

An Analysis of Neoclassical Elements and Environmental Process of the National Assembly Complex of Nigeria

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ABSTRACT

The National Assembly building is an iconic architecture and an edifice that symbolises the presence and practice of democracy. The Nigeria National assembly building is neoclassical in style; characterised by elements and features traceable to the architecture of the neoclassical period that span through 17th and 18th century. The roof, walls, grandeur of scale, geometric form as well as the environmental impact were analysed. The work established the meeting point between democracy and architecture, it revealed various measures incorporated in the design to mitigate environmental impact as well as sustainable building solutions including solar panel, elevated floor, building management systems, bioclimatic package, and natural light optimization among others. It recommended the inclusion of measures that will mitigate environmental impact of resource consumption on site as well as environmentally friendly practices during and after construction.

Keywords: Architecture, Building, Democracy, National assembly, Neoclassic style.

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I. INTRODUCTION

Democracy is a people-centred system of government and a valuable tool to drive political proficiency, economic development and social stability of any nation (Nwanolue *et al.*, 2012; Okeke, 2017). This representative democracy is a means of selecting persons that speak and act on behalf of the people through the election process. It is easily objectified where there is a high-level legislative efficiency and efficacy (Nwanolue *et al.*, 2012; Adekola, 2019). By implication, the seed of democracy can neither germinate nor produce fruit without recourse to legislative functions, which must be carried out in a designed and designated space by an assemblage of people.

The gathering places; chambers of such representatives or the legislators are within the edifice referred to as the National Assembly buildings. The buildings are usually dominant objects wherever sited; and erected in virtually all nations of the world, including Nigeria, where democracy is practiced and given different names. For instance, it is called Capitol Building in the United State (US), Palace of Westminster in United Kingdom (UK), National Assembly Building in Chad, National Congress Palace in Argentina, Parliament Building in Canada, Knesset in Israel, and the National Assembly Complex in Nigeria, to mention a few.

II. THE NATIONAL ASSEMBLY

The Nigeria National Assembly, the federal legislative body, comprises two houses – the House of Representatives and the Senate – also refer to as chambers (Goitom, 2017). The chamber of the members of the House of Representatives is nicknamed ‘Green chamber’ while that of Senate is called ‘Red chamber’. The hallowed chambers are for the smooth running of the democratic functions of the elected members. Such functions, according to Goitom (2017), include lawmaking, scrutinizing bills motions, and legislative proposals, intervening in the conduct of public institutions, controlling the spending of federal funds; approving all treaties negotiated by the executive; providing advice and consent for appointments to key executive positions; performing oversight functions and impeaching the president and his deputy if erred as stipulated by the national constitution.

All members of the National Assembly are elected directly every four years by members of the public of eighteen years and above to represent their constituencies and give them a say on national issues. These honourable members, for the House of Representative and the Senate, are 360 and 109, respectively. These

numbers of members coupled with the fact that they need to concentrate on and make laws in Abuja from diverse geographical backgrounds give support for the need for an official meeting place. Besides, the proper execution of the legislative functions needs to be carried out in a dignified and sacred place, hence the need for the construction of the National Assembly building.

III. THE NIGERIA NATIONAL ASSEMBLY BUILDING

The National Assembly Buildings, anywhere in the world, are usually regarded as significant buildings in the history of world architecture (Choudhury, 2020). The Nigeria National Assembly Complex is a colossal and iconic structure with a trademark dome roof. The assumed philosophy behind the design of the gigantic structure is blending the indigenous art and culture with modern technology and foreign material; thus, bringing forth the ingenuity and deftness of the professionals involved.

Describing the National Assembly Building of Bangladesh, Choudhury (2020), used such terms as “iconic architecture, an architectural marvel, grand architecture of the 20th century, architectural masterpiece, and finally national identity” to present the overseas’ structure. Comparatively, fewer terminologies cannot be used to describe the Nigeria National Assembly Complex. The structure showcases the national identity through its form and colour combinations of white walls and green-coloured dome roof. Looking into, appraising, and learning from old values, the designer produced modern sculptured art, going by the roof form, though with little deviation and modification from age-old art.

The building comprises the chambers, offices of the distinguished senators, honourable members and civil servants’ offices as well as other ancillary rooms/offices, spaces, and structures. The edifice provides spaces for members’ assemblage for discussions, deliberations, analysis, and eventual passage of bills and other necessary activities as supported by the national constitution.

Arguably, all great buildings are piece of architecture; if not all, the majority of great buildings have their origin in architecture and by the trained architect. The National Assembly Complex is one building that qualifies as architecture. Thus, a project of National Assembly calibre can only be handled by a qualified firm of professionals dominated by architects and engineers.

Notably, very sparse studies have been carried out on the architecture of National Assembly Buildings of different countries. A few examples exist in literature to include, National Assembly Complex in Dhaka (Ksiazek, 1993), Assembly Building of Bangladesh (Choudhury, 2020), Nation Building in Kuwait (Alomaim, 2016). However, any scholarly publication is yet to put detail attention on the architecture of Nigeria National Assembly Complex, more so as it relates to its design and style of architecture, environmental impact as well as sustainability during the design, construction, and post-construction or occupancy stages. This spurs the researchers to embark on the assessment of the trend, (style) of architecture and the environmental impact of this imposing edifice.

IV. THE NEOCLASSICAL TREND OF THE NATIONAL ASSEMBLY COMPLEX

A. *The Ancient Architectural Style*

Historically there have been many trendy styles that dominated the practice of architecture few of which have undergone transformations and are still of influence in contemporary architecture. Generally, a style may include such elements as form, method of construction, building materials, and regional character. The term ‘Style’ means appearance; a public quality that seeks to impart and impress (“Architectural Styles,” 2020). It furthermore informs that an architectural style is characterized by the features that make a building or other structure notable or historically identifiable not neglecting the fact that it is a sub-class of style in the visual arts generally, proving most styles in architecture-related closely to the wider contemporary artistic style.

Virtually all architecture (building) can be categorised within a chronology of styles that changes over time as a consequence of changing fashions, beliefs and religions, or the emergence of new ideas, technology, or materials which make new styles possible. Rebellion, of course, is a negative non-friendly English word; however, it has led to some grand breakthroughs overtime in the field of architecture. For instance, any new style is sometimes only a rebellion against an existing style, such as post-modernism (meaning “after modernism”), which in 21st century has found its own language and split into a number of styles that have acquired other names. Neoclassical architecture also is the revival of Classical architecture during the 18th and early 19th centuries.

B. *The Neoclassical Style of National Assembly Complex Building the Neo-classism*

Neoclassical style surfaced in the mid-18th century from 1750s to 1850s in order to revive classical Greek and Roman buildings. The European then wants architecture of rational symmetry as a revival of European cultural production. This movement, therefore, was considered a response to Baroque and Rococo.

Baroque, architecture of 17th century from Italy, featured elaborate ornamentation, paired columns, convex and concave walls among others. Whereas, Neo-classical style is characterised by grandeur of scale, blank walls, excessive use of columns, free-standing columns, large buildings, and clean lines works (Brant and Cavallaro, 2018). The style was to bring back nobility and grandeur to architecture. This movement continued until the 19th century and was manifested in various countries including Nigeria.

C. The Neoclassical Architecture in Nigeria

Historically, Nigeria Architecture was influenced by environmental conditions as well as social and cultural factors. Religion and politics are other principal actors that interfere in the national indigenous architecture. Religiously, Gothic architecture was the style of early churches in the Lagos colony. Besides, missionaries' houses were designed with the influence of classic antiquity. Likewise in the political sphere, variant of neoclassical architecture was adopted for the designs of government buildings and private houses by the Public Works Department. Thus neoclassical (and other) style penetrated, influenced, and become part of Nigeria different architectural styles with each having their legacies yet to be eroded. One of the legacies of neoclassical style in Nigeria is the National Assembly Complex.

V. RESEARCH METHODS

This study was based on the literature review that followed such processes as one, framing research questions; two, identifying relevant studies; three, assessing the quality of the studies; four, extracting evidence; and five, discussion and conclusion. In identifying relevant studies, a comprehensive search for academic outputs (journal articles, conference proceedings, book chapters) was conducted in Google scholar database. Thus, the study was based on secondary data sources.

VI. ANALYSIS OF NEOCLASSICAL ELEMENTS OF THE NATIONAL ASSEMBLY BUILDING

This section desires to x-ray building components of the National Assembly Complex that make it conform to neoclassical style. For the building to have been classified as neoclassical, some of its elements must have been responsible for that. Such prominent features, superstructure elements essentially, include the roof, wall, columns, windows, and other seemingly abstract features like the building grandeur, balance, and symmetry.

A. Roof

The dome roof of the Assembly building is of classical origin since neoclassical architecture draws upon the logic of adopting the entire Classical style rather than just reusing parts. Common with buildings of that style is a centrally located dome as a mark of identity. Supporting this, Galuzin (2019) affirmed that neoclassical roofs are flat, horizontal, and often contain a central dome. The dome roof element is a dominant feature of the building; and it possesses different colour (Green) that makes the roof, indeed the project, unique and outstanding (Fig.1).



Fig. 1. The dome roof of the National Assembly building: both exterior (left) and interior (right). Source: Google images (2022).

B. Columns

Another characteristic of buildings erected in the neoclassical era is that they are, according to Galuzin (2019), supported by tall columns (Doric or Ionic). Indeed, the Assembly complex perfectly embraces this in its formation, columns were used superfluously especially at the entry point of the building to support free standing flat roof (Fig. 2). Rogers (2020), an editor of Encyclopaedia Britannica, called it a “dramatic use of columns.” These structural columns are consistent and systematically arranged to create an appealing facade.



Fig. 2. Pictures of free-standing column at the Complex entrance.
Source: Google images, (2022).

C. Walls

Neoclassicism tends to emphasize its planar qualities rather than its sculptural volumes (Galuzin, 2019; Rogers, 2020), therefore the walls are often straight line and blank. Rogers (2020) further emphasised that the usual projections, recessions, and their effects on light and shade as in Baroque are flatter in neoclassicism. A passionate and analysing gaze at the walls of the National Assembly building reveals that there are more plane walls, and free of embellishments (Fig. 3).



Fig. 3. Less ornamentation of the walls of the National Assembly building.
Source: Google images, (2022).

D. Grandeur of Scale

In architecture, scale is grouped into a human, intimate and monumental scales. In this context, monumental scale is more applicable as it depicts huge substance that is intended to be impressive such as public buildings, memorials, and religious buildings among others. In reality, beyond any doubt, the National Assembly Complex is a massive and impressive structure. It is a building of enormous scale. Fig. 4 attests to this fact.



Fig. 4. National Assembly building in its expansive state.

E. Geometric Form

In comparison with organic forms which are generally complex, irregular, or asymmetrical, and cannot easily be constructed using geometry, the geometric form can be constructed using geometry, such as squares, rectangles, circles, cones, cubes, and so on. As seen in the picture (Fig. 5) above, the building displays three main forms rectangle, octagon, and semi-circle (the dome). However, of all, the rectangular part of the building is the dominant shape. Besides, the concept of Balance is noticeable as well. The dome is centrally located, flanked by octagonal shapes which in turn join to rectangular forms at the extreme ends of the structure (Fig. 5).

VII. ENVIRONMENTAL PROCESS OF THE NATIONAL ASSEMBLY COMPLEX

Environmental design is a means through which environmental matters relating to existing or proposed design/redesign product or building are enhanced scientifically and methodically for minimal adverse impacts on the environment. Accordingly, it helps in producing environmentally friendly building products with processes that have the lowest environmental impact. The material and method, as well as technology employed in construction and operation of a building, affect its immediate environment. The construction sector is responsible for a high percentage of the environmental impacts produced by the developed countries (Khasreen, *et al.*, 2009), as well as developing countries. Thomas and Costa (2017) argued that the construction industry is accountable for about 20–50% of all-natural resources consumed and 50% of all solid waste produced during the construction phase of the building's life cycle thereby causing various degrees of environmental impacts.

This portion of the study focuses on the assessment and evaluation of the environmental impact mitigation embraced by the ITB firm during the construction stage of the National Assembly Complex. To start with, the environmental sustainability measures adopted are not different from what is obtainable in global practices. Thus, the design of the complex gave considerable attention to environmental sustainability, suitability, and stability and try avoiding ecological degradation at all costs.

To resolve problems of environmental impacts, it was deemed necessary to characterize the construction site in terms of its localization, construction method, ground conditions, and topography, presence of watercourses, water table level, presence of fauna and flora, neighbourhood conditions such as nearby roads, parking, noise levels. Other characteristics that were also considered and evaluated included overhead electricity cables and pylons, wind direction, natural risks (flooding, landslides), surrounding building types and use, such as hospitals, schools, residential housing, and waste disposal areas, to mention a few. All of these are necessary for consideration since “architecture is an inseparable part of the ecology and society for its sheer size.” (Choudhury, 2020).

Also considered for adoption were sustainable building solutions that include solar panels, elevated floors, building management systems with real-time energy monitoring, bioclimatic facades, natural light optimization, light-emitting diodes (LEDs) activated by light sensors, green roofs, central air conditioning systems, control of indoor air quality, water and energy economizing gadgets, and rainwater harvesting and grey water reuse. However, some of these sustainable practices are not implemented or were implemented but stopped functioning due to a lack of consistent maintenance.

It is very important to predict what the environmental impacts of construction are and identify how they can be prevented before starting construction activity (Irizarry *et al.*, 2012). The impacts were predictably controlled and mitigated by the project management team during the design and pre-construction stages of the building, thus improving its sustainability during the construction phase, handing over, and operations.

Choudhury (2020) argued that architectural products are the largest consumer of material resources, energy, and water. Bulk materials, water, and electricity among other resources of various types and origins are consumed on construction sites during the different production activities and by the temporary onsite facilities. These activities generate solid waste and particle emissions causing concern with soil contamination, air and water pollution, and soil erosion. Nevertheless, these identified environmental impacts received considerable attention from stakeholders involved in the project's site activities.

The construction firm (ITB) deliberately and diligently works on three key environmental impact aspects of Resource Consumption, two, Emissions Reduction, and three Interface with External Environment. By adopting good practices, many of the environmental aspects and their associated impacts were well managed or mitigated.

A. Resource Consumption

The Resource Consumption was grouped to include material resources, energy efficiency, and waste management. These aspects related to resource consumption were tackled through rational resource use, coordinated and modular design patterns and principles, adopting practices that reduce material losses and selecting materials, products, and construction systems with low environmental impacts. Low embodied energy gadgets and equipment were considered.

Practices to reduce energy and water consumption were implemented, such as using energy and water-efficient equipment and appliances, procedures for switching off gadgets as well as the energy and water supply at the end of each day are put in place and monthly monitoring of energy and water consumption. The generation of waste products during the different site production activities was reduced through adequate planning and management. The wastes were potentially valorized as raw material or energy sources for the building when in operation. Waste bins were located in strategic work areas to promote cleanliness within the jobsite. The practice is yet maintained even as the building is in its purposive use.

B. Emissions Reduction

Particle emissions during the construction site activities, leading to high risks from air pollution on the occupational health of site workers and the neighbourhood were controlled by what the company refers to as environmental best practices and technological innovations. Best practices aimed at controlling particle emissions and minimizing their health risks encompassed using water during earthworks, irrigation of soils, wetting grounds and objects while sweeping and before cutting with a saw respectively to avoid dust.

Besides, wastewater produced during site activities that can cause groundwater contamination and natural watercourse pollution was given proper wastewater management plans that control infiltration and surface run-off. Surface runoff and rainwater collections were controlled with adequate drainage systems implanted through the provision of effluent treatment systems before directing it to the public network, thus avoiding soil and water pollution and minimizing risks of contamination on the construction site and the host community.

C. Interface with External Environment

The interface with the external environment is another important area of consideration and it involved urban and environmental quality, noise pollution and visual pollution mitigations. The distress of site traffic and machinery arising directly or indirectly from the production activities usually causes visual irritation and noise pollution.

Most materials and goods that necessitate heavy-duty vehicles were transported at night. Strategic positions were defined for noisy equipment and thereby reducing the impacts on the neighbourhood. Noisy works were banned at weekends and before early morning (7 am), and after late evening (7pm) on weekdays. Noisy activities such as cutting, grinding, welding, and other metal works were either fabricated off-site or zoned to the remote part of the site. Sound levels were monitored during concreting as well as ensuring that equipment was in good condition, favouring equipment with lower noise and vibration emissions. Soundproof equipment was used mainly where possible, especially the generator.

VIII. CONCLUSION AND POLICY IMPLICATION

The study has justified the fact that architecture is the umbrella that covers a wide range of concepts, purposes, groups, careers, and activities since all human endeavour apparently need architecture to thrive, exist and sustain. Democracy subsists under the influence of architecture having provided it places of operations among which are the legislative buildings. Nigeria National Assembly Complex harbours the honourable members for legislative duties, evidence of links and compromise between architecture and democracy. The Complex, design and construction is a hybrid of historical and modern architecture; it follows the neoclassical trend of architecture. Thus, there is always the need to learn from the past and transform it for present use. The building comprises some notable elements of neoclassical style that include grandeur of scale, simplicity of geometric form, minimum decorations of walls, domed roof, and tall columns among others.

The National Assembly Complex was not expected to create a problem for the host environment during construction and use, therefore the Complex was designed to mitigate environmental problems by incorporating technologies and sustainable solutions throughout the design, construction, and handing-over and use phases. Sustainable building solutions that include solar panels, elevated floors, building management systems with real-time energy monitoring, bioclimatic facades, natural light optimization, light-emitting diodes (LEDs) activated by light sensors, green roofs, central air conditioning system, control of indoor air quality, water and energy economizing gadgets, and rainwater harvesting, and grey water reuse were proposed and some implemented.

Other design and construction firms should likewise work on environmental impacts of resource consumption on-site, emissions, and environmental degradation. By adopting good practices, many of the environmental aspects and their associated impacts can be well managed and urban centres will be good for it.

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