PROJECT SCOPE MANAGEMENT AND PERFORMANCE OF AFFORDABLE HOUSING PROGRAM IN KENYA

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ABSTRACT

The study intended to examine how project management triple constraints and performance of affordable housing program in Kenya. Specifically, the study aimed to examine how project scope management and moderating influence of community participation influence affordable housing program in Kenya. The study was based on the theory of triple constraints. The study adopted descriptive research design. The target population of this study was 24,000 housing units project under the affordable housing program in Kenya. The study used simple random sampling to select 393 project managers from the target population. This study used both primary and secondary data. Secondary data was obtained from annual reports under affordable housing program. The study used semi-structured questionnaires to collect data. A pilot test was conducted to test the reliability and validity of the data collection instruments. Quantitative data was generated from the closed ended questions and qualitative data was obtained from open ended questions. Thematic analysis was used to analyze qualitative data and presentation of results was in a prose form. Statistical Package for Social Sciences (SPSS version 24) was used to analyze all quantitative data. Inferential and descriptive statistics were used to analyze qualitative data. Frequency distribution, mean (measure of dispersion), standard deviation (measure of dispersion) and percentages were inclusive in descriptive statistics. Inferential data analyses were done using Pearson correlation coefficient, regression analysis. The hypotheses were tested at 5% level of significance. The study results were presented in tables and graphs. Qualitative data was interpreted by attaching significance to themes and patterns observed by the use of content analysis. The study found that: project scope management significantly influences performance of affordable housing program in Kenya. The study further established that community participation has moderating influence on the relationship between project management triple constraints and performance of affordable housing program in Kenya. The project scope can be improved by setting clear goals and objectives. The goals should have the proposed idea and then define the objectives that will guide the achievement of the set goal. The challenge of unrealistic deadlines can be resolved be having an open communication with the clients to determine whether there are other factors that drive the project deadline.

Key Words: project management triple constraints, affordable housing program, project scope management, community participation

Background of the Study

Project success is controlled by time, cost and scope, commonly referred to as Project Triple Constraint (Baymount, 2015; Akinyde, 2014; Wanjau, 2015). For every successful project, considerations are based on the triple constraint before, during and after project implementation. The project constraints sometimes referred as the iron triangle are common in the construction projects (Catanio, Armstrong & Tucker, 2015; Nasir, Nawi & Radzuan, 2016). The failure to understand and interpret iron triangle appropriately may affect a construction project though project activities are carried out effectively (Omondi, 2017; Chin & Hamadi, 2015; Kiarie & Wanyoike, 2016; Kariungi, 2014; Leong et al. 2014).

Construction projects include the design and build of new structure (Sheshu and Akitonye,2015). In many countries in the world construction activity constitute 6-9% of gross domestic product (GDP) and more than half of the fixed capital formation as infrastructure and public utilities required for economic development (Cohen,2013). The program performance is based on a set-criteria anchored on the standards or principles from which stakeholders are able to judge the project success (Nibiyza, 2015; Rugenyi & Bwisa, 2016). These are the key predictors which are very crucial for every successful project in terms of achievement of the goals and objectives.

This study is grounded on the triple constraint theory trying to explain the influence scope which bounds the universe of every performing project (Osedo (2017), 2015; Hassan & Adeleke, 2019; Banda & Pretorius, 2016; Nibyza, 2015). The key standards and principles which must be accomplished in every project as stated by (Van Wayngaad, Pretorius, & Pretorius, 2012) are the definitely the project triple constraint in a construction project which must be balanced appropriately (Catanio, Armstrong & Tucker, 2015; Nasir, Nawi & Radzuan, 2016). The cause and effect of new or changing triple constraint requirements are constantly negotiated during all phases of a project (Lukale, 2018; Rugenyi & Bwisa, 2016; Omondi, 2017). The three key triple constraint relationships signify that at least one of the triple constraint variables must be constrained (otherwise there is no baseline for planning), and at least one of the variables must have capacity for exploitation (otherwise quality may be affected) (Abulkhaim & Adeleke, 2019; Beleu, Crisan & Nistor, 2015; Omondi, 2017; Rugenyi, 2017).

Based on this argument, according to Osedo (2017) (2015) stated the county government funded projects in Kenya have indicated puzzling statistics which have shown underperforming statistics whereby the existing records have reported that between 60% to 82% of projects have failed. These projects are struggling in terms of being accomplished within the budget, time without compromising quality (Omondi, 2017). Similarly, Omolo (2016) found out that county governments funded construction projects have issues in regard to project scope management. This means that they rarely follow the necessary processes for the implementation of the projects, activities and tasks associated and for the successful finalization of the project (Sikudi & Otieno, 2017; Mwangi, 2018).

Statement of the Problem

The concept of affordable housing arose in order to accommodate the disadvantaged living in unsafe and unhygienic environments with an objective of providing economical housing. The Quinta Monroy Housing in Chile initiated to accommodate 100 families, the Savonnerie Heymans Public Housing in Brussels project for 42 low energy social housing were successful projects built within tight budgets, within short time and of high quality. This is because the government of Chile and Belgium were able to overcome the challenges of cost (tight budget), scope changes, time and quality to make the project successful. Community participation in the

building process was an advantage as it created a sense of ownership and belongingness for the residents. (Pervaiz, 2021).

The 2010 Constitution of Kenya identifies access to adequate affordable housing and to reasonable standards of sanitation as an economic and social right (Manji, 2015). The affordable housing programme is one of the Big Four Agendas of the government of Kenya targeting 500,000 housing units by 2022. The park road project Ngara (1370 units) Makongeni (20,000 units) Shauri moyo (5,000 units) Starehe and Mavoko in Machakos County (3,000 units) Lukenya Athi River (8,800 units), Kibera (4,400 units), Marigu South B (2,600 units) and Eastleigh (4,000 units). However, with rapid increase in population, high construction costs and escalating cost of land prices affordable housing remains a problem.

According to World bank report only 50,000 units are delivered in Kenya against a housing need of 250,000 leading to a cumulative deficit of 2 million units (World Bank, 2017). Further, there is the supply/demand mismatch due to the various economic strata of the society in Kenya due to unequal income and wealth levels. As a result of this mismatched supply and demand, housing prices have increased by 100% since 2004 (KNBS, 2017). This deficit continues to rise due to fundamental constraints on both the demand and supply side and is exacerbated by an urbanization rate of 4.2%, equivalent to 0.5 million new city dwellers every year (Kieti, Rukwaro, & Olima, 2020). With this level of growth, Kenya requires approximately 200,000 new housing units annually to meet demand, yet only 50,000 homes are built, leaving the housing deficit growing by 150,000 units per year (KNBS, 2017).

Despite these opportunities by the government the goal has not been realized by the government with still a long way to go due to funding challenges, low budgetary allocation for the projects, availability of land with serviced infrastructure and the overall pricing of the houses is beyond the reach of the majority, the cost of construction is high accounting to 50%-70% of the development cost. Further Kenya lacks a comprehensive policy framework that defines the standards of affordable housing in terms of designs and standards (Kieti, Rukwaro, & Olima, 2020). The construction projects fail in the project triple constraint considerations which are very crucial in projects' decision making in the country. The failure to understand, interpret and apply this criterion is regarded as one of the factors which has led to underperformance of the projects being funded by the governments (Omondi, 2017; Kiarie & Wanyoike, 2016; Gitee, 2018; Muchelule, 2018). Lukale (2018) found out that project triple constraints management significantly improves performance of projects by more than 70%.

Local studies related to project triple constraints management and performance of projects have been carried out in different sectors. For instance, Omondi (2017) study focused on the triple constraint management and WASH projects completion in Nakuru County, Kenya. Rugenyi and Bwisa (2016) study was on project triple constraint and project manager's perspective on management of projects in Nairobi. Further, Kiarie and Wanyoike (2016) study focused on the government funded projects and specifically integrated financial management information system (IFMIS) project was used as a case study. From the aforementioned studies no study has focused on the relationship between project triple constraints management and   performance. A gap this study sought to fill. It is on this premise this study, therefore, examined scope management on performance of affordable housing program in Kenya.

Specific Objectives of the Study

    i.   To examine the influence of project scope management on performance of affordable housing program in Kenya.

ii.   To explore the moderating influence of community participation on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

Research Hypotheses

The statistical null hypotheses to guide the above stated objectives included:

i. H_{01}:   Project scope management does not significantly influence performance of affordable housing program in Kenya.

ii. H_{02}**:**   Community participation has no moderating influence on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

LITERATURE REVIEW

Theoretical Review

Theory of Triple Constraints

The theory of triple constraints is derived from the very definition of a project which states that a project is a temporary group activity which is designed to produce a desired result or service or a unique product (PMI, 2015). The theory of the triple constraint depicts that the project triple constraint management is an iron triangle of cost, scope, quality and time which bounds the project universe which must be achieved (Dobson, 2004). Construction projects brings complications in project management, needs and constraints and therefore for effective project management, constraints have to be managed. Projects take place inside organizations where, there is a finite amount of resources with which to accomplish infinite tasks. This results in scarcity and the triple constraints; a deadline, a budget, and a minimum acceptable level of performance (Dobson, 2004).
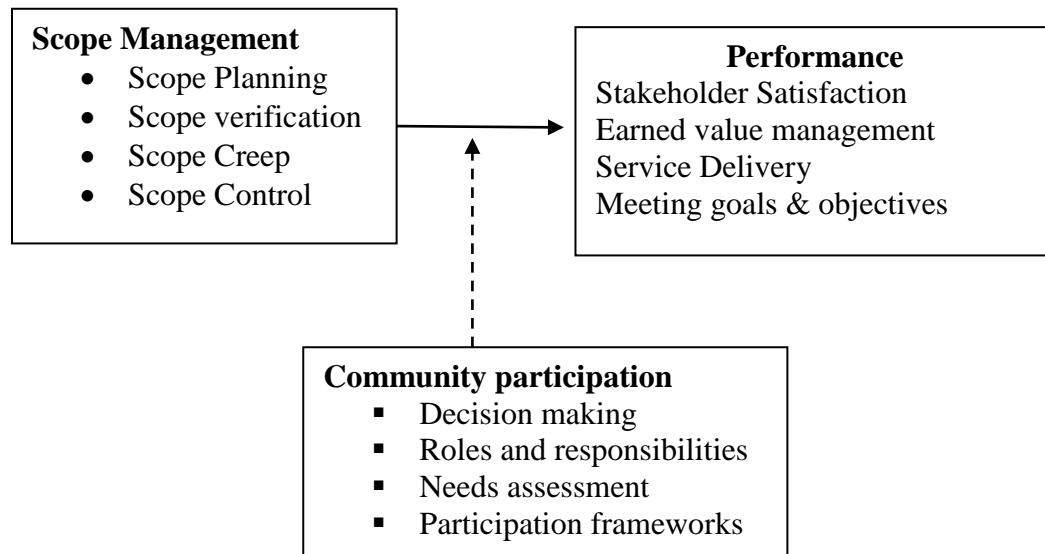
The theory of the triple constraints is anchored on the project management with an understanding that a project should be a balance of the three interdependent project constraints (time, scope and cost) to achieve the desirable results. The cause and effect of new or changing triple constraint requirements are constantly negotiated during all project processes, and the three key triple constraint relationships signify that at least one of the triple constraint variables must be constrained (Wayngaad, Pretorius & Pretorius, 2012).

Implying that most of adopted project management strategies to enhance program performance like planning process, scheduling process, a methodology for introducing work that actually leads to increased capacity, execution processes that provide excellent project control, visibility and decision support and work behaviors that are more conducive to good program performance(Jacob & McClelland, Jr, 2001).The theory enhance the understanding of the project manager contribution deliverables per the clients satisfactions. Further, the theory requires continuous improvement to sustain quality in the project dimensions (Nyakundi, 2015).

While, triple constraints criteria in project management have been accepted as a measure of project success. Due to uncertainty and involvement of three different and opposing factors time, cost, and quality, most projects are difficult to manage (Jacob & McClelland, Jr, 2001). Every one of the three limitations have their individual impacts on project execution yet since these components have some relationship, one imperative bear an impact on the other two, in the long run influencing ventures expectations (Hamid, *et al*., (2012). This theory from organizational perspectives may work well or fail hence leading to delays if it isn't well embraced. For the county government funded construction projects, the time and cost overruns delays are a

common problem not only with an immeasurable cost to government and public but also with debilitating effects on the contracting parties (Ondari & Gekara, 2013). The theory was useful in explaining Scope Management, and how it affects performance of affordable housing.

Conceptual Framework

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┌─────────────────────────┐              ┌──────────────────────────────────┐
│ Scope Management        │              │          Performance             │
│   • Scope Planning      │──────────▶   │ Stakeholder Satisfaction         │
│   • Scope verification  │       ▲      │ Earned value management          │
│   • Scope Creep         │       ┊      │ Service Delivery                 │
│   • Scope Control       │       ┊      │ Meeting goals & objectives       │
└─────────────────────────┘       ┊      └──────────────────────────────────┘
                                   ┊
                    ┌──────────────────────────────┐
                    │ Community participation       │
                    │   ▪ Decision making           │
                    │   ▪ Roles and responsibilities │
                    │   ▪ Needs assessment          │
                    │   ▪ Participation frameworks   │
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Project Scope Management

Project scope management is the process which involves definition and mapping appropriately. It is the procedure of ensuring that a project comprises all of the necessary activities for the achievement of specific targeted objectives. Project scope enlists structure of a project and base of other related factors especially cost and time. Project success relates to effectiveness cum effort given to its scope management; if the project boundaries are undefined then its objectives are not clear. PMI (2014) postulates that scope management in projects includes ascertaining that the project has all tasks and activities necessary for it to be completed successfully.

Project scope planning is defining of the project boundaries and the expected deliverables from the project (Adek, 2016). The basic matrix that is used for scope planning analysis involves the initiation, planning and definition. This can call for verification and change control when interspersed (Band & Pretorius, 2016). scope inputs requires the description of program deliverable, selection program criteria, planning, strategically and historical information. Tools and techniques involved are methods of program selection and expert judgment of the same. The initiation phase output involves the identification program charter, project manager assignment, and the constraints and assumptions identification (Baymount, 2015). The project scope planning also includes the deliverables descriptions, assumptions and constraints, program charter. The project tools and techniques involved consist of a benefit/cost, identification of alternatives deliverable analysis (Apiyo & Mburu, 2014).

Omondi (2017) posits that uncontrolled variations in a project's scope (scope creep) represents propensity of a program or project to incorporate a larger number of tasks or duties as compared to the initial planned tasks and duties which were specified, and this can frequently lead to higher project costs and addition of the project duration. Conceptually, scope creep is actually additional tasks and duties which were never planned for in the project thus likely to have an effect on the cost and time of the project (Osedo,2017). As the project progresses, project team

gains more knowledge, and this leads to scope changes. Jones, Snyder, Stackpole and Lambert (2011) add that scope change is common on projects, meaning that it is not a harm to make changes during the lifecycle of the project (Rugenyi, 2015).

According to Sikudi and Otieno (2017) project activities can be well controlled through effective scope which is well planned and tracked. The scope control is monitoring of duties and tasks of the project to ensure they are achieved as per the scope management plan. Osedo (2017) found out that delivery of the project requires scope control, adequate project documentation, enhanced leadership with effective communication to ensure project deliverables are achieved. The project variances are due to lack of scope control in the projects (Nibyiza, 2015). The expected outputs of the scope controlling process can lead to changes of the request, updating of the project management plan, updates on the documentation of the project activities, updating of the asset's organizations process and work performance (Rugenyi, 2015).

Community Participation

A community may be defined as a group of people living in a geographical area, who have identical culture, beliefs, values, traditions and are united with common interest. It is this common interest that brings them together to share a territory. According to Anyanwu (2009), a community is a social group, occupying a more or less defined geographical area, and based on the feeling that people have for one another. Community participation involves bringing people together with the common goal of improving their social, legal, economic, political, educational and cultural wellbeing for a better living livelihood. Thus, peoples" participation is an indispensable element for effective community development. People's participation cannot be dispensed within development efforts (Mohammad, 2010).

Participation and other related concepts like sustainability and empowerment are at the center of development discourse (Blackman, 2003) and it may be argued that participation is as old as democracy itself. For the communities in order to enhance the realization of community participation development goals, especially where government patronage was not easy to get all the time whereas organized development efforts through community development program have become popular today. Dan (2011) stated that situation where community bodies are mere small organization operating within a larger social environment that is plagued with poverty, low standard of living and economic vagaries. Hence they may lack the basic economic resources to initiate or sustain project.

Community efforts have been carried out to tackle local problems in different localities with external support or intervention. This has been a common practice long before the colonial rule. Abegunde (2009) stressed that during the colonial period and after independence, government at different levels supported communities to develop their locality in different ways, and for many years emphasis was on cooperation and self-help among the people. Zaden, (2010) stated that Community development program is influenced by the ability of major stakeholders to mobilize people for participation. Generally, people who are informed about a community issue and are interested in resolving it, feel that they can be more effective in working with groups

A common objective of community brings such people together to develop some awareness and feeling for the need to work together at solving their common problems. This is the type of community that Christenson, (2005) referred to as functional community. In a similar manner, community is also referred to as a legal, political or administrative unit. In this sense a community will feature the formulation of laws to guide the conduct of members, and this is what is required to ensure its existence. The regulation or laws are enforced by an administrative structure. The mere traditional community is one where relationship is personal, intimate and

often enduring. Such relationships are often ends in themselves. They are not formed to serve narrow interest and purposes. The community which they occur is not only homogenous but also fixed. The people work as a team with relatively few divisions or clashes of interest. Every member in such community knows and accepts his place, and the moral code of the community is well defined and generally upheld.

Performance

The term program performance is quite ambiguous especially in the construction projects, which are considered and evaluated from the project management triangle perspective (Njau & Ogolla, 2017). Performance is the accomplishment of a given task in this case a project measured against preset known standards of accuracy, completeness, cost, and speed (Omondi, 2017). This is the success level of a program based on the following criteria: effectiveness, relevance, impact, efficiency, timeliness and sustainability. This model suggested that a project is successful when it is completed on time, budget estimates and meets all predetermined specifications. However, the concept of program performance has been enriched and expanded beyond the three project constraints (Hassan& Adeleke, 2019).

Kabirifar and Mojtahidi (2019) recommended the inclusion of stakeholder satisfaction and realization of benefits as an additional measure of program performance. They noted that a project may be completed on time, budget and meet all pre-established requirements, but fail to meet the expectations of key stakeholders such as the customer. Stakeholders' satisfaction can be an important measure of project success in the building construction industry (Rugenyi, 2015). Due to its technical nature, key stakeholders may not be able to articulate their expectations and preferences at the beginning of the projects. Therefore, projects managers have the responsibility of ensuring that key stakeholders are involved at every step of the project so as they can clarify their expectation on continual basis (Osedo (2017), 2015; Sikudi & Otieno, 2017). The current study will measure the performance of county funded construction projects by focusing on the achievement of the objectives, stakeholder satisfaction, benefit realization and completion within cost.

Empirical Review

Kabirifar and Mojtahidi (2019) analyzed and ranked engineering, procurement and construction phases which are critical activities across construction projects of large-scale residential in Iran. The scope, time, and cost were the triple constraints of project management and leading factors in defining the program performance. The results indicated that engineering design, project planning and controls are significant factors contributing to the program performance. In addition, engineering has a pivotal role in program performance and this significance is followed by the construction phase.

Omondi (2017) examined triple constraints specifically project scope management and project completion, schedule management and cost management on project completion. A descriptive survey design was adopted in the study and involved quantitative methods. It was established that the relationship was significant between the scope, schedule and cost on project completion of the NGO projects based in Nakuru County, Kenya.

Nibyiza (2015) study focused on the scope change management as a means of successful project implementation in Rwanda. Specifically, the study examined the scope change; adjustment of project activities, changing project cost, time on product or service quality derived and identification of the challenges associated with changing the project scope in Akazi Kanoze

projects. The research findings indicated that time, scope and cost in project affect the success of the project ultimately.

RESEARCH METHODOLOGY

The study gathered both qualitative and some quantitative data with highly structured instruments from fairly large measured in Likert scale, thus positivist as the main research philosophy. This study used a combined descriptive survey research design and correlational research design. Target population was 24,000 housing units project under the affordable housing program in Kenya. The unit of observation was project managers. The study used Simple random sampling to determine the respondent from whom information was collected. The sample was arrived at using the Slovin's sample size determination formula for categorical data. The sample was 393 housing units project. This study collected both primary and secondary data.

The number in the pilot study should be small, estimated to be 1% to 10% of the population (Mugenda, 2012). This study aimed at using 39 social housing construction projects that is 10% of the population in the affordable housing program. Out of the 39 questionnaires that were administered to project managers in AHP and 34 were returned, which was an excellent response rate of 87%. All the variables met the selected threshold value of 0.70 and above and therefore, they were all reliable

After, the questionnaires are administered and collected, data was checked for completeness, accuracy and consistency then presented for editing, classification, cleaning, transformation tabulation and coding, quantitative and qualitative techniques were used. Statistical package for Social Science Software version 24 software was used to run different statistical tests. Qualitative data analysis by use of content analysis. The data was presented using frequency tables, pie charts and graphs and interpreted appropriately (Crewell, 2014), Correlation analysis (Pearson) was used to carry out inferential data analysis to determine the direction and strength of the relationship among the variables. Regression models (as show below) were also fitted. The study used multiple regressions analysis (stepwise method) to establish the moderating effect of community participation (z) on relationship between independent variable and dependent variable.

RESEARCH FINDINGS

Out of 393 questionnaires which were distributed, 372 were duly filled and returned. According to Kothari (2012) a response rate of 50% should be considered average, 60% to 70% considered adequate while a response rate of above 70% should be regarded as excellent. This implies that the response rate of 94.7% was adequate for analysis, drawing conclusions and reporting.

Descriptive Statistics

Project Scope Management

In this section, the study presents findings on Likert scale questions where respondents were asked to indicate their level of agreement with various statements about project scope management on performance of affordable housing program in Kenya. Table 1 presents the findings obtained.

Table 1: Descriptive Statistics on Project Scope Management

Statement	Mean	Std. Dev.
All project stakeholders are engaged in scope management	3.982	1.370
Scope control is one of the key factors considered before and after the implementation of the project.	3.948	1.263
There is clear scope definition to avoid scope creep in the project	3.889	1.381
A clear scope plan is shared with the project team before project is implemented	3.863	1.326
Scope is well initiated among all relevant stakeholders in the project.	3.777	1.275
Scope verification is normally conducted during the implementation of every project.	3.738	1.320
We can manage all types of services required by clients within the shortest time possible	3.698	1.331
Aggregate Score	**3.842**	**1.324**

From the findings in Table 1, the aggregate mean value was 3.842 which suggest that on average, the respondents agreed with the statements on project scope management on performance of affordable housing program in Kenya. Specifically, the findings showed that the respondents agreed that all project stakeholders are engaged in scope management as indicated by a mean value of 3.982 and standard deviation of 1.370. They also agreed that scope control is one of the key factors considered before and after the implementation of the project (M=3.948, SD=1.263); there is clear scope definition to avoid scope creep in the project (M=3.889, SD=1.381); they also agreed that a clear scope plan is shared with the project team before project is implemented (M=3.863, SD=1.326). In addition, respondents agreed that: scope is well initiated among all relevant stakeholders in the project (M=3.777, SD=1.275); scope verification is normally conducted during the implementation of every project (M=3.738, SD=1.320); and that they can manage all types of services required by clients within the shortest time possible (M=3.698, SD=1.331).

The findings agree with PMI (2014) who postulates that scope management in projects includes ascertaining that the project has all tasks and activities necessary for it to be completed successfully. Also, the basic matrix that is used for scope planning analysis involves the initiation, planning and definition. This can call for verification and change control when interspersed. It also agrees with Band and Pretorius, (2016) that scope inputs requires the description of program deliverable, selection program criteria, planning, strategically and historical information.

Challenges Faced in Project Management Scope

Respondents were asked to indicate the challenges they encountered in project scope management. They gave several challenges they encountered. Change in scope was one of them. They explained that there are instances when project managers allow projects to extend past the original set objectives, clients might request for changes. This causes change in budget and deadlines. Another challenge is unidentified goals. Failure to clearly identify goals causes the project as well as the team to suffer. When top management fails to agree with the set goals then there is a high likelihood that the project won't succeed. There is also the challenge of unrealistic deadlines. Clients and stakeholders tend to set timelines that are unrealistic and this force the project team and managers to try and fit the requirements in the already set boundaries.

Ways of Improving Project Scope

Respondents were requested to provide their suggestions on ways that can help improve performance of their organization. The project scope can be improved by setting clear goals and objectives. The goals should have the proposed idea and then define the objectives that will guide the achievement of the set goal. The challenge of unrealistic deadlines can be resolved by having an open communication with the clients to determine whether there are other factors that drive the project deadline. Also, through the adoption of impeccable planning, alternative analysis and proper communication on projects real-time progress to project participants, project managers can deal with project deadlines. To deal with the challenge of changing scope, project managers should develop a clear schedule, determine project goals, ensure everyone is in the same page, make realistic assumptions regarding availability of resources, and deadlines to achieve quality results.

Community Participation

Respondents gave their level of agreement or disagreement with various statements about moderating community participation on the relationship between project management iron triangle and performance of affordable housing program in Kenya. The findings obtained were as presented in Table 2.

Table 2: Descriptive Statistics on Community Participation

Statement	Mean	Std. Dev.
There is timely response to information with regards to community issues	3.961	1.149
projects objectives, role and responsibilities are clearly understood by the community	3.955	1.199
Community members are involved in the decision making of the projects.	3.902	1.345
The project team in collaboration with the community they take part in corporate social responsibility	3.836	1.234
Community have proper knowledge and skills on project implementation	3.836	1.313
Community needs are well identified within the project implementation.	3.803	1.248
Aggregate Score	**3.882**	**1.248**

As presented in Table 2, the aggregate mean score was 3.882, an indication that on average, the respondent agreed with the various statements about moderating community participation on the relationship between project management iron triangle and performance of affordable housing program in Kenya. The findings specifically show that the respondents agreed that there is timely response to information with regards to community issues (M=3.961, SD=1.149); that projects objectives, role and responsibilities are clearly understood by the community (M=3.955, SD=1.199); and that community members are involved in the decision making of the projects (M=3.902, SD=1.345). The study further established that the project team in collaboration with the community they take part in corporate social responsibility (M=3.836, SD=1.234); community have proper knowledge and skills on project implementation (M=3.836, SD=1.313); and that community needs are well identified within the project implementation (M=3.803, SD=1.248).

The study findings concur with Mohammad, (2010) that peoples' participation is an indispensable element for effective community development. He further explained that community participation brings people together with a common goal of improving their social,

legal, economic, political, educational and cultural wellbeing for a better living livelihood. It also concurs with Christenson, (2005) that the common objective of community participation is to bring people together to develop some awareness and feeling for the need to work together at solving their common problems.

Challenges Faced in Community Participation

Respondents were requested to indicate other challenges faced with community during program performance. It is a challenge to ensure that the community is represented. Not all members can engage in programs to the same degree, and many interventions actively involve only a small number of people (although the whole community is expected to benefit). Ensuring equity is a major challenge when dealing with community participation. Communities are diverse, and particular care needs to be taken to ensure that the less powerful voices and groups are engaged and not marginalized. Community engagement can be time consuming, create potential conflict, lead to directional shifts, and promise high expectations.

Ways of Improving Community Participation

Respondents were requested to give their suggestions on ways of addressing those challenges experienced. For participants to be representative of the wider community it is necessary either that they are elected, or that they identify with it and have its interests at heart. To ensure equity, it is important that projects managers include people of diverse backgrounds, people with disabilities, youth, people from non-English-speaking backgrounds and Indigenous people. Before starting a project, it is important to establish the views of the community. This is through summing the separate opinions of individual community members (e.g., via surveys) or by seeking to establish the collective views of community members (e.g., by focus groups or community forums). There is much greater likelihood of obtaining a good understanding of the collective views of community members if they already meet regularly and have an opportunity to share experiences and develop emergent opinions about what they need. The challenges that come with community participation can be overcome through the development of a comprehensive public engagement plan.

Performance

Respondents gave the level to which they agree or disagreed with statements about performance of affordable housing program in Kenya. Table 3 presents the findings obtained.

Table 3: Descriptive Statistics on Performance of Affordable Housing Program

Description	Mean	Std. Dev.
There is always a higher percentage in achieving the project milestones	4.021	1.265
Project is well scheduled within specified time, cost and quality.	3.988	1.182
Before the beginning of any project, all stakeholders must agree on project deliverables	3.902	1.235
There is proper monitoring and evaluation on projects deliverables and performance	3.902	1.235
Projects implemented are normally done within the planned scope	3.896	1.21
Projects delivered normally satisfy our stakeholders expectations	3.81	1.142
There is earned value for money on projects implemented.	3.738	1.168
Aggregate Score	**3.894**	**1.205**

The aggregate score was 3.894 as shown in Table 3; this was an indication that on average, the respondents agreed with various statements regarding performance of affordable housing

program in Kenya. Specifically, the findings showed that respondents agreed that there is always a higher percentage in achieving the project milestones (M=4.021, SD=1.265); project is well scheduled within specified time, cost and quality (M=3.988, SD=1.182); and that before the beginning of any project, all stakeholders must agree on project deliverables (M=3.902, SD=1.235). The findings further showed that respondents agreed that there is proper monitoring and evaluation on projects deliverables and performance (M=3.902, SD=1.235); projects implemented are normally done within the planned scope (M=3.896, SD=1.21); projects delivered normally satisfy their stakeholders expectations (M=3.81, SD=1.142); and that there is earned value for money on projects implemented (M=3.738, SD=1.168).

The findings concur with Rugenyi (2015) who explained that a project may be completed on time, budget and meet all pre-established requirements, but fail to meet the expectations of key stakeholders such as the customer. Stakeholders' satisfaction is therefore an important measure of project success in the building construction industry. It also agrees with Osedo (2017) (2015) that projects managers have the responsibility of ensuring that key stakeholders are involved at every step of the project so as they can clarify their expectation on continual basis.

Challenges Faced in Program Performance

Respondents were requested to indicate the challenges they faced with reference to program performance. Lack of adequate skills for the project can affect project performance. A project sometimes requires skills that the project's contributors do not possess. Lack of accountability is a major challenge in project performance. Lack of accountability can bring a project to a complete halt. Improper risk management and ambiguous contingency plans affect project implementation and success. If contingencies are not identified, the entire project can become mired in an unexpected set of problems. Resource deprivation can also affect projects. In order for a project to be run efficiently and effectively, management must provide sufficient resources.

Ways of Improving Program Performance

Respondents were requested to give their suggestions on ways of improving program performance. Project management training can help a project leader determine the needed competencies, assess the available workers and recommend training, outsourcing or hiring additional staff. Learning to direct teams toward a common goal is an important aspect of project management training. This will help in avoiding finger-pointing and blame. Learning to deal with and plan for risk is another important piece of project management training. To deal with ambiguous contingency plans it is important for project managers to know what direction to take in pre-defined "what-if" scenarios. Asking others to identify potential problem areas can lead to a smooth and successful project.

Correlation Analysis

The study computed correlation analysis to establish the link between dependent and the independent variables. The findings were as presented in Table 4.

Table 4: Correlation

		Performance	Scope Management
Performance	Pearson Correlation	1	
	Sig. (2-Tailed)		
	N	372	
Scope Management	Pearson Correlation	.669[**]	1
	Sig. (2-Tailed)	.000	
	N	372	372

The findings in Table 4 shows that scope management and performance have a strong positive and significant relationship (r=0.669, p=0.00). The relationship was significant since the p-value was less than the selected level of significance. These findings suggest that the independent variables (scope management) have a strong relationship with performance of affordable housing program in Kenya. The study therefore computed regression analysis to further understand the relationship nature between these variables.

Diagnostic Tests

Multicollinearity

In this study, tolerance was applied in testing multicollinearity. The tolerance provides measures of the effect caused by a single independent variable on other independent variables. Tolerance is; $T = 1 - R^2$. If the value of T is less than 0.01 then it is certain that multicollinearity is present.

Table 5: Multicollinearity Test Statistics

Model	Collinearity Statistics	
	Tolerance	VIF
Scope Management	.726	1.378
Performance	.634	1.578

From the findings presented in Table 5, the VIF values for all the variables was less than 5, a clear indication that there was weak multicollinearity between the study variables. The variables were found to lack high correlations among themselves; therefore, multiple regression analysis can be conducted.

Autocorrelation Test

Autocorrelation was checked using Durbin-Watson test. The null hypothesis for the Durbin-Watson's d tests is that the residuals aren't linearly auto correlated. The d value ranges from 0 to 4, if the value is found to be less or equal to 2 then it implies absence of autocorrelation. If the d values is; 1.5 < d < 2.5 it implies absence of autocorrelation in the data. Durbin-Watson test was used to analyze linear autocorrelation for only direct neighbors being the effects of first order.

Table 6: Durbin-Watson Autocorrelation Test

Model	Std. Error of the Estimate	Durbin-Watson
1	1.29748	1.990

Findings presented in Table 6 show that the d-value was 1.990; since the value lies within the range 1.5 < d < 2.5, then we conclude that there was acceptable autocorrelation in the data and therefore regression analysis can be computed.

Heteroscedasticity

This study used VIF to ascertain heteroscedasticity. Skewness and kurtosis were used to examine the normality of the variables. Breuch-pagan / cook-weisberg test was used to test for Heteroscedasticity. The null hypothesis for this test is that the variances of error terms are equal (Vinod, 2008). If "Prob > Chi-squared" is greater than 0.05 it suggests existence of homoscedasticity (Park, 2008).

Table 7: Breusch-Pagan / Cook-Weisberg test for Heteroscedasticity

Ho: Constant variance			
Statistics	Df	Stat value	p-value
Chi-squared	1	1.3457	0.3241

The findings presented in 7 shows Chi2 = 1.3457 has p-value P (0. 3241) greater than 0.05. This suggests insignificance and therefore we accept the null hypothesis that the error terms are equal and therefore homoscedasticity is assumed which means the data has met the heteroscedasticity assumption for multiple regression analysis.

Normality Assumption

This study used Shapiro Wilk test to determine if the variables follow a normal distribution (Cooper & Schindler, 2006). The null-hypothesis for Shapiro Wilk test is that the population follows a normal distribution. Therefore, if the p-value is less than the selected alpha (0.05), we reject the null hypothesis and the alternative accepted that the data is not normally distributed.

Table 8: Tests of Normality

	Shapiro-Wilk			
	Statistic	**df**	**Sig.**	**Test**
Performance	.579	371	.127	Normal
Scope Management	.968	371	.607	Normal

From the findings in Table 8, the results of the analysis show that performance had p-value=0.127>0.05; scope management had p-value=0.607>0.05. Since the p-values are greater than 0.05 we fail to reject the null hypothesis and conclude that all the variables were normally distributed and hence the data meets the regression analysis assumption of normality of data.

Regression Analysis

Regression analysis is used to determine the influence of the independent variable n the dependent variable. The study computed simple regression analysis to test the study hypothesis. For $p < 0.05$, H_0 will be rejected; and H_A accepted.

Influence of Project Scope Management on Performance of Affordable Housing Program

A univariate analysis was conducted to investigate the influence of project scope management on performance of affordable housing program in Kenya. The null hypothesis stated:

H_{01}: Project scope management does not significantly influence performance of affordable housing program in Kenya.

Table 9: Model Summary for Project Scope Management and Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.669[a]	.448	.443	.26099
a. Predictors: (Constant), Scope Management				

Adjusted R^2 shows the variation in the dependent variable due to changes in the independent variable. Table 9 shows that adjusted R squared was 0.443; this is an indication that at 95% confidence interval, there was variation of 44.3% in performance of affordable housing program in Kenya. This implies that 63.7% of the performance of affordable housing program in Kenya is accounted for by other factors not considered in the model.

Table 10: Analysis of Variance for Project Scope Management and Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	0.637	1	0.637	9.362	.000[b]
1	Residual	25.16	370	0.068		
	Total	25.797	371			

a. Dependent Variable: performance
b. Predictors: (Constant), Scope Management

From the analysis of variance (ANOVA), the study found out that the regression model was significant at 0.000 which is less than the selected level of significance (0.05). Therefore, the data was ideal for making a conclusion on the population parameters. The F calculated value was greater than the critical value (9.362>3.867), an indication that project scope management significantly influences performance of affordable housing program in Kenya. The significance value was less than 0.05 indicating that the model was significant.

Table 11: Coefficients for Project Scope Management and Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.988	.219		9.062	.000
	Scope Management	.486	.058	.451	8.328	.000

a. Dependent Variable: performance

The regression equation was:

$$Y = 1.988 + 0.486 \ X_1$$

The above regression equation revealed that holding scope management to a constant zero, performance will be at a constant value of 1.988. The findings also show that scope management is statistically significant in explaining performance ($\beta = 0.486$, P = 0.000). This indicates that scope management positively and significantly relates with performance of affordable housing program in Kenya. The findings also suggest that a unit increase in project scope management would lead to an increase in performance of affordable housing program in Kenya by 0.486 units. The relationship is statistically significant as the p-value (0.000) was less than the significance level (0.05). Therefore, we can reject the null hypothesis that "Project scope management does not significantly influence performance of affordable housing program in Kenya".

Moderating Influence of Community Participation on the Relationship between Project Management Triple Constraints and Performance

Moderation happens when the relationship between the dependent variable and the independent variables is dependent on a third variable (moderating variable). The effect that this variable has is termed as interaction as it affects the direction or strength of the relationship between the dependent and independent variable.

A stepwise regression analysis was conducted to examine the moderating effect of community participation on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

The null hypothesis stated:

H₀₅: Community participation has no moderating influence on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

Table 12: Model Summary for Community Participation, Project Management Triple Constraints and Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.873[a]	.762	.754	.08185
2	.894[b]	.799	.787	.12613

The R squared for the relationship between project management triple constraints and performance of affordable housing program in Kenya was 0.754, which implied that 75.4% of the performance of affordable housing program in Kenya can be explained by scope management, time management, cost management and project quality management. However, in the second model, in Table 12, the r-squared was 0.784. This implies that the introduction of community participation in the second model led to an increase in r-squared, showing that community participation moderates the relationship between project management triple constraints and performance of affordable housing program in Kenya.

Table 13: ANOVA for Community Participation, Project Management Triple Constraints and Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	1.796	4	0.449	26.423	.000[b]
1	Residual	6.239	367	0.017		
	Total	8.035	371			
	Regression	4.568	8	0.571	35.705	.000[c]
2	Residual	5.808	363	0.016		
	Total	10.376	371			

a. Dependent Variable: Performance

From the findings, the F-calculated for the first model, as shown in Table 13 was 26.423 and for the second model was 35.705. Since the F-calculated for the two models were more than the F-critical, 2.396 (first model) and 1.964 (second model), the two models were good fit for the data and hence they could be used in predicting the moderating effect of community participation on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

Table 14: Coefficients for Community Participation, Project Management Triple Constraints and Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.484	.153		9.699	.000
Scope Management	.245	.075	.256	3.242	.001
2 Scope Management*Community Participation	0.308	0.066	0.226	4.667	.002
a. Dependent Variable: Performance					

From the coefficients table, the following regression model was fitted:

From the findings, it can also be seen that scope management*community participation has a positive influence on performance of affordable housing program in Kenya ($\beta = 0.308$). The influence was significant since the p-value obtained ($P = 0.002$) was less than the selected level of significance (0.05). Therefore, introduction of community participation as moderating variable for project scope management explains 0.308 units of performance compared to 0.245 explained when the variable is not moderated (model 1). Therefore, community participation has a positive influence on the relationship between project scope management and performance of affordable housing program in Kenya. Therefore, we reject the null hypothesis that: *Community participation has no moderating influence on the relationship between project scope management and performance of affordable housing program in Kenya.*

Conclusions

The first objective of the study was to investigate the influence of project scope management on performance of affordable housing program in Kenya. The study found that scope management is statistically significant in explaining performance. This indicates that scope management positively and significantly relates with performance of affordable housing program in Kenya. The findings also suggest that a unit increase in project scope management would lead to an increase in performance of affordable housing program in Kenya. Based on the findings, the study concludes that project scope management significantly influences performance of affordable housing program in Kenya.

The final objective of the study was to examine the moderating effect of community participation on the relationship between project management triple constraints and performance of affordable housing program in Kenya. The study also found that community participation has a positive influence on the relationship between project scope management and performance of affordable housing program in Kenya. Based on these findings, the study concludes that community participation has moderating influence on the relationship between project scope management and performance of affordable housing program in Kenya

Recommendations

The project scope can be improved by setting clear goals and objectives. The goals should have the proposed idea and then define the objectives that will guide the achievement of the set goal. The challenge of unrealistic deadlines can be resolved be having an open communication with the clients to determine whether there are other factors that drive the project deadline. Also, through the adoption of impeccable planning, alternative analysis and proper communication on projects real-time progress to project participants, project managers can deal with project

deadlines. To deal with the challenge of changing scope, project managers should develop a clear schedule, determine project goals, ensure everyone is in the same page, make realistic assumptions regarding availability of resources, and deadlines to achieve quality results

For participants to be representative of the wider community it is necessary either that they are elected, or that they identify with it and have its interests at heart. To ensure equity, it is important that projects managers include people of diverse backgrounds, people with disabilities, youth, people from Indigenous groups. Before starting a project, it is important to establish the views of the community. This is through summing the separate opinions of individual community members (e.g., via surveys) or by seeking to establish the collective views of community members (e.g., by focus groups or community forums). Generally, the challenges that come with community participation can be overcome through the development of a comprehensive public engagement plan.

Suggestions for Further Studies

The study explained 75.4% variation in performance of affordable housing program in Kenya; the study recommends a study to be conducted on other factors that can influence performance such as project control and project motivation. The study focused on housing projects; this study can be replicated in other government projects such as dams and stadium construction. A study can also be conducted incorporating the use of secondary data where financial records on project performance can be used.

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