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Non-Excusable Delay Factors and Contractors' Performance in Projects Delivery in Akure Metropolis, Ondo State, Nigeria: An Assessment

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Abstract:

The study assessednon-excusable delay (NEDs) factors affecting contractors' performance inProject delivery in Akure metropolis, Ondo State, Nigeria. A structured questionnaire was used to obtain data from consultants, contractors, architects, and quantity surveyors from a sample of one hundred respondents using convenience and snowball sampling techniques. The study used the descriptive statistic to explain the demographic characteristics of the respondents; relative important index (RII) for ranking of factors based on the perception of the respondents as well as the Kendall's coefficient of concordance and Kruskal-Wallis (KW) Test for the hypotheses. The findings revealed that there is an existence of NEDs factors in Akure Metropolis. Also, from the findings, there is a significant degree of agreement among the respondents regarding the NEDs factors affecting contractors' performance in project delivery in Akure metropolis, (p-value (sig) < 0.05). Similarly, there was no significant difference in the perception of the respondents (p-value > 0.05). Thus, contractors must be active in the utilization of finances, time, and human resources as identified as causes of NEDs, as this will help to mitigate delays in project delivery.

Keywords: NEDs, contractors, performance, Kruskal-Wallis (KW) test, snowball

1. Introduction

Globally, the construction industry plays an important role in the national social-economic development of a country (Khahro&Memon, 2018). In Nigeria, the construction industry

occupies an important position in the economy which provides shelter, infrastructure, and development (Aibinu&Jagboro, 2002; Oladinrin, Ogunsemi& Aje, 2012). Also, this industry shows a 21.7% increase in contribution to Nigeria Gross Domestic Product (GDP) in the third quarter of 2018 (National Bureau of Statistics, 2018).

One of the major global challenges facing the construction industryis the growing rate of delay in projects(Aibinu&Jagboro, 2002; Khahro&Memon, 2018; Mahdi & Soliman, 2018). According to Hasmori, Said, Deraman, Abas, Nagapan, Ismail, Khalid and Roslan (2018); Khahro and Memon (2018) and Mahdi and Soliman (2018), delay is a common factor that causes a multitude negative effectand may occur at any time on a project. In developed countries such as the United States of America (USA), the United Kingdom (UK) and Germany, Aibinu and Jagboro (2002) revealed that constructionis better because of prompt delivery of projects within the stipulated time. Thus, implying no delay in project delivery.Contrary to developing countries like Kenya, an investigation by Seboru (2015) showed that construction projects do not get completed within the initially set targets of time as a result of causes of project delays. In Nigeria, Aibinu and Jagboro (2002) stated that there are frequent effects of delay in terms of time and cost overruns. Also, an analysis by Ibironke, Oladinrin, Adeniyi and Eboreime (2013) revealed that non-excusable delay factors that occur due to contractors' contribution increase project delays.As such, Mahdi and Soliman (2018) concluded that delay in project delivery posed many setbacks such as postponement in clients project utilization, public criticism, increase in direct and indirect costs, negative reputation of contractors among others. However, every contractor is majorly concerned with the achievement of the highest possible performance levelwhich is measured against the attainment of the project objectives; it is only achievable when the causes and effects of non-excusable delays can be minimized through good practices in mitigating compensable delays (Ibironke*et al*, 2013). Therefore, a project is successful if it meets the set targets and

objectives within the time, budget,and quality constraints (Masood, Ali, Shafique, Shafique, Zafar, Maqsoom& Ullah, 2015).

Non-excusable delays (NEDs)are found in numerous construction projects and causes losses to the project parties (contractors, consultant, and clients). For instance, a study revealed that the construction industry is aware of the persistent occurrence of non-excusable delays and this affects the contractor's performance (Ibironke*et al*. 2013). These delay factors can be minimised when their causes and effects can be identified. From the foregoing, it is clear that there have been works done on non-excusable delay factors across the globe. However, the motivating factor for this study is a need for awareness on NEDs in Akure metropolis. Where they exist, especially in South-West, the focus has been on Lagos State with a dearth of studies on Ondo State, Akure metropolis in particular on issues related to non-excusable delay factors (NEDs). It is necessary to have an understanding of the construction activities concerning delay as the volume of construction works differsespecially in Lagos state. Consequently, this study seeks to bridge the existing gap as it centers on non-excusable delay factors and its effects on the contractor's performance in Akure, Ondo State, Nigeria. Based on this, the objectives of the study are to: identify and examine causes of non-excusable delay factors affecting contractor's performance in the study area; evaluate the effects of non-excusable delay factors and investigate how the effects of non-excusable delays factors can be minimised/mitigated in the study area. The succeeding parts of the paper include the review of related literature, methodology, and the study findings. Based on the findings, conclusion and recommendations were made.

2. Literature Review

2.1 Conceptual Issues

Though there are studies ondelaysbut there is a dearth of studies on NEDs in project delivery particularly in Akure, South-West, Nigeria. Hence, it is paramount to revisit some of the

previous research that discussed on delay with emphasis on NEDs. Seboru (2015) stated that despite the introduction of modern management techniques, most parts of the world experience delays in construction project delivery. These delays may be caused by the project parties (clients, contractors, and the consultants), acts of God (such as rainfall earthquakes, snowfalls, heavy rains, tsunamis, wars) among others. According to Ibironke*et al*. (2013), delay may occur early or late in both medium and large projects. Insight from Odeyinka and Yusuf (1997); Sambasivan and Soon (2007) and Ibironke*et al*. (2013), revealed that seven out of every ten projects executed suffer delays.Ibironke*et al*. (2013) concluded that the majority of the projects executed in recent years were faced with the problem of delay in delivery.Also, Maqsoom, Choudhry, Umer and Mehmood (2019) identified time which is influenced by varying factors as a delay causing failure in project delivery. However, Jayalath and Perera (2019) concluded that delayis an instrument used to demand for extratime by contractors and as a check by employers to discourage payment of additional costs.Nevertheless, from the previous studies which centered on delays, scholars argument were based on the fact thatdelays have been anincessantencounter caused by different factors in project delivery and which may occur at any point of the project.Thus, criticallyanalyzing these factors by scholars will therefore undoubtedly bring novelty to theresearch arena of NED as it serves as a guide to project participants in the built environment.Therefore, it is noteworthy that any project that saves in time will gain in profit (El-Reedy, 2016).

Several studies in literature classified delays in construction projects according to their nature and define various types of delays (Masood *et al.,* 2015; Khahro&Memon, 2018; Hasmori*et al.,* 2018; Jayalath&Perara, 2019). These include excusable delays (They are delays that occur due to natural calamities. These delays are generally known as “acts of God”. They do not occur due to negligence of any specific party, there is leverage for contractors to have an extension of time on most contracts without extra reimbursement);non-excusable delays (NEDs) (occurs due to negligence of contractors, subcontractors or material suppliers and

there is no extra time and money set for the contractor. However, contractormight get compensation from the sub-contractor or supplier responsible for such delay);compensable delays (compensable delays occur due to negligence of the owner or its agents. In this case, the contractor is provided with both extra money and extra time); non-compensable delays (non-compensable delays such as fires, protests, shutdowns and government actions in its sovereign capacity among others are induced by events or third parties beyond the reach of the client or the contractor. In non-compensable delays, contractor normally gets extension of completion time but no compensationgiven for damages caused by delay) and concurrent delays (concurrent delays are delay that occur as a result of two or more delay events; caused by two parties at the same time and the effect is felt at the same time. Typically, many factors delay the project simultaneously in an overlapping manner, which is more complicated).However, non-excusable delay (NEDs) is the focus of this study.

The factors that caused NEDs were identified and listed througha literature review of previous studies as highlighted in Table 1. These studies were published in journals as articles. The results of previous research work was used to identify the causes of NEDs factors in the present study.

Table 1: Causes of NEDs Factors Affecting Contractor's Performance in Construction Projects

S/N	Country	Author(s)	Year	Causes of NEDs
1.	Nigeria	Mansfield, Ugwu& Doran	1994	Financing and payment of completed work, shortages in materials, poor management of contract, and improper planning.
2.	Malaysia	Sambasivan& Soon	2007	Contractor's improper planning, contractor's poor site management, inadequate contractor experience, lack of communication between parties, mistakes during the construction stage, inadequate client's finance and payments for completed work, problems with subcontractors, shortage in materials, labour supply, and failure in equipment availability.
3.	Nigeria	Mohammed &Isah	2012	Improper planning, lack of active communication, errors in design, materials shortage, supply, and slow decision making.
4.	Nigeria	Ibironke, Oladinrin, Adeniyi &Eboreime	2013	Insufficient amount of equipment, incorrect time estimates, difficulties in monthly payment, change orders, and inaccurate cost estimates.

5.	Malaysia	Memon	2014	Regular design changes, project scope changes, difficulties in the finance ofowner, delays in decision making, and unforeseen ground conditions.
6.	Nigeria	Owolabi, Amusan, Oloke, Olusanya, Tunji, Owolabi &Omuh	2014	Unavailability of funds to finance the project to completion, drawing changes, poor communication among the project parties, insufficient information from consultants, and slow decision making.
7.	India	Ravisankar, Anandakumar& Krishnamoorthy	2014	Shortages of skilled and unskilled labour, changes in design by the owner or his agent during construction, changes in prices, high waiting time for availability of work teams, and rework due to errors.
8.	Pakistan	Masood, Ali, Shafique, Shafique, Zafar, Maqsoom& Ullah	2015	Payments delay, poor weather conditions, less use of high technology mechanical equipment's, delay in review and approval of design documents, unclear design details in drawing, ineffective project planning and scheduling, rework resulting from errors during construction, subcontractor delay, poor site conditions, and coordination problem with other stakeholders.
9.	Malaysia	Hasmori, Said, Deraman, Abas, Nagapan, Ismail, Khalid &Roslan	2018	Financial difficulties, confusion and mistakes in the design document, late materials delivery, changes of order, lacks coordination with contractors, lacks of input from client before designing stage, late approval in works changes, ineffective planning and scheduling, problems in coordination and communication with client and consultant, and unskilled subcontractor.
10.	Saudi Arabia	Khahro&Memon	2018	Subcontractor unreliability, shortage of labour and materials, and delay in material mobilization.

Source: Mansfield, Ugwu and Doran (1994); Sambasivan and Soon (2007); Mohammed and Isah (2012); Ibironke*et al.* (2013); Memon (2014); Owolabi *et al.* (2014); Amusan*et al.* (2014); Ravisankar *et al.* (2014); Masood, *et al.* (2015); Hasmori, *et al.* (2018) and Khahro&Memon (2018).

As shown in Table 2, an integrated approach was used by combining the effects of NEDs factors as reviewed and highlighted from literature. These factors were used in the present study.

Table 2: Effects of NEDs Factors on Contractor's Performance

S/N	Country	Authors	Year	Effects of NEDs in Construction Projects
1.	Nigeria	Aibinu and Jagboro	2002	Time overrun, cost overrun, dispute, arbitration, litigation, and total abandonment.
2.	Malaysia	Sambasivan and Soon	2007	Time overrun, cost overrun, dispute, arbitration, litigation, total abandonment.
3.	Nigeria	Ibironke*et al.*	2013	Time overrun, cost overrun, dispute, arbitration, total abandonment, and litigation.
4.	Pakistan	Masood *et al.*	2015	Cost overrun, arbitration, time overrun, blacklisting by authorities and stakeholdersloss of interest.

Source: Aibinu and Jagboro (2002); Sambasivan and Soon (2007); Ibironke*et al.* (2013) and Masood *et al.* (2015)

Owners and contractors alike have incurred delays during a construction project which have severe negative impacts. Based on this, there is a need to take into consideration measures during the planning stage of construction contracts to ensure that the parties' financial interests are adequately protected in the event delays result in late project completion (Khahro&Memon, 2018). In the present study, the result of several studieswas used to identify ways of minimising NEDs in construction projects delivery as highlighted in Table 3.

Table 3: Ways of Minimising NEDs Factors Affecting Contractor's Performance

S/N	Authors	Year	Possible ways of reducing NEDs
1	Aibinu&Jagboro	2002	Acceleration of site activities and contingency allowance inclusion.
2	Odeh &Battaineh	2002	Development of human resources in the construction industry through proper training and classification of craftsmen, improving the situations of construction projects requires enforcing liquidation damage clauses and offering incentives for early completion, new approach adoption for contract award procedure by giving less weight to prices and more weight to capacities andcontractors' past performances and adopting new approaches for contracts such as design-build and construction management-type contracts.
3	Nguyen, Ogunlana& Lan	2004	Project manager competency, project team multidisciplinary/competent, availability of resources and commitment to projects, frequent progress meetings, effective strategic planning, clear information and communication channels, use of up-to-date technology, absence of bureaucracy, accurate initial time estimates, awarding bids to the right/experienced consultant and contractor, proper emphasis on experience, community involvement, systematic control mechanisms, and comprehensive contract documents.
4	Koushki, Al-Rashid &Kartam	2005	Adequate and available sources of finance until project completion must be ensured, sufficient time and money at the design phase should be allocated, selecting a competent consultant and a reliable contractor to carry out the work, performing preconstruction planning of project tasks and resource needs, hiring an inadequate supervision engineer to monitor the work, and ensuring timely delivery of materials.
5	Ibironke, Oladirin, Adeniyi &Eboreime	2013	Ensuring adequate and available sources of finance, competent project manager, availability of resources, frequent progress meetings, and awarding bids to the right/experienced consultant and contractor.
6	Hasmo*et al.*	2018	Site management and supervision, proper project planning, use a proper construction method, effective strategy planning, frequent coordination with any involved party, proper and complete design on time, frequent progress meeting, provide a clear information, using an up-to-date technology, accurate initial cost estimation,

			compact or compress the duration of construction.
7	Khahro&Memon	2018	A penalty clause for delay in material selection and delivery would minimize the occurrence of late delivery; engaging an experienced planning engineer would influence the cost; benchmarking and constantly improving thepractices/procedure would reduce the impact; systematic monitoring and control putting in mind accuracy, short regular intervals, effective feedback and standard procedures will reduce poor monitoring and control; a fine clause would govern the reliability and performance of sub-contractor;a penalty clause stipulated by the contractor for the shortage of materials/labor/equipment;ideally a contract clause for delivery may influence the delivery program;engaging additional experienced personnel would reduce the impact but may influence the cost;using work sampling data, managers will be able to make exact decisions to control the factors that would positively and adversely affect job productivity; engaging additional personnel will influence cost;engaging an appropriate resource will influence time and cost; improving job satisfaction would increase morale/motivation; proper personnel planning and provision will reduce shortage; sharing with different companies as well as checking manufacturing details from all industries;the contractor is entitled to provide for corrective actions and improvements where works are defective; excluding late workers and morning inspection would reduce late arrival.

Source: Aibinu&Jagboro (2002); Odeh &Battaineh (2002); Nguyen *et al.* (2004); Koushki*et al* (2015); Ibironke*et al.* (2013); Hasmo*et al* (2018) and Khahro&Memon (2018)

2.2 Empirical Evidences

Masood *et al.* (2015) carried out an investigation in the Metropolitan City of a developing country on delay factors of construction projects using an integrated approach. From their findings, ten most important causes of delays (payments in delay, poor weather conditions, rework resulting from errors during construction, subcontractor delay, poor site conditions, coordination problem with other stakeholders, delay in review and approval of design documents, unclear design details in the drawing, less use of high technology mechanical equipment's as well as ineffective project planning and scheduling)were identified in the construction industry which implies that they significantly affect construction projects. Khahro and Memon (2018) carried out a causalstudy in the construction industry on non-excusable delays using a qualitative research methodology. The study involves the collection of field data on factors causing NEDs in the construction industry, analysis was done using the relative importance index (RII) method. The result of their study showed that slow

material mobilization, sub-contractor unreliability and shortage of labourand materials are the most critical NEDs causes which affects contractors. Besides, Mahdi and Soliman (2018) caused out a study on delay factors in Gulf countries. The result identified fourteen significant and top-ranked factors causing delay as planning and schedule deficiency, contractor project mismanagement, slow of owner decision-making process, lack of owner staff management capabilities,owner changing order process, design document error/ mistakes/ changes/ discrepancy, late of submittal approval and required information, lack of efficient communication and coordination between project parties, contractor financial problems or difficulties, delay of financing and payments by the owner, delay in getting approval from publicauthorities, shortage of manpower in the local market, shortage of construction materials, contract documents and contract related issues. Specifically, in Hasmoriet al. (2018) study, financial difficulties were recognised as the most significant factor that caused delays.

3. Methodology

This study adopted a survey design with the use of the questionnaire (that capture parameters that can numerically be measured) developed to elicit information on NEDs factors. The study area is Akure metropolis, Ondo State, Nigeria. Respondents for the study were professionals in the construction industry. The respondents comprise consultants, quantity surveyors, contractors, and architects. Convenience sampling technique (was used because it was difficult to get a response from sample elements selected at random) and snowball sampling (was employed to identify other participants within the social networks of the participants through referral networks) were used to obtain information from 100 respondents within the construction firms in Akure metropolis (Sambasivan& Soon, 2007). The questionnaire was grouped into four sections. The first section covers therespondents' background information. The second section sought to know the causes of non-excusable delays. The respondents were asked to rank the individual causes of non-excusable delays

according to frequency of occurrence based on their judgement and experience in the construction industry. A total of forty-one (41) NEDs factors were identified and categorized into seven main groups as identified from literature, namely material, equipment, finance, client, contractor, consultant, and external-related factors. A five-point Likert scale ranging from 1 (not important) to 5(extremely important) was adopted to capture the causes of non-excusable delays. The third section of the questionnaire focused on the eight identified effects of NEDs factors. The eight effects of non-excusable delay as identified from literature were cost overruns, disputes, arbitration, time overruns, total abandonment, litigation, loss of interest of stakeholders as well as blacklisting by authorities. The respondents were also asked to rank the individual effect of non-excusable delays based on their judgment and experience in the construction industry. A scale of 1-5 was adopted for the ranking as follows: 'always'- 5; 'mostly' - 4; 'sometimes'- 3; 'seldom' - 2 and 'never'- 1. The fourth section sought to know ways of reducing the effects of non-excusable delays through a closed-ended question. A five-point Likert scale ranging from 1 (not effective) to 5(extremely effective) was utilized. The data collected from the questionnaire were analysed using the relative importance index method. The relative importance index (RII) according to Aibinu and Jagboro (2002) was calculated for each item as follows:

$$RII = \frac{5n_1+4n_2+3n_3+2n_4+1n_5}{5N} \quad (1)$$

where, n_1 = number of respondents for always; n_2 = number of respondents for mostly; n_3 = number of respondents for sometimes; n_4 = number of respondents for seldom; n_5 = number of respondents for never; N = total number of respondents. However, to determine whether there is a significant degree of agreement among the four groups (contractors, consultants, architect and quantity surveyors), Kendall's coefficient of concordance was used as a measure of agreement. The Kendall's coefficient of concordance (Afshari, Khosravi, Ghorbanali, Borzabadi, Planning & Deputy, 2011) is expressed as:

$$W = \frac{12U-3n\,(n-1)^2\;\; m^2}{n(n-1)^2m^2} \quad (2)$$

where, U = $\sum_{i=1}^{n}(\sum R)^2$, n = number of factors of NEDs (equals to 41), m = number of groups (equals to 7), R_{ij}= significant degree allocated for j^{th} causes of NEDs byi^{th} expert, W =Kendall's coefficient of concordance. For the null hypothesis (H_0): there is no significant degree of agreement among the respondents while for the alternate hypothesis (H_1): there is a significant degree of agreement among the respondents. Also, to compare the ranks means between two or more samples, a statistical test called Kruskal-Wallis (KW) test was utilized toexamine if there are any significant differences in theviews of the respondents (contractors, consultants, architect and quantity surveyors) regarding the levels of each of the NEDs factors affecting contractors' performance.

4. Results and Discussion

4.1 Demographic Characteristics of Respondents

Table 4: Demographic Characteristics of Respondents

S/N	Demographic Characteristics of Respondents	Frequency	Percent	Valid Percent	Cumulative Percent
1.	**Age**				
	20 – 29	25	25.0	25.0	25.0
	30 – 39	30	30.0	30.0	55.0
	40 – 49	39	39.0	39.0	94.0
	50 – 59	06	6.0	06.0	100.0
	Above 60	00	00	00	
	Total	100	100.0	100.0	
2.	**Sex**				
	Male	81	81.0	81.0	81.0
	Female	19	19.0	19.0	100.0
	Total	100	100.0	100.0	
3.	**Education**				
	OND	01	1.0	1.0	1.0
	HND	17	17.0	17.0	18.0
	PGD	02	2.0	2.0	20.0
	BSc or its equivalent	38	38.0	38.0	58.0
	MSc or its equivalent	36	36.0	36.0	94.0
	Ph.D	06	06.0	06.0	100.0
	Total	100	100.0	100.0	
4.	**Type of organization**				
	Quantity surveyor	14	14.0	14.0	14.0
	Consultant	32	32.0	32.0	46.0
	Architect	19	19.0	19.0	65.0
	Contractor	35	35.0	35.0	100.0
	Total	100	100.0	100.0	

5.	**Years of work experience**				
	Less than 10	44	44.0	44.0	44.00
	10 – 20	47	47.0	47.0	91.0
	21 – 31	09	9.0	9.0	100.0
	Above 31	00	00	00	
	Total	100	100.0	100.0	
6.	**Area of specification**				
	Building	53	53.0	53.0	53.0
	Infrastructure	35	35.0	35.0	88.0
	Mechanical/Electrical	12	12.0	12.0	100.0
	Others	00	00	00	
	Total	100	100.0	100.0	
7.	**Value of project**				
	Less than ₦ 10M	25	25.0	25.0	25.0
	₦ 10M – 100M	36	36.0	36.0	61.0
	More than ₦ 100M	39	39.0	39.0	100.0
	Total	100	100.0	100.0	

Table 4 showed that about 39% of the respondents sampledwere between 40-49years, indicating their activeness into construction works. In terms of working experience, the result indicated that a larger percentage (47%) have above 10 years of working experience, thus showing their vast years of experience in the industry. Results also showed that 81% of the respondents are male while 19% are female. Their area of specialization revealed that 53% are into building projects which is an indication that more focus is given to building works. Results also indicated that 39% of the sampled respondents have been engaged in project value above ₦ 100M.

4.2 Causes of Non-Excusable Delay Factors

Table 5: Overall Computed RIIs and Ranking as Perceived by the Respondents on Causes of Non-Excusable Delay Factors Affecting Contractors' Performance in Project Delivery

S/N	Causes	Consultant		Contractor		Architect		Quantity Surveyor		Weighted Average	Ranking
		RII	Rank	RII	Rank	RII	Rank	RII	Rank		
A. Material-related delays											
1	Shortage of construction materials	0.63	30th	0.73	9th	0.62	36th	0.71	16th	0.67	6th
2	Fluctuation of prices/escalation of materials prices	0.67	15th	0.74	5th	0.73	18th	0.73	12th		
3	Late	0.61	34th	0.74	5th	0.61	39th	0.69	22nd		

	delivery of materials/ slow material mobilization										
4	Poor quality of construction materials	0.69	8th	0.65	31st	0.59	41th	0.74	9th		
5	Unreliable suppliers	0.60	35th	0.65	31st	0.62	36th	0.61	37th		
B. Finance-related delays											
6	Financing and payment for completed work	0.74	2nd	0.77	2nd	0.77	7th	0.84	1st	0.72	1st
7	Regular payment difficulties	0.71	4th	0.76	3rd	0.77	7th	0.77	4th		
8	Lack of funds to finance the project to completion	0.71	4th	0.80	1st	0.78	5th	0.79	3rd		
9	Delay in honouring of payment certificates	0.75	1st	0.73	9th	0.77	7th	0.73	12th		
10	Difficulty in accessing bank credit	0.59	36th	0.60	39th	0.65	34th	0.57	41st		
11	Contractor's financial difficulties	0.68	13th	0.67	24th	0.73	18th	0.66	30th		
C. Contractor-related delays											
12	Poor contract experience/management	0.70	6th	0.73	9th	0.73	18th	0.64	32nd	0.68	4th
13	Improper planning and scheduling	0.70	6th	0.74	5th	0.69	31st	0.69	22nd		
14	Underestimation of project cost	0.67	15th	0.73	9th	0.71	27th	0.60	38th		
15	Underestimation of complexity of project	0.68	13th	0.70	18th	0.68	32nd	0.69	22nd		
16	Underestimation of time for project completion by contractors	0.73	3rd	0.68	23rd	0.73	18th	0.64	32nd		
17	Poor professional management	0.65	23rd	0.69	19th	0.75	11th	0.63	36th		

18	Poor site management and supervision	0.69	8th	0.74	5th	0.73	18th	0.67	28th		
19	Late issue of instructions	0.64	26th	0.62	35th	0.73	18th	0.69	22nd		
20	Shortage of skilled and unskilled labour	0.69	8th	0.61	38th	0.74	16th	0.60	38th		
21	Incompetent project team	0.66	18th	0.71	15th	0.71	27th	0.71	16th		
22	Unreliable subcontractors	0.66	18th	0.62	35th	0.68	32nd	0.71	16th		
23	Low labour productivity	0.66	18th	0.62	35th	0.71	27th	0.64	32nd		
24	Absenteeism of labours	0.64	26th	0.64	34th	0.63	35th	0.66	30th		
D.Client-related delays											
25	Lack of effective communication and coordination among project parties	0.66	18th	0.69	19th	0.82	1st	0.80	2nd	0.70	2nd
26	Slow decision making by Client	0.65	23rd	0.69	19th	0.75	11th	0.77	4th		
27	Change of orders	0.62	33rd	0.66	28th	0.72	25th	0.69	22nd		
28	Changes in drawings/design	0.66	18th	0.72	13th	0.80	3rd	0.71	16th		
E. Equipment-related delays											
29	Insufficient amount of equipment	0.58	39th	0.71	15th	0.72	25th	0.74	9th	0.68	4th
30	Inadequate of modern equipment	0.59	36th	0.67	24th	0.74	16th	0.73	12th		
31	Frequent breakdown of equipment	0.67	15th	0.75	4th	0.71	27th	0.69	22nd		
32	Slow mobilization of equipment	0.65	23rd	0.66	28th	0.73	18th	0.67	28th		
F. Consultant-related delays											
33	Design errors/poor design	0.69	8th	0.69	19th	0.82	1st	0.73	12th	0.69	3rd
34	Lack of adequate information from consultants	0.64	26th	0.66	28th	0.79	4th	0.71	16th		

35	Incomplete drawings	0.63	30th	0.71	15th	0.78	5th	0.76	7th		
36	Delay in design	0.63	30th	0.72	13th	0.75	11th	0.76	7th		
37	Slow responses and poor inspections	0.59	36th	0.59	41st	0.76	10th	0.71	16th		
G. External-related delays											
38	Slow site clearance	0.56	40th	0.65	31st	0.62	36th	0.59	40th	0.65	7th
39	Problems with neighbor	0.56	40th	0.60	39th	0.60	40th	0.64	32nd		
40	Unforeseen ground conditions	0.64	26th	0.67	24th	0.75	11th	0.77	4th		
41	Poor weather conditions	0.69	8th	0.67	24th	0.75	11th	0.74	9th		

Table 5 summarizes the RIIs and ranking computed as perceived by consultants, contractors, architects, and quantity surveyors on causes of NEDs factors affecting the contractor's performance in project delivery in Akure metropolis. From the table, finance-related delay factors were ranked 1st by all the respondents as the major cause of NEDs. This is evident in Hasmori*et al.* (2018) study, that identified financial difficultiesas the most significant factor that caused delays in project delivery.

Table 6: RII and Ranking of the Top SignificantCauses of Non-Excusable Delay Factors Affecting Contractors' Performance in Project Delivery

S/N	Factors	Consultant		Contractor		Architect		Quantity Surveyor	
		RII	Rank	RII	Rank	RII	Rank	RII	Rank
1	Financing and payment for completed work	0.74	2nd	0.77	2nd	0.77	7th	0.84	1st
2	Regular payment difficulties	0.71	4th	0.76	3rd	0.77	7th	0.77	4th
3	Lack of funds to finance the project to completion	0.71	4th	0.80	1st	0.78	5th	0.79	3rd
4	Delay in honouring of payment certificates	0.75	1st	0.73	9th	0.77	7th	0.73	12th

Table 6 illustrates the top significant NEDs factors affecting contractors' performance in project delivery in Akure metropolis, Ondo State, Nigeria. From the table, the three most important factors according to the perception of consultants, contractors, architects and quantity surveyors are financing and payment for completed work, regular payment difficulties and lack of funds to finance the project to completion. However, it could be

deduced from Table 6 that financing and payment for completed work was the most important causes of NEDs factors affecting contractors' performance as it is ranked among all factors with RII = 0.74 for consultants, 0.77 for contractors, 0.77 for architects, and 0.84 for quantity surveyors. The finding is in agreement with the studies of Mansfield *et al*. (1994); Memon (2014); Owolabi *et al*. (2014) and Hasmori*et al*. (2018).

Table 7: RII and Ranking of Groups on Causes of Non-Excusable Delay Factors

S/N	Groups	Consultant		Contractor		Architect		Quantity Surveyor	
		RII	Rank	RII	Rank	RII	Rank	RII	Rank
1	Material-related delays	0.64	4	0.70	2	0.63	7	0.57	7
2	Finance-related delays	0.70	1	0.72	1	0.75	3	0.73	2
3	Contractor-related delays	0.67	2	0.68	5	0.71	5	0.66	6
4	Client-related delays	0.65	3	0.69	4	0.77	2	0.74	1
5	Equipment-related delays	0.62	6	0.70	2	0.73	4	0.71	4
6	Consultant-related delays	0.64	4	0.67	6	0.78	1	0.73	2
7	External-related delays	0.61	7	0.65	7	0.68	6	0.69	5

As shown in Table 7, the finance-related delay factors have been ranked in the first position by the consultant with RII equals 0.70, and the contractors' respondents also in the first position with RII of 0.72. The client-related delay factors were ranked by the quantity surveyors in the first position with RII of 0.74 while consultants' related-delays has been ranked by the architects in the first position with RII equals 0.78. This means that both the consultant and the contractor agreed that finance-related delays are the major cause of NEDs based on group ranking.

4.3 Effects of Non-Excusable Delay Factors

Table 8: RII and Ranking of Effects of NEDs Factors as Perceived by Respondents in Akure Metropolis, Ondo State

S/N	Effects of NEDs	Consultant (RII)	Contractor (RII)	Architect (RII)	Quantity Surveyor (RII)	Weighted Average (RII)	Ranking
1	Cost overrun	0.71	0.70	0.71	0.69	0.70	1st
2	Time overrun	0.70	0.70	0.68	0.66	0.69	2nd

3	Total abandonment	0.67	0.61	0.58	0.74	0.65	3rd
4	Dispute	0.60	0.66	0.69	0.60	0.64	4th
5	Loss of interest of stakeholders	0.63	0.63	0.58	0.69	0.63	5th
6	Litigation	0.62	0.62	0.57	0.61	0.61	6th
7	Arbitration	0.58	0.60	0.54	0.59	0.58	7th
8	Black listing by authorities	0.599	0.60	0.47	0.56	0.56	8th

Table 8 evaluates the effects of non-excusable delay factors as perceived by the respondents. Based on this, the finding showed that cost and time overrun were the most frequent effects of delay. This is in line with Masood *et al.* (2015) finding. However, cost overrun was ranked 1st among the respondents while time overrun, ranked 2nd by the respondents.

4.4 Ways of Reducing Non-Excusable Delay Factors

Table 9: RII and Ranking of Ways of Reducing Non-Excusable Delay Factors as Perceived by Respondents in Akure, Ondo State

S/N	Ways of Reducing NEDs	Consultant (RII)	Contractor (RII)	Architect (RII)	Quantity Surveyor (RII)	Weighted Average (RII)	Ranking
1	Sources of finance should be adequate and available till project completion	0.81	0.82	0.87	0.90	0.85	1st
2	Availability of competent project manager	0.83	0.81	0.85	0.91	0.85	1st
3	Awarding bids to right/experienced consultant and contractor	0.82	0.77	0.85	0.86	0.83	3rd
4	Allocation of sufficient money and time at the design phase	0.82	0.77	0.86	0.83	0.82	4th
5	Acceleration of site activities	0.75	0.77	0.84	0.84	0.80	5th
6	Ensuring timely delivery of materials	0.76	0.77	0.84	0.83	0.80	5th
7	Availability of multidisciplinary/competent project team	0.78	0.74	0.88	0.81	0.80	5th
8	Frequent progress meetings	0.71	0.75	0.79	0.83	0.77	8th
9	Clear information and communication channels	0.72	0.74	0.77	0.81	0.76	9th
10	Proper emphasis on past experience	0.73	0.76	0.76	0.77	0.76	9th
11	Payment of contingency allowance	0.71	0.75	0.77	0.74	0.74	11th
12	Use of up-to-date technology	0.65	0.70	0.76	0.81	0.74	11th
13	Offering incentive for early project completion	0.71	0.72	0.76	0.71	0.73	13th

14	Developing human resources through proper training of craftsmen	0.71	0.68	0.75	0.70	0.71	14th
15	Community involvement	0.71	0.66	0.65	0.73	0.69	15th
16	Absence of bureaucracy	0.73	0.66	0.68	0.69	0.69	15th

Table 9 shows the ranking ofways of reducing NEDs factors affecting contractors' performance in project delivery as perceived by respondents. The results of the finding revealed that: ensuring adequate and available sources of finance till project completion, availability of competent project manager, awarding bids to right/experienced consultant and contractor are the top effective methods of reducing NEDs according to the respondents. The result is in agreement with Koushki*et al*. (2005) and Ibironke*et al*. (2013) findings. This implies that for a project to be implemented and successful, there is a need to make available at all times finances, human resources, and experienced personal till project completion for the smooth running of the projects.

4.5 Degree of Agreement among Respondents Regarding Causes of NEDs Factors

The Kendall's Coefficient of Concordance (W) was used as a measure of agreement among respondents to determine whether there is a significant degree of agreement among the four groups (Consultant, Contractor, Architect, and Quantity Surveyor). For W, each case is a judge and each variable being judged is an item. For each variable judged, the sum of the ranks is computed. W ranges between zero (no agreement) and one (complete agreement).

Table 10: Kendall's Coefficient of Concordance (W) for each group

S/N	Groups	W	Chi-Square	P-value	Decision
1	Material-related delays	0.024	9.747	0.045	Reject H_0
2	Finance-related delays	0.132	66.179	0.000	Reject H_0
3	Contractor-related delays	0.025	29.684	0.003	Reject H_0
4	Client-related delays	0.029	8.5994	0.035	Reject H_0
5	Equipment-related delays	0.020	6.0997	0.107	Don't reject H_0
6	Consultant-related delays	0.035	13.888	0.008	Reject H_0
7	External-related delays	0.084	25.321	0.000	Reject H_0
All Groups		0.028	16.717	0.010	Reject H_0

*** The agreement is significant al level of significant α = 0.05**

Table 10 indicates that for material, finance, contractor, client, consultant, external related factors including all groups, the p-values (Sig) are less than α = 0.05 (α, the level of significance), the null hypothesis (H_0) is rejected whilealternate hypothesis(H_1)is accepted. This implies that there is a significant degree of agreement among the consultants, contractors, architects, and quantity surveyors regarding the non-excusable delay factors affecting contractors' performance in construction projects delivery in Akure metropolis.

4.6 Mean Differences of the Respondents Agreements Regarding the Causes of NEDs Affecting Contractor's Performance in Construction Projects

The Kruskal-Wallis (KW) test was used to determine whether or not there are any significant differences in the point of view of the respondentsregarding the levels of the NEDs factors affecting contractor's performance in construction projects delivery, the hypothesis was postulated. The hypothesis states that there is no significant difference in the perception of the architects, contractors, consultants, and quantity surveyors concerning the NEDs factors affecting contractor's performance in construction projects.The result is as shown in Table 11.

Table 11: Kruskal-Wallis (KW) Test for causes of NEDs factors affecting the Contractor's Performance

S/N	Groups	KW value	DF	P-value (Sig)
1	Material-related delays	1.869	3	0.600
2	Finance-related delays	0.810	3	0.847
3	Contractor-related delays	1.873	3	0.599
4	Client-related delays	9.598	3	0.022
5	Equipment-related delays	7.912	3	0.048
6	Consultant-related delays	9.748	3	0.021
7	External-related delays	2.523	3	0.471
All Groups		6.659	3	0.084

* DF: Degrees of Freedom

Table 11 shows that the p-value for client, equipment, and consultant related delay groups is less than 0.05. Also, p-value for material, finance, contractor, and external related delays is greater than 0.05. However, the p-value for all groups is greater than 0.05. Based on the decision rule which states that if p-value > 0.05, the hypothesis is accepted, but if the p-value

≤ 0.05, the hypothesis is rejected. Arising from this, it was concluded that there was no significant difference from the perception of the respondents.

Conclusion and Recommendations

The study assessed the non-excusable delays factors affecting contractors' performance in project delivery in Akure metropolis, Ondo State, Nigeria by identifying and examining the causes of NEDs factors, evaluating its effects, and investigating how the effects of NEDs factors can be minimized. Using the questionnaire, the study found that financing and payment for completed work under finance-related delaysare the most causes of NEDs followed by a lack of effective communication and coordination among project parties under client-related delays. Conversely, considering the top ten significant causes and ranking based on groups, both the finance and client-related factors take the first and the second positions respectively. This showed that both finance and client are important and should be put into consideration in ensuring the performance of contractors in project delivery. Also, the study identified cost overrun, time overrun, and total abandonment respectively as the major effects of NEDs while suggesting adequate and available source of finance till project completion as well as the availability of competent project managers as ways of reducing NEDs factors. The study, therefore, recommended among others that to mitigate NEDs in project delivery, contractors should ensure adequate and appropriate utilization of finances, time, and human resources.

REFERENCES

Afshari, H., Khosravi, S., Ghorbanali, A., Borzabadi, M., Planning, M. V.& Deputy, I. (2011).
Identification of causes of non-excusable delays of construction projects. *2010 International Conference on E-business, Management and Economics IPEDR,* Hong Kong, *3*:42-46.

Aibinu A. A. &Jagboro, G. O. (2002). The effects of construction delays in Nigerian construction industry. *International Journal of Project Management, 20:*593-599.

Amare, S. (2014). Human resource development practices and challenges in public sector:

evident from selected regional public bureaus in Tigray. Unpublished Ph.D Thesis, Department of Management, Makelle University, Ethiopia.

Baloyi, L., &Bekker, M. (2011). Causes of construction cost and time overruns: The 2010 FIFA World Cup stadia in South Africa. *Acta Structilia*, *18*(10):51-67.

El-Reedy, M. A. (2016). *Project Management in the Oil and Gas Industry*. John Wiley & Sons.

Fugar, F. D. &Agyakwah-Baah, A.B. (2010). Delays in building construction projects in Ghana. *Australasian Journal of Construction Economics and Building*, 10(1/2):103-116.

Hasmori, M. F., Said, I., Deraman, R., Abas, N. H., Nagapan, S., Ismail, M. H., Khalid, F. S. &Roslan, A. F. (2018). Significant factors of construction delays among contractors in Klang Valley and its mitigation. *International Journal of Integrated Engineering, Special Issue: Civil & Environmental Engineering, 10*(2):32-36.

Ibironke, O. T., Oladinrin, T. O., Adeniyi, O. &Eboreime, I. V. (2013). Analysis of non excusable delay factors influencing contractors' performance in Lagos State, Nigeria. *Journal of Construction in Developing Countries, 18*(1):53-72.

Jayalath, C.&Perera, B. A. K. S. (2019). Exploring a shared comprehension between judicial approaches and scholar views pertaining to concurrent delays, International Journal of Construction Management, DOI: 10.1080/15623599.2019.1627502.

Khahro, S. H. &Memon, Z. A. (2018). Non excusable delays in construction industry: A causal
study. *Engineering, Technology & Applied Science Research, 8*(6):3561-3564.

Koushki, P. A., Al-Rashid, K. &Kartam, N. (2005). Delays and cost increase in the construction of private residential projects in Kuwait. *Construction Management and Economics*, 23(3):285-294.

Mahdi, I. & Soliman, E. (2018). Significant and top ranked delay factors in Arabic Gulf Countries. *International Journal of Construction Management*. https://doi.org/10.1080/15623599.2018.1512029.

Mansfield, N.K., Ugwu, O. O. &Doran, T. (1994). Causes of delay and cost overruns in Nigerian construction projects. *International Journal of Project Management*, 12(4):254-260.

Maqsoom, S., Choudhry, R.M., Umer, M.& Mehmood, T. (2019). Influencing factors indicating time delay in construction projects: impactof firm size and experience, *International Journal of Construction Management*, DOI:10.1080/15623599.2019.161320.

Masood, R., Ali, M., Shafique, F., Shafique, M. A., Zafar, B., Maqsoom, A., & Ullah, Z. (2015). Investigating the delay factors of construction projects in Metropolitan City of a developing country.*Journal of Civil Engineering and Architecture Research, 2*(9):947-955.

Memon, A. H. Rahman, I. A.,&Azis, A. A. A. (2012). Time and Cost Performance in Construction Projects in Southern and Central Regions of Peninsular Malaysia. *International Journalof Advances in Applied Sciences, 1*(1):45-52.

Mohammed, K. A. &Isah, A. D. (2012). Causes of Delay in Nigerian Construction Industry. *Interdisciplinary Journal ofContemporary Research in Business*, *4*(2):785-794.

National Bureau of Statistics (NBS, 2018). Trading Economics: Nigeria GDP from construction.

Nguyen, L. D., Ogunlana, S. O. & Lan, D. T. X. (2004). A study on project success factors in large construction projects in Vietnam. *Engineering, Construction and Management*, 11(6):404-413.

Odeh, A. M. &Battaineh, H.T. (2002). Causes of construction delay: Traditional contracts. *International Journal of Project Management*, 20(1):67-73.

Odeyinka, H. A. &Yusuf, A. (1997). The causes and effects of construction delays on completion cost of housing project in Nigeria. *Journal of Financial Management and Property Construction*, 2(3):31-44.

Oladinrin, O., Ogunsemi, D. R. & Aje, I. O. (2012). Role of construction sector in economic growth: Empirical evidence from Nigeria. *FUTY Journal of the Environment, 7*(1):50-60.

Owolabi, J. D., Amusan, L. M., Oloke, C. O., Olusanya, O., Tunji, O. P., &Owalabi, O. I. (2014). Causes and effects of Delay on Project Construction Delivery Time. *InternationalJournal of Education and Research, 2*(4):197-208.

Ravisankar, K. L., Anandakumar, S., & Krishnamoorthy, V. (2014). Study on the Quantification of Delay Factors in Construction Industry. *International Journal of EmergingTechnology and Advanced Engineering, 4*(1):105-113.

Sambasivan, M. & Soon, Y. W. (2007). Causes and effects of delays in Malaysian construction
industry. *International Journal of Project Management 25*(5):517–526.

Seboru, M. A. (2015). An investigation into factors causing delays in road construction projects
in Kenya. *American Journal of Civil Engineering, 3*(3):51-63.