

Risk Management in Construction Projects: A Case Study from Ikoyi, Lagos State Nigeria

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Abstract— This study investigates risk management practices within the Nigerian construction sector, focusing on a residential development project in Ikoyi, Lagos. The research aims to explore the types of risks commonly encountered, their sources, how they are assessed, and the effectiveness of the strategies employed to manage them. Using a mixed-methods approach, data were collected through structured questionnaires administered to 48 construction professionals and semi-structured interviews with key stakeholders. The findings reveal that construction projects in Nigeria are subject to a wide range of risks, with material cost inflation, regulatory delays, and unskilled labor shortages identified as the most frequent and severe. While stakeholders demonstrated awareness of risk and its potential impact, risk management practices were largely informal, reactive, and inconsistent. Structured tools such as risk registers and formal assessments were rarely used. Most decisions were based on intuition and experience, limiting the ability to anticipate and proactively mitigate risks. The study concludes that there is a pressing need for greater institutionalization of risk management frameworks, enhanced stakeholder training, and more effective communication among project participants. These improvements are essential for shifting from a reactive to a proactive risk culture, ultimately leading to better project outcomes in terms of time, cost, and quality. The results offer practical insights for construction firms, policymakers, and practitioners aiming to strengthen risk resilience in Nigeria's built environment.

Keywords— Risk Management, Construction Projects, Project Risk Assessment, Stakeholder Perceptions, Risk Mitigation Strategies, Cost Overruns.

I. INTRODUCTION

The construction industry is globally recognized for its complexity, unpredictability, and exposure to a broad spectrum of risks. These risks stem from the industry's inherent characteristics, its diverse stakeholders, dynamic environments, intricate processes, and extended project timelines (Zou et al., 2007; Smith et al., 2006). Construction projects are typically large, unique undertakings that are highly susceptible to delays, cost overruns, safety incidents, and environmental impacts due to both internal and external uncertainties (Perry & Hayes, 1985; Zeng & Smith, 2007).

In the Nigerian context, these challenges are compounded by economic volatility, political instability, weak regulatory enforcement, and limited adoption of structured risk management practices (Odeh & Battaineh, 2002; Olamiwale, 2021). The failure of many construction projects to meet their scope, budget, and schedule targets has been directly linked to poor risk planning and inadequate response strategies (Zayed et al., 2007; Assaf & Al-Hejji, 2006). Despite the recognition that "no construction project is risk-free" (Latham, 1994), the industry continues to operate reactively rather than proactively, often addressing risks only after adverse impacts have occurred (Loosemore et al., 2006).

Risk management (RM) has emerged as a vital component of modern project management, aimed at systematically identifying, assessing, and mitigating risks to improve the likelihood of project success (PMI, 2000; Chapman & Ward, 1997). When implemented effectively, RM not only minimizes potential negative outcomes but also enhances opportunities, transparency, and strategic decision-making (Hillson & Murray-Webster, 2007). In high-risk environments like

Nigeria, RM can help bridge the gap between planning and execution, ensuring better alignment with project objectives and stakeholder expectations (Winch, 2010; Shen, 2001).

This study aims to examine the implementation of risk management in construction projects through a case study of a residential development in Ikoyi, Lagos. The study focuses on identifying key risk types, their sources, and the effectiveness of the strategies employed to manage them. By integrating both theoretical and empirical analysis, the research seeks to provide practical insights for improving RM in the Nigerian construction sector.

The paper is structured as follows: Section 2 reviews the literature on construction risks and RM frameworks. Section 3 details the methodology used in the case study, including data collection and analysis. Section 4 presents and discusses the findings. Finally, Section 5 offers conclusions and recommendations for future research and industry practice.

II. LITERATURE REVIEW

Construction projects are inherently complex and exposed to a wide variety of risks due to their dynamic nature, involvement of multiple stakeholders, and long execution periods (Zou et al., 2007; Smith et al., 2006). These risks arise from both internal factors, such as poor project planning or design errors, and external influences, including political instability, regulatory changes, and environmental hazards (Zeng & Smith, 2007). Unlike other sectors, construction projects are open systems, characterized by high levels of uncertainty and interdependence between stakeholders, which significantly increases their susceptibility to risk (Winch, 2010; Perry & Hayes, 1985). Risks in construction are broadly classified into categories such as financial, environmental,

legal, technical, and socio-political risks (Shen, 2001; Odeh & Battaineh, 2002). Financial risks, for instance, may stem from inflation, exchange rate fluctuations, and cash flow issues (Zayed et al., 2007). Technical risks include design flaws or the use of untested construction methods, while legal risks can arise from unclear contract terms or changes in regulations (Loosemore et al., 2006). Shen (2001) emphasized that socio-political risks, such as changes in government policy or civil unrest, are particularly prevalent in developing economies and often undermine project viability. The sources of these risks are equally diverse. Odeh and Battaineh (2002) identified inadequate contractor experience, owner interference, and slow decision-making as critical internal sources of delays in Middle Eastern projects. Similarly, in Nigeria, Olamiwale (2021) noted that contractor inexperience, funding instability, and regulatory uncertainty are key risk drivers.

Risk management (RM) has become an integral component of modern project management, designed to systematically address uncertainties that could impede project objectives (PMI, 2000). RM frameworks typically involve a sequence of processes: risk identification, analysis, evaluation, treatment, monitoring, and review (Chapman & Ward, 1997). Hillson and Murray-Webster (2007) distinguish between threats (negative risks) and opportunities (positive risks), emphasizing that effective RM should enhance both the minimization of threats and the maximization of opportunities. Tools used in risk identification include checklists, expert interviews, brainstorming sessions, and historical data analysis (Perry & Hayes, 1985). Quantitative techniques such as probabilistic risk analysis, Monte Carlo simulations, and sensitivity analysis are used for risk assessment, although their use is often limited in developing contexts due to data unavailability and low technical capacity (Smith et al., 2006).

In developing economies like Nigeria, RM practices are often reactive and informal. Contractors rely heavily on experience and intuition rather than structured methodologies (Olamiwale, 2021). Assaf and Al-Hejji (2006) found that only 30% of construction projects in Saudi Arabia were completed within the scheduled timeline, attributing this to poor RM implementation. A similar pattern is observed in Sub-Saharan Africa, where RM is limited by inadequate training, poor documentation, and lack of institutional support (Zayed et al., 2007).

Furthermore, the Nigerian construction industry faces unique challenges, including erratic power supply, corruption, bureaucratic delays, and unstable macroeconomic conditions, all of which complicate RM adoption (Shen, 2001; Winch, 2010). These challenges highlight the need for contextualized RM strategies tailored to the socio-political and economic realities of the region.

While much of the literature emphasizes the importance of RM, limited empirical research exists on its practical implementation in the Nigerian context. Most studies focus on the general principles and categories of risks without delving into how RM tools are adapted or misapplied in real-world projects (Odeh & Battaineh, 2002). This study addresses this gap by analyzing a real-world residential construction project in Lagos, assessing the types of risks encountered and

evaluating the effectiveness of the management strategies applied.

III. METHODOLOGY

3.1 Research Design

This study adopts a case study research design to investigate risk management practices in construction projects, using a real-world residential development in Ikoyi, Lagos, Nigeria. The case study approach was selected due to its ability to provide in-depth insights into complex processes within a real-life context (Yin, 2003). The research focuses on exploring how risks are identified, assessed, and managed in an ongoing or recently completed construction project.

The research design integrates both qualitative and quantitative methods, combining data from structured questionnaires and semi-structured interviews with stakeholders involved in the construction process. This mixed-methods approach enabled triangulation of data sources to ensure reliability and depth of analysis.

3.2 Case Study Context

The selected case is a multi-building residential project located in Ikoyi, an affluent district in Lagos, Nigeria. The development includes six-storey maisonette structures, two semi-detached and one detached residential buildings, two swimming pools, a generator house, and car parks.

The project employed both raft and pile foundations, reinforced concrete slabs, and traditional block wall construction. The complexity and scale of the project, as well as its urban location, made it an ideal candidate for studying construction risks in practice.

3.3 Data Collection

Primary data were collected through a questionnaire distributed to 60 construction professionals on-site, including project managers, engineers, contractors, and subcontractors, and interviews with 10 selected key stakeholders to gain deeper insight into risk-related decisions and experiences. The questionnaire was designed to capture information on types and frequency of risks encountered, perceptions of risk severity, current risk mitigation practices, and effectiveness of applied risk responses. Again, secondary data included project documents, site reports, and risk registers (where available).

3.4 Sampling and Response Rate

Participants were selected using purposive sampling, focusing on individuals directly involved in risk-related decision-making or project execution. Out of 60 questionnaires distributed, 48 were returned completed, representing an 80% response rate. Interviewees were selected based on their roles and years of experience in the industry to ensure informed responses.

3.5 Data Analysis

Quantitative data from the questionnaires were analyzed using descriptive statistics to determine the frequency, severity, and categorization of risks. Risk levels were classified using a simple risk matrix evaluating the likelihood of occurrence against the potential impact on time, cost, and quality.

Qualitative data from interviews were coded thematically, allowing the identification of recurring patterns and explanations behind the quantitative trends. This analysis focused on understanding stakeholder perceptions of risks and the rationale behind selected mitigation strategies.

3.6 Ethical Considerations

Participants were informed of the purpose of the study and assured of the confidentiality of their responses. Consent was obtained verbally and in writing before participation. No personal or sensitive information was collected, and data were used solely for academic purposes.

IV. RESULTS AND DISCUSSION

4.1 Overview of Risk Types Identified

The study revealed a wide range of risks encountered during the execution of the case project in Ikoyi, Lagos. These were categorized in line with established literature (Zou et al., 2007; Smith et al., 2006) into ten primary risk groups: financial, technical, operational, environmental, legal, socio-political, design, occupational, logistical, and management risks. Among these, specific risk categories were reported with higher frequency and impact than others. To assess the prevalence and perceived severity of each risk type, participants were asked to rate their experiences using a structured questionnaire. Responses from 48 professionals, including engineers, site managers, and contractors, were statistically analyzed.

Table 1 below summarizes the top five most frequently encountered risk types, along with the percentage of respondents who experienced them and their perceived severity levels.

TABLE 1. Top Five Risk Types Encountered in the Case Project

Risk Type	Occurrence Frequency (% of respondents)	Perceived Severity
Material Cost Inflation	92%	High
Government Permit Delays	85%	Medium
Unskilled Labor Shortage	79%	High
Weather-Related Delays	75%	Medium
Equipment Failure	71%	Medium

As shown in the table, material cost inflation was the most commonly cited risk, cited by 92% of respondents. This reflects Nigeria's unstable economic environment, where fluctuations in currency exchange rates and inflation often lead to unpredictable construction material prices. Interviewees described instances in which sudden cost surges led to project delays and necessitated contract renegotiation. Similarly, 85% of participants reported delays in obtaining government permits. These delays were linked to bureaucratic red tape, inconsistencies in local regulatory requirements, and the time-consuming approval processes, which often slowed down project mobilization. Unskilled labor shortages, reported by 79% of respondents, represent a critical internal risk. Many contractors highlighted the difficulty in sourcing adequately trained workers, particularly for specialized tasks. This often

led to errors, rework, and compromised project timelines. Environmental risks, particularly those related to weather variability, were experienced by 75% of participants. The project, situated in a flood-prone coastal area, was periodically affected by heavy rainfall, which disrupted excavation and foundation activities. Lastly, equipment failure, reported by 71%, was attributed to inadequate preventive maintenance and aging machinery. These interruptions negatively impacted work continuity, particularly during critical path activities. These findings align with studies by Odeh and Battaineh (2002), which emphasize the interplay between macroeconomic instability, labor skill gaps, and regulatory inefficiencies as key contributors to risk in developing construction markets.

4.2 Risk Sources

Understanding the origin of risks is fundamental to effective construction risk management. This section presents the sources of the risks identified in the case study project, drawing from both questionnaire responses and qualitative interviews with stakeholders. The risks encountered were grouped into internal and external sources. Internal sources originate from within the project organization, such as inadequate planning, poor supervision, or workforce inefficiency, while external sources stem from factors outside the immediate control of the project team, including regulatory changes, inflation, and weather conditions. Based on the analysis, Table 2 below presents a ranking of the top internal and external sources.

TABLE 2. Primary Sources of Internal and External Risks

Category	Risk Source	Frequency of Citation (% of respondents)
Internal	Inadequate project planning	83%
	Unskilled labor and workforce issues	79%
	Poor communication between stakeholders	74%
	Equipment breakdown due to poor maintenance	71%
External	Material price fluctuation	92%
	Government regulatory delays	85%
	Weather-related disruptions	75%
	Currency instability and inflation	68%

From the data, inadequate project planning was the most cited internal source (83%). Respondents described challenges such as unrealistic scheduling, insufficient buffer time, and inadequate pre-construction site investigation. Poor planning often led to a cascade of delays once site activities commenced, particularly when coupled with unpredictable environmental or regulatory conditions. Unskilled labor followed closely (79%), reinforcing the concern discussed in Section 4.1. Many contractors hired workers on a short-term basis, resulting in variable performance quality and increased supervision demands. Poor communication between stakeholders, reported by 74% of respondents, was identified as a critical internal risk amplifier. This often manifested in misaligned expectations between the client, consultants, and subcontractors, leading to late design changes and rework. On the external front, material price volatility was overwhelmingly dominant (92%). Several interviewees recounted scenarios where project budgets had to

be revised multiple times due to sudden price hikes in cement, steel, and imported fittings. These occurrences align with findings by Zayed et al. (2007), who noted that developing economies often suffer from unstable supply chains. Government regulatory delays (85%) were attributed to inconsistent approval processes, changing documentation requirements, and bureaucratic inefficiencies. These risks were largely beyond the contractors' control, emphasizing the need for early engagement with regulatory authorities.

Weather conditions (75%), especially seasonal rainfall, posed significant disruption risks, particularly during foundation and structural works. Without accurate weather forecasting and contingency planning, these delays were often unavoidable. Lastly, currency fluctuations (68%) affected the cost of imported materials and equipment, complicating procurement and budgeting. This source of risk mirrors earlier studies by Shen (2001), who emphasized the vulnerability of projects in volatile macroeconomic environments. Overall, the results affirm that external risks are dominant in frequency and impact, yet internal risks, being more controllable, offer more immediate opportunities for mitigation through better project planning, communication, and training.

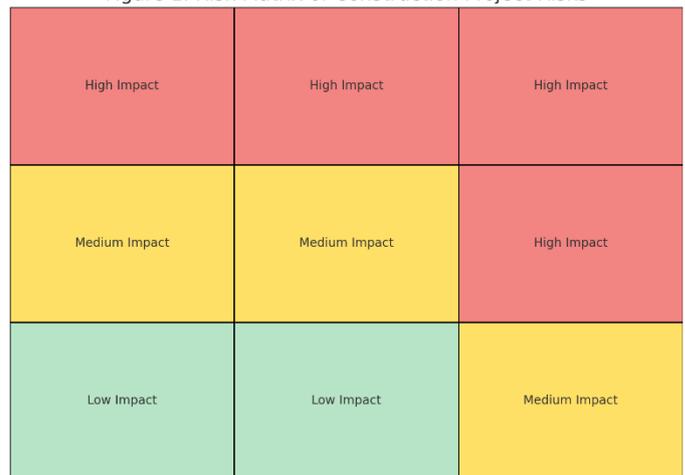
4.3 Risk Assessment and Ranking

After identifying and sourcing the risks associated with the Ikoyi construction project, the next phase involved evaluating the likelihood and potential impact of each risk on the project's core objectives: time, cost, and quality. To achieve this, a structured risk assessment method was applied, combining stakeholder perceptions with a quantitative scoring model. Respondents were asked to rate each identified risk on a five-point scale measuring both the probability of occurrence and the severity of its impact. These ratings were then multiplied to produce a composite risk score for each item. The resulting scores were plotted on a conventional risk matrix, which classifies risks into three categories: low, medium, and high. This visual and analytical approach allows prioritizing risks based on their expected effects and likelihoods, consistent with methodologies advocated by Chapman and Ward (1997) and the Project Management Institute (2000). The plotted matrix (Figure 1) indicated that the majority of risks fell within the medium-risk zone, with a significant cluster approaching high-risk thresholds.

Approximately 68 percent of the risks were classified as medium, indicating a combination of moderate likelihood and moderate to significant impact. These included weather-related delays, equipment malfunction, and coordination issues. While not immediately catastrophic, their cumulative effect could disrupt timelines and budgets if not adequately addressed. A further 25 percent of the risks were categorized as high. These risks, including material cost inflation, regulatory approval delays, and the unavailability of skilled labor, had both high probability and critical impact and were identified as particularly urgent. Only about 7 percent of the risks were deemed low, mainly relating to minor administrative errors or issues with limited potential to escalate. During interviews, it became evident that formal risk assessment frameworks were not consistently employed on site. Most stakeholders relied

heavily on subjective judgment, personal experience, and informal dialogue to gauge the severity of emerging risks. While such intuition can be valuable in rapidly changing construction environments, it can also introduce inconsistencies and fail to capture systemic or cumulative risks. The findings from this assessment reinforce Smith et al.'s (2006) argument that, while high-impact risks may be less frequent, their effects are often disproportionate and warrant greater attention. Without formal tools to quantify and rank these risks, project teams risk overlooking key vulnerabilities or misallocating resources toward lower-priority concerns. Thus, the results of this study underscore the need for a structured, data-informed approach to risk assessment that moves beyond ad hoc evaluations, enabling construction teams to proactively allocate attention and resources where they are most needed.

Figure 1. Risk Matrix of Construction Project Risks



4.4 Effectiveness of Risk Management Strategies

The success of any construction project is closely tied to the project teams' ability to implement timely, effective strategies in response to risks. In the Ikoyi residential development, risk management strategies varied significantly depending on the stakeholder involved and the specific risk encountered. While participants' awareness of risk management principles was generally high, the actual implementation of structured strategies was inconsistent and often reactive.

Preventive strategies were among the most frequently mentioned during interviews. These included early-stage project planning adjustments, more thorough site investigations, and regular site supervision. Stakeholders noted that when risks were anticipated early, particularly those relating to weather conditions or logistical constraints, it was possible to realign work schedules or adjust procurement plans to minimize their impact. However, preventive actions were rarely supported by formal risk registers or structured monitoring tools. In most cases, planning decisions were driven by experience and project managers' individual judgment rather than by documented frameworks.

The study also observed the use of remedial strategies once risks had already materialized. For example, in response to delayed government approvals, contractors accelerated subsequent phases of work, often by working extended hours or by increasing labor. While such measures occasionally helped

recover lost time, they also led to higher labor costs and, in some cases, compromised work quality. Similarly, in the face of material price inflation, procurement officers adjusted by sourcing local alternatives or negotiating staggered payment terms with suppliers. These strategies helped sustain progress but were not always sustainable or scalable.

One key weakness was the limited use of risk transfer mechanisms. Despite the widespread availability of tools such as insurance, subcontractor guarantees, and fixed-price contracts, few respondents reported using them proactively. Most participants associated these tools with additional costs or bureaucratic complexity, leading to underutilization. This is consistent with the findings of Loosemore et al. (2006), who noted that in many developing construction markets, the formal allocation of risk through legal instruments remains uncommon.

Mitigation strategies were employed primarily in response to known recurring risks. For instance, temporary drainage systems were installed on-site to reduce waterlogging during the rainy season, a known seasonal challenge in Lagos. Similarly, hiring additional site supervisors helped mitigate the productivity loss associated with low-skilled labor. However, these interventions were often short-term fixes, lacking integration into a broader risk management plan.

Finally, some risks were simply accepted. Respondents acknowledged that certain external factors, such as macroeconomic instability or abrupt regulatory changes, were viewed as inevitable. In such cases, contractors absorbed the consequences without altering project scope or timelines, sometimes passing on costs to clients through renegotiation. The acceptance of risk without formal contingency planning reflects a pragmatic, albeit risky, approach in environments where complete control is rarely feasible. Overall, while individual strategies were often effective in specific instances, the general picture revealed a fragmented and informal risk management culture. The absence of a centralized risk management system limited project teams' ability to respond cohesively and consistently. Structured approaches such as risk registers, periodic reviews, and scenario planning were notably absent. These findings point to a critical need for capacity-building and the institutionalization of risk management practices within construction organizations in Nigeria.

risk management in construction projects. In this study, perceptions were gathered primarily through semi-structured interviews with key project participants, including site engineers, contractors, project managers, and consultants. Their responses provide insight into the cultural and institutional attitudes toward risk in the Nigerian construction sector.

Overall, stakeholders demonstrated a general awareness of the significance of risk in construction, particularly in terms of time and cost overruns. Many interviewees recognized that risks were not only inevitable but also varied widely in their origins and impacts. There was a shared understanding that failing to manage risk effectively could compromise project success. Despite this awareness, there was also a prevailing sentiment that risk management was often viewed as a secondary consideration, particularly during the planning phase.

Several respondents reported that, while they understood the value of proactive risk management, its application was constrained by budget limitations, time pressures, and organizational culture. Risk planning was frequently seen as a “luxury” or an administrative burden rather than a core part of project execution. In many cases, risk management was initiated reactively, only after problems had occurred, rather than being embedded in the project lifecycle from the outset. This reactive posture often led to rushed decisions and uncoordinated responses, which could exacerbate the consequences of the risk event. A recurring theme was the reliance on personal experience rather than formal training or tools. Many stakeholders, particularly those in supervisory roles, indicated that they handled risks based on intuition or lessons learned from past projects. While experiential knowledge is undeniably valuable, it can lead to inconsistencies and the overlooking of emerging or non-obvious risks. The absence of structured tools such as risk registers, checklists, and impact matrices further limited the ability to document and institutionalize knowledge gained during project execution. Communication also emerged as a critical factor influencing risk perceptions. Several participants pointed to a lack of clear communication channels between stakeholders as a significant obstacle to effective risk response. In some cases, critical risk-related information failed to reach decision-makers in time, resulting in delayed or inadequate responses. This communication gap was especially evident in interactions between main contractors and subcontractors, where misaligned expectations and responsibilities often led to disputes and inefficiencies. Despite these challenges, there were encouraging signs of evolving attitudes. Some firms, particularly those affiliated with international partners or working on larger projects, reported adopting more formalized risk management frameworks. These included the appointment of dedicated risk officers, the use of basic risk tracking tools, and periodic project audits. Such developments suggest a growing recognition that systematic risk management can offer both protective and competitive advantages. In summary, stakeholder perceptions reflect a transitional state in the risk culture of Nigerian construction. While the conceptual importance of risk management is acknowledged, its integration into project workflows remains inconsistent.

TABLE 3: Effectiveness of Risk Management Strategies

Strategy Type	Examples Used on Project	Effectiveness (as reported by respondents)
Preventive	Detailed planning, early site inspections	Moderate; depends on consistency of application
Remedial	Overtime work, accelerated phases	Temporary relief; increases cost
Mitigation	Seasonal drainage systems, extra supervision	Effective for recurring risks; not sustainable long-term
Acceptance	Absorbing regulatory/currency risks	High exposure to cost/time loss
Risk Transfer	Limited use of insurance, bonds	Underutilized; seen as expensive or bureaucratic

4.5 Stakeholder Perceptions

Understanding how stakeholders perceive and interact with risk is crucial for evaluating the maturity and effectiveness of

Institutional support, training, and more straightforward guidelines are needed to bridge the gap between risk awareness and practical, effective implementation.

4.6 Discussion

The findings from the case study provide a nuanced understanding of how risk is perceived, assessed, and managed in construction projects within a developing country context. The data reveals a significant divergence between theoretical risk management frameworks and the practical realities observed on the construction site. While there is a foundational awareness of risk and its potential implications, the methods used to address it remain largely informal and fragmented. One of the most salient insights from the study is the dominance of external risks, such as material cost volatility, regulatory delays, and environmental disruptions, which were consistently ranked as the most severe by participants. These align with observations by Shen (2001) and Zayed et al. (2007), who found that construction projects in volatile economic environments face heightened exposure to external, often uncontrollable, risks. The case project in Ikoyi confirms this pattern, as many of the challenges encountered were rooted in broader macroeconomic and institutional conditions. Despite this, the study also reveals that many of the most frequent internal risks, such as inadequate planning, poor communication, and unskilled labor, are controllable. However, these risks are often left unmitigated due to a lack of structured management approaches. This finding is particularly significant, as it suggests that while not all risks can be avoided, a considerable proportion could be managed more effectively with proper planning and coordination. Smith et al. (2006) emphasized that internal risks, though sometimes less visible, often accumulate into substantial project disruptions when neglected. The reliance on experience-based decision-making, rather than systematic tools, reflects what Loosemore et al. (2006) termed a "reactive risk culture." In such environments, actions are taken only after risks have materialized, limiting the opportunity for timely, cost-effective interventions. The absence of documented procedures, such as risk registers, impact probability matrices, and scenario planning, further compounds the problem, as lessons from past projects are not institutionalized or transferred.

Another critical dimension emerging from the study is the organizational and cultural framing of risk management. Stakeholders often perceived formal risk procedures as bureaucratic or impractical, especially under tight budget or time constraints. This perception undermines the proactive application of risk management and reveals a gap between strategic project management ideals and on-the-ground practices. As Winch (2010) and Chapman and Ward (1997) noted, effective risk management requires not only tools and training but also a shift in mindset, in which risk planning is embedded across all phases of the project lifecycle. Interestingly, there were early indicators of change, particularly in projects linked with international investors or larger contractors. These firms reported efforts to adopt more formalized systems, including the introduction of dedicated risk management roles and digital monitoring tools. Such practices,

although limited in scope, point to the possibility of an evolving risk culture in Nigeria's construction sector, particularly among firms that view risk management not as a cost, but as a strategic asset.

In conclusion, the discussion confirms that while awareness of construction risks is widespread, effective management remains constrained by organizational, economic, and cultural factors. Bridging this gap requires a dual strategy: enhancing technical capacity through training and tools, and fostering a proactive risk culture that integrates risk thinking into everyday project operations. This alignment between knowledge and practice is essential if construction firms are to navigate the complexity and volatility that define modern project environments.

V. CONCLUSION AND RECOMMENDATIONS

This study examined the practical realities of risk management in construction projects in Nigeria, using a residential development project in Ikoyi, Lagos, as a case study. Through a combination of quantitative survey data and qualitative interviews, it explored the types of risks encountered, their sources, the effectiveness of applied management strategies, and stakeholder perceptions. The findings confirm that construction projects in Nigeria operate within a high-risk environment shaped by both internal and external challenges. Material cost fluctuations, regulatory delays, and environmental disruptions were identified as the most pressing external risks, while poor planning, labor skill gaps, and weak stakeholder communication were among the most common internal sources of risk. These results mirror patterns observed in prior studies (e.g., Shen, 2001; Odeh & Battaineh, 2002) and reinforce the urgent need for both strategic and operational responses. Despite broad awareness of risk among project stakeholders, the study found that risk management practices remain largely informal, reactive, and inconsistently applied. Most participants relied on experience and intuition rather than structured frameworks, while formal tools such as risk registers, scoring systems, or contingency planning were rarely used. Risk responses were often ad hoc and short-term, addressing symptoms rather than underlying causes. Moreover, there is a notable disconnect between theoretical knowledge of risk management and its integration into project planning and execution processes.

Nevertheless, there are encouraging signs of progress, particularly among larger firms or those with international affiliations. These organizations are beginning to implement more structured risk management approaches, signaling a gradual shift toward a more mature risk culture.

Based on these findings, the following recommendations are proposed to improve the practice of risk management in the Nigerian construction industry:

First, construction firms should institutionalize structured risk management processes by integrating risk identification, assessment, and monitoring into all stages of project delivery. This can be facilitated through the use of standardized tools such as risk matrices, registers, and impact scoring templates.

Second, there is a clear need for capacity building. Stakeholders at all levels, particularly project managers and site

supervisors, should be trained in both the theory and application of risk management. Workshops, certification programs, and integration into professional development curricula can help bridge the existing knowledge-practice gap.

Third, communication among project stakeholders must be strengthened. Clear, timely, and transparent communication can reduce misunderstandings and support faster, more coordinated responses to risk events. Regular risk review meetings and shared reporting systems should be adopted to improve information flow.

Fourth, regulatory bodies and government agencies should simplify and streamline construction approval processes to reduce bureaucratic delays, which were identified as one of the most significant external risks. Policy reforms that improve transparency and accountability in permitting processes would go a long way toward reducing uncertainty for project teams.

Finally, contractors should be encouraged to proactively explore risk transfer mechanisms. Tools such as performance bonds, insurance policies, and subcontractor agreements can reduce direct exposure and more effectively distribute risk across the supply chain.

In conclusion, while risk is an inescapable feature of construction projects, particularly in emerging economies, its negative consequences can be significantly mitigated through proactive, structured, and inclusive management practices. Advancing these practices in Nigeria's construction sector will not only improve project outcomes but also enhance industry resilience and investor confidence in the long term.

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