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## An analysis of the trend in cost of building materials on property development in Owerri urban, Imo state, Nigeria

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### Abstract

Building materials cost is crucial to the success of real property development in several emerging economies. It affects the developed property size, completion period, quality and quantity of finishing to meet the needs and demand of the populace. This study assessed the trend in cost of building materials on property development in Owerri Urban, Imo State, Nigeria. The study adopted a cross-sectional survey design and questionnaires was the main tool for data collection, which was administered on respondents of three (3) local government areas that made up Owerri Urban: Owerri Municipal, Owerri West and Owerri North. The simple random sampling method was adopted in the selection of the sample size of 360 respondents representing 90% response rate. The data collected was analysed using the simple statistical tools presented on tables, frequency, percentages and chart. The findings showed that the factors responsible for the high cost of building materials includes; general state of inflation in the economy, increase in import duties, increase in taxes, unavailability of raw materials, transportation cost and pump price of petroleum products and lack or unavailability of raw materials for the production and processing of building materials. Further the study revealed that the trend cost of building materials over the period of ten years (10yrs) has an increment of 9.72% below 40% increase, 16.67% between 41-59% increase, 18.1% between 60-79% increase and 55.56% above 80% increase. Therefore, the study concluded that high cost of building materials increases the cost of property development indicating that they are direct correlation. The study recommended that government should reduce exchange rate of foreign currencies at par with naira and reduction in import tax as curb the high cost of building materials increasing yearly.

**Keywords:** Cost, trend, building materials, property development, Owerri urban

### 1. Introduction

The cost of building materials is critical to the success of real property development in any given economy; building materials contribute immensely to the quality and cost of property development; from what is used in foundation to the materials of roofing; there is always an array of price increase. An in human development, property development represents one of the basic occupations of man who felt the need to provide a place of dwellings for themselves. Even cement bags are of different prices, and the situation in Nigeria, which according to Njoku (2007) <sup>[21]</sup> is unarguably beyond the issue of costing as the prices of essential building materials have continued to go skyward. Adedeji (2010) <sup>[2]</sup> observed that about 60% of the total expenditure on property development goes for the purchase of building materials constitutes about 65% of the construction cost. Ogusemi (2010) <sup>[23]</sup> opine that building materials form the main factors restricting the supply of housing and they account for between 50% - 60% of the cost of buildings, building materials prices have changed from time to time. The cost of building materials poses a significant threat to the construction industry thereby affecting other property development processes. For instance, a bag of cement which was valued at N2,500.00 in 2011, now goes as high as N4,500.00 (depicting about 55.5% increment), which makes it difficult for people to build or owned their own properties. According to Akanni and Oke (2012) <sup>[5]</sup>, "high cost of building materials forms a crucial constraint to improving property conditions in the supporting, this view, Jinadu (2004) <sup>[16]</sup> affirmed that many property development projects were not completed in time due to the cost of building materials which have been on the increase perhaps nearby on daily basis. The unfortunate trend in the cost of building material over the period of ten (10) years in Owerri Urban. The supply situation is that demand has increase over the years, while local production has dimensioned.

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The challenges facing the economy is that, monetary and fiscal policies play major role in Nigerian economy and that the supporting structures are in disrepair perpetually (Akanni and Oke, 2012) <sup>[5]</sup>. In basic economics, this has shown that monopoly breeds scarcity, high price and low quality of product.

Akanni and Oke (2012) <sup>[5]</sup> observed that the present economic realities of the country, the downward trend of the value of the Naira and galloping inflation has made building material cost to escalate at a very high rate. It could be noted that today the exchange rate is about N530 to \$1 (US Dollar). The more an imported material than the ones that occur naturally occurring materials; have also been affected by the continual rise in oil prices which affect their transportation to the final consumers. Accordingly, Arayele (2005) posit that modern building construction industry lay much emphasis on sophisticated building materials and technique that are expensive and energy consuming. And this has been a major problem, which Oladipo (2009) <sup>[25]</sup> opine that building materials constitute a high proportion of cost in property development activities than other resources. This view was shared by Jagboro and Owoeye (2004) <sup>[14]</sup> who noted that increase in the prices of building materials has multiplier effects on property development, because it will lead to fluctuation in construction costs and the eventual abandonment of projects. The following can be some associated risks with the changes of trend in the cost of building materials: risk of property development abandonment, delay in progress of property development activities, increase in cost of property development, non-inception of other valuable property development and poor workmanship which can also result from low quality local materials used due to high cost of imported or unavailability of high quality materials. Nevertheless, there is a noticeable trend in cost of building materials, rising more steeply and sharply in the study area. The volatile building materials in the construction industry in Owerri Urban are steel, cement, sand timber, P.V.C and masonry blocks, which have increased. And study is necessitated by the fact that cost of building material plays a key role in real property development either positively or negatively. In spite of this, there are still abandoned projects, delay in project completion and conflict between client and project contractors (developers). It is in the light of the above, that the study focuses on trend in cost of building materials for the period of ten (10) years (2011-2020); as to identify the factors responsible for increase of trend in cost of building materials in Owerri Urban, Imo State, Nigeria. This will assist in the cost planning in property development projects, and as well aid developers in making critical quality decisions on property development.

## 2. Literature review

### 2.1 Influence of Building Material on Property Development

The term building material is referring to any materials which is used for construction purposes; e.g. cement, wood, concrete, bricks, zins, nails, sand and gravel (Faremi, Ajayi and Faremi, 2020) <sup>[10]</sup>. Many naturally occurring, substances such as clay, rocks, sand and wood, even twigs and leaves, have been used to construct buildings. Apart from naturally occurring materials, many man-made products are in use, some more and some less synthetic. These building materials are the main constituents or substances of which a

building or structure can be made (Nurul and Azree, 2014). Faremi, *et al.*, 2020) <sup>[22, 10]</sup> further stress that building materials are those materials which account for 50% to 80% of the total value of property development. Ugochukwu, Ogbuagu and Okechukwu (2014) <sup>[28]</sup> acknowledged building materials as one of the principal factors affecting the effective performance of the Nigerian construction industry. Building materials is defined as those material used to construct buildings (Langston, 2011) <sup>[18]</sup>. Building materials are those materials put together in erecting, developing or constructing structures (building); thus, on the field of engineering it is conceivable without their use (Akanni, 2006; Odosen and Akanni, 2010) <sup>[4, 27]</sup>. Building materials contributes immensely to the quality and cost of property development from foundation elements to the roofing carcasses and finishing (Odosen and Akanni, 2010) <sup>[27]</sup>. Property development is the carrying out of works involving a change in the physical structure of buildings or the intensity of use of an existing real property (Kuye, 2018) <sup>[17]</sup>. On the other hand, scholars in the building industries refer to property development as the land on which houses are built or being built. It is the process of building new houses, offices factories and warehouses etc. (Ajayi, 2007) <sup>[3]</sup>. Property development as a process entails changing or intensifying the use of land to produce buildings for occupation and investment (Wilkinson and Reed, 2008) <sup>[29]</sup>. It is not just the buying and selling of land for profit, but where land is seen as one of the raw materials used in the entire process (Ajayi, 2007) <sup>[3]</sup>. According to Kuye (2018) <sup>[17]</sup>, "other factors needed in the process of property development include building materials, infrastructure, labour, finance, and professional services. Property development is an exciting and sometimes frustrating, increasingly complex activity which involves the use of scarce resources. It is a high-risk activity which involves large sum of capital tied up in the production process, providing a product that relatively is indivisible and illiquid". The performance of an economy either at national and local levels both directly influence the process (Wilkinson and Reed, 2008) <sup>[29]</sup>. Property development is a specialized sector of the investment market where demand and supply relate to the price and performance of the asset (Fisher, 2009) <sup>[12]</sup>. According to Adams, Disberry, Hutchinson and Munjoma (2002) <sup>[11]</sup>, "where the supply side of the constructing market is influenced by labour and material cost, will in turn depend upon house prices and transport cost. As the land market is greatly impacted by the economic cycle where structural economic change during recession lending to an increased supply of obsolete property and brown field". This the case because property is a security against which banks can and other financial institution give loans to the terms of which relative risk depend on other lending opportunities.

### 2.2 Trend in Cost of Building Materials on Property Development

The rates at which the prices of building materials are increasing Mekson (2008) <sup>[16]</sup> "is as a result of the combined effect of high interest rate, massive devaluation of naira, inflation and defective distribution network of some of the materials severally or individually work against any hope of providing shelter for the generality of Nigerians. And as well, the possibility of being able to provide infrastructural facilities necessary for our industrial take off which could

have helped to elevate the country from the rank of a developing nation is unavailable". In order to avert these, as to enhance the current practice of self-sustenance, local capabilities improvements can be the best measures to be employed in tackling the overdependence on imported building materials.

Jagboro and Oweye (2004)<sup>[14]</sup> observed that increase in the prices of building materials has multiplier effects on the property development in the sense that, it will lead to fluctuation in construction costs and the eventual abandonment of property development projects. According to Jagboro and Atigogo (2000)<sup>[15]</sup>, some other associated risks involve with rapid increase in the cost of building materials are; non-completion of property development, projects or completion at the expense of other projects, delay in progress of project works, non-inception of other valuable projects and poor workmanship which can also result from low-quality local material used due to high cost of imported materials or unavailability of high quality materials. Ro buttress these facts; rapid increase in building materials costs endangers the market value of property development and ultimately causes a price gap between the existed and the newly developed properties (Kaye, 2018). As long as the construction industry continue to import building materials, the cost of building materials and property development in general will continue to be on the increase. That was why Lilly and Wai (2001)<sup>[19]</sup> noted that there is no substitute for government policy actions that would improve the capacity of local industries. And the chance of the local industry rising up to the task of filling the gap remain very slim as only four out of the seven oil companies in the country are still limping along at various level of capacity utilization (Akanni and Oke, 2012)<sup>[5]</sup>. This shows that the availability of building materials is represented by the price change of these materials over time in relation to the average cost of living.

According to Bisiriyu (2008)<sup>[7]</sup>, "the domestic demand for cement is put at 18 million metric tons annually, while the actual supply is 6.5 million metric tons of cement, having a shortfall of 11.5 million metric tons. And the differences of about 11.5 million tons of cement are those being imported annually. Always, this short fall has accounted for the galloping cost of cement every year, and over half of cement needed in Nigeria is imported (Akanni and Oke, 2012)<sup>[5]</sup>. The recent survey of Shyllon (2004), he identified that Nigeria is the largest importer of cement globally with about 70.5% dependence on importation. Also central Bank of Nigeria (2009)<sup>[8]</sup> concluded that the economy of Nigeria is highly dependent on imported consumption and production goods and virtually all major industrial raw materials for the production building materials are sourced for overseas, while the country depends wholly on foreign supply for intermediate and capital goods. The costs of building materials over the years as observed by Akanni and Oke (2012)<sup>[5]</sup> have exert an upward pull on the general level of total property development costs.

Oladipo (2009)<sup>[25]</sup> observed from a reviewed data that drastic rises in building materials prices between 1992 and 2002 outpace the general inflationary trends in the economy. According to Akanni and Oke (2012)<sup>[5]</sup>, "when naira attracts more dollars, it connotes appreciation of the local currency. This means that the foreigner will require more dollars to purchase Nigeria export, since demand for Nigeria

naira is the demand for the country's goods and services and vice versa. And also, the use of dubious major distributors, shopkeepers and unpatriotic middlemen hoarding building materials produced by the manufacturers can cause scarcity, which will induce high price of the commodity". Okupe (2000)<sup>[24]</sup> assert that problem associated with importation will include difficulties in maintenance, high foreign exchange component, high installation and running costs, which frustrate production and hike price of materials. In the same vein, Akanni and Oke (2012)<sup>[5]</sup> states that importation have stifled local initiative in the production and utilization of local materials and technologies. And further opine that as the value of the country's own currency increases, imports become relatively cheaper and one is imported. As import also increases, local currency is on the high demand. This assertion aligns with the law of demand and supply: when demand increases, it is an indication that price will fall and similarly, supply increase will go up with rise in cost. This was the notion of Jagboro and Atigogo (2000)<sup>[15]</sup> that the effect of inadequate supply created a persistent rise in prices of steel product due to importation from foreign markets as to meet local demand. Akanni and Oke (2012)<sup>[5]</sup> further illustrated that, the level of local production of cement needed in property development is highly below local demand.

### 3. Methodology of the study

The study adopted a cross-sectional survey design on Owerri Urban of Imo State. The objective of this study was achieve by the primary data collected on cost of selected types building materials on property development over a period of ten (10) years from 2011 to 2020 in Owerri Urban. A pragmatic research strategy was employed in this study adopting the mixed research method (quantitative and qualitative method) which allows the use of questionnaire, interview and personal observation to collect data. The population of the study consists of three (3) Local Governments Areas namely, Owerri Municipal, Owerri West and Owerri North Local Government Areas in Imo State. A sample size of 400 respondents was statistical determined from a population of 401, 873 (NPC, 2006); in the three (3) Local Government Areas. The primary data was collected with the aid of questionnaires administered to developers (land/property owners, engineers, property developers, building material dealers, estate surveyors and valuers, and contractors) in the study area. The simple random sampling method was adopted in the selection of the sample size of 360 respondents representing 90% response rate. The subset of the target population having equal chance selecting property developers (64%), property owners (17%), building material dealer (11%) and residents (8%). The data collected were analysed using the simple statistical tools and content analysis and, presented on tables, frequency and percentages, etc.

### 4. Results and Discussion

Data collected were presented and analysed below.

#### Cost of Property Development or Construction Cost

Table 1 shows the cost of property development or construction costs of the different residential properties over the period of ten (10) years from 2011 to 2020. Table 3 reveals that the percentage of increase, for example, the four bedrooms' duplex in the cost of construction was



approximately 40% in 2017 as compared to the 2010 being the cost of construction of same property description are on

increase within the same year periods.

**Table 1:** Cost of Property Development or Construction Cost

Some examples of property description	Residential property gross development cost trends for the periods in Naira (N'M)									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Two bedroom flat/ house	4.2	4.5	4.8	5.0	5.2	5.5	5.8	6.0	6.5	7.0
Three bedroom flat/ house	5.25	5.5	5.7	6.0	6.3	6.3	6.5	7.0	7.3	7.8
Four bedroom detached	7.8	9.0	9.3	9.5	10.0	10.0	10.2	10.35	10.60	11.00
Tenement house (6 rooms)	3.35	3.4	3.7	3.75	3.8	3.85	3.9	4.0	4.9	5.2

Source: Researcher’s Fieldwork, 2021.

**Trend in Cost of Building Materials for a Period of Ten Years 2011 to 2020**

Table 2 shows the trend in the cost of building materials for past ten (10) years from 2011 to 2020. The table showed that the cost of cement (50kg) in 2011 sold for N1,600 has rose to N2,500 in 2020, an increment of about 91.4% of the initial price, whereas sharp sand (tons) which was sold for N9,850 in 2011 has rose to N16,000 in 2020. Table 2 shows that 12mm and 16mm steel rod which was sold for N1,600

and N2,350 respectively in 2011 rose to N2,300 and N3,300 respectively in 2020. Same for 150mm and 225mm Sand-Crete blocks which increased from N95 and N120 in 2011 to N115 and N150 in 2020. Furthermore, the Table reveals that for these periods, the cost of building material, for example, 3/4 gravel/7 tons’ tipper was over 60% increase in 2020 compared to the cost of the same building material in 2011.

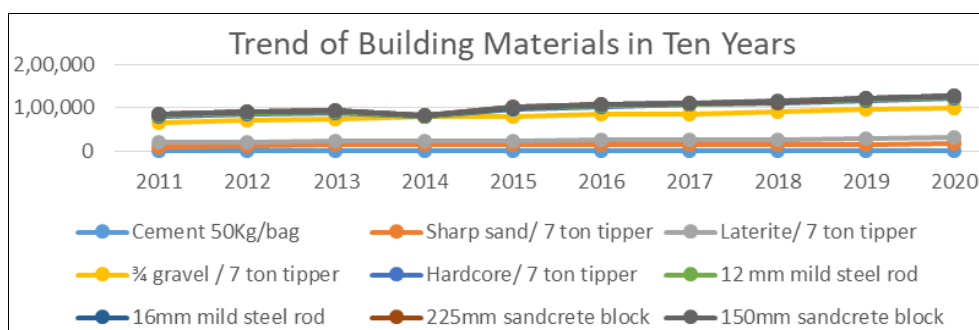
**Table 2:** Trend in Cost of Building Material for Period of Ten Years (2011-2020)

Some examples of Building materials	Building Material Cost Trend in Naira (N) per year for the period of ten years. Years									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cement 50Kg/bag	1,600	1,600	1,750	1,800	1,800	1,850	1,850	1,700	2,400	3,600
Sharp sand/ 7 ton tipper	9,850	12,000	13,000	13,000	13,000	14,000	14,000	13,000	14,500	12,631
Laterite/ 7 ton tipper	9,500	9,000	9,000	10,000	10,000	10,000	11,000	11,000	12,000	10,950
¾ gravel / 7 ton tipper	45,000	48,000	50,000	55,000	55,000	60,000	60,000	65,000	67,000	52,545
Hardcore/ 7 ton tipper	14,500	15,500	15,500	16,000	17,000	18,000	20,000	20,000	22,000	16,181
12 mm mild steel rod	1,600	1,550	1,700	1,750	1,800	1,800	1,800	1,800	2,000	2,000
16mm mild steel rod	2,350	2,400	2,400	2,550	2,600	2,600	2,500	2,500	2900	2,900
225mm sandcrete block	120	120	130	130	130	140	140	140	145	190
150mm sandcrete block	95	95	100	100	100	110	110	110	115	120

Source: Researcher’s Fieldwork, 2021.

Figure 1 reveals a definite increase the cost of the identified building materials over ten (10) years’ periods. It emerged that the building materials all increased constantly and consistently in year-on-year escalation up till 2020. After

2011, a distinct trend that can be seen is the volatility in the cost of cement, timber, reinforced steel, sharp sand, laterite, masonry blocks, etc.



**Fig 1:** Trend in Cost of Building Materials in Ten Years (2011-2020)

**Trend in Cost of Building Materials for a Period of Ten Years 2011 to 2020**

The study revealed that for the ten years’ period from 2011 to 2020, the cost of building materials was constantly, steadily and irreversibly increasing. The study maintained that the percentage of increment on the cost of building materials over the period of ten years (10yrs) in the study area shows that there is 9.72% below 40% increase, 16.67% between 41-59% increase, 18.1% between 60-79% increase and 55.56% above 80% increase. This occurrence at a long

run will negatively affect real estate investment and development decision making. It revealed that for these periods, the cost of building material, for example, 3/4 gravel/7 tonnes tipper was over 60% increase in 2020 compared to the cost of the same building material in 2011. The findings also reveal that the percentage of increase, for example, the four bedrooms’ duplex in the cost of construction was approximately 40% in 2017 compared to the 2010 cost of construction of same property description. Also, as the study illustrated, as the cost of the building

materials increases, the cost of property development increases, which can indicate that they are directly correlated. Therefore, if the building material cost increase, is directly associated to the increasing cost of property development as revealed in this study. Government unchecking this trend in cost of building material will inevitably cause an increase in rent payable by tenants willing to rent and/or own their property.

### 5.0 Conclusion and Recommendations

The study assessed the trend in cost of building materials on property development over the period of ten (10) years in Owerri Urban, Imo State, Nigeria. And property development is an essential need of man in society; either for occupation, investment, prestige, etc., as the cost of building materials is rising daily in the country. The study found that the factors responsible for the high cost of building materials includes; general state of inflation in the economy, increase in import duties, increase in taxes, unavailability of raw materials, transportation cost and pump price of petroleum products and lack or unavailability of raw materials for the production and processing of building materials. Further the established that the trend in cost of building materials is constantly, steadily and irreversibly increasing over the period of ten (10) years from 2011 to 2020. It can be gathered from the foregoing that there has been definite increase in the cost of building materials over the past ten years in Owerri Urban, Imo State, Nigeria; materials such as cement, timber, reinforced steel, sharp sand, laterite, masonry blocks, etc. The study maintained that current levels of price indices of the identified building materials has the percentage of increment by at least 9.72% below 40% increase, 16.67% between 41-59% increase, 18.1% between 60-79% increase and 55.56% above 80% increase within the last period of ten (10) years. This occurrence at a long run would have negative effects on real estate investment and development decision making. It revealed that for these periods, the cost of building material was over 60% increase in 2020 compared to the cost of the same building material in 2011. The implication of this result is that constant and sharp increase in trend of the cost of building materials, at the long run affects: an increase in the cost occupation, investment and development of real property by willing tenant, investors and developers. And also, contract sum initially quoted for construction projects, projects execution timeframe, increase in labour cost of real property development. The study recommended that government should make policies that will encourage the use of locally manufactured building materials and also encourage partnership among the property development stakeholders, and as well with foreign investors in the construction industry.

### References

- Adams D, Disberry A, Hutchinson N, Munjoma T. The Impact of Land Management and Development Strategies on Urban Redevelopment Prospects. In: Guy, S. and Henneberry, J. (eds.) *Development and Developers: Perspectives on Property*. Blackwell Science: Oxford 2002, 135-157.
- Adedeji Y. Technology and Standardized Composite Cement Fibres for Housing in Nigeria. *Journal of the Nigerian Institute of Architecture* 2010;1:19-24.
- Ajayi AA. *Project Planning and Control Techniques* 2007.
- Akanni PO. Small Scale Building Material Production in the Context of the Informal Economy. *The professional Builders* 2006, 13-18.
- Akanni PO, Oke AE. An Assessment of Trend in the Cost of Building Materials in Nigeria. *Environmental Research Digest* 2012;8(2):103-116.
- Arayele O. Laterite bricks: Before, Now and Hereafter. *Inaugural Lecture Series 40, Delivered at Federal University of Technology, Akure* 2009, 5-15.
- Birisiyu SR. Rising Cost of Building Materials Threaten Construction Projects. *Punch* 2008, 29.
- Central Bank of Nigeria. *The Dynamics of Exchange Rate in Nigeria*. Bullion Publication of the CBN 2009;30(3):26-27.
- Dappa OR. *The Impact of Cost of Building Materials on Property Development in Port Harcourt*, Unpublished project, Department of Estate Management, Faculty of Environmental Sciences, Rivers State University of Science and Technology, Nigeria 2010.
- Faremi OJ, Ajayi OO, Faremi OE. Factors Influencing the Use of Substandard Materials in the Construction of Residential Buildings, *CSID Journal of Infrastructure Development* 2020;3(1):40-50.
- Federal Ministry of Lands, Housing and Urban Development (FMLHUD) *National Housing and Urban Development Policies Draft 2011*. [Online] <http://www.google.co.uk/url?sa=t&rc=t=j&q=&esrc=s&source=web&cd> (retrieved 10 November 2020).
- Fisher P. *The Property Development Process: case studies from Grainger Town* 2009. <https://www.semanticscholar.org/paper/The-Property-Development-Process-%3A-case-studies-%E2%80%98-%E2%80%99-Town/ed6c94d996d5eafa47ebb0f51203f35d52939555>
- Ihuah PW, Benebo AM. An assessment of the causes and effects of abandonment of development projects on real property values in Nigeria. *International Journal of Research in Applied, Natural and Social Sciences* 2014;2(5):25-36.
- Jagboro GO, Owwoeye CO. A Model for Predicting the Prices of Building Materials Using the Exchange Rate in Nigeria. *The Malaysian Surveyor* 2004;5(6):9-14.
- Jagboro GO, Atigogo ME. Linkages between Share Prices of Firms and Foreign Exchange. *The Nigerian Experience African; Journal of Business and Research* 2000;1(2):23-41.
- Jinadu AM. *Understanding the Basic of Housing, Minna, Nigeria: King James Publishers. Mekson, J* (2008). *Prices Changes of Building Materials in developing communities in Nigeria*. *Journal of the Nigerian Institute of Building, Lagos* 2004, 60-75.
- Kuye O. *Property Development Practice*. Lagos, Nigeria: Adro Dadar Heritage Company Limited 2018.
- Langston C. *Estimating the Useful Life of Buildings*. 36th Australasian University Building Educators Association (AUBEA) Conference 2011.
- Lilly MT, Wai JJ. A Prefabricated House Using Locally Produced Building Materials. *The Professional Builder; Journal of the Nigerian Institute of Building, Lagos* 2001, 48-58.

20. Manavazhi M, Adhikari DK. Material and Equipment Procurement Delays in Highway projects in Nepal. *International Journal of Project Management* 2002;20:627-632.
21. Njoku J. Grappling with Escalating cost of Construction Materials. *The Vanguard Newspaper* 2007, 36-37.
22. Nurul N, Azree M. General Building Defects: Causes, Symptoms and Remedial Work. *European Journal of Technology and Design* 2014;3(1):3-17. <https://doi.org/10.13187/ejtd.2014.3.4>
23. Ogusemi D. The Use of Enough Quality and Quantity Materials for Building a Durable Edifice. A Lecture Delivered at Campus Transformation Network, Federal University of Technology, Akure 2010.
24. Okupe L. The Role of Private Sector in Housing Delivery in Nigeria. A Seminar Paper of Effective Approach to Housing Delivery in Nigeria Organized by the Nigerian Institute of Building, Ibadan 2000.
25. Oladipo FO. The impact of Selected Macro Economic Indicators on Prices of Building Materials in Southwestern Nigeria. An Unpublished M. Tech. Thesis submitted to the Department of Quantity Surveying, Federal University of Technology, Akure 2009.
26. Shyllon Y. Building Materials Development and Manufacturing in a Deregulated Economy. Unpublished Seminar Paper Presented at Nigerian Institute of Building (NIOB), Lagos 2004.
27. Udosen JU, Akanni PO. A Factorial Analysis of Building Material Wastage Associated with Construction Projects. *Journal of Civil and Environmental Systems Engineering* 2010;11(2):81-90.
28. Ugochukwu Ogbuagu, Okechukwu C. An Appraisal of the Sources, Quantities and Prices of Imported Building Materials in Nigeria. *International Journal of Advanced Research* 2014;2(9):871-889.
29. Wilkinson SJ, Reed RG. *Property Development* 2008. <https://www.researchgate.net/publication/255787306>, August 2008 DOI: 10.4324/9780203933428.