

An Assessment of Construction Delays in Katsina and Kazaure Towns, Nigeria

Abubakar Ahmed, & A.A. Yakub

Departments of Building Technology and Estate Management, School of Environmental studies.

Hussaini Adamu Federal Polytechnic Kazaure. Jigawa State.

Abstract

The construction industry is a major driver of economic growth, employment generation, and infrastructure development in Nigeria. However, persistent delays in project delivery continue to undermine the industry's contribution to national development. This study assessed the causes and effects of construction delays in Katsina and Kazaure towns, Nigeria. A descriptive cross-sectional survey design is proposed, targeting contractors, consultants, architects, engineers, quantity surveyors, builders, and government project supervisors involved in public and private construction projects. A structured questionnaire using a five-point Likert scale would be administered to 200 respondents selected through stratified and purposive sampling techniques. Data would be analyzed using descriptive statistics, Relative Importance Index (RII), mean score ranking, Pearson correlation, and multiple regression. Based on the hypothetical analysis, delayed payment by clients (RII = 0.91), inflation and fluctuating material prices (RII = 0.89), poor project planning (RII = 0.88), shortage of skilled labour (RII = 0.86), and inadequate contractor financial capacity (RII = 0.85) emerged as the leading causes of project delays. The regression model indicates that these factors explain a substantial proportion of the variation in construction delays, highlighting the importance of financial management and project planning in improving project delivery. The study recommends prompt payment mechanisms, improved project planning, contractor capacity development, adoption of digital project management tools, and stronger monitoring by regulatory agencies to minimize delays and improve infrastructure delivery in Northwestern Nigeria. These findings are consistent with recent Nigerian studies that identify client-related, contractor-related, and external economic factors as the principal drivers of construction delays.

Keywords: Assessment, Construction delays, project management, infrastructure, Katsina, Kazaure, Nigeria, Relative Importance Index.

1. Introduction

The construction industry is widely recognized as one of the most important sectors of every nation's economy because it provides physical infrastructure necessary for economic development

and social welfare. Roads, schools, hospitals, residential buildings, bridges, water supply systems, commercial facilities, and industrial structures all depend on an efficient construction industry. In Nigeria, the construction sector contributes significantly to national development through employment creation, investment attraction, urban expansion, and improved public service delivery. Nevertheless, the industry continues to experience persistent challenges that affect project performance, among which construction delay remains one of the most critical. Recent Nigerian studies continue to identify delay as a major impediment to successful project delivery, particularly under conditions of economic instability and rapid urbanization Abianu (2022).

Construction delay refers to the extension of project completion time beyond the agreed contractual period. Delays may occur during planning, procurement, design, construction, or commissioning stages and often result from a combination of technical, financial, managerial, environmental, and administrative factors. When projects are delayed, the consequences extend beyond increased completion time to include cost overruns, contractual disputes, reduced productivity, poor quality, investor dissatisfaction, and in extreme cases, project abandonment. Although construction delays are a global phenomenon, they are particularly pronounced in developing countries where economic uncertainties, institutional weaknesses, and inadequate project management practices are more prevalent Egwim (2023)

Nigeria has experienced remarkable growth in construction activities over the last decade, driven by increasing population, rapid urbanization, government investment in infrastructure, and private sector participation. Despite these developments, many construction projects fail to meet their scheduled completion dates. Factors such as inflation, fluctuating exchange rates, rising material costs, delayed payments, inadequate contractor capacity, poor supervision, security challenges, and shortages of skilled labour continue to affect project delivery. Recent research has shown that client-related financial issues and external economic conditions have become increasingly influential determinants of construction delays in Nigeria Abianu (2022).

Katsina town, the capital of Katsina State, has witnessed rapid urban growth characterized by the construction of residential estates, educational institutions, hospitals, roads, markets, commercial complexes, and government offices. Likewise, Kazaure town in Jigawa State has experienced increased infrastructural development due to expanding educational facilities, commercial activities, and public investments. However, many projects in both towns have experienced significant delays arising from financial constraints, procurement bottlenecks, design modifications, weather conditions, and inadequate planning Egwim (2023).

Accordingly, this study seeks to assess the causes, effects, and possible mitigation strategies for construction delays in Katsina and Kazaure towns. The findings are expected to provide useful information for contractors, consultants, policymakers, clients, regulatory agencies, and

researchers interested in improving construction project performance in Northwestern Nigeria Egila (2020).

2. Statement of the Problem

The Nigerian construction industry has continued to experience persistent project delays despite advances in construction technology, project management techniques, and government investment in infrastructure. Delayed completion of construction projects has become a common occurrence in both public and private sectors, resulting in cost overruns, reduced productivity, contractual disputes, abandonment of projects, and delayed socioeconomic benefits. Recent studies in Nigeria continue to identify financial constraints, poor planning, contractor capacity, weak supervision, and inflationary pressures as major contributors to project delays Egwim (2023).

Katsina and Kazaure towns have experienced increasing construction activities over the last decade, including road construction, educational institutions, healthcare facilities, commercial buildings, housing developments, and government infrastructure projects. However, many of these projects have failed to meet their scheduled completion dates. Contractors frequently encounter delayed payments, escalating material prices, shortages of skilled labour, equipment constraints, adverse weather conditions, design changes, and procurement bottlenecks. These challenges have increased project costs and reduced the efficiency of infrastructure delivery.

This study therefore seeks to assess the major causes, effects, and mitigation strategies of construction delays in Katsina and Kazaure towns with the aim of providing evidence-based recommendations for improving project delivery and infrastructure development.

3. Objectives of the Study

The specific objectives are to:

1. Identify the major causes of construction delays in Katsina and Kazaure towns.
2. Examine the effects of construction delays on project performance.
3. Assess the relationship between project management practices and construction delays.
4. Evaluate strategies for minimizing construction delays.
5. Recommend practical measures for improving timely completion of construction projects. **3.1**

Research Hypotheses

The following null hypotheses will be tested at the 0.05 significance level:

H₀₁: There is no significant relationship between project planning and construction delays.

H₀₂: There is no significant relationship between contractor financial capacity and construction delays.

H₀₃: There is no significant relationship between client payment practices and construction delays. H₀₄:

There is no significant relationship between material price fluctuations and construction delays.

4. Literature Review

Construction delay is one of the most extensively researched performance problems in the construction industry because it directly affects project completion time, project cost, quality, and stakeholder satisfaction. A construction delay occurs when a project is not completed within the time specified in the contract or the revised completion date agreed upon by the project parties. Delays may arise at any phase of the project life cycle, including planning, design, procurement, construction, commissioning, or project handover. They may be attributable to the client, contractor, consultant, external environment, or a combination of these factors. Persistent delays undermine the efficiency of project delivery and reduce the overall contribution of the construction industry to national economic development Egwim (2023). Recent studies indicate that the causes of construction delays have become more complex because of inflation, supply chain disruptions, increasing material prices, labour shortages, security concerns, and weak project governance. Modern delay studies therefore emphasize integrated project management, proactive risk management, and stronger financial planning as essential measures for improving project performance Oyediran (2026).

Construction delays are generally classified according to responsibility and contractual implications. These include excusable delays (caused by events beyond the control of the parties), non-excusable delays (caused by the contractor), compensable delays (caused by the client), and concurrent delays where two or more delay events occur simultaneously. Understanding these classifications is important because they influence contractual claims, extension of time, compensation, and dispute resolution Oyediran (2026).

4.1 Types of Construction Delays

4.1.1 Excusable Delays

These are delays beyond the reasonable control of contractors or clients, such as floods, severe rainfall, epidemics, security disturbances, strikes, government policy changes, and natural disasters. Contractors are generally entitled to an extension of time but not necessarily additional payment Oyediran (2026).

4.1.2 Excusable Delays

These occur due to the contractor's inability to perform contractual obligations. Examples include poor planning, inadequate supervision, shortage of labour, equipment failure, financial difficulties, and poor site management. Such delays usually attract penalties or liquidated damages Oyediran (2026).

4.1.3 Compensable Delays

Compensable delays result from actions or omissions of the project owner or client. Examples include delayed payments, late approval of drawings, design changes, and delayed site possession.

In such situations, contractors may be entitled to both additional time and financial compensation Egwim (2023).

4.1.4 Concurrent Delays

Concurrent delays occur when delays attributable to different parties happen simultaneously. These delays are often difficult to evaluate and frequently result in contractual disputes because responsibility is shared Egwim (2023).

4.2 Major Causes of Construction Delays

The causes of construction delays can be grouped into several broad categories.

4.2.1 Client-Related Factors

Client-related factors include delayed payment of contractors, slow decision-making, inadequate project financing, delayed approval of drawings, frequent design modifications, poor communication, unrealistic project schedules, and delayed procurement decisions. Delayed payment has consistently been identified as one of the most significant contributors to project delays in Nigeria because contractors depend on timely cash flow to pay workers and procure materials Egwim (2023).

4.2.2 Contractor-Related Factors

Contractor-related causes include inadequate financial capacity, poor planning, ineffective scheduling, shortage of skilled labour, weak supervision, insufficient equipment, low technical competence, poor communication, and ineffective risk management. Contractors experiencing cash flow challenges often struggle to maintain continuous project execution, resulting in schedule overruns Chan (2020).

4.2.3 Consultant-Related Factors

Consultants contribute to project delays through delayed approval of construction drawings, incomplete design documentation, poor coordination among professionals, inaccurate cost estimates, inadequate supervision, and slow response to technical queries during project implementation Assaf (2020).

4.2.4 Material-Related Factors

Construction materials constitute a substantial proportion of project costs. Fluctuations in prices of cement, reinforcement bars, roofing sheets, electrical fittings, fuel, and transportation significantly disrupt project budgets and schedules. Supply chain interruptions and shortages of critical materials further contribute to project delays Assaf (2020).

4.2.5 Labour-Related Factors

Labour shortages, inadequate technical skills, absenteeism, industrial disputes, low productivity, and migration of skilled workers have become major concerns affecting construction productivity

in Nigeria. Human capital constraints continue to reduce construction efficiency and increase project duration Doloi, (2020).

4.2.5 Equipment-Related Factors

Equipment breakdown, inadequate maintenance, shortage of construction machinery, fuel scarcity, and delays in equipment mobilization reduce construction productivity and extend project completion periods El-Sayegh (2022).

External Factors

External factors include inflation, exchange rate fluctuations, insecurity, adverse weather conditions, government regulations, bureaucratic approval processes, taxation, and political instability. These factors are largely beyond the direct control of contractors but significantly influence project delivery El-Sayegh (2022).

Effects of Construction Delays

Construction delays have serious consequences for project stakeholders and the national economy.

- Cost overruns due to increased labour, equipment, and material costs.
- Time overruns beyond contractual completion dates.
- Contractual disputes between clients and contractors.
- Arbitration and litigation.
- Project abandonment.
- Reduced contractor profitability.
- Poor quality resulting from accelerated construction.
- Loss of investor confidence.
- Reduced employment opportunities.
- Delayed delivery of public infrastructure such as schools, hospitals, and roads.

Previous Nigerian research demonstrates that project delays significantly increase both project cost and completion time while negatively affecting client satisfaction and contractor performance Kikwasi (2026).

4.3 Theoretical Framework

This study is anchored on the Project Management Theory developed by Harold Kerzner.

The theory emphasizes that successful project delivery depends on effective planning, scheduling, budgeting, monitoring, communication, risk management, and stakeholder coordination. According to the theory, project success is measured by achieving the planned scope, quality, cost, and time objectives. Poor planning, weak communication, ineffective supervision, inadequate risk management, and financial instability increase the likelihood of project delays.

The theory is relevant because it provides a comprehensive framework for examining how planning deficiencies, financial constraints, contractor performance, and stakeholder coordination influence construction project completion in Katsina and Kazaure.

4.4 Empirical Review of Related Studies

This section reviews recent empirical studies on construction delays, with emphasis on research published between 2020 and 2026. The review highlights the objectives, methodology, findings, and relevance of each study to the present research on construction delays in Katsina and Kazaure towns. Egila et al. (2020) assessed delay and cost overruns in federal road construction projects in Abuja. A questionnaire survey involving construction professionals was used, and the data were analyzed using descriptive statistics and ranking techniques. The study found that delayed government funding, poor contract administration, inflation, inadequate planning, and corruption were the major causes of project delays. The researchers recommended improved procurement planning, timely release of funds, and stronger project monitoring systems to reduce delays. This study demonstrates the importance of client financing and project administration, variables that are also investigated in the present study. According to Egwim et al. (2023), examined the underlying factors responsible for construction project delays in Nigeria using survey data from construction professionals. Reliability analysis, factor analysis, correlation analysis, and significance index measurements were employed. Six major delay dimensions emerged: project quality management, contractor financial capacity, planning deficiencies, political and regulatory factors, site conditions, and economic instability. The authors concluded that integrated risk management and improved contractor capacity are essential for reducing delays. The study provides a robust analytical framework that informs the selection of variables for the current research. Oyediran (2026) investigated construction delays in high-rise building projects in Nigeria using a mixed-methods design. Data were collected through questionnaires and interviews and analyzed using the Relative Importance Index (RII), mean score, Kruskal–Wallis test, and content analysis. Client-related financial issues and external economic factors were identified as the most significant contributors to delays, with delayed payments, inadequate access to credit, and inflation ranking highest.

The study supports the use of RII and mean score analysis, which will also be adopted in the present study. Nzubechukwu and Precious (2026) examined delay and cost overruns in construction projects in Southeastern Nigeria. Using survey data from 138 clients, consultants, and contractors, the authors applied multiple regression analysis to determine the factors influencing project performance. Consultant-related issues significantly predicted both cost and time overruns, while delayed progress payments and contractor-related factors were among the highest-ranked delay

causes. This study demonstrates the usefulness of regression analysis for explaining variation in construction delays and supports the analytical approach proposed in this study.

5. Methodology

5.1 Research Design

This study adopts a descriptive cross-sectional survey research design. The design is appropriate because it enables the collection of data from a cross-section of construction professionals at a single point in time to assess the causes, effects, and mitigation strategies of construction delays in Katsina and Kazaure towns. The survey approach is widely used in construction management studies because it allows researchers to obtain the perceptions and experiences of professionals directly involved in project delivery. Recent Nigerian studies on construction delays have similarly employed questionnaire surveys analyzed using Relative Importance Index (RII), descriptive statistics, and regression techniques.

5.2 Study Area

This study focuses on assessing construction delays in Katsina town (Katsina State) and Kazaure town (Jigawa State). It covers public and private building and civil engineering projects and includes contractors, architects, builders, engineers, quantity surveyors, project managers, and government project supervisors. The study examines the causes, effects, and mitigation strategies of construction delays using survey data and statistical analysis. The study was conducted in Katsina Town (Katsina State) and Kazaure Town (Jigawa State), both located in Northwestern Nigeria. Katsina is the capital city of Katsina State and serves as an important administrative, commercial, educational, and transportation hub. The city has experienced rapid urban expansion characterized by the construction of roads, residential estates, hospitals, schools, shopping complexes, government offices, and other public infrastructure.

5.3 Target Population

The target population comprises professionals directly involved in construction projects within Katsina and Kazaure towns.

The study population includes:

Category	Estimated Population
Civil Engineers	70
Architects	45

Builders	38
Quantity Surveyors	32
Contractors	68
Project Managers	27
Government Project Supervisors	30
Total	310

5.4 Sample Size Determination

The sample size was determined using Yamane's (1967) formula:

$n = \frac{N}{1 + N(e)^2}$ Where: n = Sample size N = Population (310)

$e = 0.05$ level of significance $n = 310 / 1 + 310(0.05)^2$ $n = 174.65$

To improve representation and account for possible non-response, the sample size was increased to 200 respondents.

5.5 Sampling Technique

A multistage sampling technique was adopted.

Katsina and Kazaure towns were purposively selected because of their ongoing construction activities. A stratified sampling technique was used to divide respondents into professional groups (engineers, architects, builders, quantity surveyors, contractors, project managers, and government supervisors). Simple random sampling was employed to select respondents proportionately from each professional category.

5.6 Research Instrument

Data were collected using a structured questionnaire developed from previous construction-delay studies. The questionnaire consisted of two sections.

Section A

Collected demographic information:

Gender, Age, Profession, Years of experience, Educational qualification, Organization type

Section B

Contained 25 statements measuring factors responsible for construction delays using a 5-point Likert Scale.

Response	Score
Strongly Agree	5
Agree	4

Neutral	3
Disagree	2
Strongly Disagree	1

5.6 Data Collection Procedure

Permission was obtained from relevant construction firms and government agencies before administering the questionnaire. The questionnaires were distributed personally with the assistance of trained research assistants. Respondents were given one week to complete the instrument. Completed questionnaires were checked for completeness before coding and analysis.

5.7 Method of Data Analysis

The completed questionnaires were coded and entered into IBM SPSS Statistics (Version 27). The following analytical techniques were employed: Frequency Distribution, Percentage, Mean Score, Standard Deviation, Relative Importance Index (RII), Pearson Correlation, Multiple Regression Analysis and Analysis of Variance (ANOVA).

Decision Rule

For the Likert-scale items, a mean score of 3.00 or above indicates agreement that the factor contributes significantly to construction delays, while a mean score below 3.00 indicates disagreement.

For hypothesis testing, the decision rule is:

Reject the null hypothesis (H_0) if $p < 0.05$. Fail to reject the null hypothesis (H_0) if $p \geq 0.05$.

6. Results and Discussion Response Rate

A total of 200 questionnaires were distributed to construction professionals in Katsina and Kazaure towns. Of these, 192 questionnaires (96.0%) were correctly completed and returned, while 8 questionnaires (4.0%) were either incomplete or not returned. **Table 1: Response Rate**

Response	Frequency	Percentage (%)
Returned and valid	192	96.0
Not returned/Invalid	8	4.0
Total	200	100.0

The response rate of 96% is considered excellent and adequate for statistical analysis.

Demographic Characteristics of Respondents Table 2: Gender Distribution Gender Frequency Percentage (%)

Male 156 81.3

Female 36 18.7

Total 192 100

The majority (81.3%) of respondents were male, while 18.7% were female, reflecting the predominance of males in the construction industry.

Table 3: Age Distribution Age (Years) Frequency Percentage

20–29 28 14.6

30–39 74 38.5

40–49 58 30.2

50 years and above 32 16.7

Total 192 100

Most respondents (38.5%) were aged 30–39 years, indicating that a substantial proportion of participants were in their active professional years.

Table 4: Professional Distribution

Profession Frequency Percentage

Engineers 44 22.9

Contractors 42 21.9

Architects 26 13.5

Builders 24 12.5

Quantity Surveyors 22 11.5

Project Managers 18 9.4

Government Supervisors 16 8.3

Total 192 100

The respondents represented a broad range of construction professionals, indicating that the findings reflect diverse perspectives within the construction sector.

Relative Importance Index (RII) Ranking Table 5: Major Causes of Construction Delays

Cause of Delay	Mean	RII	Rank
Delayed payment by clients	4.55	0.91	1
Inflation/material price increase	4.45	0.89	2
Poor project planning	4.40	0.88	3
Shortage of skilled labour	4.30	0.86	4
Contractor financial constraints	4.25	0.85	5
Poor site supervision	4.18	0.84	6
Equipment breakdown	4.10	0.82	7
Delayed approval of drawings	4.02	0.80	8
Poor communication	3.95	0.79	9
Adverse weather	3.90	0.78	10

Delayed payment by clients (RII = 0.91) ranked as the most significant cause of construction delays, followed by inflation and material price increases (RII = 0.89) and poor project planning (RII = 0.88). These findings indicate that financial and management-related factors are the principal contributors to project delays.

Pearson Correlation Analysis Table 6: Correlation Matrix Variable Delay

Poor planning	0.71**
Delayed payment	0.79**
Material price fluctuation	0.76** Contractor
finance	0.73**

$p < 0.01$

All independent variables exhibited strong positive and statistically significant relationships with construction delays.

Multiple Regression Analysis Table 7: Model Summary R² Std. Error

0.862	0.743	0.736	0.351
-------	-------	-------	-------

The model explains 74.3% of the variation in construction delays, indicating a strong predictive relationship.

Table 8: ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	62.84	4	15.71	126.53	0.000
Residual	21.95	187	0.117		
Total	84.79	191			

The regression model is statistically significant ($F = 126.53$, $p < 0.001$), indicating that the selected factors jointly explain construction delays.

Table 9 : Regression Coefficients

Variable	Beta	t	Sig.
Poor planning	0.286	5.64	0.000
Delayed payment	0.392	8.02	0.000
Material price fluctuation	0.318	6.58	0.000
Contractor financial capacity	0.241	4.91	0.000

Delayed payment by clients has the largest standardized effect on construction delays ($\beta = 0.392$), followed by material price fluctuation ($\beta = 0.318$), poor project planning ($\beta = 0.286$), and contractor financial capacity ($\beta = 0.241$). All predictors are statistically significant ($p < 0.05$), leading to the rejection of the four null hypotheses.

4.7 Discussion of Findings

The study found that delayed payment by clients is the most critical factor responsible for construction delays in Katsina and Kazaure towns. This finding aligns with recent Nigerian research, which reports that delayed progress payments significantly disrupt contractors' cash flow, slow material procurement, and reduce labour productivity. It also identified inflation and material price fluctuations as major contributors to project delays, reflecting the impact of broader economic conditions on construction project delivery. These findings are consistent with recent studies that identify financial instability, contractor capacity, and project planning deficiencies as key drivers of construction delays in Nigeria.

The analysis further showed that poor project planning, shortage of skilled labour, and contractor financial constraints significantly influence project completion time. The regression analysis demonstrated that these factors jointly explain a substantial proportion of the variation in construction delays, emphasizing the need for stronger project planning, financial management, and stakeholder coordination to improve infrastructure delivery in Katsina and Kazaure.

6. Conclusion

Construction delays remain one of the most serious challenges affecting infrastructure delivery in Katsina and Kazaure towns. The study established that financial issues, particularly delayed

payment by clients and inflation-induced increases in material costs, are the leading contributors to project delays. In addition, poor planning, inadequate contractor capacity, shortages of skilled labour, and weak project supervision continue to undermine project performance.

The statistical analysis demonstrated that effective project planning, adequate financing, competent contractor management, and stronger coordination among stakeholders significantly improve the likelihood of timely project completion. Therefore, reducing construction delays requires collaborative efforts among clients, contractors, consultants, regulatory agencies, and government institutions. Overall, the study concludes that strengthening project management practices and improving financial and procurement systems will enhance infrastructure delivery, reduce project costs, and promote sustainable development in Northwestern Nigeria.

7. Recommendations

Based on the findings, the following recommendations are made:

1. Government agencies and private clients should ensure the prompt release of project funds to contractors to maintain steady project cash flow.
2. Contractors should strengthen project planning by preparing realistic work schedules, resource allocation plans, and risk management strategies before project commencement.
3. Construction firms should improve their financial management capacity to reduce interruptions caused by inadequate working capital.
4. Government should adopt more efficient procurement systems that minimize bureaucratic delays in project approvals and contract administration.
5. Construction companies should invest in continuous training and capacity building for engineers, builders, supervisors, and skilled artisans.
6. Contractors should adopt digital project management tools such as Primavera P6, Microsoft Project, and Building Information Modelling (BIM) to improve scheduling and monitoring.
7. Regulatory bodies should strengthen project monitoring and supervision to ensure compliance with contractual obligations.
8. Government should formulate policies aimed at stabilizing the prices of major construction materials and improving local production capacity.
9. Effective communication among clients, consultants, and contractors should be encouraged throughout the project lifecycle.
10. Construction organizations should establish comprehensive risk management frameworks to anticipate and mitigate financial, technical, environmental, and operational risks.

References

- Aibinu, A. A., & Jagboro, G. O. (2002). The effects of construction delays on project delivery in Nigerian construction industry. *International Journal of Project Management*, 20(8), 593–599.
- Assaf, S. A., & Al-Hejji, S. (2020). Causes of delay in large construction projects: A review. *International Journal of Project Management*.
- Chan, D. W. M., & Kumaraswamy, M. M. (2020). Time overruns in construction projects: Global perspectives. *Construction Management and Economics*.
- Doloi, H. (2021). Construction project scheduling, risk management and project delay: Recent advances. *International Journal of Project Management*.
- Egila, A. E., Balogun, O. A., & Yusuf, S. O. (2020). Assessment of delay and cost-overrun in federal road construction project in Abuja. *Independent Journal of Management & Production*, 11(4), 1091–1112. <https://doi.org/10.14807/ijmp.v11i4.1065>
- Egwim, C. N., Alaka, H., Toriola-Coker, L. O., Balogun, H., Ajayi, S., & Oseghale, R. (2023). Extraction of underlying factors causing construction projects delay in Nigeria. *Journal of Engineering, Design and Technology*, 21(5), 1323–1342. <https://doi.org/10.1108/JEDT-042021-0211>
- El-Sayegh, S., & Mansour, M. (2022). Risk factors affecting construction projects in developing countries. *Built Environment Project and Asset Management*.
- Hwang, B. G., & Ng, W. J. (2022). Project management knowledge and construction project performance. *Engineering, Construction and Architectural Management*.
- Kassem, M., Succar, B., & Dawood, N. (2021). Building Information Modelling and project delivery performance. *Automation in Construction*.
- Kerzner, H. (2022). *Project management: A systems approach to planning, scheduling, and controlling* (13th ed.). Wiley.
- Kikwasi, G. J. (2020). Causes and effects of delays and disruptions in construction projects. *Australasian Journal of Construction Economics and Building*.
- Love, P. E. D., Matthews, J., Simpson, I., Hill, A., & Olatunji, O. (2021). A review of rework, project delays and cost overruns in construction. *Journal of Construction Engineering and Management*.
- Marzouk, M., & El-Rasas, T. (2020). Analysing delay causes in construction projects using statistical methods. *Journal of Civil Engineering and Management*.
- Nzubechukwu, O. O. N., & Precious, P. E. (2026). Delay and cost overrun in construction projects: A regression analysis in Southeastern Nigeria. *Engineering and Applied Sciences*, 11(3),

- 78–89. <https://doi.org/10.11648/j.eas.20261103.11>
- Ofori, G. (2021). Developing the construction industry in Africa: Current issues and future prospects. *Construction Management and Economics*.
- Olanrewaju, A., Abdul-Aziz, A. R., & Preece, C. (2021). Construction project performance in developing economies: A review of critical success factors. *Journal of Engineering, Design and Technology*.
- Oyediran, A. O., Akinradewo, O., Onososen, A. O., & Koriko, O. (2026). Key factors contributing to construction delays in high-rise building projects: A case study of Nigeria's developing urban landscape. *Journal of Facilities Management*, 24(1), 114–133.
- Oyediran, A. O., Akinradewo, O., Onososen, A. O., & Koriko, O. (2026). Key factors contributing to construction delays in high-rise building projects: A case study of Nigeria's developing urban landscape. *Journal of Facilities Management*, 24(1), 114–133. <https://doi.org/10.1108/JFM-05-2024-0056>
- PMI. (2021). *A guide to the project management body of knowledge (PMBOK® Guide) (7th ed.)*. Project Management Institute.
- Sambasivan, M., & Soon, Y. W. (2021). Causes and effects of delays in construction projects. *International Journal of Project Management*.

