

## Project Delivery Delay: The Nigeria Experience

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**Abstract:** Project delivery delay, with its negative ripple effects, is one of the major problems face in the construction industry of developing countries. Delays can be minimized only when their causes are recognized. The main objective of this study is to identify the major causes of delays in construction projects in the Nigeria Construction Industry through a survey. The primary aim is to identify the perceptions of the different parties regarding causes of delays. The literature related the field of causes and effects of delay in construction projects has been reviewed. A questionnaire survey was conducted to solicit the causes of delay from clients, consultants and contractors' viewpoint. This survey was conducted among 10 owners/developers, 40 contractors and 50 consultants. This study identified 41 important causes of delay. It was found the predominant causes of delay are decision during development stage or changes in drawing, drawing approval, delayed payment, market conditions, financial process difficulties or money disbursement, subsurface soil condition, excessive changes in quantities & specifications, design errors or incomplete supply of drawings. The paper forecasts some future trends and suggests certain areas in which future research on construction projects could focus on, the findings of construction management problems are common to developing countries.

**Keywords:** Contractor, Construction, Delays, Nigeria, Projects

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### I. Introduction

Construction delay is considered one of the most frequent problems in the construction industry and delays have an adverse impact on project success in terms of time, cost, quality and safety [1]. According to Al-Momani, delay is a situation when the contractor and the project owner jointly or severally contribute to the non-completion of the project within the original or the stipulated or agreed contract period [2]. Delays can be minimized only when their causes are recognized. Keeping construction projects within approximate costs and schedules requires sound strategies, good practices, and careful judgment. Assaf et al reported that 76% of the contractors they surveyed have indicated that average of time overrun is between 10% and 30% of original duration, while about 56% of the consultants specified the same percentage [3]. Time and cost overruns occur in most construction projects, although, the magnitude of these delays and cost overruns varies considerably from project to project [4].

In this survey, Lagos is used as a microscopic because that's the nerve-centres of the Nigerian economy and about 60% of commercial construction projects in Nigeria is domicile in Lagos. This survey was conducted among 10 owners/developers, 40 contractors and 50 consultants. Thereafter, the analysis the data was done using statistical procedures

Numerous researchers has identified the causes of delay in construction projects to determine the causes, level of time extension needed for public projects and aid requirement by construction managers in establishing adequate evaluation prior to the contract award using quantitative data [5]. According to Assaf et al [3] and Ogunlana et al [6] delays can lead to many negative effects such as time and cost overrun. Ogunlana et al [6] also identified the problem of shortage or inadequacies in industry infrastructures as the most important factor affecting performance of a building construction followed by problems of incompetent consultants/contractors as major challenges in Thailand.

### II. Methodology

Apart from comprehensive literature review, questionnaire survey was used to solicit the causes of delay from clients, consultants and contractors' viewpoint. The respondents were asked to identify their response category on a 5 liker scale.

Summary of causes of delay identified are shown below.

Flood
Fire
Wind Damage
Design Development
Design errors or incomplete supply of drawings
Decision during development stage or changes in drawing

Excessive changes in quantities & Changes in Specifications
Drawings Approval
Incomplete documents
Inspections(from local authority, consultant or client)
Subsurface Soil Conditions
Material/Fabrication Delays
Material Procurement
Lack of Qualified Craftsmen
Poor Subcontractor Performance
Defective Work or construction mistakes
Different Site Conditions
Labour Injuries
Failure or damage to Structure
Poor Supervision
Equipment non availability
Financial Process difficulties or money disbursement
Delayed Payments
Economic Problems
Labour Dispute and Strike
Inadequate Planning
Inadequate work Scheduling
Contract Modifications
Underestimation of Productivity
Staffing Problems
Lack of coordination on-site
Work Scheduling Mismanagement
Transportation Delays
Project Suspensions
Inadequate Review of drawing
Lack of High-Technology
Poor Managerial Skills
Building Permits Approval Process
Changes in Laws and Regulations
Safety Rules
Occupational safety and health standard (OSHA) Regulations

Data for the study were processed and analysed with the aid of the Statistical Packages for Social Science (SPSS). Data measured on nominal scale were analysed using descriptive statistics such as mode, frequency distribution and percentages. Mean scores and standard deviations, as well as inferential statistics such as Spearman correlation were used to analyse data measured on ordinal scale. The levels of importance of identified factors were determined by the magnitude of their mean scores, with the greatest mean representing the most important factor. Other parametric statistics such as Compare Means by One Sampling T-Test and t-statistics were also used to further test the strength of the results obtained from other statistical tests

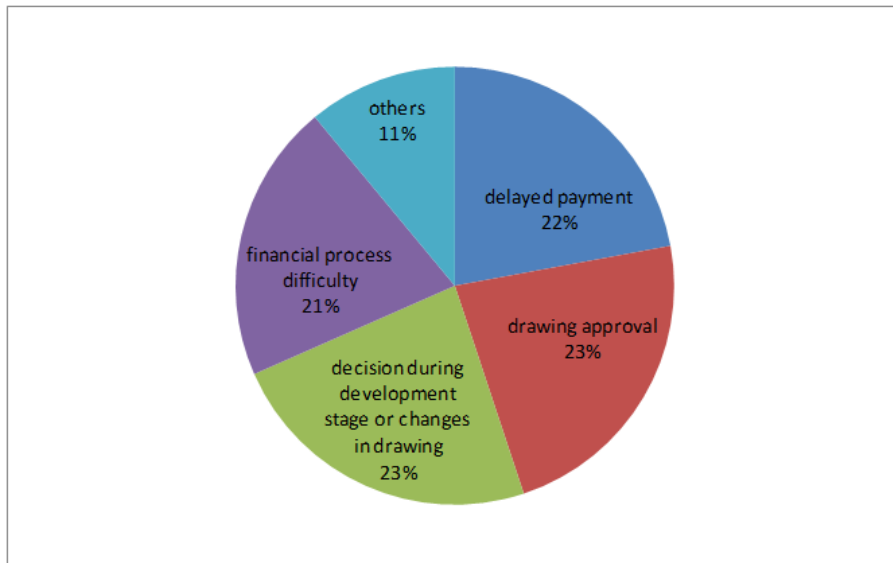
### III. Results and Discussion

#### The major findings of this study include:

1. Decision during development stage or changes in drawing is the most important factor considered by the professionals of the construction industry as the major causes of delay to projects in the Nigerian construction industry as shown in table 1. Other important factors that affect or cause delay to project in the Nigerian construction industry include the drawing approval, delayed payment, financial processes difficulties or money disbursement. Occupational safety and health standard (OSHA) regulations, labour injury, flood, fire and wind damage are not considered important by the professionals of the construction industry as a major cause of delay.
2. There is a low association between the factors affecting or causing delay to projects in the Nigerian industry.
3. The relationship considerations between the causes of delay are not significant determinants of delay to projects in the Nigerian construction industry.
4. The high rate of respondents having a level of experience greater than six (6) years in their respective field of study makes it clear that the research is reasonably proofed that the major causes was due to their high level of experience.
5. The pie chart shows the relationship between the first four causes and others, in which the percentage of each of the first four cause to others are as shown in fig. 1 and the percentages are, decision during development stage & changes in drawings (21%), drawing approval (21%), delayed payment (20%), financial process difficulty (19%), others which are Occupational safety and health standard (OSHA) regulations, labour injury, flood, fire and wind damage (19%)

**Table 1: Factors Affecting the Delivery of Construction Projects in Nigeria**

Causes of Delays	N	Min.	Max.	Mean	Std. Deviation	Rank
Decision during development stage or changes in working drawings	61	1.00	5.00	3.9180	1.05349	1
drawings approval	61	2.00	5.00	3.8197	1.07251	2
delayed payment	61	1.00	5.00	3.6885	1.07302	3
financial process difficulties or money disbursement	60	1.00	5.00	3.4500	1.21327	4
subsurface soil conditions	61	1.00	5.00	3.4426	1.11840	5
excessive changes in quantities & changes in specification	61	1.00	5.00	3.4262	.97398	6
design errors or incomplete supply of drawings	61	1.00	5.00	3.4262	1.05608	7
building permits approval process	61	1.00	5.00	3.4262	1.11742	8
defective work or construction mistakes	61	1.00	5.00	3.4098	1.21624	9
incomplete documents	61	1.00	5.00	3.4098	.97257	10
project suspension	61	1.00	5.00	3.3934	1.30740	11
inadequate planning	61	1.00	5.00	3.3770	1.28016	12
poor subcontractor performance	61	1.00	5.00	3.3607	1.15517	13
contract modification	60	1.00	5.00	3.3000	1.21153	14
Inadequate review of drawing	61	1.00	5.00	3.2951	1.00572	15
labour dispute and strike	61	1.00	5.00	3.2459	1.34976	16
economic problem	60	1.00	5.00	3.2333	1.15519	17
work scheduling mismanagement	61	1.00	5.00	3.1803	1.16201	18
inadequate work scheduling	61	1.00	5.00	3.1803	1.25841	19
poor supervision	61	1.00	5.00	3.1639	1.26728	20
lack of high technology	61	1.00	5.00	3.1639	1.12813	21
poor managerial skills	60	1.00	5.00	3.1333	1.21386	22
design development	61	1.00	5.00	3.1311	1.07200	23
material procurement	61	1.00	5.00	3.1148	1.09694	24
different site condition	61	1.00	5.00	3.0984	1.17905	25
lack of coordination on site	61	1.00	5.00	3.0820	1.18737	26
lack of qualified craftsmen	61	1.00	5.00	3.0656	1.36466	27
changes in laws and regulations	61	1.00	5.00	3.0328	1.26448	28
equipment non availability	61	1.00	5.00	3.0164	1.31011	29
material/fabrication delays	61	1.00	5.00	2.9672	1.27759	30
staffing problem	60	1.00	5.00	2.9333	1.05552	31
failure or damage to structure	61	1.00	5.00	2.9180	1.30761	32
safety rules	61	1.00	5.00	2.9016	1.28718	33
transportation delays	61	1.00	5.00	2.8852	1.33039	34
inspections (from local authority, consultant or client)	61	1.00	5.00	2.8525	1.13778	35
underestimation of productivity	60	1.00	5.00	2.8500	1.14721	36
occupational safety and health standard(OSHA)regulations	61	1.00	5.00	2.7541	1.19242	37
labour injury	61	1.00	5.00	2.5738	1.20359	38
Flood	61	1.00	5.00	2.2623	1.27674	39
Fire	61	1.00	5.00	1.9672	1.13970	40
wind damage	61	1.00	5.00	1.8361	1.18575	41



**Figure 1:** Summary of Causes of Delays in Project Delivery

This study identifies decision during development stage or changes in working drawings as the most important factor considered by the professionals in the Nigerian construction industry. This is in line with the discoveries by Asaaf et al [3] and Chan and Kumaraswamy [7, 8].

Drawing approval as well as delayed payments or financial processes difficulties also emerge in this study as important factors that causes project delivery delays in Nigeria. This is similar to the outcome of researches carried out by Frimpong et al [9] and Toufic and Wissam [10].

#### IV. Conclusion

This survey has identifies changes in working drawings, longer time in drawing approval and delayed payments by client to consultants/contractor as major causes of delay in project delivery in Nigeria.

For improved project delivery in Nigeria, it is therefore very important that experience construction professionals are involves right from the conceptual stage of any major project to forestall any need for major alterations on the working drawing after commencement of construction works. Government policies on approval procedures in Nigeria also need to be reviewed, likewise accessibility to fund for project execution need improvement.

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