



INFLUENCE OF PROJECT RISK MANAGEMENT ON COMPLETION OF HOUSING CONSTRUCTION PROJECTS HOUSING PROJECT IN KISUMU COUNTY, KENYA

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Abstract

Availability of proper houses is one of the issues affecting many Kenyans, and thus it is part of the Big 4 Agenda. In Kenya the gap between demand and supply for housing continues to widen in the country. The estimated housing demand in urban areas is approximately 150,000 units per year yet the current supply is about 30,000 units. The main objective of this study therefore was to investigate the influence of project risk management on completion of housing construction projects in Kenya. A descriptive research design was used in the study. The study targeted 71 respondents comprising of project managers, physical planners, building inspectors and project architects. From the targeted population, the study sample 71 respondents using census sampling techniques. The study used primary data which was collected using structured questionnaires. Descriptive and inferential analysis was done by Statistical Package for Social Sciences (SPSS 23). From the findings, this study establishes that there exists a significant positive relationship between project risk management and the completion of housing construction projects. The study therefore concluded that project risk management has significant influence on completion of housing construction projects in Kisumu County. The

study recommended that construction firms should practically engage various stakeholders in project risk management practices for proper completion housing construction projects. To achieve this, there is need for both national government and county government to come up with structures, policies and guideline that would enhance stakeholder engagement during project risk management.

Keywords: Project Risk Management, Project Completion, Housing Projects, Construction Housing Projects, Project management, Kisumu County

INTRODUCTION

Completion of projects is an indicator of efficient construction industry. Construction timely often serves as a benchmark for assessing the performance of a project and the efficiency of the project organisation. A project is said to be successful on timely completion. The time required to complete construction of projects is often more than specified time in Contract. These overruns' or, time extensions happens due to many reasons, such as designer changes or errors, economic conditions, resource availability and performance of project parties (Emmanuel, 2020). Usually, majority of project delay occurs during Construction phase, where unforeseen factors (environmental concerns and restrictions, ground conditions) are always involved. Construction delays lead to increase in overall project cost, henceforth completing projects on time is beneficial to all parties involved in projects.

Engaging stakeholders in construction is a formal process of relationship management through which clients, contractors and sub-contractors engage with a set of primary and secondary stakeholders, in an effort to align their mutual interest to reduce risk in projects. Stakeholder engagement leads to effectiveness and better decisions in projects (Luvuga & Ngari, 2019). The level of a project will certainly fluctuate; project managers should work hard to ensure the participation is never nonexistence (Bojang, 2016). The ideas of involving people within the organization during policies implementation include, presenting the designs, workshops, open forums recurring agenda, items in established departmental meetings. Keeping people involved will facilitate the change process by ensuring people understand why behind the change.

Lack of stakeholder engagement within the project can lead to huge resistance to change (Kituku, 2020). Limited engagement leads to lack of understanding which leads to costly mistakes, when implementing the project (Atiibo, 2012). Lack of participation of key influencers within the program can lead to the whole program or part of a project gets stalled. When people are involved they will feel responsible for the changes happening around them. Anticipate their

pain point, changing roles, fear of redundancy, training and accountability. This varies from organization to organization. Within every organization reaction will vary between individuals and will be dependent on a range of factors including personal upbringing and previous experiences of change.

Stakeholder engagement process builds a proactive two-way process between the organization and the stakeholder. The communication, opinions and proposals flow in both directions and the organization which can change its behavior as a result of engagement. This process is not actually linear; rather it is an iterative process in which an organization learns and improves its ability to perform meaningful stakeholder engagement through developing relationships of mutual respect, in place of one-off consultations (Mwinzi & Moronge, 2018).

It is estimated that there is an annual requirement of 206,000 units of houses in the country. The present supply lies at approximately 50,000 units annually which create a deficiency of 156,000 units (KNBS, 2019). The government of Kenya seeks to march the supply of houses to the existing demand by 2030 (GoK, 2019). The Ministry of Housing (2019) revealed that, among all housing activities started over the previous years, 48% of the housing undertakings were inadequate and 10% of these tasks had totally slowed down. According to KNBS (2019), the sector recorded a growth of 4.8 per cent in 2019.

The total value of new private and public buildings completed went up by 9.6 per cent from KSh 46.4 billion in 2018 to KSh 50.8 billion in 2019. The recurrent problems of time and cost overruns those are widely prevalent in the public sector construction projects (Mwandali, 2019). This prompt moderate take-up of housing development projects. Lack of progress of these housing development projects has brought about decreased supply of value houses and in addition a less energetic economy which therefore adds to a lower expectation for everyday comforts for Kenyans and also expanded joblessness (GoK, 2019).

Luvuga and Ngari (2019) sought establish the determinants of completion of housing construction projects in informal settlements in Nairobi City County, Kenya. The study targeted project managers involved in the implementation of the projects who provided pertinent information about the research problem. Stakeholder involvement was the most significant determinant for successful completion of housing construction projects at National Housing Corporation in Kenya. In that regard, continuous and broader engagement between the company and all its project partners within and outside the organisation can lead to successful completion of housing construction projects. Finally, the study found that availability and adequacy of budgetary allocation of resources can lead to successful completion of any project. Therefore, the study concludes that the success of any project is subject to the available resources and inadequate resources results to poor project performance or project failure.

Mwinzi and Moronge (2018) indicated that despite all the efforts put in place for the last 10 years or so, Government projects still suffer heavily in cost and time overruns compared with privately funded projects in management and project delivery. Construction delay is one of the most common, costly, complex and risky problems encountered in construction projects in Nairobi County currently (Olatunji, 2010). Cost overrun is the most frequent effect of delay due to overtime costs in order to continue the construction work and any compensation required as a result of the delay. These delays therefore are badly affecting the sectors reputation directly while loss of productivity and efficiency of the labourers continues to occur due to these delays

Statement of the Problem

Availability of proper houses is one of the issues affecting many Kenyans, and thus it is part of the Big 4 Agenda. To ensure every Kenyan has access to comfortable houses, the government had planned to build at least 500,000 low-cost houses in a partnership scheme with the private sector. However, the state of implementation of government's Big 4 housing projects in Nairobi, Mombasa and Kisumu, which has generally slowed down for a number of reasons. In Kenya the gap between demand and supply for housing continues to widen in the country. In Kisumu County, even though National government through various ministries and parastatals has been implementing majority of their housing construction projects, there have been various housing completion issues ranging from cost overrun and delay in completion. For instance, NHC's Kanyakwar phase II 600 units have not been completed as NHC is struggling to sell Phase I 100 units since 2014. The delay in completion of Phase II is partly associated with selling of Phase I housing project which was completed in 2014. This has resulted to shortage of houses in the county thereby pushing the cost of living in the lakeside city. Further, NSSF is likely to lose Sh215 million and possible additional losses over the delayed completion of Milimani residential housing projects.

A survey of the outcomes of many World Bank projects demonstrated that success or failure of housing development projects extended frequently relies upon different factors, for example, the involvement of stakeholders in the project (Akanni, 2014). Organizations can no longer choose if they want to engage with stakeholders or not; the only decision they need to take is when and how successfully to engage (Debra, 2017). Stakeholder engagement is premised on the notion that 'those groups who can affect or are affected by the achievements of an organization's purpose' should be given the opportunity to comment and input into the development of decisions that affect them.

Local scholars such as Madukani (2013), Mwinzi and Moronge (2018) as well as Luvuga and Ngari, (2019) have studied completion of construction projects. These scholars have

focused on variables such as project management systems, procurement methods as well as project leadership skills. In a recent study conducted on determinants of successful completion of housing construction projects in Ministry of Housing in Nairobi, Kenya it was stated that the concept of construction project completion remains unclearly defined due to different expectations from different stakeholders (Owoko, 2013). Therefore, this study investigated influence of project risk management on completion of housing construction projects in Kenya; a case of Housing project, Kisumu County.

Hypothesis of the Study

H₀: There is no significant influence of project risk management on completion of housing construction projects in Kenya.

LITERATURE REVIEW

Theoretical Framework

Theory of Project Constraints guided the research. It is also argued that this theory should be applied initially for project time management, although it also can be used for project risk assessment and cost management. Moreover, timelines are a major constraint in project execution because of the need for positive cash flow, reducing contingency costs of delays and need for scope changes. Therefore, the two key underlying features in using theory of constraints are the availability of critical resources, and the ability of organizations to mobilize these resources in a timely manner to meet project schedules and maximize resource utilization (Parker, Parson & Isharyanto, 2015).

According to Parker et al. (2015) this theory is also applicable throughout the five project processes, as outlined in the PMBOK Guide (PMI, 2013) to augment appraisal of constraint implications for each of the processes. He argues that during of the project initiation stage, project managers can minimize uncertainty and risks by defining specific project objectives, managing key stakeholders' expectations, and developing strong communication ties with the client to identify potential, foreseeable risks. In the planning phase, project managers can minimize uncertainty and risk by employing methods which have proven successful in the past, using products or materials which have been "tried and tested" and utilizing subcontractors when resources are constrained. In the monitoring and controlling phase, progress and performance can be measured against key performance indicators for time, cost, scope and quality objectives.

This theory has been critiqued by scholars on the basis that it focuses on short-term goals while emphasizing on volumes rather than quality thus limited in scope (Balakrishnan,

Danninger, Elekdag & Tytell, 2009). As a consequence of oversimplification, the theory of constraints has been questioned for lack of focus on non-constraints which may become constraints in dynamic environments (Conway, 1997), lack of focus on multiple performance measures (Pinedo, 1997) and lack of buffer management (Spearman, 1997). It has also been argued that the over simplification tendencies in theory constraints, this theory is likely to restrict improvements that would have been possible through management of the constraints and therefore the simplification though useful becomes counterproductive (Balakrishnan et al., 2008).

According to Blackstone (2010), the success of project depends on effective stakeholder engagement. The main argument of the theory is that project can be managed in such a way that it is not restricted from achieving its scope by proper stakeholder engagement. During project management we can foresee the constraints that may hinder success of the project with respect to stakeholder engagement.

Conceptual Review

A conceptual framework is a set of broad ideas and principles taken from relevant field of enquiry and used to structure a subsequent presentation (Reichel & Ramey, 2007). This process discusses the conceptual framework for analyzing influence of project risk management on completion of housing construction projects in Kenya; a case of Housing project, Kisumu County. The relationship between the independent variables and dependent variable is shown in Figure 1.

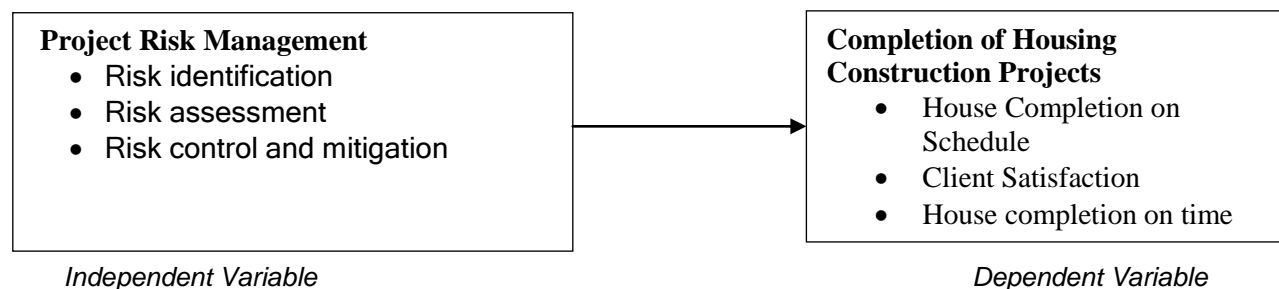


Figure 1: Conceptual Framework

Concept of Project risk management

According to PMI (2013) the practice of project implementation involves project risks identification, analysis of the identified project risks, defining and implementing risk response actions, and monitoring of project risks to find out whether the risk responses are effective or require review. Teller and Gemunden (2014) assert that the importance of frequent and

continuous utilization of project risk management practices by experienced project managers has been emphasized by several authors. In an example, he observed that, findings from the interviews of De Bakker, Boonstra and Wortmann (2010) indicated that project risk management is deliberately used to deliver messages to other stakeholders, with the aim of influencing their behavior, perceptions, and awareness of the situation and its attendant risks. Teller and Gemunden (2014) argue that although many studies suggest that project risk management is related to completion of housing construction projects, there are other studies that have shown that project risk management underperforms in practice (Bannerman, 2008; Raz et al., 2002).

Mohammed (2015) reported on Risk and Stakeholder Management in Mega Projects beyond the Realms of Theory in the Kingdom of Bahrain. The research concluded that a large percentage of the delays, difficulties and cost overruns are attributed to risks related to poor stakeholder-needs-identification and the absence of clear risk and stakeholder management strategies. The Author argues that proper stakeholder management is a measure of completion of housing construction projects. Though the study has relevance to the global subject area of the study, it however, lacks specificity found in the Kenyan environment. Further, the research did not include an interview survey that would have provided more in depth information. This necessitates further studies in the subject matter. This means that risk should be seen as a qualitative or quantitative assessment, which is supposed to be carried out for every identified risk so that an adequate risk response action is prepared beforehand. Therefore, this linear project risk management process is a good starting point for a successful project implementation.

However, it needs to be known that new risks may appear after the risk response action stage. Such risks need to be identified, analyzed and responded to; thus making it difficult to associate project risk management process with a linear process. Therefore, some authors view project risk management as a cyclical process. Zuo, Zang, Wang and Jiayuan (2014) divided the project risk management process into five phases: risk identification, risk estimation, risk evaluation, risk response, risk monitoring and controlling.

Concept of Completion of Housing Construction Projects

Successful completion of housing construction projects is critical to national development and could be effectively measured within the realm of project management systems or processes. The African Development Bank (AfDB) maintained that transport infrastructure development in Sub-Saharan African countries had been an area of tremendous focus by most governments (AfDB, 2014). The deprived nature of the physical infrastructure such as housing projects holds back the productivity of the economy in many developing countries. In fact, the

African Development Bank in 2011 ranked African Infrastructure Development Index (AIDI) among the four worst performing sectors globally. Poor transport infrastructure does not only limit domestic productivity but also poses huge challenges to the success of regional integration within the least developed countries including (Africa Competitiveness Report, 2013).

In project management practice, project completion is measured using the golden triangle of time, cost and scope or quality (Shariatfar, Beigi & Mortaheb, 2019). The project management body of knowledge (PMBOK) guide published by the Project Management Institute (PMI, 2013) supports this statement, completion of housing construction projects criteria consist of the golden triangle (time, cost, quality) and key project stakeholder's satisfaction and their incorporation to the project. The key point is that three of these success components must meet stakeholder's satisfaction where there is a link between their interest and these components. Boukanos (2017) conducted research on completion of housing construction projects criteria using both theoretical analysis and qualitative data taken from a specific working environment utilizing the balanced scorecard method. It became obvious that there is no consensus on completion of housing construction projects definition. The study discovered several different success definitions from various authors proposing sets of criteria and frameworks for the evaluation of projects. This is due to a high frequency of studies using client satisfaction or stakeholders' satisfaction as a success criterion. The study concluded that the cost, time, quality or technical performance, customer satisfaction, and key stakeholders' satisfaction were the main criteria for measuring completion of housing construction projects.

Empirical Review

Maina and Kimutai (2018) sought to determine the influence of stakeholder need and expectation identification; communication; conflict management and stakeholder participation on project performance. The research adopted both descriptive and explanatory research design. The study targeted 255 respondents out of which 213 successfully filled the questionnaire. The researcher used questionnaires to collect primary data. The results of the study established that stakeholder involvement in project risk management has positive and significant and thus these factors determine project performance.

Sichone (2020) aimed to achieved through the assessment of relationships between stakeholder engagement and the three performance parameters namely; project cost, project schedule and project specifications. The research approach that was adopted was a quantitative with descriptive research design. Both primary and secondary data were collected using a semi structured questionnaire which gave a 98% response rate. Findings revealed presence of a strong and positive correlation between project risk management and project

schedule also between stakeholder engagement and project specifications. Results also showed that stakeholder's engagement in project risk management was strongly but negatively correlated to project cost.

Nyandika and Ngugi (2014) carried out a study in Nakuru County Kenya of Kenya Urban Roads Authority (KURA) with the intention of determining the impacts caused by the influences of stakeholders in these projects. The Descriptive study methods, convergent design were used. Open-ended and close-ended structured questionnaires were used in data collection. Simple random and systematic sampling was used to select the respondents. Key Informant Interviews (KII) was conducted on 400 respondents consisting of directors of the project, supervisors, Engineers and members of the public. The relations of stakeholders are very important and significant at each project execution stage. They have an enormous effect on project risk management. Acuteness to such relations should be a key project implementation element

Maweu (2015) sought to assess the level of participation of stakeholders in Project implementation a case of Tullow Oil in Turkana County. This study used exploratory research design. The target population of this study comprised of the Community living in Turkana south sub-county, private sector involved in oil exploration and government Agency. The questionnaire comprised of both open and close ended questions. The key findings were stakeholders' participate actively in project implementation oriented activities which are tagged to a monetary value. The study demonstrates a link between the level of participation and civic responsibility which ensures project stability. The study concluded that there is a positive and significant relationship between the level of participation and security.

Matu (2020) to establish the influence of stakeholder participation in project lifecycle management, project risk management practices, on completion of urban road transport infrastructure projects in Kenya. The study adopted a descriptive survey and correlational research design. The total sample size of the study was 309 respondents. The sampling procedure was purposive and simple random sampling. The study found that stakeholder participation in project initiation had a positive and significant influence on completion of urban road transport infrastructure projects in Kenya. The findings helped to establish that stakeholder participation in project implementation had a positive and significant influence on the completion of urban road transport infrastructure projects in Kenya.

MATERIAL AND METHODS

A descriptive research design was adopted to conduct the current study. The design in accordance with Kothari (2008) intended to describe the characteristics of the people included in the study and the variables under investigation. The study's target population was 71

respondents. The sampling frame comprise of Project Managers, Physical Planners, Building inspectors and Project Architects. This population included the total number of people that were involved in the execution of the housing project. A total of 71 respondents were used as the sample size using census sampling technique. The use of census sampling was due to small number of target population and according to Mugenda and Mugenda (2008), for a population of 1-100 a sample of 100% shall be used as a sample size. The researcher relied on structured questionnaires with closed-ended questions for his or her research. The questionnaires were developed in accordance with the study's objectives, with particular emphasis placed on the four characteristics that were evaluated on a Likert scale. It was necessary to use a pick-and-drop procedure in order to collect primary data for the surveys, which was done by the participants themselves. A pilot study was carried out in order to determine the reliability and validity of the research tools. The regression and correlation analyses were conducted in order to determine the relationship between two (or more) different variables. The computer analytic tool utilized in this study was SPSS version 23, which is the latest version available. The information gathered throughout the analysis was grouped into models and tables for convenient reference.

RESULTS AND DISCUSSION

Preliminaries Results

The researcher distributed a total number of 71 questionnaires to different stakeholders in Kisumu County as far as housing construction projects is concerned. Out of these 53 questionnaires were successfully filled and handed back to the researcher which gives a 74.6% response rate. Validity was achieved using both content and construct validity. First content validity was applied by checking clarity of words, statements to ensure they have adequate content plus seeking expert opinion on the research instrument. Further, Bartlett's Test of Sphericity was used to test if the study items for each construct were coming from a population with equal variance hence construct validity. The results showed that the value of KMO for all the variables (constructs) were above a minimum threshold of 0.5; Completion of housing construction projects = 0.641 and Project risk management = 0.730. This indicates that the number of items for each constructs (variable) were adequate to measure the respective variables. The Chi-square test results for Bartlett's Test of Sphericity were all found to be significant; [χ^2 (10) = 128.550, $p=0.000 < 0.05$] for Completion of housing construction projects and [χ^2 (45) = 300.306, $p=0.000 < 0.05$] for Project risk management; this indicated that the sampled items for each variable were from a population with equal variance. Cronbach alpha was used to determine reliability of the instrument. An alpha value of 0.885 was obtained which was above the minimum threshold of 0.7.

Descriptive Statistics

Indicators on project risk management included involvement in risk identification, risk assessment, risk control and mitigation. Respondents were given items rated on a Five-point likert from where 5=strongly agree (SA), 4=agree (A), 3=partially agree (PA), 2=disagree (D) and 1=strongly disagree (SD). The descriptive results on this parameter are as shown in the Table 1.

Table 1: Project risk management

Project risk management	5	4	3	2	1	Mean	SDV
All stakeholders involved in the assessment of the risks and uncertainties during the design phase of the projects	36 (67.9)	5 (9.4)	8 (15.1)	3 (5.7)	1 (1.9)	4.36	1.06
After the risk has been identified and evaluated, key stakeholders develop a risk mitigation plan to reduce the impact of an unexpected event	18 (34)	17 (32.1)	9 (17)	9 (17)	0 (0)	3.83	1.09
All key stakeholder participate in development of risk breakdown structure that we normally use to identify potential risk for mitigation	32 (60.4)	11 (20.8)	3 (5.7)	5 (9.4)	2 (3.8)	4.25	1.16
Key stakeholders often develops an alternative method for accomplishing a project goal when a risk event has been identified that may frustrate the accomplishment of that goal	23 (43.4)	5 (9.4)	13 (24.5)	6 (11.3)	6 (11.3)	3.62	1.43
Risks are identified with each major group of activities to identify increasing levels of detailed risk analysis.	15 (28.3)	3 (5.7)	12 (22.6)	11 (20.8)	12 (22.6)	2.96	1.53
Regular progress meetings assisted in monitoring and controlling risks associated with community complaints and slow progress of works.	17 (32.1)	8 (15.1)	14 (26.4)	9 (17)	5 (9.4)	3.43	1.35
Composite Mean						3.74	1.27

From descriptive results in Table 1, 15.1% partially agreed on all stakeholders involved in the assessment of the risks and uncertainties during the design phase of the projects, 9.4% agreed, 67.9% strongly agreed. On after the risk has been identified and evaluated, key

stakeholders develop a risk mitigation plan to reduce the impact of an unexpected event, 17.0% disagreed, 17.1% partially agreed, 32.1% agreed while 34.0% strongly agreed. On all key stakeholder participate in development of risk breakdown structure that we normally use to identify potential risk for mitigation, 5.7% partially agreed, 20.8% agreed while 60.4% strongly agreed. On key stakeholders often develops an alternative method for accomplishing a project goal when a risk event has been identified that may frustrate the accomplishment of that goal, 11.3% disagreed, 24.5% partially agreed, 9.4% agreed while 43.4% strongly agreed. On risks are identified with each major group of activities to identify increasing levels of detailed risk analysis 20.8% of respondents disagreed, 22.6% partially agreed, 5.7% agreed while 28.3% strongly agreed. On regular progress meetings assisted in monitoring and controlling risks associated with community complaints and slow progress of works., 15.1% of the respondents agreed while 32.1% strongly agreed.

The descriptive results from the mean and standard deviation show that respondents agreed that all stakeholders involved in the assessment of the risks and uncertainties during the design phase of the projects ($M=4.36$, $SD=1.06$), agreed that after the risk has been identified and evaluated, key stakeholders develop a risk mitigation plan to reduce the impact of an unexpected event ($M=3.83$, $SD=1.09$), respondents further agreed that all key stakeholder participate in development of risk breakdown structure that we normally use to identify potential risk for mitigation ($M=4.25$, $SD=1.16$), agreed that the Key stakeholders often develops an alternative method for accomplishing a project goal when a risk event has been identified that may frustrate the accomplishment of that goal ($M=3.62$, $SD=1.43$), partially agreed that risks are identified with each major group of activities to identify increasing levels of detailed risk analysis. ($M=2.96$, $SD=1.53$) and partially agreed that regular progress meetings assisted in monitoring and controlling risks associated with community complaints and slow progress of works ($M=3.43$, $SD=1.35$).

The composite mean and standard deviation ($M=3.74$, $SD=1.27$) indicated that responses were concentrated around the mean and that respondents agreed to most of the statements that were used to measure the project risk management. Results show that responses were scattered far from the mean as it was characterized by large standard deviation. This ordinarily means majority of respondents were not of a similar mind. Maina and Kimutai (2018) sought to determine the influence of stakeholder need and expectation identification; communication; conflict management and stakeholder participation on project performance. The results of the study established that stakeholder involvement in project risk management has positive and significant and thus these factors determine project performance.

Inferential Statistics

Simple linear regression analysis was conducted to establish the relationship between project risk management and Completion of housing projects. The results are as shown in Table 2.

Table 21: Regression Results of Project risk management and Completion of housing projects

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.709 ^a	.503	.493	.71473	.503	51.654	1	51	.000

a. Predictors: (Constant), project risk management

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	26.387	1	26.387	51.654	.000 ^b
1	Residual	26.053	51	.511		
	Total	52.440	52			

a. Dependent Variable: FP

b. Predictors: (Constant), project risk management

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error			
	(Constant)	.168	.450		.372	.711
1	Project risk management	.860	.120	.709	7.187	.000

a. Dependent Variable: Completion of housing projects

The results demonstrated that there was a statistically significant positive relationship between project risk management and Completion of housing projects, Kenya. Project risk management accounted for 50.3% ($R^2 = 0.503$) variations in the Completion of housing projects, Kenya. Hence, project risk management are a significant ($P=0.000$) predictor of Completion of housing projects, Kenya.

Results show that project risk management had a positive, linear and significant (p -value is less than 0.05) relationship with the Completion of housing projects, Kenya {regression

coefficient, $B=0.860$ ANOVA, $F=51.654$ and t-test value, $t=7.187$, $P=0.000$. The results are represented in the following model:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where Y = Completion of housing projects,

$$\beta_0 = 0.168 \text{ (constant)}$$

$$\beta_1 = 0.860$$

X_1 = Project risk management

Substituting equation above with values, the model becomes: $Y = 0.168 + 0.860X_1$

From the above model, the constant had coefficient of 0.168, $P=0.000$, this implies that in the absence of project risk management, Completion of housing projects would be positively at 0.168 This completion would be insignificant ($P=0.711$). Further, project risk management had beta coefficient of 0.860, $P=0.000$. This implies when everything is held constant, one percent increase in project risk management would results to a significant increase in Completion of housing projects by 86.0%. This implies that completion of housing construction projects depends on early identification and evaluation of risk which aids in development of risk mitigation plan that reduce the impact of unexpected events. It is important that the project team to always consider potential risks in the planning phase and weigh against the potential benefits. The study established that stakeholders are vital in regards to project risk identification, risk assessment, risk control and mitigation. The findings above are in commensuration with previous researches. Maina and Kimutai (2018) established that stakeholder involvement in project risk management has positive and significant and thus these factors determine project performance. Similarly, Maweu (2015) concluded that there is a positive and significant relationship between the level of participation and security. However, in another study, Sichone (2020) showed that stakeholder's engagement in project risk management was strongly but negatively correlated to project cost.

CONCLUSION AND RECOMMENDATIONS

The study concluded that there is significant influence of project risk management on completion of housing construction projects in Kenya. This implied that increase in project risk management would results to improvement in completion of housing construction projects. Stakeholders were engaged in project risk management practices such as risk identification, risk assessment, risk mitigation and risk monitoring and controlling. Even though risk identification remains top on the list, there is critical need to engage in proper risk assessment, risk mitigation and then risk monitoring and evaluation.

The study established that project risk management significantly influences completion of housing construction projects. Therefore, the study recommended that construction firms should practically engage various stakeholders in project risk management practices for proper completion housing construction projects. To achieve this, there is need for both national government and county government to come up with structures, policies and guideline that would enhance stakeholder engagement during project risk management.

SUGGESTIONS FOR FURTHER STUDIES

Arising from the implications and limitations of this study, recommendations for further research were made. While this study successfully established that all the project risk management parameters were important in completion of housing construction projects and that the study underscores the need of the concept of project risk management. Further to this study, other parameters such as operational procedures or the project environment could be examined to test their influence on completion of housing construction projects. Additionally, since this study was undertaken in Kisumu County; an urban set up; a similar study can be undertaken in rural Counties to determine if the same results would be obtained.

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