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Effects of Covid-19 Lockdown on Building Approval and Contraventions in Minna, Niger State, Nigeria

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Abstract
The COVID-19 pandemic has caused significant loss of lives and disruption of livelihoods worldwide, leading to high infectious and death rates. The building industry has also been affected, with regulatory agencies' operations dwindling, potentially causing developers to non-adherence to building standards. This could lead to the addition of low-quality housing units to the existing poor and deteriorating housing stock. A study in Minna, Niger State, Nigeria, analyzed the differences in development permit applications, building permits granted, and observed contraventions during the six months before and after the lockdown. The results showed lower incidences of building applications, permits granted, and observed contraventions in the post-lockdown period. However, there was a significant difference in the number of building applications received, while no significant differences were observed in the numbers of building permits granted or contraventions observed. The study recommends the development of an internet-based building application and approval system to sustain regulatory agency operations and impose sanctions on developments without permits and/or contraventions.

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Introduction

COVID-19 disease was a global pandemic that has, since its emergence, affected all facets of human endeavours (Ghebreyesus, 2020), with the world's poorest being the most vulnerable (United Nations Department of Economic and Social Affairs - UN-DESA, 2020). A new strain of the coronavirus caused the disease, and everyone risks getting infected when their mouth, nose and eyes are exposed to respiratory droplets or aerosols from an infected person (World Health Organization, 2020). According to Starkman (2020), another way of contracting the virus is by coming (within six feet) of an infected person without wearing protective equipment. There are also transmissions by airborne because the virus can live in the air for up to 3 hours and surface transmission by touching infected surfaces, as the virus can live up to 3 days on surfaces and also by facial-oral through exposure to traces of an infected person's faces. As a result, the disease has a high transmission and death rate (Roy & Ghosh, 2020).

In order to halt the spread of the pandemic, some stringent measures were introduced by most countries of the world. One of the most practised is the lockdown mechanism by compulsory confinements, curfews and quarantines, and over 90 countries and territories, housing more than half of the global population had adopted this method as of April 2020 (Alasdair, 2020). The lockdown aimed to drastically reduce non-essential physical contact among individuals and possibly break the disease's transmission chain. The lockdown order was an unprecedented measure implemented only in Italy, Spain and Austria, following the example of China (Di Domenico et al., 2020). This measure, which had been effective in past disease epidemics (Chen et al., 2020), included banning mass gatherings, restricting movements, closing offices, schools, and public places, and isolating. These strategies helped immensely in checkmating the

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pandemic in China (the epicentre of the disease) and in other countries across the globe (Cyranoski, 2020 & Thu et al., 2020).

Nigeria also imposed the lockdown order, and as a result, all segments of its economy were affected negatively, and this manifested in the form of rising inflation rates (Ozili, 2020). This was also expected to affect the property market, which was already grappling with the problems of poor and deteriorating housing stock and the lack of compliance with building regulations. This scenario exists despite the Nigerian Urban and Regional Planning Act LFN2004 provision, which mandates developers to seek approval from an appropriate statutory agency before embarking on any development (Amadi & Ndi, 2016). Given this, Ojoye (2018) reported that the General Manager of the Lagos State Building Control Agency asserted that 90% of the buildings in Lagos State (the commercial nerve of Nigeria) have no building permits. This assertion corroborated the outcome of studies such as Fagbenle and Oluwunmi (2010), Dabara (2016), Atoyebi et al. (2018), Okagbue et al. (2018) and Muhammad et al. (2018), which indicated that lack of permits and by extension, non-adherence to building regulations, are among the significant challenges affecting the building industry in Nigeria.

A building permit is an official document conveying approval by the regulatory agency to a prospective developer to proceed with property development, usually after satisfying all the requirements. Building regulations, on the other hand, are statutory documents or instruments that set design and construction standards to ensure the safety, health and convenience of the occupants of a building. The essence of building regulations, according to the Inter-Jurisdiction Regulatory Collaboration Committee (IRCC, 2010), as cited in Osuizugbo (2019), is to ensure compliance throughout the building cycle with minimum requirements in order to achieve affordability, sustainability, accessibility and resource efficiency. Building regulations ensure that developments comply with planning standards and building codes by satisfying minimum standards of the building line, height, size, setback, room size, and ventilation, among others (Nwanekezie & Nwanguma, 2020).

Just like most urban centres in Nigeria, Minna is groaning under the weight of a lack of adherence to building standards and regulations partly due to the Niger State Urban Development Board (NSUDB) 's ineffectiveness in discharging its duties. Hence, Usman (2013) asserted that as of the end of 2012, 64.9% of houses in the informal neighbourhoods of Minna were developed without the required building permits/approval. Adeleye (2015), cited in Adeleye et al. (2018), similarly opined that there is a general laxity by the NSUDB in granting development approvals, as only 932 (35%) of the 2,656 applications it received right from its establishment had been approved as at 2015. Aside from the apparent bureaucratic bottlenecks in the operations of the NSUDB, Usman et al. (2017) alluded to the inability or unwillingness of some prospective developers to pay up the required fees as one of the reasons for the low levels of building permit applications and issuance in Niger State. The hindrances of finance to obtaining development approval in Nigeria were also amplified by Lamond et al. (2015) and Nwanekezie and Nwanguma (2020).

The outbreak of the coronavirus pandemic, which has decimated most sectors of the economy, would affect the development permit application and issuance process in Minna. This is because as many countries (Nigeria inclusive) slide into recession due to the imposition of lockdown (Abu Bakar & Sofian, 2020), some prospective developers shy away from fulfilling the mandate of the building permit application, hinging their excuse on the paucity of funds and other factors. Owing to the preceding, this study examined the number of development permit applications issued and the number of development permit applications received, building permits granted, and contraventions issued by the NSUDB during the pre and post-lockdown periods to determine the effect of COVID-19 pandemic on the building development process in Minna, Niger State.

The Study Area

Minna, the study area, is the capital city of Niger State. It lies within latitude 9° 25^{1} 00^{11} and 9°$40^{1}00^{11}$ North of the equator and longitude 6°24'20" and 6°36'40" East of the Meridian (Opaluwa et al., 2015). The study area was, until the collapse of the railways in the 1980s, the link between the Northern and Southern parts of Nigeria through the rail system. This role played by the rail system contributed

significantly to the growth and development of Minna. Thus, MaxLock Group (1980), cited in Usman (2013), stated that the first of the four transitional stages of the development of the modern-day Minna took place in 1905 when the construction work of a rail line reached the area. The second phase, on the other hand, was in 1908, when an *Alkali* (Judge) was provided for the camps, while the third metamorphosis was in 1910 when the *Gbagyi* inhabitants decided to move from the hilltop to settle down in the area of present *Paida*. The fourth phase was in February 1976, when Minna was made the capital of the newly created Niger State from the defunct North Western State.

Since then, Minna has expanded in leaps and bounds, necessitating its sub-division into four zones/quadrants by the NSUDB (for ease of administration and monitoring). The zones presented in Figure 1 are Maitumbi, Tunga, Bosso and Kpakungu. These zones were subdivided based on the major road network in Minna and to the northeast is the Bosso zone, to the west is the Kpakungu zone, while the Tunga and Maitumbi zones are to the south and east, respectively. Therefore, the data for this study were collected and presented based on these zones.

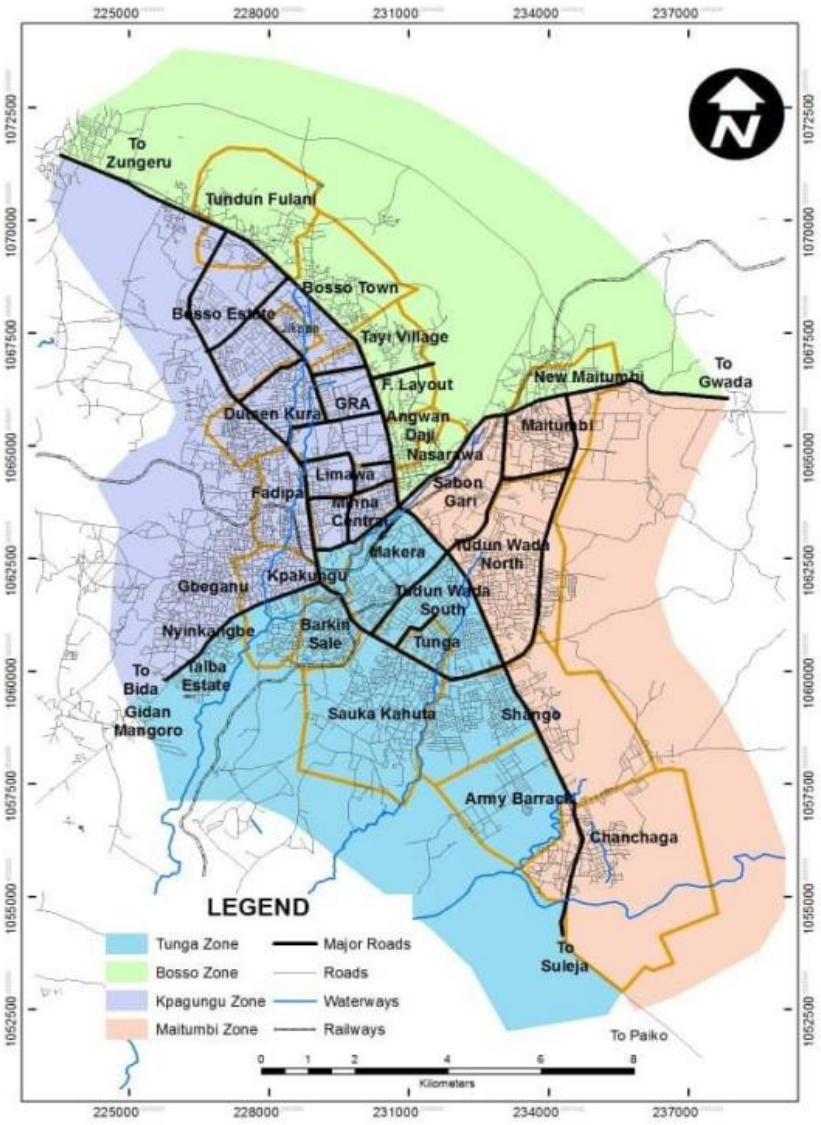

Figure 1: Neighborhoods in Minna
Source: Niger State Ministry of Land and Housing, modified using Google Earth Imagery and ArcGIS10.

Methodology

This research utilised data from both the primary and secondary sources. While the data collected from secondary sources were used to establish the background of the study, the data collected from primary sources formed the basis of research analysis. The literature used in the introductory part was obtained from relevant dissertations, journals and conference proceedings, while the data used in the analysis was sourced from the Registry Unit of the NSUDB. The data obtained from the NSUDB respectively centred on the pre and post-COVID-19 lockdown numbers of building applications received, building permits issued, and contraventions observed.

The time frame for this study was 12 months, which consisted of the six months before the imposition of the lockdown order on Minna and six months after the suspension of the lockdown order. For clarity, the six months preceding the lockdown order are between 23 September 2019 and 23 March 2020, while the six months after the suspension of the lockdown cover from 20 April 2020 to 20 October 2020. Both descriptive and inferential statistics were used in analysing the data. Descriptive statistics was used to analyse the data obtained on the activities of NSUDB. Inferential statistics was used to establish the statistical relationship between the pre- and post-lockdown numbers of building applications, approvals, and contraventions.

The t-test analysis was employed in testing the hypotheses of the study. This is because it is used to statistically determine any significant differences between the means of the two groups. These groups may, however, be related. The first hypothesis tested was to determine whether or not any statistically significant difference existed in the number of applications received by the NSUDB in the six months preceding the imposition of the lockdown and in the six months after the suspension of the total lockdown on Minna. The t-test was also used to statistically determine the significant difference in the number of permits issued and contraventions observed by the NSUDB during the two periods of the study. Both the descriptive and inferential statistics were executed using the Microsoft Excel environment, and the outcomes were presented in charts and tables. These tools were used to summarise and describe the results of the analysis.

Results and Discussion

Analysis of the variations in the number of building applications received by the NSUDB (building applications are the paperwork submitted by would-be developers to have the proposed developments approved by the statutory agency) was conducted. Data on the number of building applications received by the NSUDB before the imposition and after the suspension of the COVID-19-induced lockdown is shown in Table 1. As revealed in the Figure, the Tunga zone recorded the highest number of pre-lockdown applications for building permits (57); it was then followed by the Bosso and Kpakungu zones, with 40 and 36 applications, respectively. Data on the post-lockdown applications, also shown in Figure 2, indicated that the NSUDB received the highest numbers of applications from the Tunga (46) and Kpakungu (22) zones, respectively. A critical look at the results also showed that the number of pre-lockdown applications received was more than those of the post-lockdown period. The low numbers of post-lockdown building applications in Minna could be explained by the high inflation rate occasioned by the pandemic and possibly due to the government's sustained campaign of encouraging people to stay at home.

Table 1: Frequency and percentage of applications received by the Board

Neighbourhoods	Pre-lockdown		Post lockdown	
	Frequency	Percentage	Frequency	Percentage
Maitumbi	19	12.50	11	11.00
Tunga	57	37.50	46	46.00
Bosso	40	26.32	21	21.00
Kpakungu	36	23.68	22	22.00
Total	**152**	**100.00**	**100**	**100.00**

Source: Authors Field Survey, 2022

Analysis of the variations in the number of building permits granted by the NSUDB was also carried out. The data obtained on this variable in the four quadrants of Minna is presented in Table 2. As shown in the Table, Tunga (39) and Kpakungu (19) zones respectively recorded the highest numbers of post-lockdown building permits granted, while Tunga and Bosso zones recorded 55and 30 cases of pre-lockdown period building permissions, respectively. This thus made them the zones with the highest numbers of pre-lockdown approvals. The relatively low number of building permits granted when compared with the number of applications received could likely be explained by the cumbersomeness of the application process, the inefficiency of the staff of the NSUDB, or delays in effecting the identified corrections in the application (by the would-be developers). A critical look at Tables 1 and 2 also showed that the number of permits granted is proportionally related to the number of applications received.

Table 2: Frequency and percentage of permits granted by the Board

Neighbourhoods	Pre-lockdown		Post lockdown	
	Frequency	Percentage	Frequency	Percentage
Maitumbi	10	8.34	7	8.75
Tunga	55	45.83	39	48.75
Bosso	30	25.00	15	18.75
Kpakungu	25	20.83	19	23.75
Total	**120**	**100.00**	**80**	**100.00**

Source: Authors' Field Survey, 2022

Analysis of the number of contraventions observed (contravention results from non-adherence to the approved plans) indicated some variations in the pre and post-lockdown periods. Data on this variable, as observed by officials of the NSUDB during the inspections, are presented in Table 3. As shown in the Figure, 20 contraventions were recorded during the pre-lockdown period in the Kpakungu zone, while the Tunga and Maitumbi zones recorded 10 and 9 incidences, respectively, within the same period. The table also shows that the highest incidences of contraventions during the post-lockdown period were recorded in Bosso and Kpakungu, with 45 and 28 cases, respectively. Notably, the permits for the developments that were observed to have contravened their approved plans were not necessarily granted in the periods under review. Thus, some of the developments were approved before the study period. However, the high rate of contraventions observed during the post-lockdown period could indicate that developers believed that since public offices were operating skeletal services, officials of NSUDB would most unlikely go out for site inspection and monitoring. Thus, it is an avenue to perpetuate some sharp practices and later seek 'forgiveness', as error-riddled developments are seldomly corrected when they are at advanced stages.

Table 3: Frequency and percentage of contraventions recorded

Neighbourhoods	Pre-lockdown		Post lockdown	
	Frequency	Percentage	Frequency	Percentage
Maitumbi	9	20.00	10	9.62
Tunga	10	22.22	21	20.19
Bosso	6	13.33	28	26,92
Kpakungu	20	44.45	45	43.27
Total	**45**	**100.0**	**104**	**100.0**

Source: Authors Field Survey,2022

Hypothesis testing

The t-test analysis was employed to test the hypotheses set for this study. The first hypothesis tested was to determine whether (H_0) or not (H_1) there is any statistically significant difference in the

number of applications received by the NSUDB in the six months preceding the imposition of the lockdown and in the six months after the suspension of the total lockdown in Minna. The outcome of the first hypothesis, whether or not any statistically significant difference exists in the number of applications received by the NSUDB in the six months preceding the imposition and the six months after the suspension of the lockdown, is presented in Table 4. In order to attain this, the pre and post-lockdown building application data in Figure 1 were used. As shown in Table 4, the recorded P-value is 0.011575, less than the significance level of 0.05. This implies that the H_0 is rejected, and the H_1 is accepted. This means a statistically significant difference exists between the number of applications received by the NSUDB in Minna's pre and post-COVID-19 induced lockdown period. The number of applications received after the lockdown has dropped significantly.

Table 4: t-Test: Paired Two Sample for Means (applications received)

	Variable 1	*Variable 2*
Mean	38	25
Variance	243.3333	220.6667
Observations	4	4
Pearson Correlation	0.953725	
Hypothesised Mean Difference	0	
Df	3	
tStat	5.543219	
P(T<=t)one-tail	0.005787	
t Critical one-tail	2.353363	
P(T<=t)two-tail	0.011575	
t Critical two-tail	3.182446	

Table 5 presents the outcome of the second hypothesis; the second hypothesis tested was to determine whether (H_0) or not (H_1) there is any statistically significant difference in the number of building permits granted by the NSUDB during the pre and post-COVID-19 induced lockdown on Minna the NSUDB in the six months preceding the imposition of the lockdown and in the six months after the suspension of the total lockdown on Minna. The t-test analysis was employed in testing the hypothesis, using the data shown in Table 1.

Table 5: t-Test: Paired Two Sample for Means (Building permits granted by the Boards to Developers

	Variable 1	*Variable 2*
Mean	30	20
Variance	350	185.3333
Observations	4	4
Pearson Correlation	0.9685	
Hypothesised Mean Difference	0	
Df	3	
TStat	3.086067	
P(T<=t)one-tail	0.02694	
t Critical one-tail	2.353363	
P(T<=t)two-tail	0.053879	
t Critical two-tail	3.182446	

As indicated in Table 5, the recorded P-value of 0.053879 is greater than the study's significance level (0.05). The implication is that the H_0 is accepted, and the risk of rejecting it while it is true is 53.88%. In other words, the outcome indicated no statistically significant difference in the number of building permits granted by the NSUDB during the pre and post-COVID-19 induced lockdown in Minna.

The third hypothesis states that whether (H_0) or not (H_1), there is any statistically significant difference in the number of contraventions observed by the NSUDB during the pre and post-COVID-19 induced lockdown on Minna, and the result is presented in Table 6. The data loaded in testing the hypothesis, using the t-test analysis, were obtained from Table 3. As indicated in Table 6, this outcome recorded a P-value of 0.074404. This, in effect, means that the H_0 is accepted since the p-value is greater than the significance level of 0.05. This also showed no statistically significant difference in the number of contraventions observed by the NSUDB during the pre and post-COVID-19 induced lockdown on Minna.

Table 6: t-Test: Paired Two Sample for Means (contraventions of building permits observed by the Boards)

	Variable 1	***Variable 2***
Mean	11.25	26
Variance	36.91667	215.3333
Observations	4	4
Pearson Correlation	0.740248	
Hypothesised Mean Difference	0	
Df	3	
tStat	-2.69017	
P(T<=t)one-tail	0.037202	
t Critical one-tail	2.353363	
P(T<=t)two-tail	0.074404	
t Critical two-tail	3.182446	

Analyses reveal that before the lockdown period, the level of application received by the Boards is higher when compared with during the lockdown periods, and it is evident that the number of permits granted by the Boards before lockdown is far more than the number approved during the lockdown periods. Consequently, it is a fact from the findings that the level of contraventions is very high during the COVID-19 lockdown period compared to before the lockdown period. This could be attributed to poor monitoring and inspection by the concerned public agency, that is Niger State Urban Development Board (NSUDB), as a result of the Covid-19 lockdown, which in turn hampered the activities of the Board and low level of awareness of some of these regulations and standards by the residents. In general, it was observed that most developers took advantage of the lockdown periods to embark on their construction activities without getting the necessary approval.

Conclusion and Recommendations

The outcome of this study has shown that the outbreak of COVID-19 has relatively affected the building industry in Minna. Hence, the number of building applications received and permits granted by the NSUDB in the six months preceding the coronavirus-induced lockdown was more than those of the post-lockdown period. This trend was similarly observed in contraventions in the study area. The study also revealed a statistically significant difference in the number of building applications received by the NSUDB during the pre and post-lockdown periods. The study, however, showed no statistically significant difference in the numbers of building permits granted and contraventions observed within the pre and post-

lockdown periods. It is discernible from the preceding that the post-lockdown operations of the NSUDB in terms of granting building permits and observing contraventions were seamless, as there were no statistically significant differences in their incidences within the periods under study. However, the observed increase in the cases of development contraventions indicates a low level of development control enforcement in the lockdown period, which has affected the process and quality of building development in Minna. In order to address the physical development challenges of COVID-19 in the study area, it is recommended that prospective developers' building application process be made internet-based by the NSUDB. This will build resilience in its operations by eliminating in-person contacts. In addition, the NSUDB should embark on sustained advocacy on the need for strict adherence to approved building permits, while developers who contravene approved plans should be sanctioned accordingly.

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