

## **Evaluating Construction Challenges of Private Housing Developers within Various Income Areas of Jos Metropolis**

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**Abstract:** *Housing is said to be a crucial/basic need for humans just as food and clothing. Housing Construction challenges have over the years led to limited housing development and supply. This work evaluates these challenges within various residential income areas of Jos metropolis and tries to proffer solutions via recommendations. The income areas include Rayfield, G.R.A and Gold & Base (High Income). Millionaires quarters, Lamingo and Rock Heaven (Middle income) while Jenta, Gada Biu, Rikkos, Hwolshe and Angwan Rogo represented the low income areas. A structured questionnaire containing housing construction challenges was designed for the study. 90 copies were distributed to staff of Jos Electricity distribution company (JEDC) (30 for high, 30 for middle and 30 for low income areas) and 90 retrieved. Data analysis tools used were percentage score method Standard deviation/mean score calculation. Results for standard deviation, mean score values and ranking of challenge factors are provided via tables for the various income areas. The findings are revealed and recommendations to curb these challenges are proffered.*

**Keywords:** *Housing, Construction, Challenges, Income Areas.*

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### **1. INTRODUCTION**

Housing (Shelter) is unarguably one of the basic necessities of man. It used to be ranked second after food in the hierarchy of man's needs but according to Ebie (2009) it is the first and most important of all rights. Ebie (2009) further expressed that because of the importance attached to provision of housing and coupled with the fact that housing in all its ramifications is more than mere shelter since it embraces all social services and utilities that go to make a community or neighbourhood a liveable environment, it is now a right. Affordability refers to people's ability to purchase essential (or basic) goods and services, such as adequate housing, healthy food, and medical care (Olotuah, 2009). This however is hindered by construction challenges in the process of housing development. This further implies that basic amenities and policies can be made available to regulate, control and effectively hasten housing development process (Peterside, 2005). Peterside (2005) further expressed that challenge of housing construction range from one income level to another. Enlightenment on these challenges will go a long way to determine investment decision making. In order for housing to be achieved at all levels, its process must overcome construction challenges (Peterside, 2005).

The term private housing development refers to the creation of housing for a person or group of people either through direct construction or by contract/ extended labour services. Affordable housing is a term used to describe housing units whose total housing costs are deemed "affordable" to a group of people within a specified income range. This in turn means that challenges would have been overcome during the process of construction. When a person's income level does not match the housing construction project about to be embarked on, numerous challenges are will definitely occur which may lead to project delay or abandonment (Kanu, 2012). In Nigeria, qualitative private housing has been and is still an illusion to lower and middle class Nigerians, as governments are not prepared to really provide affordable housing to citizens (Ajanlekoko, 2001).

#### **1.1. Aim And Objectives**

The aim of this study is to evaluate housing construction challenges faced by private developers in various residential income areas of Jos metropolis with a view to developing a tabular breakdown encompassing the challenges from data obtained. This will be guided with the following objectives;

1. To identify and rate the construction challenges faced by private housing developers as perceived by high income areas of Jos Metropolis.
2. To determine and rate the construction challenges faced by private housing developers as perceived by middle income areas of Jos Metropolis.
3. To identify and rate the construction challenges faced by private housing developers as perceived by low income areas of Jos Metropolis.
4. To study findings so as to make recommendations regarding some of the various ways to curb these challenges thereby enhancing private housing development in these income areas.

## **2. LITERATURE REVIEW**

### **2.1. Effective Housing Construction Management**

Effective housing project construction hasn't generally been rated as one of the most pressing challenge experienced by private housing developers. It is believed to be a source that has been highly neglected. Anthony et al (2014) mentioned that the use of an integrated software program which allows housing developers to make changes to data and view the changes is one way housing developers keep this challenge in check. The use of a friendly software system enabling private housing developers or their immediate contractors to view the same numbers and any changes to data as they happen or has happened is crucial. The idea is to view data in order to plan properly for probable challenges ahead. On the other hand, construction managers that can equally access data are able to respond to queries easily and with accurate information. The ability to stay organized has been and will always be an ongoing challenge (Hall, 2011). Housing developers must stay organized in order to keep jobs on course, but this can be difficult when they use multiple systems to track construction information. Some private developers have outsourced construction managers to stay competitive and maintain a flexible workforce. By outsourcing a construction manager, a private housing developer will not have to hire a full time employee and will still be able to manage a private housing construction effectively (Ogu, 2001).

### **2.2. Timely Housing Completion within Budget**

Timely Housing completion within Budget is a universal challenge for all private housing developers. It's is regarded as fairly high level of challenge deterring the housing market at local and international scale. Communicating with several general and heavy/highway/utility Private housing developers, information reveal that the economy plays a significant part in this issue. It's important for a developer to complete work on time in order to move on to another job and generate revenue from the already completed job. Most individual housing developers definitely have fewer budgets to work with at present considering the current state of the economy (Pugh, 2001). With a reduced budget, financial maximisation is required. In light of this, some individual housing developers have enlisted the help of construction scheduling software to keep work on track. Scheduling software allows developers to build within a certain time frame.

It comes as no surprise that completing a job on time translates to cost savings. According to (Ikejio for, 1997), "The longer a job goes on the less profitable it becomes because developers would have higher overhead. The longer it goes on the more overhead developers have and the more costly housing development becomes." The duration of the housing project can also be an issue. Ofori (1996) expressed that if private developers do a lot of shorter duration housing projects, staying on budget can be a challenge for it is easy for a short term project to run over schedule and on the other hand harder to stay on budget when projects get extended. Staying on schedule through the use of specific construction scheduling software or other forms of scheduling is vital to getting housing construction done on time and on budget.

### **2.3. Housing Pre-Construction Collaboration**

This only occurs when an individual housing developer engages the services of a construction company to embark on a project. Pre-construction collaboration is the work that goes on before a housing project begins. Issues that interfere with collaboration include: new employees learning a company's software, a contractor not fully anticipating a clients'/project's needs, and stakeholders not committing to a schedule that everyone involved in the project must use. Hill and Bowen (1997) mentioned that pre-construction collaboration is said to be a challenge when you have to make sure everybody is on the same page and learns how to use the software." To encourage pre-construction

collaboration, contractors must be able to anticipate a project's needs accurately and have an understanding of what clients want. This allows for more effective communication at the start of a job and lets contractors get to work faster. Contractors who have long-term relationships with the individual developers report better pre-project collaboration. Jiboye (2011) further mentioned that during bidding, we know what clients are looking for and what they need therefore we don't have a hard time with pre-construction collaboration. Another contractor reported that scheduling an all-hands meeting and status meetings at regularly scheduled intervals throughout a project at the outset of the job promotes collaboration at the beginning of a project (Jiboye, 2011). Setting up a pre-construction meeting with a set schedule to be followed is a welcome development. This also provides a schedule that all stakeholders must commit to. Failure to do this can lead to communication breakdown. Rwelamila et al (1999) indicated that firms can also have partnering meetings to keep a job on track." It is important to collaborate before a construction project begins and decide when to hold status meetings throughout the project to prevent delays later on.

#### **2.4. Limited Access to Housing Development Finance**

Development financing is one of the requirements for sustainable economic growth in any economy. The supply of finance to various sectors of the economy will promote the growth of the economy in a holistic manner and this will make development and welfare improvement to proceed at a faster rate (Lean, 2001). Most development finance initiatives involve the formulation and implementation of various policies, innovation of appropriate products and creation of enabling environment for financial institutions to deliver services in an effective, efficient and sustainable manner. Housing construction is greatly challenged by development finance availability. The progress of a housing construction process is largely dependent on available finance. Financial institutions exist whose responsibilities are to fund projects but a challenge however exists as to their readiness, willingness and ability to finance when funds are needed (Buckley et al, 2009). Bottlenecks as a result of inadequacy/insufficiency in finance supply have slowed the pace of housing development over the years.

### **3. RESEARCH METHODOLOGY**

The research evaluates the challenges faced by private housing developers in different income areas of Jos metropolis. The research strategy bothered on data gathering from staff of Jos Electricity Distribution Company (JEDC). JEDC is known for large staff capacity that reside in different income areas of Jos metropolis. The income areas include Rayfield, G.R.A and Gold & Base (High Income). Millionaires quarters, Lamingo and Rock Heaven (Middle income) while Jenta, Gada Biu, Rikkos, Hwlose and Angwan Rogo represented the low income areas. This study is a mixed design research. A survey questionnaire was prepared with questions seeking information on general challenges facing private housing developers in the income areas mentioned. A total of 90 survey questionnaires were distributed and all 90 retrieved (100% collection rate). A purposive sampling technique was used to select the respondents. Data analysis tools used include percentage score method, Standard deviation/mean score calculation. Challenge factors are also ranked.

#### **3.1. Data Analysis Tools**

Data analysis tools used for the survey are as expressed;

Standard Deviation and Mean Scores

Mathematical representations of the followings as used in the analysis are as represented;

Let  $X$  be a random variable with mean value  $\mu$ :

$$E[X] = \mu$$

Here the operator  $E$  denotes the average or expected value of  $X$ . Then the standard deviation of  $X$  is the quantity.

$$\begin{aligned}\sigma &= \sqrt{E[(X - \mu)^2]} \\ &= \sqrt{E[X^2] + E[(-2\mu X)] + E[\mu^2]} = \sqrt{E[X^2] - 2\mu E[X] + \mu^2} \\ &= \sqrt{E[X^2] - 2\mu^2 + \mu^2} = \sqrt{E[X^2] - \mu^2} \\ &= \sqrt{E[X^2] - (E[X])^2}\end{aligned}$$

(Derived using the properties of expected value).

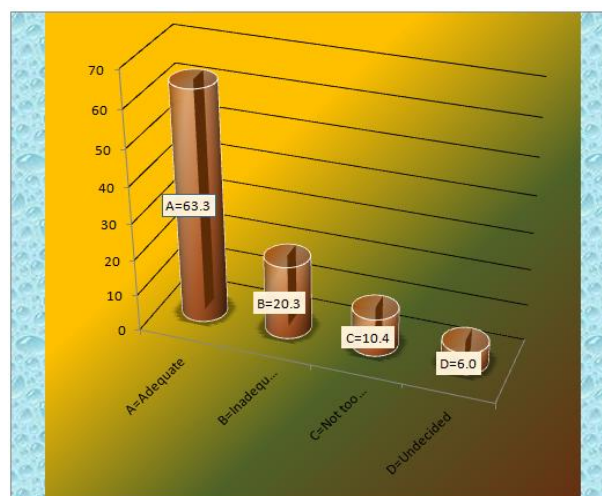
In other words the standard deviation  $\sigma$  (sigma) is the square root of the variance of  $X$ ; i.e., it is the square root of the average value of  $(X - \mu)^2$ .

The standard deviation of a (univariate) probability distribution is the same as that of a random variable having that distribution. Not all random variables have a standard deviation, since these expected values need not exist. For example, the standard deviation of a random variable that follows a Cauchy distribution is undefined because its expected value  $\mu$  is undefined.

#### 4. ANALYSIS OF DATA

##### A. Respondents Perception on Adequacy of income towards housing development

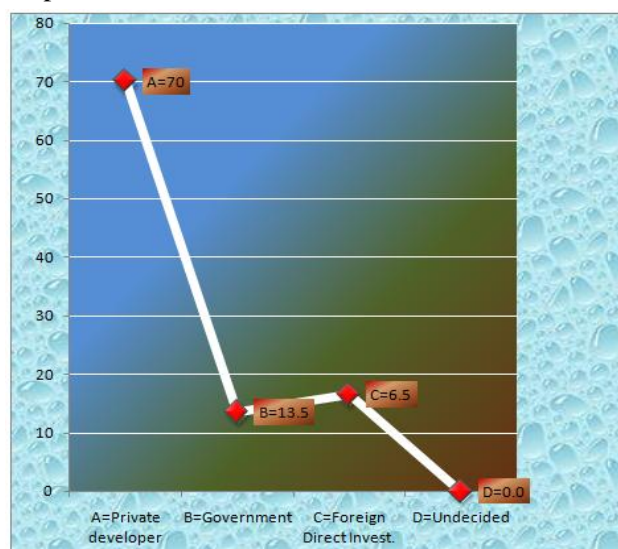
In other that the adequacy of income levels as regards construction challenges as it affects private housing development be determined, the respondents were asked if their income levels met their housing development targets without much challenges. From the answers (Generalized) provided by the respondents, 63.3% of the private housing developers affirmed that their incomes adequately met the housing construction process. 20.3% expressed inadequacy with their income levels during the course of construction. However, 10.4 % of the respondent’s uncertainty as to whether their incomes adequate solved construction challenges. 6 were undecided. This analysis reveals that majority of individual developers adequately constructed with their income levels.



**Fig1.** Percentage of Respondents Perception on adequacy of income towards housing development

##### B. Respondents Perception on most challenged source of Housing Construction

This was aimed at determining private developer’s opinion as regards the most challenged source of housing construction. Amongst the options given, 70% opined that private developers are the most challenged in the process of housing construction, 13.5% of the respondents indicated their believe in Government being the most challenged. 6.5 % were of the opinion that direct foreign investment was the most challenged. No respondent turned out undecided.

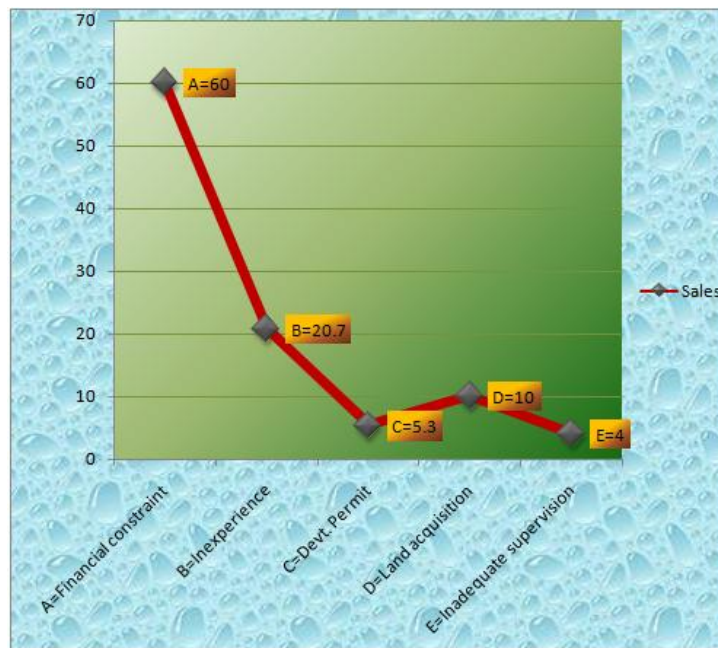


**Fig2.** Percentage of Respondents Perception on most challenged Source of Housing Construction

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### C. Percentage of Respondents' Perception on causes of housing construction delay

Housing construction delay is one major challenge that impedes housing delivery. Respondents' perception was sort on these challenges which indicated that 60% were of the opinion that financial constraint was the major cause of housing construction delay. 20.7% of respondents were of the opinion that inexperience on the path of construction workers (both skilled and unskilled) was the major cause of housing construction delay. The challenge in obtaining development permits from would-be developers had a frequency of 5.3%. Respondents who were also of the opinion that land acquisition was the biggest challenged faced had a frequency of 10%. Lastly, inadequate supervision of the housing construction process had a frequency of 4%.



**Fig3.** Percentage of Respondents' Perception to Causes of Housing Construction Delay

**Table1.** Mean and Standard Deviation outcome for High Income Residential Areas Housing Developers on the Factors That Affect Housing Construction

S/no	Challenge Factor Item/s	Mean	Standard Deviation	Ranking of Challenge Factor
1	Availability of Land	9.00	2.000	Most Important
2	Affordability of Land	9.00	0.632	Most Important
3	Accessibility to Land	8.40	2.272	More Important
4	Poor Land Administration	5.40	2.836	Important
5	Land Development Permit	9.80	0.632	Most Important
6	Access to Pipe Borne-Water	8.20	2.202	More Important
7	Constant Power Supply	9.00	1.700	Most Important
8	Adequate Waste Disposal System	6.20	2.898	Important
9	Regular Flow of Income	9.60	1.264	Most Important
10	Ease of Access to Loans from Financial Institutions	5.00	3.916	Important
11	Excessive High Building Standards by Urban Authorities	6.20	2.394	Important
12	Availability of Building Materials	8.00	3.266	More Important
13	Cost of Building Materials	9.60	0.844	Most Important
14	Use of Imported Building Materials	6.00	1.886	Important
15	Building Standards and Modern Building Materials	7.00	2.358	More Important
16	Feasibility studies on Building Production	4.40	2.066	Moderately Important
17	Control of Construction Pace	8.40	1.838	More Important
18	Accuracy of Project Plan Analysis	6.00	2.666	Important
19	Conformity to Budget	9.40	1.350	Most Important

20	Spatial Building Layout in the Environment	7.40	2.988	More Important
21	Effect of Urban Planning and Zoning	8.20	2.202	More Important
22	Adequacy of Open Spaces for Other Land Uses	7.20	2.530	More Important
23	Aesthetics and Ornamentation	7.80	2.202	More Important
24	Adequate Sanitation, Drainage, Sewage and Waste Disposal; and Air quality	8.40	2.066	More Important
25	Ease of Access to Basic Housing Facilities	8.20	1.752	More Important
26	Spatial adequacy and noise level within Neighbourhood	8.20	1.752	More Important
27	Security Issues	9.80	0.632	Most Important
28	Access to Building Materials	6.60	3.134	Important
29	Ease of Access to Basic Social Amenities	9.40	1.350	Most Important

**Table2.** Mean and Standard Deviation outcome for Middle Income Residential Areas Housing Developers on the Factors That Affect Housing Construction

S/no	Challenge Factor Item/s	Mean	Standard Deviation	Ranking of Challenge Factor
1	Availability of Land	7.60	2.066	More Important
2	Affordability of Land	7.40	1.646	More Important
3	Accessibility to Land	6.40	1.264	Important
4	Poor Land Administration	6.20	1.476	Important
5	Land Development Permit	7.20	2.530	More Important
6	Access to Pipe Borne-Water	9.40	1.350	Most Important
7	Constant Power Supply	9.60	0.844	Most Important
8	Adequate Waste Disposal System	7.80	1.136	More Important
9	Regular Flow of Income	6.60	1.898	Important
10	Ease of Access to Loans from Financial Institutions	6.00	1.334	Important
11	Excessive High Building Standards by Urban Authorities	5.60	1.264	Important
12	Availability of Building Materials	7.00	1.944	More Important
13	Cost of Building Materials	6.20	1.464	Important
14	Use of Imported Building Materials	5.60	1.264	Important
15	Building Standards and Modern Building Materials	6.80	1.686	Important
16	Feasibility studies of Building Production	5.60	1.264	Important
17	Control of Construction Pace	6.00	1.334	Important
18	Accuracy of Project Plan Analysis	6.00	1.334	Important
19	Conformity to Budget	6.00	0.942	Important
20	Spatial Building Layout in the Environment	5.40	0.966	Important
21	Effect of Urban Planning and Zoning	5.40	0.966	Important
22	Adequacy of Open Spaces for Other Land Uses	5.60	0.844	Important
23	Aesthetics and Ornamentation	6.40	0.844	Important
24	Adequate Sanitation, Drainage, Sewage and Waste Disposal; and Air quality	7.60	1.264	More Important
25	Ease of Access to Basic Housing Facilities	7.40	0.966	More Important
26	Spatial adequacy and noise level within Neighbourhood	5.60	1.264	Important
27	Security Issues	9.80	0.632	Most Important
28	Access to Building Materials	6.60	2.118	Important
29	Ease of Access to Basic Social Amenities	8.80	1.032	More Important

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**Table 3.** Mean and Standard Deviation outcome for Low Income Residential Areas Housing Developers on the Factors That Affect Housing Construction

S/no	Challenge Factor Item/s	Mean	Standard Deviation	Ranking of Challenge Factor
1	Availability of Land	6.20	3.190	Important
2	Affordability of Land	8.60	2.118	More Important
3	Accessibility to Land	7.20	1.032	More Important
4	Poor Land Administration	5.60	3.502	Important
5	Land Development Permit	6.20	2.574	Important
6	Access to Pipe Borne-Water	4.80	2.860	Moderately Important
7	Constant Power Supply	7.20	2.348	More Important
8	Adequate Waste Disposal System	5.60	3.098	Important
9	Regular Flow of Income	8.60	2.674	More Important
10	Ease of Access to Loans from Financial Institutions	4.20	3.048	Moderately Important
11	Excessive High Building Standards by Urban Authorities	4.40	3.238	Moderately Important
12	Availability of Building Materials	7.00	2.538	More Important
13	Cost of Building Materials	9.00	1.414	Most Important
14	Use of Imported Building Materials	4.20	2.898	Moderately Important
15	Building Standards and Modern Building Materials	6.00	2.828	Important
16	Feasibility studies of on Building Production	4.00	2.982	Moderately Important
17	Control of Construction Pace	6.20	3.190	Important
18	Accuracy of Project Plan Analysis	7.20	3.190	More Important
19	Conformity to Budget	9.00	1.700	Most Important
20	Spatial Building Layout in the Environment	5.00	2.708	Important
21	Effect of Urban Planning and Zoning	5.20	3.012	Important
22	Adequacy of Open Spaces for Other Land Uses	5.60	3.374	Important
23	Aesthetics and Ornamentation	5.80	3.326	Important
24	Adequate Sanitation, Drainage, Sewage and Waste Disposal; and Air quality	7.40	2.836	More Important
25	Ease of Access to Basic Housing Facilities	6.80	2.530	Important
26	Spatial adequacy and noise level within Neighbourhood	7.20	2.150	More Important
27	Security Issues	8.20	2.574	More Important
28	Access to Building Materials	6.40	2.634	Important
29	Ease of Access to Basic Social Amenities	7.80	1.750	More Important

## 5. FINDINGS AND CONCLUSION

This paper evaluates the construction challenges faced by private housing developers in different income areas of Jos metropolis. Findings show that for the challenges of high income areas, standard deviation score was highest for “ease of access to loans” at 3.916 and lowest for security issues, land affordability and issuance of land development permits at 0.632. The middle income areas indicated the highest challenge to be “acquisition of development permit” with standard deviation of 2.530 and lowest challenge being “security issues” at 0.632. The low income areas had the highest challenge of “adequacy of open spaces for other land uses” at 3.374 and lowest of “accessibility to land” at 1.032. The challenges listed in the tables are inter-woven which tends to affect all strata of developers, therefore to comprehensively address these challenges there is need for a holistic and collective enhancement approach which will involve the Federal Government, the State Government and the private sector (both formal and informal). Government at all levels can ensure that some of the challenges like availability of land, accessibility to land, poor land administration, issuance of land development permits, ease of access to loans from financial institutions, availability of building materials and excessive high building standards by urban authorities can be eased with good policies to encourage private housing developers.

## RECOMMENDATIONS

Having digested the major challenges militating against private housing development in various residential income areas of Jos metropolis, the following recommendations are proffered;

1. The mixed use of imported building products and local products should be encouraged to reduce the high cost of construction. Also, private housing developers are advised to adopt effective and functional architectural designs.
2. The Ministry of Housing and Environment should liaise with professionals in the construction industry to organize occasional housing seminars/summits geared towards implementing the 2012 National Housing Policy and the benefits accruable thereof.
3. Government should adopt and implement strictly the provisions of 2012 National Housing Policy by providing an enabling environment for private developers to encourage an enhanced housing supply in the long run
4. The new law on the Prohibition of Fraudulent Practices on Land should be strictly enforced as youth associations resident in various construction locations harass and extort money from innocent private developers.
5. Government should review some policies/laws governing the construction sector together with and also facilitate the slow pace of justice system to reflect trends in our socio-economic environment and make investment in housing attractive.

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