

The Identification of Risks and its Criticality in the Nigeria Construction Industry

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ABSTRACT

Failure in project delivering can be attributed to many risk events in the Nigerian Construction Industry. This risk could be as a result of the dynamic, sensitivity, and complexity of the construction Industry towards its environment, socio-political, economic, technology, and cultural variables in Nigeria. Nevertheless, the low level of Risk Management in Nigeria construction Industry, and the little understanding and knowledge of the subject by Project Stakeholders prompt this study.

A quantitative method of research was carried out, and among the sixty (60) questionnaires administered to clients, consultants, and contractors in the Nigerian construction industry, thirty-one (31) valid responses were obtained. The questionnaires were designed on the twenty (20) types of risks that were identified by construction professionals which were categorized into five namely; Government and Politics; Finance and Economical; Management and Technology; social and Cultural; Natural and Environmental Risks. And, findings made revealed that economic and financial risks surpass all other types in the Nigeria Construction Industry.

Keywords-- Construction Industry, Nigeria, Economic, Environment, Risk Management

I. INTRODUCTION

Risks should always be considered when embarking on any construction project. The risks associated with construction projects delivery maybe high, but when identified is half way towards the management of its effects and impact on construction project delivery (Loai, 2020). If a risk is not identified, then there is no way of mitigating what is unknown. Moreover, any project without a risk event is no worth pursuing (Chapman & Ward, 2011). Thus, there is no project without a risk. In other words, according to the above statement; risk event is one of the characteristics of a project.

Risk identification is the core aspect of risk management and has to be done on every construction project because there are no construction projects that are alike (Serpella, Ferrada, Howard, & Rubio, 2014).

The share of the involvement of Risk in the Nigerian construction Project delivery which is also

responsible for delays in schedule, litigation, and more especially cost overrun cannot be ignored or neglected. And the identification of those risks will help solve the problem of cost overrun, and delay.

Therefore, the management of risks among others assist in the completion of project on schedule, within budget, and have other benefits such as:

- Making decision more objective and systematic.
- Minimizes loss and maximizes opportunities in construction projects.
- Encourage pro-activeness in risk response actions and improving the understanding of risk identification.
- Always highlighting awareness of project outcomes on management and improving communication.

However, one of the issues of risk management practices is that the risk identification is done as “post mortem” practices.

Some techniques and tools that can be used to identify risk events are– checklists, brainstorming, studying past, records and data of identical projects, weakness, strengths, threats, & opportunities (Swot) Analysis, Risk registers (Adam, 2008).

1.1 Continuous Learning

The continuous learning from previous events and projects are vital towards gaining more experience on risk identification and management. It could be argued that a combination of experience and knowledge from the past is not enough for a stakeholder or construction manager to be able to predict accurately the risks on up-coming projects, but findings have also shown that most construction projects are not the same, and therefore it is significant to identify risk in each project (Serpella et al., 2014; Perera, Dhanasinghe, & Rameezdeen, 2009; Tohidi, 2011). Risk management practitioners most times use judgment from recent projects and past knowledge, but because of the varying nature of risks in construction, it is not likely to make him an all-rounder in the risk management issues. Moreover, most of the judgments by individuals with the equivalent knowledge of risk practice maybe vary because of their values, perception, personality and preference.

Nevertheless, risk management process becomes more appropriate when a process to find out views from many experts is used. This process helps to reduce individual views and bias on risk recognition and estimation which promote efficient risk management (Adams, 2008). Apart from the above, other consideration like availability of quality data, cost of production of the forecast, time horizon affects forecasting process effectiveness. Flanagan and Norman (1996) model, shows that some necessities, thoughts, and human inputs in addition to existing methods as well as capability in deploying the estimation methods makes forecasting in the qualitative and quantitative realm plausible.

Liu and Low (2009) described organizational learning as processes of integration in which an organization identifies and make use of existing knowledge to develop new and better opportunities. Previous mistakes must be avoided while taking decisions and, therefore it is important to put together the knowledge gathered from methods of risk management for organizational learning.

II. RESEARCH METHOD

Primary data was collected from the 31 valid responses out of the total of 60 questionnaires which were sent out to construction industry professionals. The research questionnaire was designed to list risks on a scale of 1-5(Low to High), showing the criticality of risk with the respondents ranking them with numbers as they want with respect to their opinion and industrial experience.

Risk was categorized and allocated for the benefit of analysing the risks and their relationship at the end of data collection.

The risks are categorized as follows: -

1. Government and political risks
2. Social and Cultural risks
3. Management and Technological risks
4. Economic and Financial Risks
5. Nature and Environmental Risks

The twenty (20) risks include: Development permit, approval challenges, approved changes in laws and justice enforcement, influence of government, corruption and corrupt practices, political instability, cultural issues, human resources, cash flow, foreign exchange, inflation and high interest rates, cost overrun, inadequate design, low productivity, safety issues, late payment of contractors, environmental protection, force majeure, market demand, and competition.

An empty space was initially provided for the participant to think independently about the risks they perceive and rank them before proceeding to the main questionnaire.

The respondents were asked to arrange in ranks the risk groups from 1 to 8 from (least severe to most severe) with respect as it relates to their individual

experiences. Pilot testing was used in checking whether the questionnaire contents were clear or not before distributing the three groups in construction (consultants, contractor and clients).

III. DATA ANALYSIS METHOD

The data collected from the questionnaire was described with diagrams, charts and figures, and a codebook was prepared for various sections after collecting back the questionnaires. The data from each questionnaire as marked was keyed into Microsoft office excel with respect to the codebook provided, and utilized the ID available prior to the distribution of the questionnaire. The quantitative data were analysed using Statistical Package for the Social Sciences (SPSS) version 20. Furthermore, a triangulation method was used to increase reliability and validity of results obtained.

The 20 risks were categorized under the followings:

1. Government and Politics (G P)
2. Technical knowledge and Management (T M)
3. Finance and Economic (FE)
4. Social Culture (SC)
5. Nature and Environment

While the 20 risk variables used in the study are listed as below:

1. Development Control Permit
2. Government Influence on Disputes and justice enforcement
3. Corruption
4. Political influence and Instability
5. Influence of Culture and social
6. Human Resource availability and management
7. Cash Flow challenges of the management
8. Foreign Exchange Policy availability and challenges
9. Interested and inflation rates
10. Cost overruns
11. Insufficient project design
12. Low construction/poor productivity
13. Safety in construction sites
14. Late payment
15. Quality control
16. Project management
17. Environmental issues
18. Force Majeure
19. Market demand
20. Competition

The above listed project risks are allocated to the five (5) major categories stated above as follows;

Government and Political (PG) - External

- Development Control Permit and certification
- Government Influence on Disputes and justice enforcement
- Corruption
- Competition

- Political influence and Instability

Management and Technological (MT) - Internal

- Poor and low productivity
- Cost overruns
- Project management
- Insufficient project design
- Safety in construction sites
- Quality control

Finance and Economic (FE)- External

- Late Payment
- Cash Flow challenges of management
- Market demand
- Foreign Exchange challenges and availability
- Interest rates / Inflation Rates

Social and Culture (SC) - Internal

- Influence of Culture
- Human Resource Management and availability

Natural and Environmental (NE)

- Environment issues
- Force Majeure

The level of criticality of the 20 risks were analysed initially from the viewpoint of all the 31 respondents before each group is evaluated independently to differentiate or compare them.

IV. RESULT AND DISCUSSION

The result of the descriptive analyses shows that nine (9) clients, twelve (12) contractors and ten (10) consultants participated in the study. Figure 4.1 show that 32.26% of the participants are consultants, while contractors and clients are 38.71% and 29.03% respectively. Thus, the results showed that majority of the participants are contractors followed by constants and then clients.

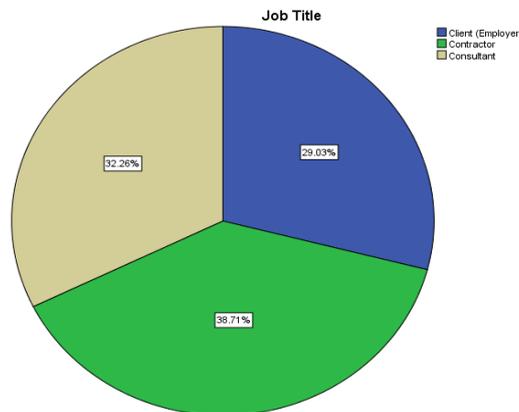


Figure 4.1: Percentage distribution of participants from each group

The company's annual turnover and mean number of employees are illustrated on Figure 4.2 and 4.3 respectively. The result from the number of employees reveals the size of companies, while annual turnover shows the size of projects undertaken in construction industry in Nigeria. The result shown indicates that nineteen (19) of the participants have an average of 1 to 50 employees is while the remaining twelve (12)

participants indicated having an average of 51 to 100 employees. None of the participants have number of employees above 100. Thus, this indicates that about 61% of the companies in Nigeria have an average of 1 to 50 employees, and suggests that most of the construction companies in Nigeria are small sized firms when compared to Nigerian classification of firms.

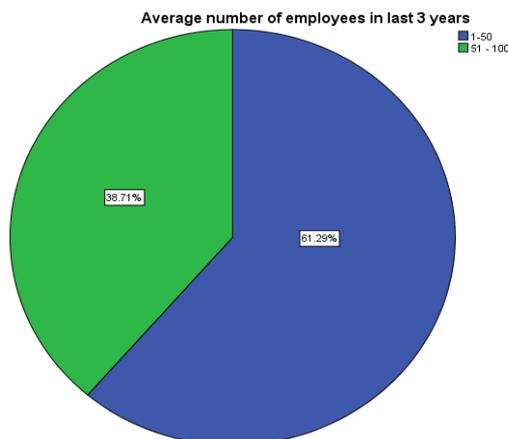


Figure 4.2: Percentage distribution of average number of employees in the construction industry

Furthermore, the participants indicated that 9.7% of the annual turnover fall below (200 million Naira), 6.5% is between 200 million to 500 million Naira while 83.9% is as high as from 500 million to Billion

Naira per annum. Thus, this indicates that a good number of companies in Nigeria undertake a high scale construction project.

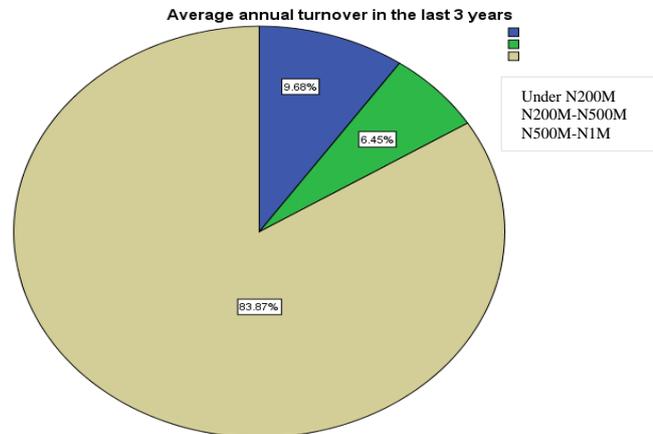


Figure 4.3: Percentage distribution of average annual turnover in the construction industry

Figure 4.4 shows the level of criticality of the 20 risks were analysed initially from the viewpoint of the

31 respondents before each group is evaluated independently to differentiate or compare them.

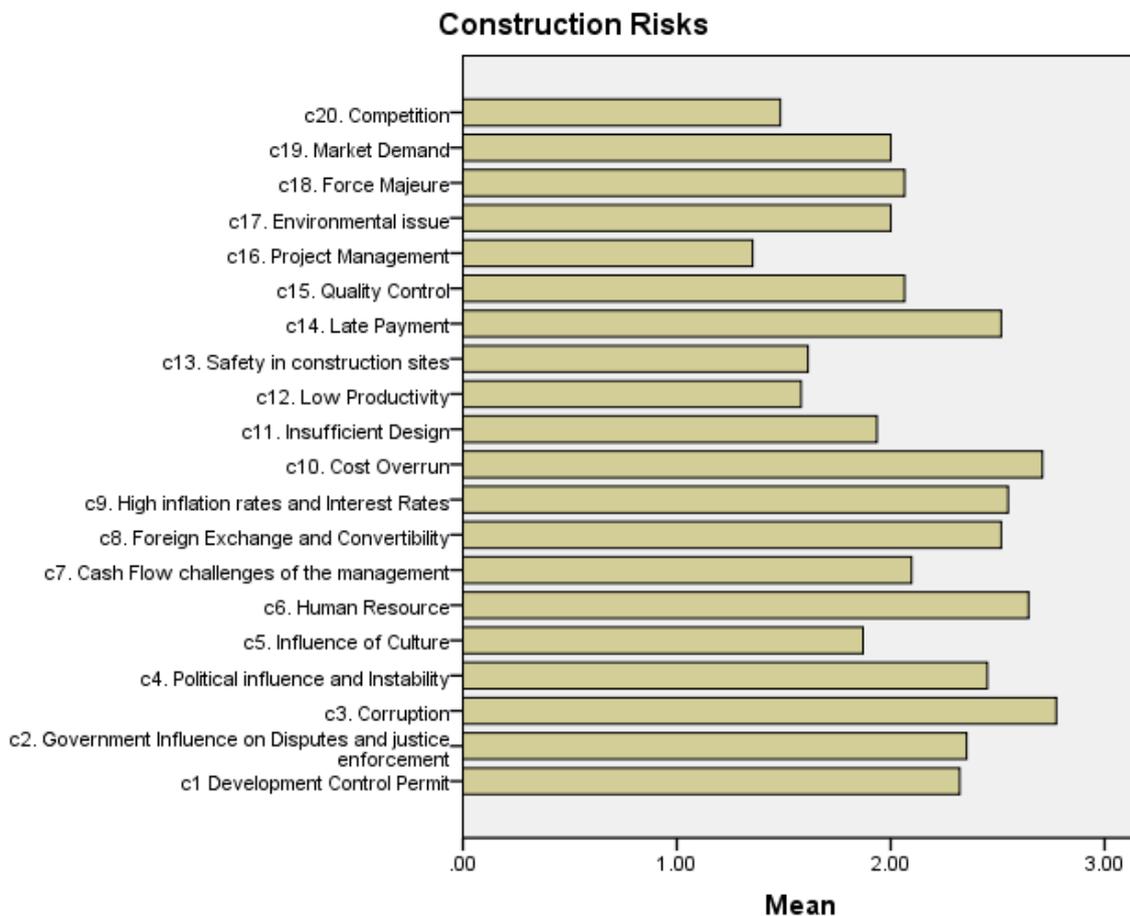


Figure 4.4: The 20 risks and their Criticality from participant's viewpoints

A further analysis is done using the Chi-squared test to test the viewpoints of the respondents

on the criticality of the 20 risks individually as shown on Table 4.1 below.

Table 4.1: 20 risks and their Criticality from participant's viewpoints

Identified Project risks	X ²	df	P	Nature of the Risk
Development Control Permit	12.977	4	0.004	Critical
Government Influence on Disputes	11.912	4	0.018	Intermediate
Corruption	10.563	4	0.003	Critical
Political influence and Instability	6.527	4	0.039	Intermediate
Influence of Culture and social	4.862	4	0.302	Not Critical
Human Resource availability and management	5.163	4	0.271	Critical
Cash Flow challenges of the management	12.682	4	0.001	Intermediate
Foreign Exchange Policy availability and challenges	11.094	4	0.005	Critical
Interested and inflation rates	4.669	4	0.095	Intermediate
Cost overrun	4.392	4	0.356	Intermediate
Insufficient project design	3.739	4	0.443	Intermediate
Low construction/poor productivity	4.506	4	0.342	Intermediate
Safety in construction sites	2.803	4	0.591	Not Critical
Late payment	23.505	4	0.007	Critical
Quality control	11.875	4	0.028	Intermediate
Project management	4.736	4	0.315	Not Critical
Environmental issues	7.378	4	0.117	Intermediate
Force Majeure	5.184	4	0.269	Intermediate
Market demand	2.481	4	0.648	Intermediate
Competition	5.076	4	0.280	Not Critical

V. CONCLUSION

The criticality level of risks in Nigeria construction projects is found higher than intermediate. Furthermore, the Economic and Financial risks are dominant among other risk types in Nigeria construction projects, and they are affected by the various political/government risks in Nigeria which are compounding risks issues in the construction industry.

Hierarchically the economic and financial risks, is followed by political and government risks, management and technological risk, cultural and social risks and then natural and environmental.

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