Exploring the Determinants of Regulatory Compliance in Construction Projects in Nairobi City County, Kenya

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ABSTRACT

This study explores the determinants of regulatory compliance in construction projects within Nairobi City County, Kenya. It identifies nine factors influencing compliance: Suitability of the Project Legal Framework (SLF), Proactiveness of Regulatory Agencies (PRA), Efficiency in Regulatory Processes (ERP), Conduciveness of the Construction Task Environment (CTE), Characteristics of the Project Client (CPC), Competency of Project Leaders (CPL), Goodness of Construction Labour (GCL), Stability of the Prevailing Economic Environment (SEE), and Adherence to Ethical Factors (AEF). A cross-sectional research design sampled 261 projects, with data having been collected through semi-structured questionnaires administered to construction site supervisors. Multiple Regression Analysis (MRA) was used to analyze the data. The results show that approximately 67% of the variability in regulatory compliance is explained by the nine factors with six significant predictors emerging: CPC, SLF, CTE, CPL, GCL, and PRA. The study found that a more suitable legal framework, more proactive regulatory agencies, a conducive construction environment, competent project leaders, better construction labor, and positive client characteristics all contribute to higher levels of regulatory compliance. The study proposes a detailed review and optimization of the six significant factors in the preparation of compliance tools to ensure enhanced building regulation. It emphasizes a holistic approach to regulatory compliance encompassing legal, procedural, environmental, and human factors to help reduce building failure, and hence save lives and property.

Keywords-regulatory compliance; Multiple Regression Analysis (MRA); construction

I. INTRODUCTION

The construction industry is among the sectors that have experienced increasing project delivery challenges. Written history highlights challenges associated with shelter as among the oldest threats to human existence [1]. Regulatory agencies have been created worldwide to ensure regulatory compliance [2]. Construction comes with many risks and when incidences of failure or collapse occur, they elevate public concern over the general safety in the built environment, and the obligation

of governments in assuring safety [3, 4]. This is worsened by the fact that contemporary livelihoods revolve around structures, particularly buildings. Regulations are, therefore, supposed to guarantee safety, effectuating positive socio-economic development [5].

At the beginning of the new millennium, for instance, the Netherlands faced significant challenges in the enforcement of public building regulations that led to massive obliteration of property and deaths [3]. From inquiries, it was established that the answerable authority, that is the municipal Building Control Department (BCD) could not enforce building regulations. BCD's procedures were consequently reviewed leading to the institutionalization of the certified private sector inspectorates as alternate to BCD's, thus creating a hybrid form of governance. In Kenya, data derived from multiple sources show that over 100 incidents of failure and collapse structures have been documented since 1990, resulting in over 200 fatalities [4]. Questions have been raised and research has been conducted on what causes and/or promotes this regulatory challenge amid the supposedly enhanced regulatory measures that have been implemented [4, 6-9]. These occurrences, however, have been presumed to be a pointer that there could be critical understated factors outside the established regulatory compliance framework(s) that may not be sufficiently addressed in the current compliance framework. This study, therefore, entails an extensive literature review, leading to the identification of nine determinants, which were consequently tested to determine their contribution to the level of regulatory compliance in buildings.

II. DETERMINANTS OF REGULATORY COMPLIANCE

This paper examines nine factors influencing regulatory compliance in construction projects as drawn from the literature. These are: Project Legal Framework (SLF), Proactiveness of Regulatory Agencies (PRA), Efficiency in Regulatory Processes (ERP), Conduciveness of the Construction Task Environment (CTE), Characteristics of the Project Client (CPC), Competency of Project Leaders (CPL), Goodness of Construction Labour (GCL), Stability of the Prevailing Economic Environment (SEE), and Adherence to Ethical Factors (AEF). Numerous contributing elements to these factors are summarized in Table I.

III. BUILDING REGULATORY SCENARIO IN KENYA

Kenya is an East African country and a former British colony with a devolved system of government, composed of the National government and 47 Counties. As such, its regulatory architecture borrows heavily from the British system, especially in the building regulatory aspects, with the Constitution of Kenya (2010) and other legislations stipulating functions to be executed at each level. While the fourth schedule of the Constitution of Kenya largely identifies counties as the primary implementors of building, other agencies also exist. These are: the National Construction Authority (NCA) mandated to regulate the construction industry and coordinate its development, the Engineers Board of Kenya (EBK) tasked with the regulation of the practice of engineering, the Board of Registration of Architects and Quantity Surveyors (BORAQS) tasked with the regulation of the practice of architecture and quantity surveying, and the National Management Environmental Authority (NEMA) mandated to supervise and coordinate all environmental matters within the country as the principal agency implementing environmental policies. Overall, the NCA, created in 2011, is mandated to regulate the construction and coordinate its development [53]. Under section 17 of the NCA Regulations [54], developers are required to register all construction projects on the Online Project Registration System (OPRS), an action that is only possible once a developer has secured approvals from the planning department of the relevant county government, and has nominated a contractor and consultants in good standing to respectively implement and supervise the works among other legal requirements. Furthermore, during project execution, a developer is required to comply with the implemented regulations by ensuring: the engagement of NCA registered contractor on site, the erection of a site board showing all approvals and the professionals engaged in the project, the display of adequate safety signs on-site, ensuring adornment of adequate Personal Protective Equipment (PPE) while on-site, guaranteeing sufficient hoarding and fencing of site, showing possession of a valid NCA Compliance Certificate, and engaging NCA accredited construction workers and site supervisors in construction activities. Moreover, a contractor is required to show proof of supervision, namely the minutes site meetings last, site instructions, and review of test results, such as cube tests for concrete. Failure to observe these requirements can lead to the suspension or closure of a construction site. Evidence shows that during the last two decades, over 200 collapses have been registered across the country, giving an average of around 10 collapses per year and an average of about 1 collapse per month, most of which have been linked to issues of regulatory non-compliance [4]. Out of 18 incidences of failure and collapse of structures reported in 2023, 5 (28%) were from NCC, having led to 5 out of 11 fatalities (45%) reported in the year. Additionally, out of 4,024 registered projects in 2023 across the country, 806 (20%) were from the NCC, with a further 74% deemed unregistered. Further analysis of these cases demonstrates that about 35% of collapses resulted from poor workmanship and implementation methodologies, 28% from substandard materials, 25% from poor structural designs, while the remaining were other causes, involving poor maintenance and external factors. These factors were not mutually exclusive, and a greater percentage did not meet the required compliance thresholds, such as the requirement for project registration and adequate supervision. Some examples include the September 23rd collapse in Nairobi, where seven school children died after a collapse of a two-story school building, caused by poor workmanship and use of substandard materials [64]. Another was the 22nd October 2017 partial collapse in Kakamega, having emerged from poor concrete works, poor workmanship, and the use of substandard materials [4]. This occurred after the client had failed to engage a registered contractor to implement works and similarly had refused to involve professional consultants in the supervision of works.

TABLE I. FACTORS INFLUENCING REGULATORY COMPLIANCE

Explanatory Variables	Surrogates of the Explanatory Variables
1. SLF	• Precision of regulatory mandate [10] • Legal powers of implementing entity and the stringency of their regulatory mission [11, 12] • Specificity of legal standards and applicable penalties [11, 13] • Consistency and reliability of legal interpretation [14] • Potency/immediacy of sanctions [11, 13, 15] • Flexibility and/or adaptability of laws [16] • Predictability and specificity of laws [17-20] • Extend of the legal rights of complainants [11, 13, 15]
2. PRA	• Clarity of a regulators mandate [10] • Clarity of regulator's legal powers [11, 12, 15] • Clarity of regulator's processes [14] • Organizational structure including administrative procedures, geographical location, and workforce capacity characteristics [3, 10, 11, 21] • Clarity of regulator's implementation strategy [22, 23] • Robustness of a regulator's communication mechanisms [24, 25] • Level of professionalism [15, 26] • Regulator's performance in core tasks [3] • Extend of institutionalization of monitoring systems [27] • Presence of overseeing entities [10] • Magnitude of previous mandate-related catastrophes [15] • Level of support by other governmental agencies [15] • Use of levies envisioned to alter behavior and not to generate revenue [10] • Leaders' policy beliefs (reactive vs. strong-minded) [15, 28] • Change management [14, 15, 26, 29] • Sophistication level of regulated entities [15] • Entity's approach to transparency, ethics, and associated reputational pressures [27, 28, 30, 31]
3. ERP	• Predictability and availability of information on regulatory processes [17-20] • Simplicity of the regulatory compliance process [17] • Clarity of the regulator's implementation Strategy [22, 23] • Level of services integration especially among coregulators [32] • Process transparency [17, 22] • Flexibility and/or adaptability inherent in the regulatory processes [33]
4. CTE	• Significance of dangers to be averted [15] • Policy environment in terms of perfection of legislation, application of regulation, severity of non-compliance sanctions, and interference levels [31] • Level of participation and/or involvement of the client, designers, construction managers [14, 26, 34, 35] • Handling of technical issues of the project [34] • Overall planning of construction processes [14, 24, 26, 34, 36, 37, 39] • Established communication protocols [24, 29, 34] • Clear tasking and stewardship in the project [26, 34] • Nature and adequacy of supervision [29, 34] • Technology used [32] • Desired project output [38] • Quality of designs and specifications [38, 40] • Institutionalized quality management procedures [13, 26, 29, 34] • Inherent site safety culture [12, 15, 41] • Nature of contracts and contractual obligations [27, 29, 40, 42] • Other project pressures in terms of cost, time, quality, and competition [15, 29, 31, 43]
5. CPC	• Client familiarity with regulations [3, 21, 32, 44] • Willpower to comply [15] • Client perceptions of compliance [21] • Client ability to comply legally and/or economically [3, 12] • Client knowledge and skills, communication abilities, commitment, and ability to lead and manage [35] • Client level of involvement [45, 46] • Nature of contracts clients engages in [29] • Social licence encompassing fear of detection, fear of humiliation, and internalized sense of duty [2, 15, 30, 47] • Client individual traits, like education and ethics [28, 31, 47, 48] • Liberty to find a cost-effective way of fulfilling regulatory requirements [10] • Client overall influence in a project [14, 29, 38, 48, 49]
6. CPL	• Leaders' policy beliefs [15, 28] • Level of participation of the client, designers, and construction managers [14, 26, 34] • Level of project planning [34] • Stewardship in a project [26, 34] • Level of professionalism [15, 26] • Change management issues [14, 15, 26, 29] • Adequacy of supervision [29, 34] • Quality of project designs and specifications [29, 36-38, 46, 47] • Incorporated quality management strategies [13, 26, 29, 34] • Decision-making approaches [14] • Individual traits, like level of education, ethics and exposure [28, 31, 43, 47, 48]
7. GCL	• Worker competence or skill levels [28, 29, 34, 41, 46, 49] • Worker work attitude [21, 32] • Worker document handling abilities [26, 36, 37] • Quality of work supervision and inspection protocols [37, 39] • Clarity of tasks [26, 34] • Existence of clear dispute resolution mechanisms [13, 32, 48] • Nature of the workforce -transient or permanent [48]
8. SEE	• Cost of compliance [15, 21] • Economic licence to comply [3, 4] • Liberties to finding a cost-effective way of fulfilling regulatory requirements [10] • Dynamism of material prices [38] • Other project delivery pressures [30]
9. AEF	• Culture of process interference and undercutting [27] • Culture of self-serving profiteering [27, 34] • Falsification of documents [50, 51] • Unqualified persons masquerading as professionals [52] • Bribe-taking and hidden use of substandard materials [4, 50, 52] • Presence of overseeing organizations [10, 11] • Determination and assertiveness of pro-regulation interests [27, 32]

IV. METHODOLOGY

This study adopted a cross-sectional research design as defined in [55], where data were collected at a single point in time over several projects. Moreover, a quantitative research strategy was employed, where the quantifiable data were analyzed to detect or identify patterns of association [56]. The target population for this research was all 816 construction projects within the Nairobi City County (NCC) area of jurisdiction listed and stored in the NCA's OPRS database in

the year 2023. The 2023 projects were chosen because they presented the most recent and complete list of projects in NCC and within NCA's database, which was easy to access and retrieve given that they had not been archived. Most of these projects were also still ongoing at the time of the research, thus allowing data collection on site. Out of these, a random sample of 261 projects was drawn using Cochran's [57] formula for finite population, and consequently selected utilizing the random selection output file from R Programming. The respondents were the construction site supervisors from the sampled projects.

The variables identified from the literature review led to the identification of three outcome variables and nine explanatory variables. The outcome variables comprised Project Registration Status (RS), Project Site Conditions (SC), and Project Workforce Status (WS), each with between 5 to 10 surrogates that were rated on a scale of 1-7. The explanatory variables comprised of SLF, PRA, ERP, CTE, CPC, CPL, GCL, SEE, AEF, and their surrogates also rated on a scale of 1-7.

It was hypothesized that the level of regulatory compliance is influenced by SLF, PRA, ERP, CTE, CPC, CPL, GCL, SEE, and AEF. The research hypothesis was, thus, formulated as:

$Null\ hypothesis$ (H_0): $\beta1 = \beta2 = \beta3 = \beta4 = \beta5 = \beta6 = \beta7 = \beta8 = \beta9 = 0$;

$Alternative\ hypothesis$ (H_1): $Atleast\ one\ \beta i \neq 0$;

where βi represents the estimated values for SLF, PRA, ERP, CTE, CPC, CPL, GCL, SEE, and AEF.

The unit of analysis was a construction project, while the unit of observation was the construction site supervisors as they were deemed to understand the management, technical, and quality aspects of their projects. Data collection was conducted using a semi-structured questionnaire administered with the help of research assistants. The questionnaire simplified information on the local regulatory compliance processes into statements that could be easily rated. The Statistical Package for Social Sciences (IBM SPSS Statistics, V. 26) was utilized to conduct MRA on the collected data.

Reliability analysis was undertaken using the Cronbach's alpha for both the outcome and the explanatory variables of the study. The regulatory compliance variable that comprised RS, SC, and WS yielded Cronbach alpha values of 0.964, 0.986, and 0.949 respectively, while the Cronbach's alpha values for the explanatory variables ranged between 0.814 and 0.986, suggesting a high internal consistency in the variables. As discussed in [55, 58], values above 0.7 indicate that the items possess good internal consistency.

V. RESULTS

An MRA was conducted to examine the impact of SLF, PRA, ERP, CTE, CPC, CPL, GCL, SEE, and AEF on the level of compliance. Based on the model summary provided in Table II, the generated R-squared value of 0.666 suggests that about 67% of the variability in the level of regulatory compliance is explained by the above explanatory variables. Consequently, the Alternate Hypothesis (H_1), according to which at least one of the explanatory variables affects the level of regulatory compliance ($\beta_i \neq 0$), was confirmed. The ANOVA, as displayed in Table III, shows that the overall model is a good predictor of the level of regulatory compliance, $F(9, 222) = 49.143$, $p < 0.001$.

TABLE II. MODEL SUMMARY

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.816[a]	0.666	0.652	0.52285

a. Predictors: (Constant), AEF, CPC, SLF, CTE, SEE, CPL, ERP, GCL, PRA.

TABLE III. MODEL SUMMARY

Model	Sum of squares	df	Mean square	F	Sig.
Regression	120.908	9	13.434	49.143	0.000
Residual	60.689	222	0.273		
Total	181.597	231			

Table IV demonstrates the significance and the impact of each of the explanatory variables on the level of regulatory compliance. SLF had a p-value ($p = 0.004$) less than 0.05, indicating its significance in predicting the level of regulatory compliance. The variable also generated a positive coefficient value of 0.177. The value shows that a unit improvement suitability of the project's legal framework leads to an increase in regulatory compliance by 0.177. PRA had a p-value less than 0.05, which indicates that the variable is a significant predictor of the level of regulatory compliance. The corresponding coefficient value was 0.458, which implies that a unit change in the regulatory agency's proactiveness results in an increase in regulatory compliance by 0.458. ERP was not statistically significant ($p = 0.914$). CTE generated a p-value of 0.000, which is less than 0.05. Thus, CTE is a good predictor of the level of regulatory compliance. Its coefficient value of 0.344 suggests that improvement in the CTE by a unit leads to an increase in regulatory compliance by 0.344. CPC were found to be a significant predictor of the level of regulatory compliance ($p = 0.024$). The coefficient of CPC was 0.156, which implies that a unit improvement in CPC leads to an increase in regulatory compliance by 0.156. CPL generated a p-value less than 0.05, making it a good predictor of the level of regulatory compliance. The corresponding coefficient value of 0.517 suggests that a unit in CPL results in an increase in regulatory compliance by 0.517. Additionally, GCL significantly predicted the level of regulatory compliance ($p < 0.01$). The coefficient value for GCL was 0.417. Therefore, additional improvement in construction labour leads to an increase in the level of regulatory compliance by 0.417. The study also noted that ERP, SEE, and AEF generated p-values greater than 0.05, and hence were deemed not to be statistically significant. Authors in [55] observe that such factors emerge where there is a weak effect size to be detected in the model. Such factors are not useful predictors of the level of regulatory compliance, and including them does not affect the relationships between the significant explanatory variables (predictors) and the outcome variable (dependent variable). Excluding them, therefore, ensures parsimony [65]. Overall, out of the nine explanatory variables, ERP, SEE, and AEF were not statistically significant, and hence were excluded from the final regression model.

TABLE IV. COEFFICIENTS TABLE

Coefficients[a]					
	Unstandardized coefficients		Standardized coefficients		
Model[b]	B	Std. Error	Beta	t	Sig.
(Constant)	3.105	0.642		4.834	0.000
SLF	0.177	0.061	0.191	2.916	0.004
PRA	0.458	0.099	0.354	4.637	0.000
ERP	-0.005	0.048	-0.007	-0.108	0.914
CTE	0.344	0.082	0.216	4.172	0.000
CPC	0.156	0.069	0.096	2.265	0.024
CPL	0.517	0.086	0.311	6.023	0.000
GCL	0.417	0.091	0.275	4.588	0.000
SEE	-0.067	0.045	-0.074	-1.492	0.137
AEF	0.143	0.059	0.107	2.426	0.160

a.Dependent Variable: Level_of_Compliance b. Predictors: (Constant), AEF, CPC, SLF, CTE, SEE, CPL, ERP, GCL, PRA.

VI. DISCUSSION

A. Suitability of the Project Legal Framework

The research established that SLF contributes significantly to compliance with the regulatory framework, with a p-value of 0.004 and a regression coefficient of 0.177. This finding aligns with the idea that a clear and well-defined legal framework is essential for adherence to regulations. This result concurs with those in [59], where it is stated that for regulations to be adhered to, a pre-existing legal framework must be established to outline the construction regulations so that they are easy to understand and relevant. The study suggests that when legal directives are easy to comprehend, compliance is expected since regulatory parameters would have been simplified. This further raises the need to ensure the precision of regulatory mandate [10], predictability and specificity of laws [17-20], and consistency and reliability of legal interpretation, as presented in [11, 13-15], where the need for specificity of legal standards was further emphasized to ensure the elimination of ambiguity, and ultimately lead to better compliance.

B. Proactiveness of the Regulatory Agencies

PRA was also noted to contribute significantly to regulatory compliance, attaining a coefficient of 0.458. According to [6], proactive engagement in regulatory roles, such as inspections, increases compliance within construction projects. Such results portray evidence that active engagement by regulatory agencies in construction projects instills a sense of responsibility. Similarly, the importance of clear communication, outlined in [24, 25], and the clarity of the regulator's implementation strategy [23, 24], helps showcase the regulators' effectiveness in this area. Overall, the active engagement by regulatory agencies was confirmed as crucial for ensuring compliance.

C. Conduciveness of the Construction Task Environment

CTE exhibited a positive relationship with compliance, recording a coefficient of 0.344. Authors in [60] explain that task environments that are well-structured and supported lead to enhanced compliance outcomes. Their research indicated that existing employment conditions on construction sites, such as safety measures, make it possible and practicable to achieve compliance. A fairly high level of planning [34], clear tasking stewardship in projects [26, 34], proper and adequate supervision [29, 34], and collaborations [29] should be emphasized to ensure effectiveness in promoting building compliance.

D. Characteristics of the Project Client

CPC were also statistically significant, with a coefficient of 0.156. These findings agree with those of [61], where it was demonstrated that when project clients focus on compliance and sustainability, they can better influence compliance outcomes in their projects. This also aligns with the findings of [15] in which it was noted that CPC affect compliance through clients' willpower to comply. The ψlient's knowledge, skills, communication abilities, and commitment were noted as pivotal in executing compliant projects [35]. This is further supported by the findings of [3, 12], where the clients' ability and capacity to comply legally and/or economically were considered critical in defining the compliance status of construction projects. Individual traits, like education and ethics, are also significant factors [28, 31, 47, 48].

E. Competency of Project Leaders

According to the findings, CPL posed the greatest positive influence, registering a coefficient of 0.517. Authors in [62] support this finding by demonstrating how non-compliance with regulations is well mitigated by knowledgeable and skillful leaders within a project. Such leaders empower their teams with practiced or tested compliance methodologies, interpret compliance requirements, and apply them efficiently. This also confirms leaders' policy beliefs [15, 28], leadership style [37, 47], level of participation and/or involvement of the client, designers, and construction managers [14, 26, 34], and their level of planning [34] as critical for ensuring project compliance. Generally, knowledgeable and skilled project leaders mitigate non-compliance with regulations through the adoption of the necessary corrective actions.

F. Goodness of Construction Labor

The estimation of GCL was a significant predictor as it had a coefficient of 0.417, indicating that skilled labour enhances compliance levels. According to [63], trained and knowledgeable laborers can contribute to enhancing compliance because they are more likely to put in place the necessary compliance measures. Authors in [26, 34] outline the critical need for clear tasking and/or stewardship of labour in project implementation in a manner that parties to an action can be retraced. Proactive measures, such as training and accreditation of construction workers, have also been noted to eventually contribute to an improvement in worker competence or skill levels [28, 29, 34, 41, 49].

VII. CONCLUSIONS AND RECOMMENDATIONS

The current research examined nine factors and their influence on the level of regulatory compliance in construction projects within the Nairobi City County (NCC). These are: Suitability of the Project Legal Framework (SLF), Proactiveness of Regulatory Agencies (PRA), Efficiency in Regulatory Processes (ERP), Conduciveness of the Construction Task Environment (CTE), Characteristics of the Project Client (CPC), Competency of Project Leaders (CPL),

Goodness of Construction Labour (GCL), Stability of the Prevailing Economic Environment (SEE), and Adherence to Ethical Factors (AEF). It was found that approximately 67% of the variability in the level of regulatory compliance is explained by these nine factors. However, six factors were identified as significant predictors of regulatory compliance. These are: CPC, SLF, CTE, CPL, GCL, and PRA. Based on these findings, the present study proposes a detailed review, restructuring, and optimization of these six significant factors in the preparation of regulatory compliance tools for building projects in Nairobi. By focusing on these key areas, the levels of regulatory compliance in building projects can be enhanced.

The current regulatory compliance system leverages a checklist with seven items. These are:

- Has an NCA registered contractor been engaged for the works?
- Is there a site board showing all approvals and the professionals engaged in the project?
- Is there an adequate display of safety signs on-site?
- Is Personal Protective Equipment (PPE) adequately adorned by all while on-site?
- Is there sufficient hoarding and fencing of the construction site?
- Has the site been issued with a valid NCA Compliance Certificate?
- Are NCA skilled construction workers and construction site supervisors engaged duly accredited by NCA?

From the above, it is clear that many significant aspects, critical for robustly assessing regulatory compliance, are currently excluded in the checklist. These involve: CPC, which should be assigned a clear regulatory compliance obligation owing to their influence over project considerations. Additionally, under the conduciveness of CTE, submission of project execution plans with clear monitoring and evaluation (M&E) tools, specifically on regulatory compliance, should be obligatory as part of project approval and registration. Under the competency of CPL, a framework for the appraisal of project consultants based on project outcomes as well as the nomination of in-house project manager(s), responsible for quality assurance, should be entrenched to oversee regulatory compliance. Similarly, regarding GCL, PRA, and SLF, aspects such as entrenchment of M&E tools, Robust Decision-Making (RDM) tool, and ensuring adaptability of applicable laws, should be ensured, respectively.

Considering that three factors were eliminated for not being significant, the remaining 33% of variability could be related to omitted variables or other factors that are currently unknown. Further research to investigate the factors contributing to the remaining 33% of regulatory compliance variability is, therefore, proposed to provide further insights into other potential influences that could lead to a more comprehensive understanding of the regulatory compliance in construction projects and guide actions for ensuring this type of compliance.

VIII. NOVELTY/CONTRIBUTION

The study focused on identifying the determinants of regulatory compliance within the construction sector in NCC, Kenya. According to information from the National Construction Authority (NCA), NCC records the highest number of registered and unregistered projects, alongside the highest number of incidences of failure and collapse of buildings per square kilometre each year compared to other counties, leading to deaths and destruction of property. This study, therefore, was critical given the City's geographic, social, and economic context locally and regionally. Despite the gravity of these matters, to the best of the authors' knowledge, no prior research has specifically sought to unravel the determinants of regulatory compliance in this locale. This study's novelty, hence, stems from its focus on a local gap in regulatory compliance.

With the global trends in regulatory practice shifting towards performance-based approaches and tailor-made solutions [11, 66 - 68], the dynamic nature of the regulations necessitates continuous review [17]. A local study by NCA [4] inconclusively addressed building collapses, pinpointing a need for improvement in the regulatory space, and proposing further research into regulatory coordination. Other local studies [6-9, 69] equally emphasized the need for the implementation of enhanced regulatory measures in the Kenyan construction industry. This study examines the determinants of regulatory compliance within the local setting of NCC and, therefore, fills a gap not fully addressed by previous research. It moves beyond general observations about regulatory dynamics to explore the determinants of a locally identified challenge.

The study also quantifies the extent to which these explanatory factors explain the variability in regulatory compliance. It also identifies six statistically significant predictors of regulatory compliance and exemplifies how these factors can be leveraged to enhance regulatory compliance. Given that the NCA has not reviewed its regulations since 2014 (over 10 years), the study's findings come at an opportune time when a review is anticipated. The Kenyan Statutory Instruments Act 2013 (Amended in 2023) [70] required that various regulation-making authorities and agencies review statutory instruments within 10 years or stand revoked. Sections of this Act were amended in 2023 to remove this requirement, primarily to avoid the automatic expiry of statutory instruments without proper parliamentary consideration. The review within this period, however, remains a best practice.

In summary, the study's novelty lies in its contribution to the growing scholarly discourse on regulatory compliance and the combination of attributes of geographical context, the specific set of factors, and the quantification of their expected impact. Additionally, while appreciating the resource constraints by regulatory authorities, the study proposes mechanisms to guide appropriate efforts towards enhancing regulatory performance in the construction industry that can result in efficient optimization of the limited resources.

CONFLICTS OF INTEREST

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