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Feasibility assessment as the panacea of risk management in realization of quality buildings in Nairobi county, Kenya

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Abstract
The quest for sustainable housing in Kenya has been a longstanding one. The establishment of the National Construction Authority (NCA) in 2012 and the National Building Inspectorate (NBI), paved way for the realization of this 'dream'. The NCA Act spells out various regulations governing construction work to ensure quality standards while NBI audits buildings for conformity with building standards and structural soundness. This worthwhile endeavor has however experienced challenges. Some building contractors and consultants have blatantly undermined the essence of feasibility assessment to mitigate risks in projects leading to collapse of buildings. The objective of this study therefore is to establish the influence of feasibility assessment as the panacea of risk management for realization of quality buildings in Nairobi County. Methodology involved collection and analysis of primary data and literature review of research reports and peer reviewed journals. Descriptive and inferential statistics were used to analyse data. Quantitative data was tabulated and analysed using frequencies, percentages, means and standard deviation. Test statistics computed to establish degree of relationship between the variables was Fisher test. The findings depict that feasibility assessment leads to an increase in quality of buildings by factor of 0.654 with P value of 0.000. At 5% level of significance and 95% level of confidence, this is statistically significant as the P-Value is lower than 0.05. The study concludes that there is significant positive relationship between feasibility assessment and quality of buildings. Recommendation of the study is that competent project managers should be hired to ensure that the project has the right leadership to steer the process of successful project implementation. Further research can be done to assess the role of project appraisal in risk management. The findings of this paper will be used to serve as a longer-term safeguard against risks in construction of buildings in Kenya.

Keywords: buildings, construction projects, contractors, feasibility assessment, quality, risk management

1. Introduction

There is no precise or single definition of 'quality', and although many of the pioneers of the quality movement and gurus, such as Deming, Juran, Crosby, Feigenbaum, Taguchi and others, had their own individual definitions of 'quality'. Edwards Deming referred to quality as a predictable degree of uniformity and dependability with a quality standard suited to the customer (Chandrupatla, 2014). According to Deming, the customer is the most valuable part of the production line and therefore quality should be aimed at the present and future needs of the customer. The underlying aspect in all definitions is the consistency of conformance and customer focus (Witzel, 2014) [24].

The definition adopted in this study is one relevant to the construction industry, which is the totality of features and characteristics of an entity that bear on its ability to satisfy stated or implied needs (ISO 9000:2000), where an entity can be a product, a component, a service, or a process. The ultimate judge for quality in a construction project is the client, although how a client defines quality may be biased, but there are ways to make quality objective (PM4DEV, 2016) [18] for instance, by counting errors and defects after the product is used.

The ISO approach to quality management stresses about customer satisfaction which connotes production of a good or service whose standard meets the customer's needs, prevention other than inspection, continuous improvement using the Deming Cycle of Plan-Do-Check-Act which continuously improves production systems (Newton, 2015). These principles act as a guide to a good quality management system. The myth that holding of an ISO 9001 certificate means that a construction firm has an effective QMS calls for a change in mindset. A reasoning that one builds to the minimum level of quality and later repair any faulty work, should be countered by the rationale of producing 'right–first-time' (Tricker, 2008) [22]. Inarguably, if the construction company's culture is good, the quality system will be applied appropriately, with the resulting building structure also being good.

Recent publications on construction quality management highlight the important activities that should be performed in relation to the application of an effective quality management system. According to Rumane (2011) [19], a construction company needs to demonstrate its ability to consistently provide products that meet or exceed customer expectations and satisfaction, while also adopting appropriate processes for the continued improvement of the QMS and related assurances of conformity to customer and applicable regulatory requirements. Watson and Howarth (2011) [23] also emphasize that for ISO 9001 to remain a process-based system with heavy emphasis on compliance, an organisation is required to rigorously conduct an assessment of organisational performance, set against a standard and leading to accreditation. Clearly, the context of an effective QMS implementation is to ensure that work is performed according to specifications, throughout the design and development phases, manufacturing and construction, and servicing, and also ensure that customers are satisfied with the resulting products and services (Beaumont 2006). Building construction projects stand to benefit from such a quality management system.

Throughout history, it has been established that buildings and the provision of safe and affordable homes for mankind are major contributors to sustainable development, an important civilization aspect of a society. In this regard, the construction process in any building project should be carried out in the most efficient and ethical manner possible to complete construction projects according to the standards of quality as specified by the project owner or designer (Nadeem, Sohai & Muhammad, 2009) [16]. Clients, contractors and consultants in a project environment are confronted by issues and dilemmas that have a significant bearing on project quality. Quality becomes compromised when feasibility assessment is ignored (Alfred, 2008) [2]. It is essential for the project owner to be satisfied with the completed project, as it acts as an indicator on the team's performance. Owners usually are satisfied, if the quality of service provided exceeds or at least meets their expectations. The ability of a project team to complete the project to the owner's expectation may increase a team's reputation and result in more working relationships in the long run. All project participants should uphold professionalism in performing their works and not approve any sub-standard work.

Feasibility studies are used as one of the first steps in examining a proposed business venture, and can be used for a new business or for an investment for an existing business to minimize risks (Kenkel, 2008). In other words, the feasibility study includes an analysis of the project´s viability and focuses on helping answer the essential question of "should we proceed with the proposed project idea?" The end result of a feasibility study is therefore the 'go/no-go' decision. According to Kerzner (2006) [10], the purpose of the feasibility phase is to plan the construction activities inorder to facilitate an estimation of resource requirements and allocation. Gardiner (2005) [6] adds that it also helps to identify the probable costs and consequences of investing in the new project and provides an accurate assessment of the factors that might cause risk in a project. A feasibility study therefore enables a realistic evaluation of a building construction project, incorporating both the positive and negative aspects of the project undertaking.

1.1 Statement of the problem

In developing countries, poor quality construction has led to projects susceptible to risks ranging from spontaneous building collapse to major disasters. While reliable building codes are widely used in design, builders in developing countries often fail to meet acceptable standards. Structural defects are frequently identified too late, often after catastrophic collapse. Researchers attribute most of the 230 thousand deaths in Haiti during the 2010 earthquake to the low quality of Haitian construction. The catastrophe in Haiti and a series of sad news of building collapse tragedies in Ghana, Tanzania, Bangladesh, Mumbai, Medellin, Casablanca, Nigeria (Karikari-apau, 2013) [9] and most recently Kenya, demonstrate that this problem is not unique to any one nation or region.

The growth of the construction industry in Kenya has given rise to a number of risky practices that violate codes of conduct. For instance, Mukumbwa, and Muya, (2012) [13, 14] pointed out that when construction processes involving finances are not executed in a professional and ethical manner, then parties involved in the process may have a way to practice unethical and unprofessional acts, that hurts their profession, and most importantly, compromises project quality. Kenya has witnessed a surging number of constructed residential buildings whose quality dimension has been compromised. Despite the government of Kenya establishing the National Building Inspectorate, it is still perceived that the building construction industry is highly susceptible to risks, resulting to collapse of buildings with disastrous consequences. In 2016, several cases of collapsed buildings were reported at Huruma, Nyali, Nairobi's Spring Valley estate and Nairobi's Westland area.

The tragedies above come a few months after the county government and NCA spoke of a move to demolish all improperly constructed buildings within the city. Statistics indicate that 204 buildings labeled 'unsafe' are to be demolished, out of which 58 are in Huruma, 19 in Hazina estate and 28 in Zimmerman (NCA Interim Report, 2016). This raises concern about the quality of workmanship on several buildings in Kenya. It is against this background that this research studies the influence of feasibility assessment as the panacea for risk management for realization of quality buildings in Nairobi County. Buildings in poor condition are associated with significant loss of lives and property, evictions as well as social inconveniences. These cases raise issues regarding professionalism in the building construction industry. Building structures that meet set standards are an asset to a country's economy as they are sustainable since they meet the needs of the present generation while also considering future needs.

This study therefore sought to analyse the influence of feasibility assessment as a panacea of risk management in realization of quality buildings in Nairobi County. The research will have implications for effective and efficient project management in building construction projects in Kenya and other countries thus fostering dedication and freewill drives between project organizations and stakeholders.

1.2 Objective of the study

The objective of the study was to establish how feasibility assessment as a panacea of risk management influences quality of building construction projects in Nairobi County.

1.3 Hypothesis of the study

The following Null Hypothesis was tested:

H_o: There is no significant influence of feasibility assessment as a panacea of risk management on realization of quality buildings in Nairobi County.

2. Literature Review

Feasibility study in the conception of projects is the foundation of a comprehensive and transparent determination of the viability of investment proposals and focuses on minimizing uncertainty throughout the lifetime of the project. Feasibility studies are used as one of the first steps in examining a proposed business venture, and can be used for a new business or for an investment for an existing business (Kenkel, 2008). To decide if the project is a possibility, or financially feasible, a cost benefit analysis must be completed (Thomson, 2005). According to Ehrhardt and Bringham (2011), feasibility means there must be a reasonably high probability of success and profitable future operations. Feasibility studies can be done for any aspect of the project. The different aspects include market feasibility, financial feasibility, technical feasibility, and management and organizational feasibility (Kenkel, 2008).

The typical way of doing a feasibility study is to examine the project from a financial standpoint (Kenkel, 2008). To examine from a financial standpoint, it must be determined if the person or company can afford the new venture (Holland, 1998). In other words, the investment must generate enough income to cover the costs incurred by the investment (Kay, Edwards, Duffy, 2008). From a residential building construction project standpoint, the owners or investors do not want to undertake one that will lose money. Since approximately one in every fifty of such projects ends up being a practical option, a feasibility study is an important step to take to avoid potential future losses (Thomson, 2005).

The project feasibility study phase involves the making of a project feasibility study that comprises an evaluation and analysis of the potential of a proposed project and is based on extensive investigation and research to support the process of decision-making. Munns and Bjeirmi (1996) [15] state that project definition and early decision making is critical to overall success and suggest that the broader decisions in selecting a suitable project in the first place are more likely to influence the overall success of the project. The project feasibility phase is the second phase in the lifecycle of a project but the first one is the conceptualization phase (Kerzner, 2006) [10]. According to Kerzner (2006) [10] the conceptualization phase involves two critical factors: (1) Identify and define the problem, and (2) identify and define the potential solutions. Kerzner (2006) [10] gives the following explanation of the feasibility study phase: “The feasibility study phase considers the technical aspects of the conceptual alternatives and provides a firmer basis on which to decide whether to undertake the project.”

Cost underestimation is a case of concern in some building construction projects and the reason is assumed to be the incentive to make a project look better and profitable in order to get the project started (Flyvbjerg *et al*., 2002) [3]. This procedure is known to affect decision making in the beginning of projects, and is called “strategic misrepresentation”, in addition to “optimism bias” which includes excessive optimism on the project’s outcome. Fridgeirsson (2014) [5] states that “the consequences of these two phenomena are unrealistic expectations of projects’ benefits, costs and duration, which distort the real financial needs and benefits, stirs up controversy and unnecessary difficulties in the duration of the project.” Fridgeirsson (2014) [5] mentions a problem in the decision making process in public projects, that is the people who make the project’s go/no-go decision are not financially responsible for the project. Where the decision makers are not risking their own funds, they might not act in the best interest of taxpayers. While the financial responsibility of the public projects is distributed among taxpayers, the private companies carry all financial responsibility themselves.

In order to prevent the use of the above mentioned procedures and to promote the efficient use of stakeholders´ money, feasibility studies should be conducted, whether the proposed construction project is within the public sector or the private sector. Owners, decision makers and financial institutions build their decisions to proceed with and/or finance any project based on the results of the feasibility study of that project (Hyari and Kandil, 2009) [5]. Hyari and Kandil (2009) [5] state that ensuring the validity of economic feasibility studies of construction projects is a vital step in ascertaining that decisions related to the construction of facilities are based on consistent and standard procedures that avoid the use of misleading or inadequate information. They also emphasize that decision makers exert every possible effort to ascertain that analyses presented in a feasibility study report are based on reasonable forecasts and reliable information.

To develop a risk-free project, its promoters should ascertain that the project is politically, socially, legally, environmentally, economically and financially viable and the project viability may only be determined following a detailed and accurate feasibility study (Salman *et al*. 2007) [21]. The conduct of a comprehensive feasibility analysis plays an important role regarding implementation and prioritization in the decision-making phase in the beginning of a project life cycle, which applies to public and private projects respectively. Yun and Caldas (2009) [25] argue that this process leads decision makers to make a go/no-go decision, to determine investment priority between capital projects, and to provide optimal alternatives and investment timing. They state that preliminary feasibility studies are the basis for the go/no-go decision, which determines whether the capital project is to be recommended or not. Many funding agencies in the private sector also require satisfactory feasibility study reports before committing significant funds to projects seeking external finance (Gardiner, 2005) [6].

Hyari and Kandil (2009) [5] emphasize the importance of weighing massive expenditures on construction projects against the expected benefits resulting from the projects to stakeholders and therefore conducting feasibility studies prior to the construction of the facilities. The economic feasibility of a project is an estimate of the potential profitability of a project and a study that measures the expected benefits from a certain project relative to its cost (Hyari and Kandil, 2009) [5].

A study conducted by Yun and Caldas (2009) [25] to discover knowledge from preliminary feasibility studies of large-scale projects in Korea using classification and prediction came to a similar conclusion. Their conclusion was that the dominant decision variables in determining the implementation of the project were the benefit - cost ratio, the economic feasibility and the financial feasibility, but these decision variables have in common that they are closely related to the financial aspects of a project (Yun and Caldas, 2009) [25]. Yun and Caldas (2009) [25] state that in this case the benefit - cost ratio was the most important decision variable for determining the project implementation.
According to Yun and Caldas (2009) [25] the preliminary feasibility studies include four processes that are used to analyze a capital project: project overview; economic feasibility; political viability; and total viability. Project overview examines the project's basic information such as its background, objectives, and procedure and planned content. Economic feasibility estimates demand and calculates economic and financial indices such as benefit-cost ratio (B/C), net present value (NPV) and internal rate of return (IRR) based on cost-benefit analysis to determine national economic impact and investment suitability. Political viability evaluates non-economic impact, attitudes toward the project, financial feasibility, and compliance with relevant governmental policies, environmental impact, as well as project-specific factors.
In a study carried out in the Gaza Strip (Palestine) by Adnan, Sherif & Saleh (2009) [1] to identify the factors affecting the performance of local construction projects; and to elicit perceptions of their relative importance, survey findings indicated that all 3 groups of project participants; namely owners, consultants and contractors agreed that the most important factors affecting project performance are related to feasibility assessment and include: delays because of borders/roads closure leading to materials shortage; unavailability of resources; low level of project leadership skills; escalation of material prices; unavailability of highly experienced and qualified personnel; and poor quality of available equipment and raw materials.
Total viability leads decision makers to make a Go/No Go decision, determine investment priority between capital projects and provide optimal alternatives and investment timing. Yun and Caldas's (2009) [25] results from analyzing decision variables that influence preliminary feasibility studies reveal that practitioners emphasize financial aspects in the project's planning phase. Although economic feasibility has the biggest influence on the Go decision it does not mean that other factors aren´t important in the decision making process as well.

2.1 Theoretical Framework

This study focuses on a single but significant theory that puts into consideration the detection of errors and weaknesses in a project environment during a feasibility study and the response patterns involved. It's known as Signal Detection theory. Signal-detection theory (Green & Swets, 1966) [7] may provide a useful framework for further analysis of observer accuracy. SDT was developed to examine the behavior of an observer in the presence of ambiguous stimuli. The task of the observer is to discriminate the presence versus absence of a stimulus (i.e., detect a signal against a background of noise). In classical signal-detection experiments, the observer either responds ''yes'' or ''no'' regarding the presence of the signal on each trial. Correctly indicating that a stimulus is present is called a hit, and correctly indicating that a stimulus is absent is called a correct rejection. Indicating that a stimulus is absent when it is actually present is called a miss, and indicating that a stimulus is present when it is actually absent is called a false alarm.
According to SDT, the behavior of an observer in this type of situation has at least two dimensions. One dimension is determined by the sensory capability of the observer and the actual ambiguity of the stimulus and is called the sensitivity of the observer (i.e., how well the observer discriminates the signal from the noise). A second dimension is the proclivity of the observer to judge in one direction as opposed to the other (e.g., to indicate that the signal is present rather than absent), referred to as the observer's response bias. Research on SDT indicates that response bias is affected by a number of variables, including the consequences for each outcome of judgment, the a priori probability of each option, the decision rule that influences the observer, and instructions about how to make the observations (Green & Swets, 1966) [7]. Sensitivity, on the other hand, is usually affected only by operations that change the amount of ambiguity in the stimulus situation. According to Lerman, Tetreault, Hovanetz, Bellaci, Miller, Karp, Mahmood, Strobel, Mullen, Keyl, and Toupard, (2010), SDT provides a way to evaluate the effect of factors on sensitivity and response bias separately. Methods based on SDT have been applied across a variety of disciplines (e.g., industry and engineering) to evaluate decision making. Consequently, its application to the building construction industry is necessary for the purpose of reinforcing quality results.
The concepts of SDT could therefore be extended to the direct observation of behavior in building construction projects. Any behavior that should be recorded by parties involved in feasibility assessment corresponds to the signal in SDT. All other behaviors correspond to the noise in SDT. Correctly recording the existence of a weakness corresponds to responding, ''Yes, the signal is present'' (i.e., a hit). Correctly refraining from recording a characteristic that does not meet the requirements of a viable building construction project corresponds to responding, ''No, the signal is absent'' (i.e., a correct rejection). Failing to record a weakness that has been detected is similar to responding incorrectly in the presence of the signal (i.e., a miss), whereas recording a weakness that was not observed corresponds to responding incorrectly in the presence of noise (i.e., a false alarm). Under such circumstances however, there is need to delve into the cause and meaning of the false signal.
Research on SDT indicates that observer error may reflect problems with sensitivity (i.e., discriminating the target behavior from other behaviors) or response bias (i.e., the criterion used by the observer to determine whether a behavior should be recorded). SDT also suggests that problems with sensitivity and bias are more likely to occur when the observer encounters ambiguous samples of the targeted behaviors. Thus far, research on observer accuracy in behavioral assessment

has not differentiated between sensitivity and bias or considered the role of ambiguous behavioral samples when examining factors that may influence accuracy or reliability. Various types of ambiguous behavioral samples might arise during naturalistic observation (Lerman *et al*, 2010) [12]. This is typical of many building construction projects where a feasibility consultant's inaccuracy in detecting a correct signal may be viewed as ambiguous leading to a situation of uncertainity and no action is taken.

Observers of building construction projects include the project owner, contractor and the consultant engineer. To effectively examine quality in building projects, one has to be keen on key signals of risk in a project. Any signal indicating a weakness in the project ought to elicit the right response (a hit). Failing to record this amounts to being unethical in conduct as the consequences may work against the project beneficiaries. Where observation yields uncertainity, due to either bias or insensitivity, it is crucial to have the stakeholders brainstorm on the ambiguity and agree whether the signal is present or absent. This way their judgement will rule out risky situations and promote efficiency.

3. Research Methodology

Pragmatic paradigm was used as it fits well in mixed methods research. Johnson and Onwuegbuzie (2004) [8] formally define mixed methods research as the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study. Philosophically, it is the "third wave" or third research movement, a movement that moves past the paradigm wars by offering a logical and practical alternative. Philosophically, mixed research makes use of the pragmatic method and system of philosophy. Its logic of inquiry includes the use of induction (or discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering and relying on the best of a set of explanations for understanding one's results) (de Waal, 2001).

The research designs used in this study were descriptive survey design and correlational research design. The choice of these two research designs was informed by the fact that descriptive and inferential data analysis are required in this study.

Target population comprised all of the individual members under study (Kothari, 2004) [11]. The unit of analysis was the building construction firms in Nairobi County. The target population was therefore all the 228 NCA1, 170 NCA2, 188 NCA3. 497 NCA4, 421 NCA5, 632 NCA6, 682 NCA7 and 561 NCA8 registered contractors, giving a total of 3379 contractors as shown on Table Others under consideration were 67 engineering consultants of building construction projects in Nairobi County, 17 officers in NCA top management and as well as 12 officers of the National Building Inspectorate (NBI) management, yielding a total target population of 3475. They were considered due to their role in general building construction projects.

For the purpose of this study a census was used in three categories of the target population, namely, the NCA management, NBI management and the consultants, hence 100% of the target population was used. This aided the researcher in collecting the desired information under study from every individual member of the population. A census survey is a unique way of obtaining precise data, particularly when the population is small (Salant, Dillman, 1994; Fowler, 2009) [20, 4]. The registered contractors selected in this study were all those in NCA1 to NCA8. Stratified random sampling was thereafter employed to obtain individual respondents for the study. Calculation of the sample size was done after employing the following sampling formula advanced by Yamane (1967) to obtain a representative sample size from the population size of registered contractors:

$$n = \frac{N}{1+N\,(e)^2}$$

Where:
n- Sample Size
N-Population Size
e- Level of Precision at 93% Confidence Level.

The sample size of contractors consisted of 192 respondents selected from the target population of 3379 contractors. Systematic random sampling was thereafter employed to obtain individual contractors for the study. To determine the sampling interval, 'k', the units of study were first arranged alphabetically after which the respondents were selected systematically as the 'k^{th}' unit. For NCA 1-8 categories, K=N/n, hence, every 17^{th} respondent was selected for the study.

The researcher used questionnaires for all the contractors and consultants and interview guides for representatives of National Construction Authority and National Building Inspectorate management. The instruments were piloted in two contracting firms not involved in the study specifically in the neighbouring Kiambu County, Thika Sub-County, which is an area of similar characteristics as the study area. To test reliability the split-half method was applied in the two contracting firms. Split-half method was used to treat the two halves of the measure as alternate forms. It involved administering the test to a group of individuals, splitting the test in half and correlating scores on one half of the test with scores on the other half of the test. The correlation between these two split halves was then used in estimating the reliability of the test. This gave a value of 0.791 and the instrument was therefore termed as reliable for use. Coefficient of at least 0.7 is an indication of high reliability of the research instrument (Mugenda & Mugenda, 2003). Data collection from the contracting and consulting firms was done with the aid of research assistants. This approach helped to improve the rate of return of the questionnaires. Four research assistants were engaged.

A mixed methods approach to data analysis was employed. This entailed the use of both descriptive and inferential data analysis techniques. Descriptive analysis involved use of measures of central tendency, that is, arithmetic mean and use of measures of dispersion, that is, standard deviation. Data was also analyzed using Spearman's Rank Correlation Coefficient, Pearson's Product Moment Correlation and Regression analysis by employing the quantitative approach. Regression analysis was used to predict the value of the dependent variable on the basis of the independent variable.

For the stated research objective, a hypothesis was formulated and corresponding correlation model was developed since the relationship to be tested was linear.
The regression model that guided the inferential analysis in this study was:
Quality of buildings construction projects = f (Feasibility assessment as a panacea of risk management)

$$y = a + \beta X_1 + \varepsilon$$

Qualitative data was analyzed by categorization into themes. The researcher recorded the themes in the research matrix display and then integrated themes and responses before analyzing by use of Descriptive Statistics using frequencies, percentiles; median, mode and mean and presented using tables.

4. Findings

The researcher collected data from a total of 288 respondents which consisted of 67 consultants, 17 NCA and 12 NBI officers in the management teams and 192 NCAs. Questionnaires were sent to all the 288 respondents out of which 222 questionnaires were filled and returned representing a response rate of seventy seven point one per cent (77.1%). This response rate was considered adequate for analysis. According to Awino (2011), a response rate of 65 percent is acceptable for such studies. Out of 132 of the respondents, 66.7% indicated that they were male, while 33.3% were female. This implies that majority of the respondents were male indicating a gender disparity in the construction industry towards females.
Various assumptions were made about variables during statistical tests. This was to ensure that the findings were worth using in decision-making. Failure to meet these assumptions would lead to Type I and Type II errors. Testing for assumptions is beneficial because it ensures that analysis meets associated assumptions and helps avoid Type I and Type II errors (Osborne *et al*, 2001). In this study, normality was tested using Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. The findings depict that, the significance values for the Shapiro-Wilk tests were 0.401 for Feasibility Assessment, Legal Environment and Quality of Building Construction. For the Kolmogorov-Smirnov tests, the significance values were 0.331 for Feasibility Assessment, Legal Environment and Quality of Buildings. This implies that since the p-value is greater than the chosen alpha level of 0.05, the data came from a normally distributed population. The normality of the variables was also done and the study determined that all the variables had a fairly good fit in the normal distribution.
The weighting criteria of responses of of Likert –type data assumed an equidistance of 0.8 whereby Strongly Disagree (SD) 1<SD<1.8; Disagree (D) 1.8<D<2.6; Neutral (N) 2.6<N<3.4; Agree (A) 3.4<A<4.2; and Strongly Agree (SA) 4.2<SA<5.0. Theoretical literature linked feasibility assessment with quality of building projects. Ten items were developed to measure the extent of this relationship. In the descriptive analysis, the overall aggregate mean score for this section stands at 4.4449, the standard deviation at 1.1839 and the coefficient of variation at 0.5424. This reveals that the respondents strongly agreed with feasibility assessment as the panacea for risk management in construction of buildings. The item 'A feasibility report is necessary before the start of building construction' was found to have the highest mean of 4.9899, a standard deviation of 0.7539, and a coefficient of variation of 0.3789. This was followed by 'level of use of feasibility data has an influence on quality of residential buildings' (mean=4.8838, S.D=0.7347, C.V=0.3900). 'Choice of site has an influence on quality of residential buildings' (mean=4.7778, S.D=0.8556, C.V=0.4813). 'Evidence of feasibility assessment is an important consideration before the start of building construction' (mean=4.7424, S.D=0.7400, C.V=0.4247). 'Technical feasibility has the greatest influence on quality of construction work' (mean=4.7222, S.D=0.7326, C.V= 0.4254). 'Go /No-Go decision should be made by all key stakeholders in a meeting' (mean=4.7121, S.D=0.7560, C.V=0.4416). 'Feasibility assessment is important before the start of building construction' (mean=4.5505, S.D=0.7231, C.V=0.4663). 'Selection of feasibility expert is best done by the project owner' (mean=3.9141, S.D=1.3128, C.V=0.4505). 'A meeting to discuss feasibility report is an important consideration' (mean=3.7475, S.D=1.0211, C.V=0.4636). 'Level of qualification of feasibility personnel is an important consideration before the start of building construction' (mean=3.4091, S.D=1.2088, C.V=0.5018).
In regard to (H_0) hypothesis "There is no significant influence of feasibility assessment as the panacea of risk management in realization of quality buildings", the results in the Table below were relied upon in accepting or rejecting the stated hypothesis.

Table 1: Feasibility Assessment Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.769[a]	.591	.589	.26709

a. Predictors: (Constant), feasibility assessment

In this case, the adjusted R-squared is 0.589. This means that feasibility assessment variable explains 58.9% variations in the dependent variable (quality of residential building) while the rest are explained by the error term.

Table 2: Feasibility Assessment ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.524	1	25.524	357.791	.000[b]
Residual	15.691	221	.071		
Total	41.215	222			

a. Dependent Variable: Quality of Residential Building
b. Predictors: (Constant), Feasibility Assessment

The strength of variation of the feasibility assessment values influences quality of residential building variable at 0.000 significant levels. This shows that the overall model was significant.
The findings for the ANOVA on feasibility assessment indicates a numerator for whose degrees of freedom (df) =1, denominator df =222 and critical F value is 2.7055. The above findings show computed F value is 357.791. From these findings, the regression model is significant since the computed F-value exceeds the critical value that 357.791 > 2.7055. This is collaborated by the P value = 0.000 which is

less than 5%. This provides a significant level of explanation of the relationship between feasibility assessment and quality of building construction projects. This implies that 95% chance that the relationship with the variable is not due to chance.

Table 3: Feasibility assessment coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.552	.156		9.965	.000
feasibility assessment	.654	.035	.769	18.915	.000
a. Dependent Variable: Quality of Residential Building					

($Y= 1.552+ 0.654X_1+ \varepsilon$)

The findings depict that feasibility assessment would lead to an increase in quality of buildings by factor of 0.654 with P value of 0.000. At 5% level of significance and 95% level of confidence this is statistically significant as the P-Value is lower than 0.05. The study therefore reject the null hypothesis implying that there is significant influence of feasibility assessment on quality of residential building construction projects. On the basis of these statistics, the study concludes that there is significant positive relationship between feasibility assessment and quality of buildings.

5. Discussion of findings

The dependent variable of the study was quality of building construction projects. To this effect, the respondents were required to answer a series of questions in relation to this variable. The findings were that there is a strong relationship between feasibility assessment and quality of building construction projects. The statement that failure to meet quality standards in one stage affects work progress in the next stage was the most outstanding in relation to quality of building construction projects. This concurs with the findings by Tricker, (2008) [22] that if the construction company's culture is good, the quality system will be applied appropriately, with the resulting building structure also being good and vice versa. Recent publications on construction quality management highlight the important activities that should be performed in relation to the application of an effective quality management system.

The study further established that 66.7% of the respondents indicated that to a moderate extent they were involved in quality of residential buildings construction, 16.7% indicated to a large extent, 12.5% indicated to a very large extent, while 4.2% indicated to a very small extent. The involvement would help deliver quality service to the customers. According to Rumane (2011) [19], a construction company needs to demonstrate its ability to consistently provide products that meet or exceed customer expectations and satisfaction through employee involvement, while also adopting appropriate processes for the continued improvement of the Quality Management System and related assurances of conformity to customer and applicable regulatory requirements.

The objective was to establish how feasibility assessment as the panacea for risk management influences realization of quality of building construction projects. The project feasibility study phase involves the making of a project feasibility study that comprises an evaluation and analysis of the potential of a proposed project and is based on extensive investigation and research to support the process of decision-making. Regarding this objective, the study sought to establish the extent to which feasibility assessment influences quality of residential building construction projects. A feasibility report is necessary before the start of building construction. This agrees with the findings of Kenkel, (2008) who stated that feasibility study in the conception of projects is the foundation of a comprehensive and transparent determination of the viability of investment proposals and focuses on minimizing uncertainty throughout the lifetime of the project. Feasibility studies are used as one of the first steps in examining a proposed business venture, and can be used for a new business or for an investment for an existing business.

The findings depict that feasibility assessment would lead to an increase in quality of buildings by factor of 0.654 with P value of 0.000. At 5% level of significance and 95% level of confidence this is statistically significant as the P-Value is lower than 0.05. The study therefore rejects the null hypothesis implying that there is significant influence of feasibility assessment on quality of building construction projects. On the basis of these statistics, the study concludes that there is significant positive relationship between feasibility assessment and quality of buildings.

6. Conclusion

The study concludes that there is a strong relationship between feasibility assessment as the panacea of risk management and quality of building construction projects. The legal environment is a factor that influences quality of building construction projects. The study further concludes that project practitioners should be proactive to prevent risks occurring such as collapse of buildings. This would entail empowering the NCA and NBI to work independently free from undue external influences. Further, competent and experienced project managers should be hired to ensure that the right project leadership team is hired to lead the process of construction project implementation. All the project players should be trained on all factors that influence successful implementation of construction projects. They should especially be educated on the key metrics of a successful project.

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