

**FACTORS AFFECTING SUCCESSFUL COMPLETION OF HIGH –RISE HOUSING
PROJECTS IN KENYA: A CASE OF EMBAKASI EAST CONSTITUENCY,
NAIROBI COUNTY**

Givons Ogoma Juma

Msc. Project Management,

Jomo Kenyatta University of Agriculture & Technology

Dr. David Kiarie Mburu

Lecturer,

Jomo Kenyatta University of Agriculture and Technology

CITATION: Juma, G., O. & Mburu, D., K. (2016). Factors Affecting Successful Completion Of High –Rise Housing Projects In Kenya: A Case Of Embakasi East Constituency, Nairobi County. *International Journal of Human Resources and Procurement*. Vol 5(10) pp 203-247

ABSTRACT

Provision of adequate and decent housing has not matched the growing population in the urban areas in Kenya. This has made construction firms to engage in housing projects to meet the growing demand for affordable and decent housing in Kenya. Despite these measures to address the housing demands in Embakasi East constituency, completion of high-rise housing projects has faced many challenges where a number of housing projects have stalled and have experienced time, cost, scope overruns and quality being compromised. This is manifested by myriad projects that have cost overrun, poor supervision, delayed completion period and poor quality resulting to collapsed buildings in various parts of the country, high maintenance costs, dissatisfied clients and even buildings which are not functional. The main purpose of this study therefore was to establish factors influencing successful completion of high-rise housing projects in Kenya; a case of Embakasi East Constituency. The study aim was to assess how project team competency, project coordination, project control, and project team empowerment influences successful completion of high-rise housing projects in Kenya. The study employed

descriptive study. Data was collected using questionnaires for project managers and assistant project managers. The research instruments were validated by use of a pilot study, which was assessed by the supervisor. The target population was 126 housing projects within study area of Embakasi East Constituency between 2011 to 2015. Unit of analysis was also to be 126 project managers and assistant project managers. Random sampling was used to sample the project managers. Data collected was analyzed by use of Statistical Package for Social Sciences (SPSS) Computer Package to establish factors influencing successful completion of housing projects. Regression models were used to examine the influence of project team competency, project coordination, project control, and project team empowerment, on successful completion of high-rise housing projects in Kenya. The study found that project team competency, project coordination, and project team empowerment have a great influence on successful completion of high-rise housing projects in Kenya. Project team empowerment measures were found to be the most significant with correlation coefficient of 68.2% element influencing successful completion of high-rise housing projects in Embakasi East Constituency. The study therefore recommends that qualified and well trained project managers and assistant project managers with adequate technical and soft skills, should be considered to manage high-rise housing projects in Kenya. Their qualifications enhance higher chances successful completion of projects on time, within budget and as per desired quality. Further research should be conducted to determine how risk management and client –contractor joint venture affect successful completion of high-rise housing projects in Kenya

Key Terms: Project team competency, Project coordination, Project control, Project team empowerment, Successful completion of housing projects, Liaison

Background of the study

Construction projects are a mix of very complex processes that seldom go according to the implementation plan. A successful project is one where all the planned activities are put into action, the project is produced and the performance capabilities are verified. A project is generally considered to be successfully implemented if it comes in on-schedule, comes in on-budget, and achieves basically all the goals originally set for it and is accepted and used by the clients for whom it is intended (Mbaluku & Bwisa, 2013).

Under the Vision 2030, the Kenyan government has committed to provide adequate, affordable and quality housing for all citizens, particularly the low income groups. The Kenyan government has therefore incentivized developers to move down market by offering, among other things, tax breaks for housing units that cost less than KES 1.6 million (USD 18,000). And with the inclusion of the right to adequate housing in the 2010 Constitution of Kenya, understanding how to provide affordable housing has become a priority. Further, provision of housing has been devolved to the county governments, making the Nairobi County Government directly responsible for ensuring that all of its about 3.5 million inhabitants are adequately housed.

Ministry of Transport and Infrastructure Development (MTID) reports on collapsed structures apportion the blame to lack of proper supervision and poor construction procedures (MTID, 2006). Muguchu (2012) provides evidence that despite the high quality of training of consultants in the building industry in Kenya and regulation of the industry in major urban areas, construction projects do not always meet key performance goals. This is manifested by myriad projects that have cost overrun, delayed completion period and poor quality resulting to collapsed buildings in various parts of the country, high maintenance costs, dissatisfied clients and even buildings which are not functional.

In Kenya, there has been rudimentary enforcement of proper housing construction standards and accompanying infrastructure and services (Kimani and Musungu 2010). The resultant pattern has been a mixture of housing models ranging from high-rise and tenement developments to informal settlements, which house the middle and low-income populations respectively. These developments are manifested in unplanned city growth depicting urban sprawl, congestion and property development in excess of the carrying capacity of available infrastructure (Ibid). More importantly, the housing policies and governance structures have and continue to shape housing production and service provision.

In the last three decades, construction research in Kenya has focused on the entities that constitute the construction industry – particularly the projects, the contractors and human resources- deducing the performance of the industry as a whole from the observations made on its parts. Key areas of research have been procurement methods (Mbaya 1984, Kithinji, 1988 and Mbatha 1993); project execution – cost overrun & time overruns and construction resources (Wachira 1996, Talukhaba 1999, Gichunge 2000, Wanyona, 2005, Masu 2006 and, Muchungu, 2012) and indigenous contractors and marketing (Magare; 1987 and Gitangi, 1992). It is evident that construction projects in Kenya are supervised by very qualified human resources; who end up failing; an example is the extension by two floors of the school of Built environment building at the University of Nairobi which was supervised by Professors teaching at the same school. Thus, the purpose of this proposal is to find out the factors that influence successful completion of high-rise housing units in Embakasi East Constituency to meet the ever growing housing demand.

Statement of the Problem

The housing sector in Nairobi continues to grapple with increasing demand in housing units. This is due to the increasing population in the Nairobi city and its environs. Statistics show the demand in housing at 200,000 units yearly yet the supply is only at 50, 000 units. The difference

in supply and demand in housing in Nairobi has been a pain in the country's property and real estate sector (Economic Survey Report, 2015, p. 15).

According to Nyangilo (2012), 70 % of housing projects have escalated with time with a magnitude of over 50% and over 50% of the housing projects escalated in cost with a magnitude of over 20%. This is manifested by myriad projects that have cost overrun, delayed completion period and poor quality resulting to collapsed buildings in various parts of the country, high maintenance costs, dissatisfied clients and even buildings which are not functional (Kibuchi & Muchungu 2012). They discovered that despite the high quality of training of consultants in the building industry and regulation of the industry in Kenya urban areas, housing projects have not met their goals.

According to KNBS (2015), the sector recorded a growth of 3.9 per cent in 2014 while cement consumption rose by 1.6 per cent (from 3,870.9 thousand tonnes in 2013 to 3,937.3 thousand tonnes in 2014). The total value of new private and public buildings completed went up by 9.6 per cent from KSh 46.4 billion in 2013 to KSh 50.8 billion in 2014. The recurrent problems of time and cost overruns that is widely prevalent in the public sector construction projects (Mwandali, 2009, Karimi, 2011, & Musa, 2010). For example the collapse of a building in Nairobi Ronald Ngala in 2006, Kiambu town in 2009 and 2010 and at pipeline, Embakasi in June 2011. Mambo (2013) attributed the collapse to inadequate geotechnical and materials investigations. Charagu (2013) concluded that it is due to deficiency of the designs in construction sector.

Generally, past industry experiences show that, medium to large size housing projects have high failure rate. Developing Countries have a rate of between 30 – 45% in successful construction of housing projects (Lepartobiko, 2012). In March 2015, National Construction Authority (NCA) shut down over 50 sites in Nairobi for flouting rules and ordered the

contractors to apply for approvals. Collapsing of buildings under construction resulting to deaths and loss of property (Roysambu, Mlango Kubwa Pipeline and Tassia Estates) largely due to lack of adherence to statutory and other regulatory requirements, poor workmanship and gross disregard for human life (NCA report, 2015). This study therefore, sought to establish the factors influencing successful completion of high-rise housing projects in Embakasi East Constituency, Nairobi County.

Research Objectives; Overall Research Objective

The main purpose of this study was to establish the factors influencing successful completion of high-rise housing projects in Embakasi East constituency; Nairobi.

Specific Objectives

- i) To establish the influence of project team competency on successful completion of high-rise housing projects in Embakasi East constituency;
- ii) To examine the influence of project coordination on successful completion of high-rise housing projects in Embakasi East constituency;
- iii) To determine the influence of project control on successful completion of high-rise housing projects in Embakasi East constituency;
- iv) To examine the influence of project team empowerment on successful completion of high-rise housing projects in Embakasi East constituency.

Conceptual Framework

Different scholars define conceptual framework according to the subject under review but all point to the same of methodology or maps of processes and procedures followed in solving a problem. Miles and Huberman (2008) for instance, define conceptual framework as a group of concepts that are broadly defined and systematically organized to provide a focus, a rationale, and a tool for the integration and interpretation of information. It is considered as a

visual or written product, one that explains, either graphically or in narrative form, the main things to be studied, the key factors, concepts, or variables and the presumed relationships among them.

This study employed the following conceptual framework derived from the objectives of the study. The independent variables of the study were: project team competency, project coordination, project control and project team empowerment while the dependent variable was successful completion of high-rise housing projects in Embakasi East Constituency, Nairobi County.

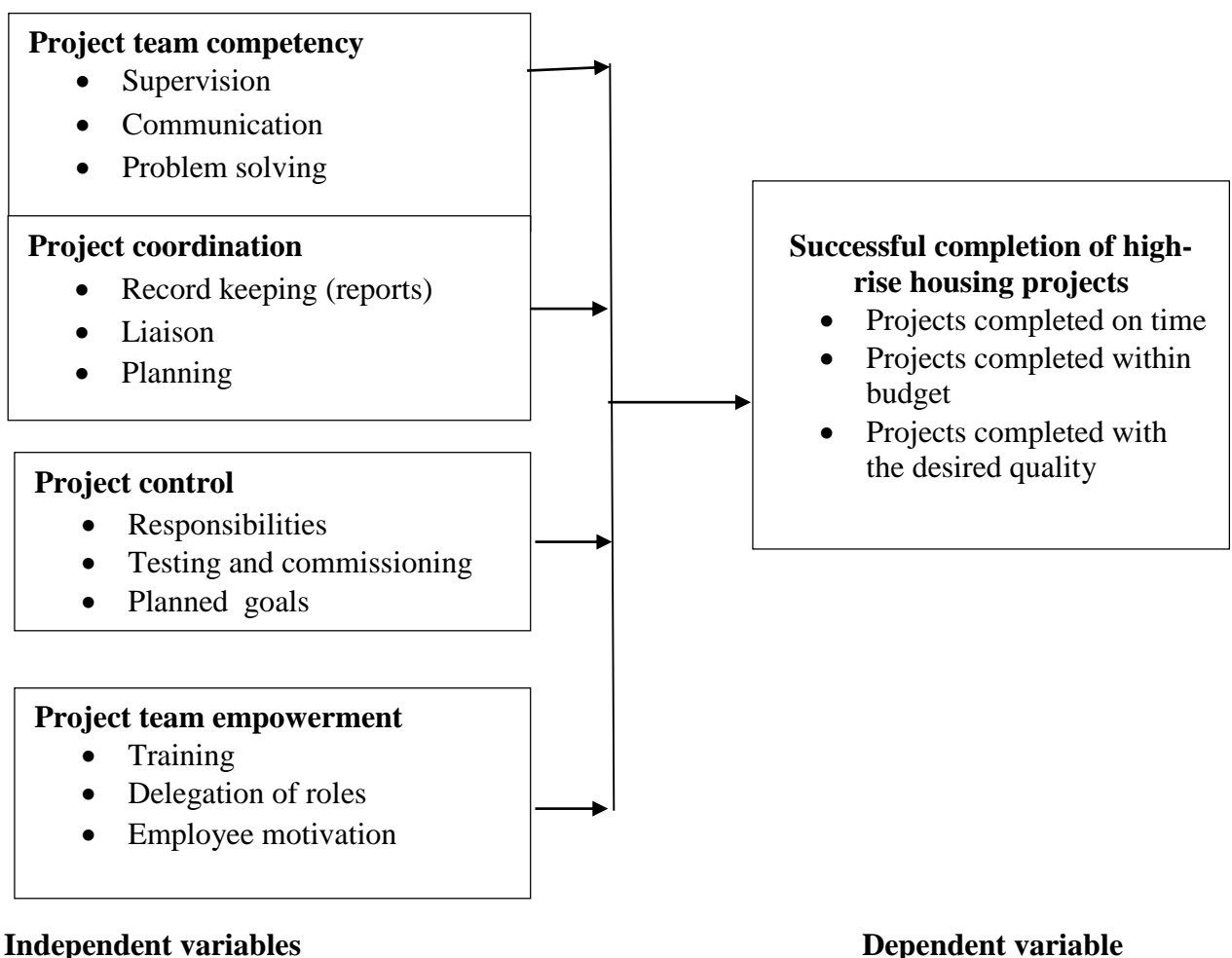


Figure 1: Conceptual Framework

Conceptualization of Variables

a) Project team competency

The required project management skills include communication and feedback systems, quality, safety, risk and a conflict management system, supervisory skills, experience, coordination and leadership, communication skills, organizational structures, control mechanisms of subcontractors' works, and the overall managerial actions in planning, organizing, leading and controlling (Lam & Chan, 2004). Lam (2008) as cited by Githenya and Ngugi (2014) states that the management needs to be involved in the up-front planning efforts and effectiveness of communication, control system, management system and organizational culture. Studying the significant factors that cause delay of construction projects in Malaysia, Alaghbari, Kadir, Salim and Ernawati (2007) realised three categories for analysis, namely contractor, consultant and owner. As far as causes related to contractor actions are concerned, financial problems, shortage of materials and poor site management were ranked among the top three. Owner causes included delayed payments, slow decision-making and contract scope changes. The top three consultant causes were poor supervision, slowness to give instructions and lack of experience.

Jha & Jha (2006) found that the project manager's competence and top management support are found to contribute significantly in enhancing the successful completion of a construction project. Lack of an experienced project team toppled the quality related cause of project failure. Ling and Bui (2010) discovered that major enablers that lead to project success are foreign experts' involvement in the project, government officials inspecting the project, and very close supervision when new construction techniques are employed. A factor which leads to poor performance is the lack of accurate data on soil, weather, and traffic conditions (Ling and Bui, 2010). Moreover, time is money to owners, builders, and users of the constructed facility. From

the owner's perspective there is lost revenue by not receiving return on investment, cash flow crunch, potential alienation and loss of clients/tenants, extended interest payments, and negative marketing impacts. From the users' perspective, there are financial implications similar to owners (Bob & Muir, 2005).

Aje, Odusami and Ogunsemi (2009) showed that contractors' management capability has significant impact on cost and time performance of building projects. Wiguna and Scott (2005) showed the critical risks affecting both project time and cost perceived by the building contractors were similar. They were: high inflation/increased material price, design change by owner, defective design, weather conditions, delayed payments on contracts and defective construction work. With respect to time delays the most significant contributing factor for global projects was late delay in payments while for the stadia projects design-related factors caused the most delays (Baloyi & Bekker, 2011). Iyagba (2010) identified the factors that contribute substantial detrimental effect to project performance, thus affecting the integrity of the construction industry.

b) Project coordination

Coordination like the nervous system perceives the changes around us through our senses; it controls all the activities of the muscles in response to the changes outside. It maintains the internal environment of the body by interrelating the functions of the various internal organs and the involuntary muscles; it stores the previous experiences as memory that helps us to think and analyse our reactions; and it conducts messages between different parts of the body (Tutor Vista, 2011). Coordination has links to trust and performance. Coordination produces performance, because it produces the necessary trust needed for achieving performance through networking.

The demand for performance has been one issue that has characterized organization in the 1990 (Radin 2010); and performance has become the most regularly studied concept in

organizational management (Cohen & Vigoda-Gabot 2008). Performance in most instances is substituted for productivity, since the “real world” of the manager is a world filled with deadlines, budgets, and clientele to serve (Geuras & Garofalo 2005). Trust, or the lack of it, has been identified as a ‘make-or-break’ factor in partnership and strategic cooperation; crisis conditions tend to stress trust indicators, many believe trust is central to coordination and cooperation (Smith & Schwegler, 2010).

Al Ghamdi (2013) replicated the work of Alexander (1991) in the UK and found that due to lack of coordination in most firms, implementation took more time than originally expected and major problems surfaced in the companies, again showing planning weaknesses. The author found that the effectiveness of coordination of activities as a problem in most of the firms and distractions from competing activities in some cases. In addition key tasks were not defined in enough detail and information systems were inadequate (Al Ghamdi, 2013). A study by the Oregon State University in 2007 found numerous examples where transboundary waters have proved to be a source of cooperation rather than conflict. Nearly 450 agreements on international waters were signed between 1820 and 2007 (OSU, 2007).

c) Project control

Control can be defined as the process of guiding the system toward a pre-determined standard or goal through the comparison of actual performance with planned measurements (Bonner 2005; Abdel-Hamid et al. 1993). Collyer & Warren (2009) defined control to be the exercise of managing resources (human, equipment, tools,) with continuous comparison to planned performance and taking steps to correct any deviation as means of allowing project to achieve its objectives.

To control is to compare actual with planned (budgeted) achievements and to take action to correct any adverse deviations. The principle of project control is to achieve the stated

objectives in accordance with the predetermined plan. Therefore, one of the Manager's tasks is to exercise tight control at all times because performance rarely matches the plan.

d) Project team empowerment

According to Armstrong (2009) project team empowerment refers to a management practice of sharing information, rewards, and power with employees so that they can take initiative and make decisions to solve problems and improve service and performance. Training is one aspect of empowering employees thus it enhances effective achievement and the implementation of the intended projects in the process making the projects successful.

Organizational development can be achieved when effective training among the employees and the staff in the organization is conducted to address the intended needs and the challenges in relation to project risk management within the organization. Through training there would be effectiveness and efficiency in the process of achieving the desired projects thus minimizing risks within the project. The development of the training and the development practices in the projects being implemented will ensure that the project which is under implementation will be implemented in relation to the stated practices and processes. In most cases, the employees in the organization will tend to implement the intended responsibilities effectively and necessary training needed towards the successful implementation of the community project (Cusworth and Franks, 2003).

Training takes place under two instances, these includes; on the job training and off the training. To begin with on-the-job training implies a training being conducted in a situation in which the employees are taken through the training exercise within and inside the organization. The senior staff within the organization takes the initiative of ensuring that the employees are empowered or given skills and knowledge. The experienced employees or the members of the staff within the organization develop a training program in which the employees would be

taken through and as a result denied an opportunity to develop an effective mechanisms and programs which would enhance the empowerment of the employees on the job training in most cases focus on the duties and responsibilities and other requirements which the employees working within the organization might require in the process of enhancing success and the effective accomplishment of duties and responsibilities (Chris, 2008).

On the job training empowers the employees to understand the norms and work practices as pertains that organization. It empowers employees and the personnel involved in the project implementation to understand how duties and responsibilities are supposed to be handled and thus lead to effective accomplishment of duties and responsibilities. On the job training empowers employees to develop effective practices which make the employees within the organization to ensure that they adhere to the set standards and practices as pertains the effective development and the establishment of the intended duties and responsibilities within the organization (Samset, 2009).

On the job training empowers the employees within the organization to achieve the intended results and the end targets within the intended period of time in the organization. The achievement of the training exercise will enable the workers to deal with any challenges which pertains the achievement of the intended results and deal with any possible challenges and risks which might befall the project. Training empowers employees to have confidence when roles are delegated to them. Moreover, motivation is also another form of team empowerment. Armstrong (2012) defined motivation as the force that energizes, directs and sustains behaviour. Motivation has three components of direction, effort and persistence. It enables employees participate in an activity for their own enjoyment or do something for reward or avoid a penalty.

e) Successful completion of housing projects

To be successful, in construction parlance, is to take a complex series of actions that integrate skills and knowledge to produce a valuable result (Elger, 2008). Project success has been defined as the degree of achievement of certain effort or undertaking which relates to the prescribed goals or objectives that form the project parameters (Ahmad, Ismail, Nasid, Rosli, Wan & Zainab, 2009). The key requirements of suitable success measures and measurement frameworks are identified as including, having a few but relevant measures, being linked with critical project objectives, providing accurate information, and comprising financial and non-financial measures (Ankrah & Proverbs, 2011).

There are many potential measures of project success for evaluating the success of a completion of housing projects. All address success in three key areas: scope, schedule and budget (Alvarado, Silverman & Wilson, 2007). Akintoye and Takim (2012) discovered seven project success indicators, namely: construction cost, construction time, cost predictability, time predictability, defects, client satisfaction with the product and client satisfaction with the service; and three company performance indicators, namely: safety, profitability and productivity.

Critique of Existing Literature

Nyangilo (2012) as cited by Auma (2014) did a research on an assessment of the organization structure and leadership effects on construction projects' performance in Kenya and found out that lack of appropriate project organization structures, poor management systems and leadership are the major causes of poor project performance. Lepartobiko (2012) studied the factors that influence success in large construction projects. Kigari and Wainaina, (n.d) studied emerging trends in economics and management sciences time and cost overruns in power projects in Kenya by closely relating the factors to the various variables. Auma (2014), studied factors affecting performance of construction projects: a survey of low rise buildings in Nairobi Central Business District. Based on local studies that have been done in Kenya; most of them

did not focus on how project leadership influences successful construction of housing projects in Kenya. From these studies there is little information on the influence of project team competency, project coordination, project control and project team empowerment. Generally, the studies available showed that more research has been carried out for factors influencing successful completion of projects but not much attention to high rise housing projects, for which this study has helped provide more information about. Therefore, this research focused on the influence of the four factors on successful completion of housing projects in Embakasi East constituency which will be used for benchmarking by players in the construction industry.

Research Gaps

Homburg (1995) argued that a clear definition of relationship closeness and a way of measuring the degree of closeness are lacking. He conducted about 30 qualitative interviews in various industry sectors and concluded that “closeness” between suppliers and industrial buyers can be enhanced in terms of four dimensions: product, service, and logistics; supplier interaction; supplier’s commitment; and atmosphere. Unfortunately, he did not explain how he analysed the interviews and derived the dimensions. In addition, it is not clear to what extent his results may be generalized. Moreover, on the whole, project supplier partnerships can be characterized by a high level of commitment, mutual dependency, trust, and a long-term orientation where the sharing of information as well as risks and rewards are typical. However, a consistent definition of partnership based on empirical evidence cannot be found in the literature and no commonly accepted theoretically derived definition yet exists.

As shown by the literature review, there were some variables that predominantly affected the successful completion of high-rise housing projects in almost all studies, but there was certainly no general agreement on all the significant factors. Although some of the factors might seem to be insignificant on one project, they might prove to be significant on another project, as the

conditions of project are not always the same. Thus, it was important to evaluate the influence of the project team competency; project coordination; project control; and project team empowerment variables on successful completion of high-rise housing projects in Embakasi East constituency, Nairobi County.

Globally, Zulch (2014) carried out a study on leadership communication in project management in South Africa. He found out that the characteristics of a project manager indicate the type of leader and leadership style that the project manager applies during the management of projects. However; he failed to clearly bring out the effect of project team empowerment on the success of a project manager. He emphasized on the project manager and not the people the manager led.

Akintoye and Takim (2007) came up with the following performance indicators, namely: construction cost, construction time, cost predictability, time predictability, defects, client satisfaction with the product and client satisfaction with the service; and three company performance indicators, namely: safety, profitability and productivity. Despite their effort, Akintoye and Takim did not bring out the factors that greatly influence project control and coordination. They generalised the whole information. In Embakasi East Constituency, the influence of project control and coordination on successful completion of a high-rise housing project was investigated to establish whether they are being taken into consideration or not bearing in mind the slow progress and collapse of buildings within Nairobi County.

Most of the research carried out in Kenya has been at a countrywide level on the general performance of construction projects. Auma (2014) studied factors affecting the performance of construction projects in Kenya, which realised that, performance of the construction industry in Kenya is poor as time and cost performance of projects are to the extent that the majority of the projects initiated are likely to escalate with time, with a magnitude of over 50% and over

50% of the projects likely to escalate in cost with a magnitude of over 20%. Kibuchi and Muchungu (2012), who studied the contribution of human factors in the performance of construction projects in Kenya, discovered that despite the high quality of training of consultants in the building industry and regulation of the industry in Kenya urban areas, housing projects have not met their goals. This begs the question of what encompasses project excellence in Kenya. Nyangilo (2012), who did a research on an assessment of the organization structure and leadership effects on construction projects' performance in Kenya, realised that proper organisation structure is a manifestation of proper leadership. Lepartobiko (2012) studied the factors that influence success in large construction projects with the findings showing that effective communication was one of the key factors. However, factors influencing successful completion of high rise housing units in Kenya have not been carried out.

Design and Methodology

This study adopted a descriptive research design which determines and reports the way things are (Mugenda & Mugenda, 2013). Creswell (2013) observed that a descriptive research design is used when data is collected to describe persons, organizations, settings or phenomena. The target population for this study was 126 high-rise housing projects commissioned between 2011 and 2015.

The study employed the following formula in order to come up with a sample size of 95. The confidence level was taken as 95% with an estimated error of 5% of the true value. From the statistical tables, for 95% confidence level, Z value is (+ or – 1.966).

$$n = \frac{Z^2 pqN}{e^2 (N-1) + Z^2 pq}$$

Where Z = the standard normal deviate at the required confidence level (this is the $t_{0.05} = 1.96$ from the table of critical values for t)

N= Population Size

n= Sample Size

p= the proportion in the target population estimated to have the characteristics being measured (confidence level).

q= 1-p

e= acceptable error (e= 0.05, since the estimated error of this research is 5% of the true value)

Source: Chiara and Nachmias (1996)

The study used both primary and secondary data. The study used questionnaire as the research instrument to collect primary data.

The Multiple Regression model that aided the analysis of the variable relationships was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon,$$

Where;

Y= Successful completion of high-rise housing projects; β_0 = constant (coefficient of intercept); X_1 = Project team competency; X_2 =Project coordination; X_3 = Project control; X_4 = Project team empowerment; ε = Error term; $\beta_1 \dots \beta_4$ = regression coefficient of four variables.

To test the level of significance of each independent variable against dependent variable the study employed the ANOVA (F-test) model. Correlation analysis was also utilized to help explain the strength of the relationship that existed among the independent variables (project team competency, project coordination, project control, project team empowerment).

Study Findings

Successful completion of high – rise housing projects

a) Number of Successfully Completed housing Projects on time

Respondents were kindly requested to indicate the number of successfully completed projects on time for the last five years in Embakasi East Constituency. The study established that in 2011, majority (59%) of the projects were successfully completed on time; in 2012, respondents indicated that only 33% of the projects were completed on time; in 2013, 11% of the registered projects were completed on time. The trend continued in 2014 where 29% of the projects were completed on time as well as 2015 where only 26% of the projects were completed on time. Generally the finding indicates a decline in the number of successfully completed high rise housing projects across the years where the slight increase is recorded in year 2014. This indicates that project management in these projects has not been effectively utilized thus enabling project managers have not seen much improvement in their time

management skills over the years. In line with the findings, Crawford et al., (2012) established that the current state of project management skills on successful completion of housing projects in Africa remain very critical due to the advancement of technology, the increasing complexity of projects and the scarcity of human capital. Aggressive awareness campaigns need to be done so as to encourage the community embrace project management profession.

Table 1: Number of Projects successfully completed on time

Projects	2011		2012		2013		2014		2015	
	F	%	F	%	F	%	F	%	F	%
Completed on time	13	59%	5	33%	2	11%	6	29%	5	26%
Not completed on time	6	27%	7	47%	9	50%	11	52%	7	37%
Failed due to less time	0	0%	1	7%	3	17%	1	5%	4	21%
Failed due to scope creep	3	14%	2	13%	4	22%	3	14%	3	16%

b) Number of housing projects successfully completed within budget

Respondents were kindly requested to indicate the number of successfully completed projects within budget for the last five years in Embakasi East Constituency. The study established that in 2011, majority (45%) of the projects were successfully completed within budget; in 2012, respondents indicated that only 33% of the projects were completed within budget; in 2013, only 6% of the registered projects were completed within budget. The trend continued in 2014 where only 14% of the projects were completed on budget as well as 2015 where only 21% of the projects were completed on budget. Generally the finding indicates a decline in the number of successfully completed high rise housing projects within budget across the years where the slight increase is recorded in year 2014. This indicates that project management in these projects has not been effectively utilized thus enabling project managers have not seen much improvement in their time management skills over the years. In line with the findings, Crawford et al., (2012) established that the current state of project management skills on

successful completion of housing projects in Africa remain very critical due to the advancement of technology, the increasing complexity of projects and the scarcity of human capital. Aggressive awareness campaigns need to be done so as to encourage the community embrace project management profession.

Table 2: Number of Projects successfully completed on budget

Projects	2011		2012		2013		2014		2015	
	F	%	F	%	F	%	F	%	F	%
Completed within budget	10	45%	5	33%	1	6%	3	14%	4	21%
Completed above budget	9	41%	7	47%	10	55%	14	67%	8	42%
Failed due to less budget	0	0%	1	7%	3	17%	1	5%	4	21%
Failed due to scope creep	3	14%	2	13%	4	22%	3	14%	3	16%

c) Number of Projects completed with the desired quality

Respondents were kindly requested to indicate the number of successfully completed projects with desired quality for the last five years in Embakasi East Constituency. The study established that in 2011, majority (54%) of the projects were successfully completed with the desired quality; in 2012, respondents indicated that only 33% of the projects were completed with the desired quality; in 2013, only 11% of the registered projects were completed with the desired quality. The trend continued in 2014 where only 24% of the projects were completed with desired quality as well as 2015 where only 26% of the projects were completed with desired quality. Generally the finding indicates a decline in the number of successfully completed high rise housing projects with the desired quality across the years where the slight increase is recorded from year 2014. This indicates that project management in these projects has not been effectively utilized thus enabling project managers have not seen much improvement in their time management skills over the years. In line with the findings, Crawford, (2012) established that the current state of project management skills on successful

completion of housing projects in Africa remain very critical due to the advancement of technology, the increasing complexity of projects and the scarcity of human capital. Aggressive awareness campaigns need to be done so as to encourage the community embrace project management profession.

Table 3: Number of Projects completed with the desired quality

Projects	2011		2012		2013		2014		2015	
	F	%	F	%	F	%	F	%	F	%
Completed with desired quality	12	54%	5	33%	2	11%	5	24%	5	26%
Completed without quality needed	7	32%	7	47%	10	56%	12	57%	8	42%
Failed to complete	3	14%	3	20%	6	33%	4	19%	6	32%

Inferential Statistics

The study further applied general linear model to determine how the four factors (project team competency, project coordination, project control, project team empowerment) influence successful completion of high-rise housing projects in Kenya. This included regression analysis, correlation analysis, the model, analysis of variance and coefficient of determination.

a) Correlation analysis

The study undertook correlation analysis to establish the relationships among the independent variables. Multiple correlation analysis was conducted so as to determine the strength of the relationship that exists among the independent variables. The data findings analyzed also shows that taking project competency at zero, a unit increase in project team competency will lead to a 0.661 increase in project coordination; a 0.538 increase in project control and a 0.423 increase in project team empowerment. Besides, when project coordination is taken at zero, a unit increase in project coordination will lead to a 0.690 increase in project control and a 0.851 increase in project team empowerment. Moreover, when project control is taken at zero, a unit increase in project control will lead to a 0.822 increase in project team empowerment. This

infers that there is a strong relationship between project coordination and team empowerment.

And the two have contributed most to successful completion of high-rise housing projects.

Table 4: Correlation Coefficients Results

		Project team competency	Project coordination	Project control	Project team empowerment
Project Competency	Correlation Coefficient	1.000	.661**	.538**	.423**
	Sig. (2-tailed)	.	.000	.000	.000
	N	72	72	72	72
Project coordination	Correlation Coefficient	.661**	1.000	.690**	.851**
	Sig. (2-tailed)	.000	.	.000	.000
	N	72	72	72	72
Project control	Correlation Coefficient	.538**	.690**	1.000	.822**
	Sig. (2-tailed)	.000	.000	.	.000
	N	72	72	72	72
Project team empowerment	Correlation Coefficient	.423**	.851**	.822**	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	72	72	72	72

** . Correlation is significant at the 0.01 level (2-tailed).

b) Model Summary

Model summary table provides information about the regression line's ability to account for the total variation in the dependent variable. Table 5 below illustrates that the strength of the relationship between successful completion of high-rise housing projects and independent variables. From the determination coefficients, it can be noted that there is a strong relationship between dependent and independent variables given an R^2 values of 0.849 and adjusted to 0.845. R is the correlation coefficient which shows the relationship between the independent variables and dependent variable. It is notable that there exists strong positive relationship between the independent variables and dependent variable as shown by R value (0.921). The coefficient of determination (R^2) explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable and the four independent variables that were studied explain 84.90% of the successful completion of the high-rise housing projects as represented by the R^2 . This therefore means that other factors not studied in this research contribute 15.10% to the successful completion of high-rise housing projects. This implies that these variables are very significant therefore need to be considered in any effort to boost successful completion of high rise housing projects in the study area. The study therefore identifies variables as critical determinants of project management affecting successful completion of high-rise housing projects in the study area.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.921 ^a	.849	.845	.04131

- a. Dependent Variable: Successful completion of high-rise housing projects
- b. Predictors: (Constant), Project team competency, Project coordination, Project control, and Project team empowerment.

c) ANOVA Results

Analysis of variance (ANOVA) is a collection of statistical models used to analyze the differences among group means and their associated procedures (such as "variation" among and between groups). Analysis of Variance (ANOVA) was used to make simultaneous comparisons between two or more means; thus, testing whether a significant relation exists between variables (dependent and independent variables). This helps in bringing out the significance of the regression model. The ANOVA results presented in Table 4.8 shows that the regression model has a margin of error of $p = .008$ pointing the significance of the model. Further, the study revealed that the significance value is 0.008 which is less than 0.05 thus the model is statistically significance in predicting how project team competency, project coordination, project control, and project team empowerment influences successful completion of high-rise housing projects. The F critical at 5% level of significance was 3.67543. Since F calculated (6.71585) is greater than the F critical (value = 3.67543), this shows that the overall model was significant. In collaboration with these findings, Barriere (2013) indicated that project management has become a universal tool for optimal performance for any organization that seeks professionalism. In addition, Ibbs (2012) identified professional project management competency as the skills and science of planning, designing, and managing activities throughout the project lifecycle processes. Professional project management concept has been found to be in practice before the Second World War.

Table 6: ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	27.442	4	6.05575	6.71585	0.008
Residual	4.336	67	.90171		
Total	31.778	71			

a. Dependent Variable: Successful completion of high-rise housing projects

- b. Predictors: (Constant), Project team competency, Project coordination, Project control, and Project team empowerment
- c. Critical value = 3.67543

Regression Coefficients

The study ran the procedure of obtaining the regression coefficients. Multiple regression analysis was conducted so as to determine the relationship between successful completion of high-rise housing projects and the four variables. According to the regression equation established, taking all factors into account (project team competency, project coordination, project control, and project team empowerment) constant at zero, successful completion of high-rise housing projects was 3.77. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in project team empowerment will lead to a 0.682 increase in successful completion of high rise housing projects.; a unit increase in project coordination will lead to a 0.586 increase in successful completion of high-rise housing projects, a unit increase in project control will lead to 0.554 increase in successful completion of high-rise housing projects and a unit increase in project team competency will lead to 0.487 increase in successful completion of high-rise housing projects. This infers that project team empowerment contributed most to successful completion of high-rise housing projects.

At 5% level of significance, project team competency had a 0.009 level of significance; project coordination showed a 0.003 level of significance, project control showed a 0.007 level of significance and project team empowerment showed a 0.001 level of significance hence the most significant factor was project team competency.

Table 7: Regression Coefficients Results

Model	Unstandardized Coefficients	Standardized Coefficients	t	P-value.
	B	Std. Error	B	
(Constant)	3.77	.223	.334	4.615 .001
Project team empowerment	.682	.003	.602	7.098 .001
Project coordination	.586	.009	.554	6.087 .003
Project control	.554	.017	.446	5.008 .007
Project team competency	.487	.093	.443	4.546 .009

As per the SPSS generated table below, the model equation would be $(Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon)$ becomes: $Y = 3.77 + 0.682X_1 + 0.586X_2 + 0.554X_3 + 0.487X_4 \dots$ Therefore, the Successful completion of high-rise housing projects = $3.77 + 0.682 * \text{Project team empowerment} + 0.586 * \text{Project coordination} + 0.554 * \text{Project control} + 0.487 * \text{Project team competency}$.

Summary of Findings

The study established that effective communication influences successful completion of high-rise housing projects on time by reducing risk of time overruns. It was also established that effective communication in projects enhances completion of high-rise housing projects within budget by ensuring that variations approved are within the budget as well as no work is done that is beyond the scope. In addition the study revealed that effective communication within project team influences successful completion of high-rise housing projects with the desired quality mostly by ensuring that project is strictly executed as per the client approved design and quality desired.

Moreover, the study established that supervision influences successful completion of high-rise housing projects on time by ensuring that mitigation measures are put in place so as to avoid time delays as well as reduce risk of time overruns. It was also established that supervision in projects enhances completion of high-rise housing projects within budget by ensuring that only approved variations are executed on site. In addition the study revealed that supervision by project team influences successful completion of high-rise housing projects with the desired quality mostly by ensuring that project is strictly executed as per the client approved design and quality desired.

Furthermore, the study established that problem solving influences successful completion of high-rise housing projects on time by ensuring prompt decision making whenever need arises as well as reducing risk of time overruns. It was also established that problem solving in projects enhances completion of high-rise housing projects within budget by ensuring that decisions on cost related matters are promptly made as well as encouraging the project team members (including staff) to identify alternative methods that may lead to reduction in cost. In addition the study revealed that problem solving influences successful completion of high-rise housing projects with the desired quality mostly by ensuring that the quality desired of the end-product is not done without the written approval of the client and that the project is executed as planned.

The study revealed that record keeping enhances successful completion of housing projects on time by ensuring that mitigation measures are put in place to avoid time delays that will eventually prove costly. Besides, the study established that record keeping ensures prompt decision making on issues affecting cost thus ensuring that the project is completed within the approved budget. Through record keeping, projects can be completed with the desired quality as no alteration of the desired quality will be made without the client's express approval.

These findings also indicated that well developed liaison among project team members promoted healthy relationships among members. This made it possible to make decision without unnecessary delays thus reducing risk of time and cost overruns. Furthermore, it was also established that by ensuring that no alteration to the approved design, specifications and quality by the client, projects could be completed within budget and with the desired quality. It was also established that planning is of great significance in successful completion of housing projects since it reduces risk of time and cost overruns if the work programme is adhered to. Further findings indicated that planning is important in the housing projects as it ensures that no work is done beyond the agreed scope and all works are done as per the approved design and quality by the client. Prior and good planning will ensure that projects are delivered on time, within budget and with the desired quality.

The study found that scheduled responsibilities enhance timely completion of projects; as well as within budget and with desired quality. This is because scheduled responsibilities reduce risk of time overruns thus enabling the projects to be completed on time. It also reduces risk of scope creep ensuring that projects are completed within budget and through proper planning and execution of the project; it ensures that the desired quality is achieved.

The findings also realised that testing ensures timely completion of projects because defects can be detected on time and corrective measures taken without further delay. This ensures that mitigation measures are provided to avoid future delays and mistakes. Besides, testing enhances completion of project within budget as it ensures that only approved variations are executed on site. This will help guard against scope creep that might blow up the budget; making the project expensive. It also ensures that the project is executed as per client's approved design and quality thus enhancing the completion of project with the desired quality.

The findings indicated that well defined goals reduce risk of time overruns, scope creep and zero tolerance when it comes to compromising of the approved quality. This ensures that the project is completed on time, within budget and with the desired quality. Well defined goals ensure that people remain on track on meeting their targets without coming on each other's way or obstructing one another. Project control should be adopted as it will ensure successful completion of projects on time, within budget and with desired quality.

The study revealed that continuous training enhances successful completion of housing projects on time by improving the time management skills of the project team members thus reducing risk of time overruns. Besides, the study established that training sharpens the planning skills and ability to follow set cost ceilings by ensuring proper project planning and execution within budget and with the desired quality. Training ensures that the project specifications are adhered to religiously.

These findings also indicated that delegation of roles among project team members boosted confidence and belief of the rest of the team. This made it possible to make decision without unnecessary delays thus reducing risk of time and cost overruns. Furthermore, it was also established that by ensuring that proper project planning and execution with the desired quality projects could be completed within budget and with the desired quality. Delegation of roles exudes synergy; which is a very important aspect in project management.

It was also established that employee motivation is of great significance in successful completion of housing projects since it reduces risk of time and cost overruns as motivated workers always want to impress all the time. Further findings indicated that motivation is important in the housing projects as it ensures that encourages workers to look for alternatives ways to achieve the same quality but at an affordable cost and that all works are done as per the approved design and quality by the client. Employee motivation will ensure that projects are delivered on time, within budget and with the desired quality.

Conclusions of the study

The conclusions of the whole study were made through comparison of the project objectives and the end results. The broad aim of this study has been largely achieved in a number of ways. Sufficient evidence has shown that in Kenya there have been successful investments in housing projects implementation which are influenced by various factors.

The study concludes that good project implementation is essential. An individual or group of people should be given responsibility to drive success in project implementation. First, scope should be established and controlled and must be clearly defined and be limited. This includes the amount of the systems implemented and amount of projects process reengineering needed. Any proposed changes should be evaluated against projects benefits and, as far as possible, implemented at a later phase. The project must be formally defined in terms of its milestones. The critical paths of the project should be determined. Timeliness of project and the forcing of timely decisions should also be managed.

The study also concludes that formulation of clear communication channels, project supervision, problem solving methodology, record keeping, established relationships, project planning, testing and commissioning of works completed, defined goals, project team motivation and top management support, continuous training, delegation of roles, government involvement/regulation and policy, objective management, stakeholder management and efficient assigning of duties (scheduled responsibilities) and also interface towards surrounding projects and management. This is in line with Crawford & Nachmias (2010) as cited by Ngugi & Githenya (2014), who found that top management, objective support and stakeholder management are critical factors in successful completion of housing projects in Kenya. Lack of finance seems to be the main constraint which prevents house development in Kenya. It has also shown that the available source of finance; the building materials have been unable to provide adequate funding to a reasonable and affordable standard.

The study also concludes that the practices that lead to successful completion of housing projects in Kenya are clear communication channels, project supervision, problem solving methodology, proper record keeping, well established rapport among team members, project planning, testing and commissioning of works completed, scheduling of tasks to qualified staff, having well defined goals, project team motivation and top management support, continuous training and delegation of roles. This agrees to Githenya & Ngugi (2014) that reduction in delay on implementation of housing projects in Kenya could be achieved through use of efficient project-specific technology, allocation of enough financial resources projects, establishment of good governance, good public accountability, management and good forecasting of work plan, assigning specific tasks to project teams and also assigning projects to specific teams.

Recommendations of the study

The study makes the following recommendations based on the findings of the study. There is need to ensure that those nominated or appointed as project managers and assistant project managers have the necessary skills to execute their duties. Their competency will rub on the other team members that they are leading in a given project. Continuous improvement and development of the skills and technology of the project team members should be encouraged.

Project coordination and control should be undertaken in every step of project implementation and should not be a one-time event as it is common with majority of housing projects within Embakasi East Constituency. Regular inspections, site visits and close supervision will help identify, loopholes and deviations from overall projects targets, and correct them early as to ensure successful completion of the projects on time, within budget and with the desired quality.

Project team members need to be empowered through motivation, delegation of roles and regular re-training through seminars and workshops. This will enable them to stay abreast with the latest technology thus improving their productivity. Empowerment will lead to a reduction

in time and cost overruns together with strict adherence to the laid down specifications and goals.

Areas for Further Studies

Given the findings and conclusions drawn from the undertaken research project, it is apparent that there is a changing landscape as far as project implementation and project management in general is concerned. What was considered critical in yesteryears may not necessarily be the same today and in future. It is therefore important for a study to be undertaken on the emerging trends in project management and their effect on successful completion of high-rise housing projects in Kenya. The study has contributed to the body of knowledge by establishing that project team competency, project coordination, project control and project team empowerment influence successful completion of high-rise housing projects in Kenya. These four variables significantly influence successful completion of housing projects by reducing cost and time overruns as well as ensuring that the desired quality is achieved. Other variables considered important for study are; risk management, human resource management, and accountability among others that affect successful completion of high rise housing projects in Kenya. Future researchers can research further into how other factors like risk management, client-contractor joint venture and capping of interest rates by the Kenyan government affects successful completion of housing projects.

REFERENCES

- Agus, A., & Za'faran H., (2008), *The Strategic Supplier Partnership in a Supply Chain Management with Quality and Business Performance*, International Journal of Business and Management Science 1.2: 129-145
- Akintoye, A. & Takim, R. (2002). *Performance indicators for successful construction project performance*. In: Greenwood, D (Ed.), 18th Annual ARCOM Conference, 2-4 September 2002, University of Northumbria. Association of Researchers in Construction Management, Vol. 2, 545-55.
- Amin, Fadl-Allah, S. A. (2005). Testing validity of the Tafel extrapolation method for monitoring corrosion of cold rolled steel in HCl solutions—experimental and theoretical studies. *Corrosion Science*, 52(1), 140-151.
- Armstrong, M., & Baron, A. (2013). *Performance Management: The New Realities*. Chartered Institute of Personnel and Development.
- Baloyi, L., & Bekker, M. (2010). *Causes of construction cost and time overruns: The 2010 FIFA World Cup stadia in South Africa*.
- Barriere, C., (2013). *Study of Project Management Development in South Africa*
- Bollens, S. (2008). *Urban Planning Amidst Ethnic Conflict: Jerusalem and Johannesburg*. *Urban Studies* 35(4):729-750.
- Bonyo, J. (2010, July 22). *Business Section, Daily Nation*
- Bui, T., & Ling, F. (2010). *Factors Affecting Construction Project Outcomes: Case Study of Vietnam*. *J. Prof. Issues Eng. Educ. Pract.*, 136(3), 148–155.
- Collyer, S. & Warren C. (2009), 'Project Management approaches for dynamic environments', *International Journal of Project Management*, Vol 27, Issue 4, pp 355364.
- Cooper and Schindler (2003), *Research design: qualitative and quantitative approaches*. Thousand Oaks, CA, Sage.
- Curt. (September, 2005). *Construction Measures: Key Performance Indicators*.
- Dyason, B. (2010). *Action Plan: Monitoring and Evaluation Reporting and Research*. Pretoria: © Department of Basic Education and MIET Africa.

- Dettmer, William, Eli M. (2004), *Goldratt's The Theory of Constraints, A Systems Approach to Continuous Improvement*, ASQC press.
- Economic Survey Report, (2015)
- Edger, D. (2008). *Theory of Performance*, pg. 11-12.
- Githenya, M. S & Ngugi, K. (2014), Assessment of the Determinants of Implementation of Housing Projects in Kenya. *European Journal of Business Management*, 1 (11), 230-253.
- GOK (2010 a), *Kenya Population and Housing Census*. Nairobi, Kenya National Bureau of Statistics.
- Hassanali, F.M. (2009), *Understanding reduced Private – sector participation in Low Income Housing delivery in Nairobi*.
- Havrland, B., O.M. Jan., V. Krepl. K. Srnec., and P. Kapila. (2011). *Projects and Planning*. Czech Agricultural University, Prague, The Czech Republic. Pages: 56-60.
- Hope, K. R. S. (2012). "Urbanisation in Kenya." *African J. Economic and Sustainable Development* 1(1): 4-26.
- Hope, K. R. S. (2013). "The Growth of Urban Communities in Kenya." *African Identities* (3): 274-289.
- Hwang, B. and Lim, E. (2013). "Critical Success Factors for Key Project Players and Objectives: Case Study of Singapore." *J. Constr. Eng. Manage.*, 139(2), 204–215.
- Karimi, R. B. (2004). *Factors which are Critical in Project Cost Overruns: A Case Study of Ministry of Water Resources Projects*, Unpublished MBA Thesis, University of Nairobi,
- Kerzner H., (2006), *Project Management - A Systems Approach to Planning, Scheduling and Controlling*, 9th Edition, John Wiley & Sons, Canada
- Kibuchi, N., & Muchungu, P. (2012). *The contribution of human factors in the performance of construction projects in Kenya: a case study of construction*

project team participants in Nairobi. Retrieved January 5, 2016, from

<http://erepository.uonbi.ac.ke:8080/xmlui/handle/123456789/6951>

Kimani M. and Musungu T. (2010), *Reforming and Restructuring Planning and Building Laws and Regulations in Kenya for Sustainable Urban Development*, 46th ISOCARP Congress 2010

Kothari, C.R. (2004) *Research Methodology-Methods and Techniques (2nd Ed.)* New Delhi. New Age International Ltd Publishers

Lam, S. Y. W., & Tang, C. H. W. (2009), Motivation of survey employees in construction projects. *Journal of Geospatial Engineering, Vol. 5, No.1, pp.61-66.*

Landman, K. and Napier, M. (2010). *Waiting for a House or Building Your Own? Reconsidering State Provision, Aided and Unaided Self-Help in South Africa.* Habitat International 34:299-305.

Lepartobiko, W. (2012). *Factors that influence success in large construction projects: the case of Kenya Urban Roads Authority projects.* Msc thesis

Loo (2011). Best functions in project management: A multi-level causal model for best functions in project management. Faculty of Management, University of Lethbridge, Lethbridge, Alberta, Canada

Loo, R. (2012) "Working Towards Best Functions in Project Management: A Canadian Study" International Journal of Project Management. (18)105.109

Mbaluka, H. & Bwisa H (2013), *Delay factors in Construction Projects implementation in the Public sector: A case study of the Kenya Agriculture Research Institute Construction Projects.*

Mhando, K. S., & Mrema, L. K. (2005). *Causes of failure of housing projects: Case of Unfinished Buildings in Dar es Salaam*, World Congress on Housing Transforming Housing Environments through Design September 27-30, 2005, Pretoria, South Africa.

- Mugenda, O. M. (1998), *Research methods: quantitative and qualitative approaches*.
Nairobi. Acts press.
- Mugenda, O.M and Mugenda, A.G (2003) *Research Methods, Quantitative & Qualitative Approaches*, Acts Press, Nairobi
- Naidoo, I. A. (2011). The role of monitoring and evaluation in promoting good governance in South Africa: A case study of the Department of Social Development. University of Witwatersrand. Johannesburg: WIReDSpace.
- Nairobi City County (2014),*The Project on Integrated Urban Development Master Plan for the City of Nairobi in the Republic of Kenya. Final Draft Report*.
- National Construction Authority (NCA), (2015), *Annual Report 2014 – 2015*.
- Nokes, S. (2010). The definitive guide to project management. London: Financial Times/Prentice Hall.
- Nunnally, J. (1978). Psychometric methods.
- Nyangilo, A. O. (2012), *An assessment of the organization structure and leadership effects on construction projects' performance in Kenya: a case study of public building projects within Nairobi region*, Thesis. University of Nairobi.
- Shaban, S. S. A. (April, 2008),*Factors Affecting the Performance of Construction Projects in the Gaza Strip*, Msc Thesis. The Islamic University of Gaza. Palestine.
- Sharma, D. (2011), *Total Quality Management: Principles, Practice and Case*.
- UN-Habitat. (2010), *The State of African Cities 2010: Governance, Inequality and Urban Land Markets*. Nairobi: UN-Habitat.

Appendix I: Questionnaire

Instructions :

Please fill in all the questions below by either ticking the appropriate option or circling the appropriate number. All information given will be strictly confidential.

Section 1 : General Information

1.1 What is your highest academic qualification

Diploma University Degree Post Graduate PHD

1.2 Gender:

Male Female

1.3 Please indicate your age bracket.

20-30 years 31-40 years 41-50 years over 50 years

1.4 Please indicate the number of years you have been involved in the construction industry.

Not more than 5 years 6-10 years 11-15 years over 16 years

Section 2: Project team competency

2.1 How does communication influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns
- b) Ensure mitigation measures are in place to avoid delays
- c) Ensures prompt decision making whenever needed
- d) Ensures proper project planning and execution

2.2 How does communication influence completion of high-rise housing projects within budget?

- a) Reduces risk of scope creep
- b) Ensure variations approved are within the project budget
- c) Ensures prompt decision making whenever needed on issues affecting cost
- d) Ensures proper project planning and execution within budget

2.3 How does communication influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality
- b) Ensures zero tolerance on compromising of the quality desired
- c) Ensures no alteration of desired quality without client approval
- d) Ensures proper project planning and execution within budget

2.4 How does supervision influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns
- b) Ensure mitigation measures are in place to avoid delays
- c) Ensures prompt decision making whenever needed
- d) Ensures proper project planning and execution

2.5 How does supervision influence completion of high-rise housing projects within budget?

- a) Ensures no work is done beyond the approved scope
- b) Ensure only approved variations are executed on site
- c) Ensures prompt decision making whenever needed on issues affecting cost
- d) Ensures identification of alternative methods that might cut down on cost

2.6 How does supervision influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality
- b) Ensures there is no compromising of the quality desired
- c) Ensures no alteration of desired quality without client approval
- d) Ensures proper project planning and execution within budget

2.7 How does problem solving influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns []
- b) Ensure mitigation measures are in place to avoid delays []
- c) Ensures prompt decision making whenever needed []
- d) Ensures proper project planning and execution []

2.8 How does problem solving influence completion of high-rise housing projects within budget?

- a) Ensures no work is done beyond the approved scope []
- b) Ensure only approved variations are executed on site []
- c) Ensures prompt decision making whenever needed on issues affecting cost []
- d) Ensures identification of alternative methods that might cut down on cost []

2.9 How does problem solving influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality []
- b) Ensures there is no compromising of the quality desired []
- c) Ensures no alteration of desired quality without client approval []
- d) Ensures proper project planning and execution with the desired quality []

Section 3: Project Coordination

3.1 How does proper record keeping influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns []
- b) Ensure mitigation measures are in place to avoid delays []
- c) Ensures prompt decision making whenever needed []
- d) Ensures proper project planning and execution []

3.2 How does proper record keeping influence completion of high-rise housing projects within budget?

- a) Reduces risk of scope creep
- b) Ensure variations approved are within the project budget
- c) Ensures prompt decision making whenever needed on issues affecting cost
- d) Ensures proper project planning and execution within budget

3.3 How does proper record keeping influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality
- b) Ensures zero tolerance on compromising of the quality desired
- c) Ensures no alteration of desired quality without client approval
- d) Ensures proper project planning and execution within budget

3.4 How does well established liaison influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns
- b) Ensure mitigation measures are in place to avoid delays
- c) Ensures prompt decision making whenever needed
- d) Ensures proper project planning and execution

3.5 How does well established liaison influence completion of high-rise housing projects within budget?

- a) Ensures no work is done beyond the approved scope
- b) Ensure only approved variations are executed on site
- c) Ensures prompt decision making whenever needed on issues affecting cost
- d) Ensures identification of alternative methods that might cut down on cost

3.6 How does well established liaison influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality []
- b) Ensures there is no compromising of the quality desired []
- c) Ensures no alteration of desired quality without client approval []
- d) Ensures proper project planning and execution with desired quality []

3.7 How does planning influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns []
- b) Ensure mitigation measures are in place to avoid delays []
- c) Ensures prompt decision making whenever needed []
- d) Ensures proper project planning and execution []

3.8 How does planning influence completion of high-rise housing projects within budget?

- a) Ensures no work is done beyond the approved scope []
- b) Ensure only approved variations are executed on site []
- c) Ensures prompt decision making whenever needed on issues affecting cost []
- d) Ensures identification of alternative methods that might cut down on cost []

3.9 How does planning influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality []
- b) Ensures there is no compromising of the quality desired []
- c) Ensures no alteration of desired quality without client approval []
- d) Ensures proper project planning and execution within budget []

Section 4: Project control

4.1 How do scheduled responsibilities influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns
- b) Ensure mitigation measures are in place to avoid delays
- c) Ensures prompt decision making whenever needed
- d) Ensures proper project planning and execution on time

4.2 How do scheduled responsibilities influence completion of high-rise housing projects within budget?

- a) Reduces risk of scope creep
- b) Ensure variations approved are within the project budget
- c) Ensures prompt decision making whenever needed on issues affecting cost
- d) Ensures proper project planning and execution within budget

4.3 How do scheduled responsibilities influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality
- b) Ensures zero tolerance on compromising of the quality desired
- c) Ensures no alteration of desired quality without client approval
- d) Ensures proper project planning and execution with desired quality

4.4 How does testing and commissioning influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns
- b) Ensure mitigation measures are in place to avoid delays
- c) Ensures prompt decision making whenever needed

- d) Ensures proper project planning and execution on time []

4.5 How does testing and commissioning influence completion of high-rise housing projects within budget?

- a) Ensures no work is done beyond the approved scope []
- b) Ensure only approved variations are executed on site []
- c) Ensures prompt decision making whenever needed on issues affecting cost []
- d) Ensures identification of alternative methods that might cut down on cost []

4.6 How does testing and commissioning influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality []
- b) Ensures there is no compromising of the quality desired []
- c) Ensures no alteration of desired quality without client approval []
- d) Ensures proper project planning and execution within budget []

4.7 How do well defined goals influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns []
- b) Ensure mitigation measures are in place to avoid delays []
- c) Ensures prompt decision making whenever needed []
- d) Ensures proper project planning and execution []

4.8 How do well defined goals influence completion of high-rise housing projects within budget?

- a) Ensures no work is done beyond the approved scope []
- b) Ensure only approved variations are executed on site []
- c) Ensures prompt decision making whenever needed on issues affecting cost []
- d) Ensures identification of alternative methods that might cut down on cost []

4.9 How do well defined goals influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality []
- b) Ensures there is no compromising of the quality desired []
- c) Ensures no alteration of desired quality without client approval []
- d) Ensures proper project planning and execution within budget []

Section 5: Project team empowerment

5.1 How does training influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns []
- b) Ensure mitigation measures are in place to avoid delays []
- c) Ensures prompt decision making whenever needed []
- d) Ensures proper project planning and execution on time []

5.2 How does training influence completion of high-rise housing projects within budget?

- a) Reduces risk of scope creep []
- b) Ensure variations approved are within the project budget []
- c) Ensures prompt decision making whenever needed on issues affecting cost []
- d) Ensures proper project planning and execution within budget []

5.3 How does training influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality []
- b) Ensures zero tolerance on compromising of the quality desired []
- c) Ensures no alteration of desired quality without client approval []
- d) Ensures proper project planning and execution within budget []

5.4 How does delegation of roles influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns []
- b) Ensure mitigation measures are in place to avoid delays []
- c) Ensures prompt decision making whenever needed []
- d) Ensures proper project planning and execution on time []

5.5 How does delegation of roles influence completion of high-rise housing projects within budget?

- a) Ensures no work is done beyond the approved scope []
- b) Ensure only approved variations are executed on site []
- c) Ensures prompt decision making whenever needed on issues affecting cost []
- d) Ensures identification of alternative methods that might cut down on cost []

5.6 How does delegation of roles influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality []
- b) Ensures there is no compromising of the quality desired []
- c) Ensures no alteration of desired quality without client approval []
- d) Ensures proper project planning and execution with the desired quality []

5.7 How does employee motivation influence completion of high-rise housing projects on time?

- a) Reduces risk of time overruns []
- b) Ensure mitigation measures are in place to avoid delays []
- c) Ensures prompt decision making whenever needed []
- d) Ensures proper project planning and execution on time []

5.8 How does employee motivation influence completion of high-rise housing projects within budget?

- a) Ensures no work is done beyond the approved scope []
- b) Ensure only approved variations are executed on site []
- c) Ensures prompt decision making whenever needed on issues affecting cost []
- d) Ensures identification of alternative methods that might cut down on cost []

4.9 How does employee motivation influence completion of high-rise housing projects with the desired quality?

- a) Ensure project is executed as per client approved design and quality []
- b) Ensures there is no compromising of the quality desired []
- c) Ensures no alteration of desired quality without client approval []
- d) Ensures proper project planning and execution with the desired quality []

Section 6: Successful completion of high-rise housing projects

6.1 Indicate the number of high-rise housing projects completed on time in the last five years by your organization?

Categories	Years				
	2011	2012	2013	2014	2015
Projects complete on time					
Projects not completed on time					
Projects that failed due to inadequate time allocation					
Projects that failed due to unending extension of time					

6.2 Indicate the number of high-rise housing projects completed within budget in the last five years by your organization?

Categories	Years				
	2011	2012	2013	2014	2015
Projects completed within budget					
Projects completed above budget					
Projects that failed due to inadequate budget allocation					
Projects that failed due to unending additional costs					

6.3 Indicate the number of high-rise housing projects completed with the desired quality and objectives in the last five years by your organization?

Categories	Years				
	2011	2012	2013	2014	2015
Projects completed with desired quality					
Projects not completed with desired quality					
Projects that failed to meet desired quality; and never completed					

THANK YOU FOR YOUR PARTICIPATION