CAUSES OF DELAY IN NIGERIA CONSTRUCTION INDUSTRY

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ABSTRACT
Delay is one of the major problems in Nigeria construction industry. Delay lead to many negative effects such as disputes between clients and contractors, increased costs, loss of productivity and revenue, and termination of contract. The aim of the paper is to investigate the causes of delay in Nigeria construction industry. The survey method was adopted for this work through questionnaire; the questionnaire was distributed to contractors, clients and consultants etc in the construction industry in Nigeria. The data collected was analyzes in rating form to determine the most causes of delay in the construction projects. However the results obtained from ranking analysis shows that improper planning, lack of communication, design errors and shortage of supply are rank high on the causes of delays in Nigeria construction industry. The paper concluded that delays causes more harm than good in construction project, therefore action should be taking to avoid such delay in construction projects in order to improve the efficiency and effectiveness of the industry. Consequently it was recommended that adequate planning; coordination; and proper monitoring of the construction projects by an experience and qualify professionals should be encourage to reduce the impact of delays on construction projects.

Key words: *Construction Industry, Client,* D*elay and Integration device,*

1.0 INTRODUCTION

Mogbo (2004) stated that, construction is being used to control the economies of nations; it is always strongly related to politics, economics, sociology and the legal framework. Political contribution in construction planning is obligatory in the current world democracies. Construction cannot grow in a weak and docile economy. Construction cannot feature where there is social distress and social instability, (Mogbo, 1998). Hillebrandt, (1985) stated that in developed counties construction is considered unique hence it can stimulate the growth of other industrial sectors. However looking at the growth of the construction industry in terms of its contribution to GDP in isolation is somewhat misleading because of the crucial roles played by the construction industry. Therefore, improving construction efficiency by means of cost effectiveness and timeliness would certainly contribute to cost saving for the country as a whole. Effort directed to cost and

time effectiveness were associated with managing time and cost, which this study aimed at via investigating causes of delay at construction projects in Nigeria. Like other developing countries, such as Saudi Arabia (Assaf *et al.*, 1995) Libya (Saleh, 2009) and Malaysia (Yong, 1988). Nigeria construction industry has suffered many setbacks in term of completion of the project at stipulated period within the predetermine sum. Majority of the construction project in Nigeria experience time and cost overrun which in turn lead to the abandonment of project. These challenges are the motivating factor of this study, and to achieve the aim of this paper the following objectives were formulated to simplify the aim.

Objectives:

1. To identify the major causes of delay in Nigeria construction industry.
2. To identify the effects of delay in construction projects.
3. To recommend strategies for improving project delivery based on the findings of the study.

2.0 DELAYS IN THE CONSTRUCTION INDUSTRY

The construction industry is large, volatile, and requires tremendous capital outlays. A unique element of risk in the industry is the manner in which disputes and claims are woven through the fiber of the construction process. Delay occurs in every construction project and the significant of this delay varies considerably from project to project. Bramble and Callahan (1987) explained delay as the time during which some part of the construction project has been extended or not performed due to unforeseen circumstances. An incident of delay can originate from within the contractor's organization or from any other factors interfacing upon construction project. Some projects are only having a few days behind the schedule; some are delayed over a year. So it is essential to define the actual causes of delay in order to minimize and avoid the delay in construction project. Various studies were carried out by researchers and scholars to assess the causes of delay in construction projects. Ogunlana *et al*., (1996) studied delays in building projects in Thailand, as an example of developing economies. They concluded that the problems of the construction industry in developing economies could be nested in three layers: (1) problem of shortages or inadequacies in industry infrastructure, mainly supply of resources; (2) problems caused by clients and consultants; and (3) problems caused by incompetence of contractors. Kumaraswamy *et al*., (1998) conducted a surveyed on the causes of construction delay in Hong Kong as seen by clients, contractors and consultants, and examined the factors that affecting productivity. The study revealed differences in perception of the relative significance of factors between the three groups,

indicative of their experiences, possible prejudices and lack of effective communication. However the study conducted by Maura *et al*,(2007) on the time and cost overrun in Portugees and discovered that design errors; client liability; project specification and direct change order by the client are the major factors that cause the time and cost overrun . Assaf *et al*., (1995) studied the causes of delay in large building construction projects in Saudi Arabia and outline the most important causes of delays I construction projects as: approval of shop drawings, delay in contractors payments, cash-flow problems during construction, design changes, conflicts in work schedules of subcontractors, slow decision making, executive bureaucracy in the owners' organizations, design errors, labour shortage and inadequate labour skills. Mezher *et al*., (1998) conducted a survey on the causes of delays in the construction industry in Lebanon from the perspective of the clients, contractors and architectural/engineering firms. It was found that clients are more concerns with financial issues; contractors considered contractual relationships as the most important, and consultants considered project management issues as the most important causes of delays. Abdullah & Battaineh (2000) evaluated the progress reports of 164 building and 28 highway projects constructed during the period of 1997 to 1999 in Jordan. The results indicate that delay is extensive: the average ratio of actual completion time to the planned contract duration is 160.5% for road projects and 120.3% for building projects. Al-Momani (2000) conducted a quantitative analysis of construction delays by examining the records of 130 public building projects constructed in Jordan during the period of 1990 to 1997. The researcher presented regression models of the relationship between actual and planned project duration for different types of building facilities. The analysis also included the reported frequencies of time extensions for the different causes of delays. The study concluded that the main causes of delay in construction projects are designing, user changes, weather, site conditions, late deliveries, economic conditions, and increases in quantities. Ogunlana (1995) presented a paper on method for computing activity delay and assessing their contributions to project delays. The method consisted of a set of equations, which could be easily coded into a computer program that would allow speedy access to project delay information and activity contributions. There has been a considerable and continued interest on the effects of construction delay. The information available is diverse and widespread. Despite the necessity for such research, little work has been described in the literature concerning public projects. The previously proposed factors contributing to construction delay were frequently observed in public projects. The actual frequency and magnitude of these factors is not

known, which has proven to be a serious and very expensive problems for the construction industry. The main objective of this study is to identify the main causes of delay in Nigeria construction industry through a survey and recommend few procedures to avoid it.

3.0 DALAY IN PROJECTS

Many construction projects suffer from delay. Suspension means stoppage of work directed to the contractor from the clients, while delay is a slowing down of work without stopping it entirely (Bartholomew, 1998). Delay gives rise to disruption of work and loss of productivity, late completion of project increased time and costs of construction project, and third party claims and abandonment or termination of contract. It is important that general management keep track of project progress to reduce the possibility of delay occurrence or identify it at early stages (Martin, 1976). Construction planning has to be much more decentralized activity to cope with the inherently uncertain nature of task duration.

However, Ballard and Howell (1998) argued that construction planners should make only "quality assignments" where the tasks are not meeting these criteria's: (1) sufficiently well defined (to be coordinated with other work and the inputs to be identified and assembled); (2) are ready to start (material, design, and precedent works complete); (3) have priority in the critical path for delivery to the customer;

(4) are commensurate in scale with the available labour for the coming week; and (5) are carried out within a system where the causes of incomplete or poor quality assignments are investigated and identified, should be deferred. Monitoring gives early warning of the possibility of contractor's delay and help in anticipating the consequences of changes that may be needed (Cleland, 1999; Abdul-Rahman and Berawi, 2002). Young and Jinijoo (1998) explain that top management support is required and this can be defined as the willingness of top management to provide necessary resources, authority, and power. Decision making at the right time is important especially with a fast-track project in preventing delay because the concept of using fast-tracking can be applied to traditional contract projects whereby construction starts prior to completion of the design/contract document (Abd majid et al.; 1998). Decision making process is used as the key to effective project management especially in value and risk analysis (Stuckenburck, 1982).

4.0 TYPE OF DELAY CAUSES IN CONSTRUCTION PROJECTS

There are two types of delays:

4.1 Inexcusable delay (**Non- Excusable delay**) caused solely by the contractor or its suppliers. The contractor is generally not entitled to relief and must either make up the lost time through acceleration or compensate the owner. This compensation may come about through either liquidated damages or actual damages, provided there is no liquidated damages clause in the contact. Liquidated damages are generally expressed as a daily rate that is based on a forecast of costs the owner is likely to incur in the event of late completion by the contractor.

4.2. Excusable delay: There are two types as shown below;

4.2.1 Non-compensable delay is caused by third parties or incidents beyond the control of both the owner and the contractor. Example typically includes acts of God, unusual weather, strikes, fires, acts of government in its sovereign capacity, etc. In this case, the contractor is normally entitled to a time extension but no compensation for delay damages.

4.2.2 Compensable delay is caused by the owner or the owner's agents. An example of this would be the late release of drawings from the owner's architect. An excusable, compensable delay usually leads to a schedule extension and exposes the owner to financial damages claimed by the contractor. In this case, the contractor incurs additional indirect costs for both extended field office and home office overhead and unabsorbed home office overhead.

5.0 METHODOLOGY

The objectives defined in the preceding section were achieved through the accomplishment of the following tasks: The preliminary data for this research was collected through a literature review and questionnaire survey. The questionnaires were distributed to professionals in the construction industry, clients, contractors, consultants and stakeholders in the construction organisation. 150 questionnaires were distributed and only 127 questionnaires were returned filled correctly. The ranking analysis was done based on this numbers of returned questionnaires. The purposive random sampling techniques were used to select the best and required respondent.

The literature review was conducted through books; conference proceedings; the Internet; and local and international journals. In this step, some of the causes of delay that may be encountered in a construction project were identified. The causes of delay are then classified into six broad categories (acts of God; design-related; construction-related; financial/economic; management/ administrative; code-related) depending on their nature and

mode of occurrence. The data collected through questionnaire surveys are analyzed and recommendations are made to mitigate the delay.

6.0 RESULTS & DISCUSSION

The results of factor analysis of the items of contractor's factors that causes delay in construction projects and their ranking are shown below. Based on the mean value criterion, the first ranking seemed to capture the respondents' general feeling that improper planning is the major factor that causes delay in construction projects in Nigeria. Followed by "lack of effective communication" as the second ranked factor which caused delays, this finding can be agreed with what was found by Frimpong *et al.,* (2003). The factors "Shortage of Supply i.e. steel, concrete, etc." and "Design Errors" seem to be the third-ranked factors that cause delay in construction projects in Nigeria. Consequently, factors such as "Slow Decision Making" and "Financial Issues" were ranked fourth. Abdul-Rahman et al., (2006) conducted a study on delay mitigation in the Malaysian construction industry; they proved that a financial problem is confirmed by the survey as the main causes of delay. The next important factor that causes delays in construction projects in Nigeria is "Shortage of Material", it was ranked as number fifth. The details of the results are shown below:

Table 1: **Factors influencing delay in construction projects in Nigeria**

S/NO	FACTORS	MEANS	SD
1	Improper planning	5.0	0.3
2	Lack of effective communication	4.7	0.4
3	Design errors	3.8	0.4
4	Shortage of supply like steel, concrete	3.8	0.4
5	Slow decision making	3.7	0.5
6	Financial issues	3.7	0.5
7	Shortage of material	3.6	0.9
8	Cash-flow problems during construction	3.6	0.9
9	Increase in quantities	3.5	0.8
10	Mismanagement by the contractor (financial, supplier support, sub-contractor	3.5	0.7
11	Executive bureaucracy in the owners' organizations	3.4	0.8
12	Notification of extra work	3.4	0.5
13	Changes in site conditions	3.3	0.8
14	Date of notice to proceed	3.3	0.5
15	Financing matters	3.2	0.7
16	Payment for completed works	3.2	0.7
17	Indicative of experiences	3.1	1.0
18	Conflicts in work schedules of subcontractors	3.1	1.0
19	Contractors regarded contractual relationships	3.1	0.8
20	Late confirmation from client and consultant regarding cost, quality and time	3.0	0.6
21	Experience of project team	3.0	0.8

22	Quality assurance / control	3.0	0.8
23	Long period for approval of tests and inspections	3.0	0.8
24	Political influence	2.9	1.0
25	Social influence (feedback from resident) EIA	2.9	1.0
26	Failure of RIBA plan of work application	2.8	0.8
27	Project management issues	2.8	1.0
28	Site accidents	2.8	0.7
29	Negligence	2.8	0.8
30	Late deliveries of materials and equipments	2.8	0.9
31	Economic conditions	2.7	0.9
32	Changes of design	2.7	0.8
33	User changes	2.6	1.2
34	Liquated damage (LAD)	2.6	0.6
35	Negotiation during construction	2.6	1.0
36	Designers	2.3	0.9
37	Mistakes during construction	2.2	0.6
38	Possible prejudices	2.2	0.7
39	Changed orders and mistakes and discrepancies in contract documents	2.0	0.8
40	Dispute (variation order)	1.8	0.4
41	Religions factors	1.7	0.7
42	Weather condition (*Force-Marjue*)	1.6	0.5
43	Conflicts of the drawing and specification	1.5	0.0

Author's field work (2012)

6.1 Steps to avoid this delay

The table 2, Shows that risk management is ranked as important factor to avoid delay in construction projects in Nigeria. While the second factor to avoid delay in construction project is proper planning. A research by Abdelnaser *et al.*, (2005) recommended that in order to avoid delays during construction stage, proper planning factor must be considered.

Table 2: **Avoidance of delay in construction projects in Nigeria**

S/NO	FACTORS	RANKS	MEAN	SD
	Risk management	1	4.9	0.33
	Proper planning	2	4.7	0.67
	Proper payment from client	2	4.7	0.48
	Prepare insurance claims	3	4.2	0.58
	Good scheduling programme	3	3.5	0.50
	Client representative for project	4	3.5	0.50
	Selecting expert understand their assignment	4	3.5	0.50
	Clear contract and BOQ	5	3.3	0.48
	Compute the amount of financial damages	5	3.3	0.48

Author's field work (2012)

6.2 The Impacts of the delay on construction projects in Nigeria

An analysis is needed to identify the impact of delay on time and cost followed by taking the appropriate action to ease delay and minimize the cost required (Clogh, 1981). It is important to improve the estimated activity duration according to the actual skills levels, unexpected events, efficiency of work time, and mistakes and misunderstanding (Okpala & Aniekwu, 1998). However, from the study which is carried out in Nigeria was clear that "loss of interest by the stakeholder" ranked by the respondents as one of the most important factors which have an impact in construction project delays as shown in (Table 3) below;

Table 3; Impact of delay on construction projects in Nigeria

S/NO	FACTORS	RANKS	MEANS	SD
1	Loss of Interest by the Stakeholder	1	4.9	0.3
2	Blacklist by Authorities	2	4.6	0.8
3	Waste of money and time	3	4.3	0.7
4	Declination of reputation	4	4.1	0.6

Author's field work (2012)

7.0 CONCLUSION

Construction delay is a critical function in construction projects. Projects investigated in this study exhibit a delay during the construction projects. In practice, this phenomenon is expected to continue unless management takes action to control these causes right from design stages. And adequate planning; coordination; and proper monitoring of the construction projects by an experience and qualify professionals will reduce the impact of delay. We believe that the arguments and findings presented in this study provide a good guidance for managerial intervention, and provide some guidelines and actionable information that project managers can utilize to manage their projects. In summary, this study summarized some reasons behind the delay caused in these sites and proposes some recommendation, which might enable the contractors' organization to develop in house competitiveness for the effective projects delivering and client's satisfaction within the stipulated time schedule.

REFERENCES

Abd. Majid M. Z. and Ronald M. (1998), factors of non-excusable delays that influence contractor's performance, in UK;

Abdelnaser O., Peter J.N., Mahmood A., Hussin A., and. Aziz A H, (2005), Causes of construction delays: case studies in Langkawi Island, Malaysia, Paper *presented at International Conference on built environmental* in Kuala Lumpur, Malaysia, organized by University of Malaya

Abdullah, M.O. and Battaineh, H.T. (2002), causes of construction delays: traditional contracts, *Journal of Project Management, **20**, 67- 73*

Abdul-Rahman H,Berawi MA,Berawi AR, Mohamed O , Othman M, and Yahya IA (2006). Delay mitigation in the Malaysian construction industry *Journal of Construction Engineering and Management, **132** (2):125-33.*

Abdul-Rahman, H. and Berawi, M.A. (2002).Managing change in construction Contracting, *Contact Management, **42**, 10-16, NCMA Press, USA*

Ahuja, H.N. Dozzi, S.P., and Abourizk, S.M. (1994) Project Management: Techniques in planning and controlling construction projects, **2nd** Ed., New York.

Al-Momani, A.H. (2000).Construction delay: a quantitative analysis, *Journal of Project Management **18**, 51-59*

Assaf, S.A., Al-Khalil, M. and Al-Hazmi, M. (1995) Causes of Delay in Large Building Construction Projects; *Journal of Project Management in Engineering ASCE, **2;** 45-50*

Ballard, G. and Howell, G. (1998)"Shielding production: Essential step in production control", *Journal of construction Management and Engineering, **124** (1), 11-17*
Bartholomew, S.H. (1998). *Construction contracting/ Business and legal principles*, N.J;

Bramble, B.B., and Callahan, M.T. (1987) *construction delay claims*. John Wiley & Sons, Inc., USA.

Cleland, D.I. (1999). *Project management strategic design and implementation*, **3**rd Ed., New York.

Clogh, R.R. (1981) *construction contracting*, **4th** Ed., Wiley, New York,

Frimpong, Y., Oluwoye, J., and Crawford, I, (2003) s*tatistical methods*, **2**nd Ed., Academic, New York

Hillebrandt, P.M. (1985) *the economic theory and the construction industry*, **2nd** edn. Macmillan, Basingstoke

Kumaraswamy, M.M. and Chan, W.M. (1998), contributes to construction Delays, *Journal of construction Management & Economics, **16**; 17-29.* Lock, D. (1996). Project Management, 6th Ed., Gower, Aldershot.

Maura H.P; Teixeira J.C & Pires B (2007) dealing with cost and time in the Portugees construction industry; *CIB world building congress,* 2007; **vol** 422; university of Minho; Guimaraes, Portugal.

Martin, C.C. (1979). *Project Management*, New York: Amaco.

Mezher, T.M., and Tawil, W. (1998) Causes of Delays in the Construction Industry in Lebanon, *Journal of Engineering Construction and Architecture Management, **24**; 251-260.*

Mogbo T.C. (1998) an integrative approach to environmental reconstruction and Politics in Nigeria, *Journal of Environmental Science*, University of Jos, Nigeria, 1-7.

Mogbo T C (2004) construction and National Integration strategies for achieving National unit through the redesign, construction and privatization of new Road and Railway Networks in Nigeria 1-2.

Ogunlana S.O. Prokuntong, K. and Jearkjirm, V. (1996), Construction Delays in Fast Growing Economy Comparing Thailand with Other Economies, *International Journal of Project Management 14 (1),37-45.*

Okpala, D.C. and Aniekwu, A.N. (1988), Cause of high cost of construction in Nigeria .*Journal of Construction Engineering and Management, ASCE , 114 (2) 223-34.*

Stuckenburck, L.C. (1982). The implementation of project management: The Professional handbook, 4th Ed., Addison-Wesley, Reading, Mass 271 *The International Conference on Administration and Business*_ ICEA - FAA 2009 _ 14 – 15 NOVEMBER 2009 _ _The Faculty of Business and AdministrationUniversity of Bucharest **http://conference.faa.ro**

Saleh A T,(2009) causes of delay in construction projects in Libya, the Int conf on economics &Administration, Faculty of Administration and Business University of Bucharest Romania; ICEA- FAA Buncharest, 14-15 Nov 2009.

Yong, P.H. (1988). Turnkey construction for building in Malaysian, in Managing Construction worldwide, **Vol. 3**, *construction Management and Organization in Perspective Lanley* , P.R and Harlow, P.A. (eds) Chartered Institute of Building, Ascot, UK, 284-95
.
Young, J., and Jinijoo, L. (1998) "Factors influencing the success of management Consulting projects;" *International Project Management Journal **16** (2) 67-72*