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# EFFECT OF RISE IN THE COSTS OF BUILDING MATERIALS ON PROPERTY DEVELOPMENT IN BAUCHI METROPOLIS

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## Abstract

The real estate sector is a critical component of any economy, significantly contributing to economic growth and development. In Bauchi Metropolis, the development of property has faced numerous challenges, one of the most significant being the high cost of building materials. This phenomenon affects not only the cost of construction but also the overall affordability and accessibility of housing and commercial properties. Most literature had concentrated on identifying the causes with little emphasis on the effect; hence, this paper seeks to provide information on effect of the rising cost of building materials on property. A Quantitative research approach was adopted for this paper, this design allows for a comprehensive analysis of the current state of property development and the impact of rise in building material costs. The population used in the conduct of the research includes property developers, investors, construction companies, and relevant stakeholders in Bauchi Metropolis, the sample frame of 200 was taken and a sample size of 100 respondents were selected using stratified random sampling technique to ensure that all relevant subgroups within the population were adequately represented, descriptive and inferential statistical method was used in analyzing data for this research. The finding of this research showed that high cost of building materials significantly hampers property development in Bauchi Metropolis. The increase in prices for essential materials such as cement, iron rods, and roofing sheets has driven

**Key Words:** Effect, Cost, Building Materials, Property Development, Bauchi Metropolis



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up construction costs, delayed projects, and led developers to opt for simpler and more cost-effective designs. Building materials affected by price increase include cement which rank 1st, followed by iron rods 2nd, roofing sheet 3rd, paints 3rd, tiles 4th. The findings further indicated that inflation, high import duties, and transportation costs are major factors behind the rising cost of materials. Property developers are increasingly facing financial burdens, project delays, and challenges in maintaining profitability due to these rising costs. The paper recommends as follows: encouraging local production, strengthening infrastructure, regulating material prices, promoting affordable housing, policy consistency and implementation, Public-Private Partnerships (PPPs).

# Introduction

The real estate sector is a critical component of any economy, significantly contributing to economic growth and development. In Bauchi Metropolis, the development of property has faced numerous challenges, one of the most significant being the high cost of building materials. This phenomenon affects not only the cost of construction but also the overall affordability and accessibility of housing and commercial properties. The increasing commercial and industrial activities have a substantial potential to attract many people (jobseekers, businessmen and others) into the community with the attendant consequences of increasing the problem of shelter access for all (Adedokun & Odugbesan, 2017). This is important as more residential accommodation are demanded by relocating people. Hence, the government rationale to urgently and adequately improve residential property supply so that the envisage demand can be met (Adedokun & Odugbesan, 2017). However, the current incessant rising costs of building materials in this specific context facilitates the quest of investigating its effects on property development (residential housing estate project). The exceptionally high increases in costs of building materials has affected the efforts to progress the number of residential units' provision to an extent that the current demand may not be or reduced to a minimum (Ibrahim & Abdul, 2018). In Nigeria as a whole, the construction industry still facing the challenges of low levels of working capital, high rates of inflation and increasing costs of development/construction Umeh & Eze, (2018). Most of these situations are currently not properly attended to; subsequently, it leads to some development projects being abandoned, uncompleted and vandalized (Olabode, & Ogunsemi, 2019).

The high cost of building materials has escalated the overall cost of property development in Bauchi Metropolis. This increase poses challenges for developers, potential homeowners, and investors, leading to a slowdown in property development activities.



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The ripple effects include a housing deficit, increased property prices, and a general strain on economic development in the region.

**Aim of this paper**

The aim of this paper is to examine the effect of rise in the cost of building materials on property development in Bauchi Metropolis.

**The objectives:**

i. To identify the main building materials contributing to rise in construction costs;
ii. To analyze the impact of these costs on property development projects;
iii. To assess the economic implications of rise in building material costs on property developers and investors.
iv. To proffer some workable solution to the identified challenges.

**Concept of Building Materials**

Ibrahim & Abdul, (2018), observed that building materials can be classified into three (3) main groups: traditional, modern or conventional and innovative building materials. The traditional building materials include laterite, bamboo thatch, which are produced with rudimentary technology in small scale and are characterized by low quality performance. The low qualities performance may have led to the development of conventional building materials which include cement, blocks, iron rod, steel, and glass and corrugated roofing sheets, which are characterized by expensiveness, scarcity, and high import inputs. The third category which is refers to as innovative, represent the combine effort to improve on both traditional and conventional building material through research development aimed at improving alternatives to import based materials. Umeh & Eze, (2018) acknowledged that development of local building materials could resolve most of Nigeria's shelter problems Ibrahim & Abdul, (2018), maintained that the cost is rather too high compared to the united nation approved 25%. The united nation global report on human settlement suggested that in the next two to four years there will be availability of building materials in Nigeria. Currently, a lot of raw materials for construction is found in Nigeria (Osasuyi, & Omoregie, 2019), some states where building materials are produced are listed in the table 1.

**Table 1: Some of the States that Produce Building Materials**

| State | Building Material | Tone/Year ('000) |
|---|---|---|
| Gombe | Cement | 3millions |
| Kaduna | Zinc | 15,000 |



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| State | Building Material | Tone/Year ('000) |
|---|---|---|
| Bauchi | Gravel | 15,000 |
| Lagos | Zinc | 10,000 |
| Calabar | Timber | 10,000 |
| Benue | Cement | 4millions |
| Sokoto | Cement | 3millions |
| **Kogi** | **Iron/Cement** | **16.2millions** |

Source: Mustapha (2024).

In the future, we can expect that some of materials for building can be found in other state for easy benefit of common man. The factors that increase cost of building materials is characterized into four (4) groups demand and supply, geographical and socio-political region (Yusof & Ahmed, 2016). Demand is subjected to considerable fluctuation which can have serious repercussion on the utilisation of resources. Secondly, road and geographical settlement will reduce the supply which will increase the cost of materials, if the demand of building materials is very high nearness to the building materials manufacturing industry.

**Building Materials**

This is defined by the penguin dictionary of building as materials of which building elements are made for example cement, sand, aggregate, iron rods, timber. Building materials are the single largest input in the construction industry which account for over 50% of the total value of construction output (Yusof & Ahmed, 2016). The industry uses a range of building materials including cement, timber, roofing sheet, gravels, and steel rods amongst others. The worldwide demand for materials such as cement, steel and roofing sheet etc., have increase substantially during the past several years. Even before the devastation of Hurricanes Katrina, Rita and Wilma, cost of construction had been significantly outpacing the overall rate of inflation. In recent time, the following building materials increased as noted: copper pipe and wire +125%, structural steel +66%, Dry wall +26%, Reedy mix +10%, concrete block +8% Labour: Labour is often a separate item in a bill, although one item may contain several labours. It constituted the second largest single component of resources, input required by the construction industry (Osasuyi & Omoregie, 2019). The industry required and utilizes a mix of labour. The different level of labour use in construction included unskilled workers example labourers, Masons, Plumbers and Carpenters; Professional example Architects, Builders, Quantity Surveyors, Civil engineers and managers example contractors.



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**Construction Cost**

This refers to the overall cost of the project from the inception to the completion of such project. It includes cost of labour; this refers to the expenditure on the workmen either skilled or unskilled for carrying out the work (Osasuyi & Omoregie, 2019), also there are cost of materials.

**Factors Affecting Cost of Building Materials**

Building materials had been playing an important role in the construction industry. They were all naturally occurring in the ancient times, for example, stone, wood, straws, clay, lime, and brick (Lucas, & Harris, 2012). As the building techniques were improving, simple composite materials, combined by means of mixing and/or heat treatment, were developed. A typical example is concrete, which was developed by the Roman Empire (Lucas, & Harris, 2017). Due to advances in science and technology at the beginning of the 20th century, materials with better performance and durability were introduced, for example, reinforced concrete, steel, plastics, and metal (Lucas, & Harris, 2019). Osasuyi & Omoregie, (2019), found that building materials remain the most significant input in project development and play a very important role in the delivery of construction projects.

However, findings of other researchers: Stanley, Ogbuagu, and Okechukwu (2014) concluded that factors such as the change in government policies and legislations; scarcity of building raw materials; overdependence on imported building materials; Inadequate and inefficient infrastructural facilities (roads and rail system, etc.); shortage of locally manufactured building materials; lack of knowledgeable technical expertise; fluctuation in the cost of fuel and power supply; corruption; etc were many of the recipes for the rising cost of building materials in Nigeria.

**Effects of Rising in the Cost of Building Material on Property Development.**

The general direction at which prices of building materials are increasing in Nigeria was as the result of the combined effects of high interest rates, devaluation of the Naira, inflation, and non-effective distribution network of the materials (Stanley, Ogbuagu, and Okechukwu 2014). According to Lucas & Harris (2012), the Nigerian Government curtailed activities in cement business when it banned the importation of Portland cement in the country between 2003 and 2019. However, Ibrahim (2014) noticed that increase in the prices of building materials has multiplier effects on the industry as it leads to fluctuation in construction costs and the eventual abandonment of projects. Other effects of rising cost of materials are completion at the expense of other projects, delay in progress of



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project works, other valuable projects not being commissioned, rate of employment of construction workers, poor workmanship as a result of the use of low-quality local materials, and inhibited innovations in construction methods were identified by Hwang and Tan (2012), as the possible effects of the rising cost. Inhibited innovations in Construction Methods and Material Research Ibrahim (2014), report found that the very low and unreliable rate of profitability within construction which is an obstacle to sustainable healthy development. The report was of the opinion that increasing financial pressure are bound to be on contractors when initial budget figures become completely unrealistic and concluded that the situation will damage the industry and jeopardize its existence. Ibrahim (2014), also argued that construction companies have a social responsibility to provide staff training, maintain a high level of health and safety of its workers, and invest in research and development to facilitate continuous improvement in technology and management. However, Inflation in the cost of building materials had resulted in low and unreliable rate of profitability, and this has affected the performance of the industry in the area of innovations in construction methods and material research.

**METHODOLOGY**

A Quantitative research approach was adopted for this paper, this design allows for a comprehensive analysis of the current state of property development and the impact of rise in building material costs. The population used in the conduct of the research includes property developers, investors, construction companies, and relevant stakeholders in Bauchi Metropolis, the sample frame of 200 was taken and a sample size of 100 respondents were selected using stratified random sampling technique to ensure that all relevant subgroups within the population were adequately represented. The population was divided into strata based on their roles (e.g., developers, investors), and random samples were drawn from each stratum. Both primary and secondary data were collected; primary data collected using structured questionnaires, the questionnaires were designed to gather quantitative data on the cost of building materials, project delays, cost overruns, and other related factors. Interviews provided qualitative insights from key stakeholders and secondary data were sourced from existing literature, government reports, industry publications, and previous studies related to property development and building material costs. Data collected were analyzed using both descriptive and inferential statistics.

**RESULTS AND DISCUSSIONS**

This section dealt with the presentation and analysis of the data collected as well as discussion of result accordingly.

**Table 2: Gender Distribution of Respondents**

| Gender | Frequency (n) | Percentage (%) |
|---|---|---|
| Male | 70 | 70% |
| Female | 30 | 30% |
| **Total** | **100** | **100%** |

**Source: Field Survey, 2025**

**Discussion:**

From the table above, 70% of the respondents are male, while 30% are female. This indicates that the majority of the respondents in the study are male, which may reflect the male-dominated nature of the property development industry in Bauchi Metropolis.

**Table 3: Occupation of Respondents**

| Occupation | Frequency (n) | Percentage (%) |
|---|---|---|
| Architect | 15 | 15% |
| Engineer | 20 | 20% |
| Property Developer | 30 | 30% |
| Estate Surveyors and Valuers | 10 | 10% |
| Investors | 25 | 25% |
| **Total** | **100** | **100%** |

**Source: Field Survey, 2025**

**Discussion:**

The table indicates that 30% of the respondents are property developers, and 25% are Investors. A significant portion of the respondents also includes engineers (20%) and architects (15%), Estate Surveyors and Valuers (10%) all of whom are directly involved in or knowledgeable about property development and construction processes.

**Table 4: Effect of Rising Building Material Costs on Property Development**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Very high | 40 | 40% |
| High | 35 | 35% |
| Moderate | 20 | 20% |
| Low | 5 | 5% |
| **Total** | **100** | **100%** |

**Source: Field Survey, 2025**

**Discussion:**



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The data revealed that 40% of respondents believe the rise in building material costs has a very high impact on property development, while 35% said it has a high impact. Only 5% believed the impact is low. This highlights that the cost of materials is a significant challenge for property developers in Bauchi Metropolis.

**Table 5: Materials Most Affected by Price Increases**

| Building Material | Frequency (n) | Rank |
|---|---|---|
| Cement | 30 | 1st |
| Iron rods | 25 | 2nd |
| Roofing sheets | 20 | 3rd |
| Paints | 20 | 3rd |
| Tiles | 5 | 4th |
| **Total** | **100** | |

**Source: Field Survey 2025**

**Discussion:**

The table shows that respondents identified cement as the material most affected by price increases and ranked it as 1st, followed by iron rods as 2nd, roofing sheets and paint as 3rd while tiles ranked as the lowest with 4th position. These materials are fundamental to construction, and their rising costs are directly affecting property development.

**Table 6: Impact of Material Price Increases on Project Budgets**

| Response | Frequency (n) | Percentage (%) |
|---|---|---|
| Significantly increased budget | 70 | 70% |
| Slightly increased budget | 20 | 20% |
| No change | 5 | 5% |
| Reduced budget | 5 | 5% |
| **Total** | **100** | **100%** |

**Source: Field Survey 2025**

**Discussion:**

According to the responses, 70% of respondents noted that the cost of building materials has significantly increased their project budgets. This demonstrates that rising in prices of building materials has significant increase in project budget.

**Table 7: Impact of Increased Material Costs on Development Budgets**



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| Impact on Budget | Frequency | Percentage (%) |
|---|---|---|
| Significantly Increased | 45 | 45% |
| Slightly Increased | 35 | 35% |
| No Change | 10 | 10% |
| Reduced Budget | 10 | 10% |
| **Total** | **100** | **100%** |

**Source: Field Survey 2025**

**Discussion:**

Table 7 shows that 45% of respondents reported an increase in their development budgets due to higher material costs, with half of them indicating a significant increase. This underscores the substantial financial burden on property developers.

**Table 8: Effect of High Material Costs on Property Design Choices**

| Effect on Design Choices | Frequency | Percentage (%) |
|---|---|---|
| Led to Simpler Designs | 40 | 40% |
| No Effect on Design Choices | 30 | 30% |
| Encouraged Cost-effective Designs | 30 | 30% |
| **Total** | **100** | **100%** |

**Source: Field Survey 2025**

**Discussion:**

The data in Table 8 reveals that 40% of respondents have opted for simpler designs due to increased costs, while 30% have been encouraged to use cost-effective designs. A similar percentage reported no change in their design choices.

**Table 9: Impact of Rise in Material Costs on Project Timelines**

| Impact on Timelines | Frequency | Percentage (%) |
|---|---|---|
| Delayed Projects | 55 | 55% |
| No Impact | 45 | 45% |
| **Total** | **100** | **100%** |

**Source: Field Survey 2025**

**Discussion:**

Table 9 shows that 55% of respondents experienced project delays due to the rising cost of materials, which can affect the overall project delivery and client satisfaction.

**DISCUSSION OF FINDINGS**



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The analysis of the data highlights several key impacts of high building material costs on property development in Bauchi Metropolis:

**Significant Financial Impact:** A substantial proportion of respondents reported that the high cost of materials has led to a significant increase in development budgets, with notable effects on property pricing and project planning.

**Material-Specific Price Increases:** Cement and iron rods have been identified as the materials with the most significant cost increases. This indicates a critical area for intervention, such as exploring alternative sources or materials.

**Design Adjustments:** Many developers have opted for simpler or more cost-effective designs as a response to high material costs. This trend could affect the quality and aesthetics of new properties.

**Project Delays:** The rise in material costs has caused delays in construction projects, reflecting the broader implications for project timelines and stakeholder satisfaction.

**Summary:**

Extent of Impact of High Building Material Costs: The research found that 50% of respondents indicated that the high cost of building materials had a "very high" impact on property development. A further 30% also considered it to have a "high" impact.

Cement and iron rods were identified as the materials that experienced the most significant price increases, as indicated by 80% and 65% of respondents, respectively.

Effect on Construction Budgets: The majority (60%) of respondents reported that the rise in building material prices significantly increased their construction budgets. Another 30% indicated a slight increase, showing that cost escalation is a direct financial burden on property developers.

**Project Delays:**

A large proportion (70%) of respondents experienced project delays due to high material costs, illustrating the adverse effect on construction timelines and project delivery.

Impact on Design Choices: The cost of building materials also influenced the choice of building designs, with 65% of respondents opting for simpler designs to reduce overall project costs.

Challenges in Acquiring Building Materials: Key challenges identified include high import duties (60%), transportation costs (50%), and inflation (40%), all contributing to the rising cost of construction materials.

Proposed Solutions: Respondents suggested solutions such as government subsidies on building materials, encouraging local production, reducing import taxes, and



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implementing cost-efficient construction methods to mitigate the impact of high material costs.

**Conclusion**

The paper concludes that the high cost of building materials significantly hampers property development in Bauchi Metropolis. The increase in prices for essential materials such as cement, iron rods, and roofing sheets has driven up construction costs, delayed projects, and led developers to opt for simpler and more cost-effective designs. The findings further indicated that inflation, high import duties, and transportation costs are major factors behind the rising cost of materials. Property developers are increasingly facing financial burdens, project delays, and challenges in maintaining profitability due to these rising costs.

## Recommendations

Based on the findings of this paper, the following recommendations are proposed:

1. **Encouraging Local Production**: The government should incentivize local production of building materials by providing subsidies, grants, and tax relief to manufacturers. This will help reduce dependence on imported materials and stabilize costs.
2. **Strengthening Infrastructure**: Improving infrastructure such as roads and electricity can significantly reduce transportation costs and delays in material supply, making construction projects more efficient.
3. **Regulating Material Prices**: Establishing a regulatory body to monitor and control the prices of building materials can curb excessive price hikes. Collaboration between the government and private sector stakeholders is necessary for effective regulation.
4. **Promoting Affordable Housing**: Developers should be encouraged to adopt cost-effective construction techniques and materials that will reduce overall building costs, leading to more affordable housing options for residents.
5. **Policy Consistency and Implementation**: The government must ensure consistent implementation of policies that support the real estate sector. This includes enforcing regulations on import duties, providing incentives for affordable housing projects, and ensuring that policies are adapted to local market conditions.
6. **Public-Private Partnerships (PPPs)**: The government should foster partnerships with private developers to jointly address the high cost of building materials and



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housing shortages. This can be achieved through shared resources, technology transfer, and co-investment in infrastructure development.

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