



Original Research Article

Impact of Payment Delay on Public Building Projects in Edo State, Nigeria

*¹Idowu, A.O., ¹Simon-Eigbe, B.O. and ²Eshiemokhai, T.I.

¹Department of Quantity Surveying, School of environmental Studies, Auchu Polytechnic Auchu, Nigeria.

²Department of Surveying and Geo-informatics, School of Environmental Studies, Auchu Polytechnic, Auchu, Nigeria.

*ay42k@yahoo.com

<http://doi.org/10.5281/zenodo.6725444>

ARTICLE INFORMATION

Article history:

Received 22 May, 2022

Revised 09 Jun, 2022

Accepted 10 Jun, 2022

Available online 30 Jun, 2022

Keywords:

Effects

Impact

Payment delay

Public building projects

Edo State

ABSTRACT

In recent years, the construction sector in Nigeria has been plagued by cost and time overruns, which are primarily the result of payment delays. Payment delays by customers on construction projects are a major source of concern because they produce serious cash-flow problems for contractors, which have a catastrophic effect further down the contractual payment chain. The causes and implications of payment delays in public construction projects in Edo State were investigated in this paper. Primary data was collected using well-structured closed-ended questionnaires presented to professionals in the Edo State construction industry. Percentile, mean score, and relative important index were used to analyze the data. Slow coordination and getting consent from concerned authorities, followed by late preparation of interim valuation, inflation, and an increase in interest rate in loan payback, were among the causes of payment delays identified by the analysis. Time overrun was identified as the most common result of payment delay, followed by dispute, cost overrun, and job slowdown. The most efficient strategy for combating payment delays in building projects was better contract preparation, followed by appropriate feasibility assessments and imposing interest penalties on late payers. It is also critical for stakeholders to do enough planning and improved feasibility assessments before the start of a building project, as this will help to prevent the likelihood of payment delays.

© 2022 RJEES. All rights reserved.

1. INTRODUCTION

The construction industry contributes significantly to national growth. The construction industry's performance, like that of all economically productive sectors defined by risks and uncertainties, is strongly

dependent on the availability of funds. Delayed payment is a problem in every industry, but the construction industry's specific structure magnifies the impact (Al-Moumani,2000). A payment interruption anywhere in the construction pyramid has a cascade effect throughout the contracting and subcontracting system. Payment delays in construction projects, according to Shebob et al. (2011), have a substantial financial and social impact on all parties participating in the project.

According to Fatoye (2012), most construction projects are completed according to the specifications of the clients, but seldom within the scheduled completion date due to delays, which are primarily caused by financial issues. In the construction sector, late or non-payment of interim payments to contractors has been a serious problem which has impacted contractor performance. This has forced several contractors to be unable to complete work on schedule, creating a delay in the project's completion. In the worst-case situation, they are compelled to quit their projects due to financial constraints, and some are on the verge of bankruptcy (Judi and Rasheed, 2010).

In recent years, payment delays and losses have become generally acknowledged as a plague of the construction business (Ye and Rahman, 2010). Cash flow problems caused by late payments are a major cause of construction delays and project abandonment (Fugar and Agyakwah-Baah, 2010; Ayodele and Alabi, 2011). According to Haseeb et al. (2011), consistent cash flow is critical to the success of building projects since it requires injections at regular intervals to ensure long-term viability. Payment delays remain one of the obstacles of project delivery in Malaysia and Ghana, according to studies by Judi and Rasheed (2010), Ansah (2011), and Donkor (2011). Nigeria is not immune to this problem, as it is plagued by non-payment and payment delays (Fatoye, 2012). This study examined the causes and consequences of payment delays in public construction projects in Auchi, Edo State, Nigeria with the goal of making recommendations on how to prevent or mitigate payment delays in future projects.

2. METHODOLOGY

The causes and implications of payment delays in public construction projects in Edo State were investigated in this paper. To do so, the researchers gathered information from local construction specialists. The population for the study includes stakeholders in public building projects in Auchi, Edo State, as well as construction industry experts (Architect, Quantity Surveyors, Builders and Engineers). The data for this study was collected using a well-structured questionnaire. A total of 135 questionnaires were distributed to respondents. After the surveys were verified for completeness and omissions, including multiple answer errors, the number was reduced to 88. Data collected were subjected to statistical analysis such as percentages, mean scores (Equations 1 and 2) and relative important index (Equation 3). Mean score was used to rank the various factors using Likert scale. The premise of decision for the ranking is that the factor with the highest mean score is ranked 1st and others in such subsequent descending order.

$$Mean\ score = \frac{\sum fx}{N} \quad (1)$$

where X is the rating used per column, f is the sample size for each rating and N is the total sample size.

Since a Likert of 5-point scale will be employed for the collection of data, the formula can thus be written as:

$$Mean\ score = \frac{5f_1 + 4f_2 + 3f_3 + 2f_4 + f_5}{N} \quad (2)$$

$$RII = \frac{\sum w}{A \times N} \quad (3)$$

Where w = weight given to each factor by respondents and ranges from 1 to 5, A is the highest weight (that is 5 in this case) and N = total number of respondents

3. RESULT AND DISCUSSION

3.1. Demographic Information of Respondents

Table 1 shows the demographic information of respondents.

Table 1: Demographic information of respondents

Category	Classification	Frequency	Percent
Type of organization	Public client	8	9.09
	Consultant	36	40.91
	Contractor	38	43.18
	Private client	6	6.82
	Total	88	100.00
Profession of respondent	Quantity surveyor	26	29.55
	Architect	24	27.27
	Builder	20	22.73
	Engineer	18	20.45
	Total	88	100.00
Years of experience of respondent	1 – 5 Years	10	
	6 – 10 Years	37	42.05
	11 – 15 Years	23	26.14
	16 – 20 Years	13	14.77
	Above 20 Years	5	5.68
	Total	88	100.00
	Mean	10.90	
Professional membership	Graduate	6	6.82
	Probationer	28	31.82
	Corporate	52	59.09
	Fellow	2	2.27
	Total	88	100.00
Highest academic qualification	HND	18	20.45
	B.Sc/ B.Tech/ B.Eng	28	31.82
	PGD	14	15.91
	M.Sc/ M.Tech	26	29.55
	PhD	2	2.27
	Total	88	100.00
Number of projects handled in the Last ten years	1 – 5 projects	12	
	6 – 10 projects	6	6.82
	11 – 15 projects	11	12.50
	16 – 20 projects	38	43.18
	Above 20 projects	21	23.86
	Total	88	100.00
	Mean	15.13	
Number of projects that experienced delay	1 – 5 projects	18	
	6 – 10 projects	14	15.91
	11 – 15 projects	25	28.41
	16 – 20 projects	28	31.82
	Above 20 projects	3	3.41
	Total	88	100.00
	Mean	11.99	

About 29.55 % of respondents are quantity surveyors, 27.27 % are architects, 22.73 % are builders and 20.45 % are engineers. The mean year of experience of respondent is 10.90 years which shows that the opinions of the respondents are reliable and suitable. An average mean of 11.90 shows that quite a large number of the respondents have been involved in projects with occurrence of payment delay making them knowledgeable on the subject matter.

Table 2 shows that larger percentages of the respondents have been involved in projects with occurrence of payment delay. Eighty two (82) out of the Eighty eight (88) respondents were involved in project with occurrence of payment delay while Six (6) have not been involved at all. This showed that more professionals have experienced payment delay in projects executed so the need to address the menace.

Table 2: Involvement of respondents in projects with occurrence of payment delay

Category	Frequency	Percentage
YES	82	93.18
NO	6	6.82
Total	88	100

3.2. Causes of Payment Delay in Public Projects

From the result presented in Table 3, the major factor causing payment delay in construction projects are: slow coordination and seeking of approval from concerned authorities, late preparation of interim valuation, inflation and increase in interest rate in repayment of loans with mean score of 4.11, 4.06, 4.00 and 3.98 respectively while perception of participants in the construction industry, lack of communication and culture of the people have the least score of 3.06, 3.02 and 3.00 respectively. The findings support the research conducted by Donkor (2011) and Fatoye (2012), who found that bureaucracy, a lack of sufficient feasibility studies, and scope variation/change are all significant drivers in payment delays. Participants in Okeyo et al. (2015) study ascribed late payments to the financier's late transfer of cash and the employer's inadequate financial management system.

3.3. Effect of Payment Delay on Construction Projects

The respondents response to effect of payment delay is presented in Table 4. From the table, time overrun is ranked first with a mean score of 4.56, followed by dispute, cost overrun and slowing down of work with mean scores of 4.44, 4.44 and 4.33 respectively. Idling resources, winding up of contractor's company and determination of contract are the least factors with mean score of 3.33, 3.33 and 3.00 respectively. This is in line with the study of Fatoye (2012) which reveals that cost and time overrun are major effects of payment delay in construction projects. Ansah (2011) recognized the effects of payment delays as a dispute, a delay in project completion, and financial stress on the contractor, which validates the research's findings. The minor difference could be related to the country's variety.

3.4. Techniques for Mitigating Payment Delay in Construction Projects

Table 5 shows the effectiveness of the mitigating techniques of payment delay in construction projects with better prepared contract ranking first with a mean score of 4.33 making it the most effective. This was followed by proper feasibility studies on the project and imposing penalty of interest on late payers with mean score of 4.22 and 4.11 respectively. Training and educating all parties on the effect of payment delay has the least mean score of 3.11 making it the least effective of the techniques. The remedies available for the innocent party, i.e. the contractor, are to commence an action for the recovery of moneys owed together with any interest payable, or to start arbitration proceedings to claim for damages (Ansah, 2011). This is also corroborated by the study of Fatoye (2012) and Kwame (2011) as they identified strict adherence to condition of contract, proper planning and penalty imposed on late payment as means of reducing occurrence of payment delay in construction projects.

Table 3: Factors causing payment delay in construction projects

Factors causing payment delay	Mean score	Rank
Slow coordination and seeking of approval from concerned authorities	4.21	1
Late preparation of interim valuation	4.06	2
Inflation	4.00	3
Increment in interest rate in repayment of loans	3.98	4
Cash flow problem because of deficiencies in clients management capacity	3.89	5
Design changes	3.86	6
Fluctuation in materials cost and labour	3.82	7
Late valuation of variations	3.78	8
Variation/ Change in scope	3.69	9
Sheer disregard for the conditions of contract regarding payment	3.69	9
Inaccurate bill of quantities	3.68	11
Scarcity of capital to finance the project	3.67	12
Contractor's submitting incomplete claims	3.67	12
Inefficient utilization of funds	3.60	14
Delay in releasing retention money to contractor	3.59	15
Inaccurate forecasting of market demand	3.58	16
Poor cash flow because of lack of proper process	3.56	17
Bank refusal to produce credit facilities to client due to unstable financial position	3.56	17
Political leanings of the director of the company	3.56	17
Raising contractual or legal pretexts in order to get bribes from the contractor	3.54	20
Financial failure due to bankruptcy or winding up	3.51	21
Contractor's under-pricing the project	3.46	22
Lack of programming for the projects	3.45	23
Increment in foreign exchange	3.44	24
Delay in work approval	3.44	24
Underpaid claim	3.33	26
Contractor's delay in submitting claims	3.33	26
Liaison problem among the contracting parties	3.22	28
Client's slow decision making	3.11	29
Poor information dissemination	3.11	29
Delay in test and inspection of works	3.11	29
Perception of participants in the construction industry	3.06	32
Lack of communication	3.02	33
Culture of the people concerned	3.00	34

Table 4: Effect of payment delay on construction projects

Effect of payment delay	Mean score	Rank
Time overrun	4.56	1
Dispute	4.44	2
Cost overrun	4.44	2
Slowing down of work	4.33	4
Wastage of resources	4.22	5
Delaying by client to return the loans	4.00	6
Total abandonment	4.00	6
Claiming for interest	3.78	8
Bankruptcy	3.78	8
Create stress on contractors	3.78	8
Suspension of work	3.67	11
Negative social impact	3.67	11
Poor quality of work due to cash constraint	3.67	11
Delaying in getting profit by clients	3.67	11
Loss of employment to employees and workmen	3.56	15
Litigation	3.56	15
Idling resources	3.33	17
Winding up of Contractor's company	3.33	17
Determination of contract	3.00	19

Table 5: Effectiveness of the techniques of mitigating payment delay

Techniques of mitigating payment delay	Mean score	Rank
Better prepared contract	4.33	1
Proper feasibility studies on the project	4.22	2
Imposing penalty of interest on late payers	4.11	3
Certification and payment should be subject of careful strategy and planning	4.00	4
Understand and study the payment requirements of each individual project	3.98	5
Strict adherence to payment provisions in the condition of contract	3.93	6
Use of retention bond to secure retention money	3.90	7
Clients with cash flow problem to bond with the capital market to get credit to fund project	3.89	8
Payment guarantee by upper tiers	3.74	9
Reschedule work to help client to ease cash flow	3.72	10
Letter of credit from funder	3.67	11
Use of trust/ escrow account	3.56	12
Advance bond	3.36	13
Disclosure by upper tier of funding arrangements	3.33	14
Payment bond	3.22	15
Contractor should chase payment due relentlessly	3.22	15
Training and educating all parties on the effect of payment delay	3.11	17

4. CONCLUSION

Payment delay is rampant in virtually all public building projects in Edo State. This is due to the fact that the conditions of contract are not adhered strictly to and adequate penalties not put in place on defaulters. The major causes of payment delay in construction projects identified include; slow coordination and seeking of approval from concerned authorities, late preparation of interim valuation and inflation. Better preparing for contract, proper feasibility study on project and imposing penalty of interest on late payers have been considered the most effective ways of mitigating against payment delay in construction projects.

5. ACKNOWLEDGMENT

The authors wish to acknowledge the assistance and contributions of friends in the built environment in the distribution of the questionnaires used for this research work.

6. CONFLICT OF INTEREST

There is no conflict of interest associated with this work.

REFERENCES

- Al-Moumani, H. A. (2000). Construction Delay: a quantitative analysis. *International Journal of Project Management*, 18, pp. 51-59.
- Ansah, S.K. (2011). Causes and Effects of Delayed Payments by Clients on Construction Projects in Ghana. *Journal of Construction Project Management and Innovation*. 1(1): pp. 27 – 45.
- Ayodele, E.O and Alabi O.M (2011). Abandonment of Construction Projects in Nigeria: Causes and Effects. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)* 2 (2): pp. 142-145.
- Donkor, E. N. (2011). *Factors Affecting Delayed Payments on Donor Funded Road Projects in Ghana*. A MSc. Dissertation Presented To The Department Of Building Technology Faculty Of Architecture And Building Technology College Of Architecture And Planning, Kwame Nkrumah University Of Science And Technology.
- Fatoye, E.O. (2012). *Contributing factors of delay in the Nigerian construction industry: A comparative analysis with other selected countries* In: Laryea, S., Agyepong, S.A., Leiringer, R. and Hughes, W. (Eds). A paper Presented at the 4th West Africa Built Environment Research (WABER) Conference Held on 24-26 July 2012, Abuja, Nigeria, 575-587.
- Fugar, F. D. K and Agyakwah-Baah, A. B (2010). Delays in building construction projects in Ghana. *Australasian Journal of Construction Economics and Building*, 10 (1/2) pp. 103-116.
- Haseeb, M, Lu, X, Bibi, A and Rabbani, W. (2011). Problems of Projects and Effects of Delays in the Construction Industry of Pakistan. *Australian Journal of Business and Management Research* 1(5) pp. 41-50
- Judi S.S and Rashid R.S. (2010). Contractor's Right of Action for Late or Non-Payment by the Employer. *Journal of Surveying, Construction & Property*. 1(1) pp. 51-58
- Kwame, B.A. (2011). The effect of delayed payment on cash flow forecasting of Ghanaian road contractors. Unpublished MSc Thesis. Institute of Distance Learning, Kwame Nkrumah University of Science and Technology
- Okeyo, M. P., Rambo, C. M. and Odundo, P. A. (2015). Effects of Delayed Mobilization of Resources on the Completion of Infrastructural Projects: A Case of Sondu-Miriu Hydropower Project, Kisumu County, Kenya. *China-USA Business Review*, 14(8), pp. 405-416.
- Shebob, A, Dawood, N and Xu, Q (2011) *Analysing construction delay factors: A case study of building construction project in Libya* In: Egbu, C. and Lou, E.C.W. (Eds.) 27th Annual ARCOM Conference, 5-7 September 2011, Bristol, UK, Association of Researchers in Construction Management, pp. 1005-1012.
- Ye, K. M and Rahman, H.A. (2010). Risk of Late Payment in the Malaysian Construction Industry. *International Journal of Social, Management, Economics and Business Engineering* 4 (5) pp. 116-120.