ojeifo (2012), described infrastructure as those specific features that serve as a catalyst for development as well as an improvement in inhabitants' welfare. Infrastructural development can be viewed holistically as sustained rates of income per capita increase. According to Todaro and Smith (2011), the presence of physical, social,

and economic infrastructures can support and accelerate infrastructure development. Development will be difficult if these infrastructure and services are not in place.
As opined by Fidelis et al. (2014) traffic jams, unstable power supplies, inaccessible roads and networks, subpar telecommunications services, low drinking water quality, and other issues are all characteristics of Nigeria's current infrastructure. Alabi and Ocholi (2010), in describing Nigerian roads noted that the density of the roadways was the lowest in all of Africa. They also claim that 31% of roads are paved, which is lower than the middle-income countries' average of 50%. Recently, the federal government of Nigeria's current development strategy, Vision 20:20, has placed a strong emphasis on infrastructure development (Adesoye, 2014). The governments will need a significant infusion of funds to accomplish this, which can be obtained through taxation. Table 1 highlights the successes and obstacles faced by Nigeria's infrastructure sector.

	ACHIEVEMENTS	CHALLENGES
❖ Air transport	i. Recent expansion of domestic market. ii. Emergence of important regional carriers. iii. New routes to Europe and the United. iv. States Significant improvements in safety oversight.	i. Developing potential as regional air transport hub. ii. Concession of airport terminals.
❖ ICT	i. Wide coverage of low-cost GSM. ii. Vibrant competitive fixed-line sector iii.Extensive private fibre-optic backbones	i. Increasing penetration of ICT services. ii. Reducing cost of Internet services. iii. Addressing market-efficiency gap
❖ Power	i. High rates of electrification. ii. Sector restructuring and tariff hikes in progress.	i. Investing to improve service reliability. ii. Addressing huge sector inefficiencies.
❖ Railway	Wide network of national rail line.	Improving performance to recapture traffic.
❖ Roads	Wide network of national road.	i. Increasing funding for road maintenance. ii. Improving rural access.
❖ Water resources	Progress on institutional framework	Developing huge high-return irrigation potential.
❖ Ports	i. Adoption of modern landlord model. ii. Award of numerous concessions.	i. Customs performance improvement. ii. land and marine access improvement. iii. Planning for new capacity additions
❖ Water and Sanitation		i. Access to improved water services. ii. Reversing growth in open defecation. iii. Addressing utilities' huge inefficiencies. iv. More attention to well and borehole policy. v. Improving quality of traditional latrines

3.1. Policies governing rural infrastructure in Nigeria over the years.

Almost 70% of the population of Nigeria resides in rural areas, and at the same time, they face several difficulties that have an impact on their level of production. Among these difficulties are those related to the environment, insufficient infrastructure, marketing issues, technology limitations, institutional restrictions, high labour cost, insufficient agricultural incentives, and a deficiency of programmes for rural development that is sustainable (Oyesola, 2000). Typically, rural regions act as the base for food and fiber production, key drivers of capital generation within a country, and primary markets for domestic manufacturing (Adedeji et al. 2014). However, over the years successive

governments has made efforts to improve rural infrastructure and this has been highlighted and discussed in the subsequent sections of this study under three phases of rural infrastructural development (Pre-Independence Period, Post-Independence Plan Period, and the Post Fourth Plan Period).

Pre-Independence Period

The involvement of government in infrastructural development and provision in Nigeria may be dated back to 1917, when the colonial rulers at that time introduced and made popular the township order. The ordinance divided the country's settlement patterns into three primary categories, specifically, Townships of first, second, and third class. The first-class townships, which are thought to be the most affluent, housed the white men and those who work for them. Within this section exists heavy concentration of infrastructures and major government amenities, an example is Lagos. There was a clear difference between the first township settlement and that of both the following and third classes, where there exists little or no facilities and attention from the then government. The aforementioned situation remained until 1952, when local government units were established in Western Nigeria. The primary goal of establishing local governing councils was to use them as a conduit for extending infrastructure development and facilities to the grassroots, which in this case is the rural areas. However, the money granted to local government councils were barely enough to maintain the council's headquarters and facilities, which possess to be a great issue. Although there were minimal advantages garnered from colonial policies. The investment framework implemented during that period was reinforced by succeeding governments post-independence, as evidenced by all development schemes launched since 1960.

Post-Independence Plan Period (1960-1999)

This period of rural infrastructural development is summarized under five major phases-

The First National Development Plan Period (1962-68); The Second National Development Plan Period (1970-74); The Third National Development Plan (1975-80): Periods of the Fourth National Development Plan (1980-1985); and Post-Fourth Plan Period (1985-1999).

- *The First National Development Plan (1962-68)*: With the total budgetary allocation of N1,353 million. The first national development plan at this point still lacked a definitive statement or roadmap that outlined specific strategies for rural infrastructure development. Although agriculture was still a significant source of foreign exchange at that time, the plan's goals were to encourage local farmers to gather their agricultural products so that the government could purchase them in large quantities for export (FGN, 1962).
- *The Second National Development Plan (1970-74)*: Just immediately after the Nigerian civil war ended, the Second section or what might be called the Second phase, was introduced. The main aim of this phase was to rehabilitate the economies of the war affected zones within the country. The plan outlined five main national goals aimed to establish a cohesive, equitable, resilient, and autonomous nation. A total of ₦2,050.738 million was designated for spending. However, the administration made no explicit statements regarding the development of rural infrastructure, exactly like in the first plan. By giving

₦500,000 for village regrouping, the government demonstrated its commitment to lowering the cost of accessing economic and social infrastructure like energy, health, education, and water supply services in local areas. However, the sum allocated to rural development was perceived to be inadequate and insufficient to effectively address the infrastructure challenges within the rural centres of the country. This observation echoes previous development plans that have similarly struggled to comprehensively tackle the issue of rural infrastructure (FGN, 1970).

- *The Third National Development Plan (1975-80)*: This phase marked the actual birth of rural infrastructural development, as it marked the first time the national government showed serious concern for rural infrastructural development and thus was highlighted within the national development plan. In line with the objectives of the second national development plan, through the execution of integrated rural development, the third national development plan aimed to reduce regional disparities and promote national harmony. The plan had a total budget allocation of ₦32 billion and provided for several key initiatives, N90 million has been budgeted for a countrywide rural electrification project, as well as the setting up of nine more River Basin Development Authorities (RBDAs) to supplement the current Sokoto and Rima RBDAs; establishment of modular scale dams and boreholes for providing water to rural areas, along with the clearance of feeder roads for transporting agricultural goods, and the distribution of electricity to remote communities from large irrigation dams (FGN, 1975).
- *The Fourth National Development Plan (1981-85)*: This phase of the country's development plan has some distinctive characteristics. At this time, a civilian administration produced the post-independence development plan for the first time under a new constitution with a presidential governing system. Also, in this plan the local government tier participated fully in the governance with their full rights accorded to them. The necessity of a balanced development within the various economic sectors was highlighted on, which translates to the development of all the geographical locations within the country. The plan emphasized the importance of rural infrastructure development as a means of improving the quality of life in rural areas. Accordingly following the aim of this phase, the eleven River Basin Development Authorities whose functions includes but not limited to, the construction and management of boreholes in the rural areas, dams, feeder roads and jetties, received funds summing up to ₦924million to for the sole purpose of developing the rural areas especially the river basins that are scattered over the country. The fund aided in the development of 249 earth dams, 29 agricultural service centres, 2,650 boreholes, 12,064 kilometres of feeder roads, and 2,2880 wells, which were handled by the RBDAs. According to the federal government's rural infrastructure development plan, ₦645 million were set aside for a nationwide electrification project. In addition, ₦700.4 million were given to state governments to enable them to carry out electrification projects in the towns and villages within their states. The development strides also extended to the transport sector, where the local governments in their own capacity planned for the provision of intercity/village transport services, this was championed by the construction of motor parks, petrol filling stations and rural roads all these were done to make the rural areas more accessible and to attract more development, these developments took place in the fourth plan period (1981-1985). Records showed that a total of ₦2,805 million was

allocated to this sector, in order to make provision for portable water and waters supply scheme, this is separate from the huge borehole drilling programmes that were also being carried out by the River Basin Authorities (FGN, 1981).

The Post Fourth Plan Period (1985 to 1999)

During this period, the Directorate for Food, Roads, and Rural Infrastructure (DFRRI) was established with the goal of delivering rural infrastructure in the hinterlands of the nation. The Directorate was founded by a statute enacted by Decree No. 4 of 1987. It was focused on promoting the primary production activities in rural areas. In addition to their other duties, DFRRI advocated for the construction of feeder roads, water supplies, power, and housing as measures to raise the standard of living for rural residents. The directorate has programmes like:

- Facilitating a closer interaction between the government at the federal level and the people. This required the locals to form unions and organizations that will aid them in providing communal facilities amongst them.
- Provision of general infrastructure such as, feeder roads into the rural areas, rural water, housing, and electrification.
- Promotion of activities that will enhance the productivity of the rural areas, like agriculture, rural industrialization, crafts and technology.
- Then they tried in improving the social activities within the rural areas by introducing inter community unifying activities.

The programme (DRFFI) was planned and implemented in two phases. The first phase aims to build 90,000 km of feeder roads and provide water to 250 settlements in the federation's states., improve the health sector, agricultural practice, and housing condition in the rural areas. They also tried bringing in industrial growth and make the rural areas attractive for people to dwell in. Around June 1987, the Directorate planned on going into rural electrification programme, which was part of the second phase project. In order to accomplish their goals, DFRRI collaborated with groups like the National Building and Road Research Institute (NBRI) and the Rural Water Supply and Sanitation Programme (RWATSAN). The states directly receive the funds designated for the directorates project within each state, which they will now disburse to the third arm of government in the local levels. Then also when you get to the federal level, there is a rural development committee, which comprises of the various local government, just to check the activities of the directorate. These committees include members from rural areas as well as local government representatives. In total, the Directorate received around ₦433 million in 1986 for the purpose of carrying out its agenda. However, only ₦300,000,000 was really paid out. The Directorate received ₦500 million and ₦1 billion, respectively, in 1987 and 1988.

4. Issues and challenges faced in the development of rural infrastructure

The issue of rural infrastructure development has been recognized as a governmental responsibility. Various levels of government, including federal, state, and local authorities, have attempted to address the challenges associated with the

development of rural infrastructure through diverse means. An analysis of governmental endeavours in the recent years demonstrates a range of positive programs and extensive initiatives aimed at resolving issues related to rural infrastructure. However, these efforts have been insufficient in addressing the underlying problems, owing to shortcomings in the strategies employed by the government. Some of the critical flaws comprise:

- The primary flaw in the governmental approach to rural infrastructure development is the overreliance on development plans as the sole instrument for allocating resources to various economic sectors. These plans tend to prioritize "objective indices" when it comes to rural infrastructure provision, overlooking the nuances and complexities that demand a more holistic approach to rural development. One critical oversight on the part of government planners is their failure to acknowledge the inherent differences in the needs and wants of diverse rural communities. Despite the scope and priorities outlined in development plans, different regions invariably experience varying outcomes. The nature and degree of needs of rural communities in Nigeria are not uniform (Okafor, 1985) and must be approached with sensitivity to ecological differences. The government must consider the unique circumstances of each community and develop targeted infrastructure projects that align with the preferences and requirements of local inhabitants.
- The dearth of a perceptual focus in development plans is a second basic fault with the government's approach to rural infrastructure development. Villages, possess inadequate financial resources, political influence, and independence required to determine the most suited amount and type of infrastructure that is required for their communities. Although the DFRRI initiatives have been helpful in tackling rural infrastructure needs, an extensive perceptual study of infrastructure facilities in Nigeria's rural areas is required to gain a better understanding of rural communities' unique needs.
- The third flaw to rural infrastructure development is the insufficient consideration given to alternative means of promoting infrastructure provision in rural areas. For instance, the issue of funding shortages required for the execution of rural infrastructure plans is often poorly conceived and addressed during implementation.
- The fourth major issue is the lack of effective programmatic action and apt institutional framework for implementation. The establishment of the DFRRI at the federal level, with disbursement of funds for implementation occurring at the second and third tiers of government, has led to challenges in program coordination and execution. There is often a lack of differentiation between local government rural programs and those initiated by DFRRI, leading to programmatic duplication across various tiers of government.
- The fifth critical issue in rural development planning is the deficiency of spatial focus, which has handicapped rural infrastructure programs. Rural communities in Nigeria are often scattered, creating a challenge for providing and sustaining infrastructure. This is particularly evident in cases where facilities such as schools and hospitals have been previously provided but eventually closed due to insufficient population levels. To address this issue, a regional planning approach that focuses on village regrouping may be employed to improve the provision and distribution of infrastructure. This approach involves the consolidation of small villages into larger regional units to facilitate more efficient and effective infrastructure provision.

A valuable lesson that can be learned from past experiences is that the establishment of rural development agencies, such as the Directorate of Foods, Roads, and Rural Infrastructure, should not be limited to the Federal level alone. Recent studies have highlighted the effectiveness of establishing rural development agencies at the local level, where they are better positioned to address the specific needs and priorities of grassroots communities. The Tanzanian experience provides a compelling case study in this regard, with rural development agencies operating successfully at the local level to improve access to infrastructure and other essential services in rural areas. It is proposed that local or community infrastructural development and maintenance boards be established to organize and educate populace about the need of infrastructural development and upkeep. Additionally, the adoption of community development strategies should be encouraged to supplement the initiatives of government institutions. This approach recorded success in Tanzania and could be adapted in Nigeria to achieve sustainable rural development.

5. The role of architecture in urban-rural development

As stated by Correa (1988), the architect must be willing to offer his energy, creativity and thoughts to the society rather than acting as a prima donna professional. It is often recognized that architects frequently limit their services to wealthier urban clientele. However, it is important to recognize that it is the impoverished individuals living in rural villages who are in greatest need of their services. Rural settlements in Nigeria often suffer from deficiencies related to their housing conditions. In response to this challenge, architects bear a primary responsibility to safeguard, enhance, and develop the appropriate quality of built environment for rural inhabitants, with a view towards creating a sustainable world. Buildings play a crucial role in providing the necessary infrastructure for the functioning of a city. Additionally, they offer ample opportunities to showcase a commitment to sustainability. According to Chendo (1990), the architect has solutions to many environmental challenges because of the nature of his training. The inference is that he faces the challenge of raising people's living standards through the practice of his profession. Given that people's everyday activities centre on buildings and structures (Okpalike et al, 2021), the architect's role in achieving sustainable rural infrastructural development includes the following:

- Minimizing the embodied energy of building materials; Solutions for limiting long distance of material transportation by either water, air or land must be considered. One possible option is to build local manufacturing businesses, which can assist to lessen the need for resources to be transported from distant regions. Additionally, it is important to consider the impact of plastic packaging on building materials, which can contribute to generation of non-recyclable waste which can pollute waterways and cause blockages.
- To address the menace of poor living conditions and the spread of diseases in Nigerian cities, building design and settlement layout must be prioritized. According to Udeh and Okeke (2018), the significant concerns confronting Nigerian cities are growing mortality rates and diseases caused by pollution and poor sanitation. To promote healthy indoor climates and user comfort, architects must consider numerous aspects such as air quality, lighting, ventilation, acoustics, and solar radiation in building design. Architects can play a vital role in promoting public health education and establishing sustainable communities.

- The severe weather conditions of dry and rainy seasons are typical in the tropics, such as Nigeria. Architects are consequently expected to make a thorough investigation of the region's geological, climatic, and cultural circumstances before designing the built environment. This includes limiting excessive heating and lowering energy consumption through proper building layout and material choices. To accomplish this, architects can use energy recycling techniques such as storing extra heat during the day for use at night.
- Architects play a crucial role in shaping society's values through the built environment. It is their responsibility to create inclusive, welcoming, and secure buildings and public spaces that do not discriminate against anyone. As the primary consultants and project managers in the building industry, architects must avoid promoting a narrow-gendered work culture from the design stage to the construction stage. Instead, they should encourage diversity, equality, and ownership to ensure that more women can participate in community development services. Furthermore, it is imperative for architects to prioritize the core functionality of accessibility in the design of buildings, settlements, and rural areas. This entails creating inclusive spaces that accommodate all citizens, irrespective of their gender, to forestall marginalization and the possibility of city fragility.
- Considering the increasing climate change impacts, the design of the built environment should prioritize resilience against water-related challenges, excessive precipitation, drought, and flooding. Landscape architects and planners must establish urgent development strategies that safeguard freshwater resources by implementing conservation projects and designing recreational spaces that promote water collection and management.
- In the realm of sustainable urban development, it is imperative that buildings, settlements, and rural areas be planned and designed to encourage physical activity and reduce the risk of accidents, particularly those related to traffic. Furthermore, building safe public areas and affordable transportation links to workplaces is crucial for job accessibility and economic prospects. Given that most commercial activities take place in organized spaces, it is essential that workplaces are designed as healthy and productive environments for employees, customers and the general public, which in turn fosters good working relationships and sustainability in business.
- To protect the environment and public health, Landscape Architects should prioritize the implementation of sustainable practices for the handling of pollutants such as pesticides, nitrogen, and human waste. It is crucial that these substances are managed on site to prevent contamination of groundwater and oceans. Furthermore, sustainable solutions that cut costs while adding value to water-management infrastructure must be created. When designing buildings, it is important to avoid the use of environmental hazardous materials and substances to promote a healthy and sustainable environment.
- In order to foster ethical and sustainable practices in the construction industry, architects must maintain a vigilant oversight of tendering, procurement, and construction processes. This includes actively discouraging all forms of organized crime and fraud, as well as promoting transparency and fair competition. To guarantee effective implementation, architects should use their skills to produce and share knowledge, endorse sustainable solutions, and collaborate with research and institutional partners. By doing so, architects can play an integral role in shaping a construction industry that is both socially responsible and environmentally sustainable.

- The function of the local authorities is critical in the context of built environment governance because it is the closest level of governance to the community and is often responsible for significant decision-making and financial allocations. As a result, architects working in local town planning authority as well as development approval offices must ensure that development permits are only granted to development projects that have been planned and overseen by properly licensed and approved built environment professionals in compliance with prevailing design guidelines and regulatory provisions. This approach ensures that built structures meet acceptable levels of quality, safety and environmental sustainability, thereby promoting the well-being of the society at large.
- In developing nations, many cities are experiencing rapid urbanization, which presents challenges for architects to design resilient buildings and settlements that can withstand the effects of climate change and other environmental stressors. This involves adding green zones to compensate for the loss of greenery and biodiversity caused by urbanization. Furthermore, architects must use ecologically responsive building designs that are region-specific.
- Local industries should be prioritized in the architect's specifications and working drawings to develop sustainable building materials. This strategy should be led by a lifecycle perspective, with an emphasis on waste minimization during production. This technique, in addition to improving environmental friendliness, has the potential to offer job opportunities for local communities and contribute to the expansion of rural GDP.
- Architects play an important role in the public sector in the implementation of policies that promote less expensive and healthy living environments, in addition to infrastructure that reduces transportation pollutants and fosters non-motorized mobility and accessibility across urban and rural areas. This involves developing sustainable construction practices and advocating for slum clearance while also educating the public on the benefits of healthy living spaces.

6. Conclusion

Rural communities face different issues than metropolitan counterparts in terms of demographic shifts, workforce development, capital availability, infrastructure, health, land use, environment, and community preservation. Sustainable rural development is vital to a country's economic, social, and environmental sustainability. It is a necessary tool in poverty reduction, as the larger chunk of the world's impoverished population resides in rural areas. In the context of poverty, it is essential to acknowledge that the issue is not confined to the urban-rural divide but extends to sub-regional and regional contexts. As such, it is crucial to coordinate rural development initiatives that foster sustainable livelihoods at the global, regional, national, and local levels, as appropriate. Effective strategies for rural development must consider the unique challenges and potentials presented by remote rural areas and adopt targeted, differentiated approaches to address these issues.

This paper discussed concept of rural infrastructure and highlighted the issues and difficulties caused by Nigeria's many rural infrastructure development programmes. Its research results show that government efforts failed, and architects have a role to play to address the neglect of rural areas. The role of Architects in community development goes

beyond designs, documentation, execution, or supervisions. Architects should provide an overview of issues related to infrastructure project or offer experience in a specialized field. Architects should advise and educate local residents on any additions or adjustments to their physical environment since they understand the effects of the design process and can think spatially. Their expertise and experiences can help the community make decisions on facilities and infrastructure.

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