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MONITORING TOOLS AND PERFORMANCE OF AFFORDABLE HOUSING PROJECTS IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

Affordable housing projects in Kenya play a crucial role in supporting economic development, trade, and social integration. However, these projects often face significant challenges, leading to delays, cost overruns, and compromised quality. The main focus of this study was to examine the influence of monitoring tools on performance of affordable housing projects in Nairobi City County, Kenya. Specifically, the study sought to determine the effect of logical framework on performance of affordable housing projects in Nairobi City County, Kenya and to find out the effect of result framework on performance of affordable housing projects in Nairobi City County, Kenya. The theories that were used in this study are realistic evaluation theory, and implementation theory. This study adopted a cross-sectional research design. The unit of analysis in this study was 105 interventions under the implementation of Nairobi City County (2024). The unit of observation, on the other hand, comprised of 85 members of county assembly, 170 members of the public (two members from each ward office), 17 project officers and 7 M&E officers. The total target population was therefore be 279 respondents. Due to small target population census method was adopted. This implies that all the respondents participated in the study. This research utilized a questionnaire as the primary data collection instrument. In this study pretesting involved 28 respondents (10% of the sample size). SPSS version 26 was used to analyze the data that was collected from the field. Quantitative data collected was analyzed using descriptive statistics techniques. Qualitative data was analyzed using content analysis and presented in prose form. The inferential analysis was used where correlation and regressions were used in the data analysis. The findings were presented in tables and figures. The correlation analysis revealed a strong positive correlation between project performance of affordable housing projects in Nairobi City County and each of the monitoring tools, logical framework ($r = 0.725$, $p < 0.05$), and result framework ($r = 0.630$, $p < 0.05$). These significant correlations indicate that as the effectiveness of each monitoring tool increases, so does the performance of affordable housing projects. The study's regression analysis revealed significant coefficient findings for each variable. Logical Framework demonstrated the highest positive coefficient ($\beta = 0.421$, $p < 0.05$), emphasizing its critical role in influencing project performance. Similarly, Result Framework exhibited a significant positive coefficient ($\beta = 0.313$, $p = 0.001$), indicating its substantial influence on project performance. To optimize project outcomes, it is recommended to prioritize the implementation of comprehensive baseline surveys, enhance performance review mechanisms, strengthen logical and result frameworks, and ensure their effective integration into project management practices. These findings underscore the importance of strategic planning, monitoring, and evaluation processes in enhancing the performance of affordable housing projects in Nairobi City County, Kenya.

Key words: logical framework, result framework, performance, affordable housing projects

Background of the Study

Affordable housing projects are essential initiatives aimed at providing affordable and decent housing options for individuals and families with low to moderate incomes. These projects address the increasing challenge of housing affordability in many urban areas around the world (Smith et al., 2018). Many affordable housing projects are often initiated or supported by governments at various levels. Governments may provide subsidies, tax incentives, or allocate public land to encourage the development of affordable housing (OECD, 2019). Collaboration between the public and private sectors is common in affordable housing projects. Private developers may work with government entities to create cost-effective housing solutions while still maintaining quality (United Nations, 2020). To reduce construction costs, some affordable housing projects explore innovative design and construction techniques. Prefabrication, modular construction, and sustainable building practices can help lower overall project expenses.

However, affordable housing projects often grapple with the challenge of cost overrun due to various factors. Unforeseen construction costs constitute a primary concern, as fluctuations in material prices, unexpected labor shortages, and unanticipated site conditions can lead to increased expenses (Flyvbjerg et al., 2017). Regulatory compliance poses another obstacle, as meeting stringent building codes and regulations may necessitate modifications or upgrades during construction, adding to project costs. Failure to anticipate and incorporate these compliance-related expenses in the initial budget can result in significant cost overruns (World Economic Forum, 2019). Time overrun is a critical challenge in affordable housing initiatives, often stemming from delays in obtaining necessary permits and approvals. Complex regulatory processes and bureaucratic hurdles can significantly extend the project timeline, affecting its overall efficiency and timely completion. Design changes, whether prompted by community feedback, regulatory requirements, or unforeseen challenges, can also disrupt the construction schedule, leading to time overruns (Liu *et al.,* 2018).

In the quest for seamless affordable housing construction, effective monitoring and performance assessment emerge as paramount imperatives. Monitoring tools furnish invaluable insights into project advancement, resource allocation, and adherence to schedules. Real-time data equips project leaders and stakeholders with the intelligence needed to make informed choices, foresee potential complications, and address emerging challenges proactively.

Yet, despite the critical role monitoring tools play, their full potential often remains untapped within the construction sector. Inadequate monitoring can result in belated detection of project deviations, financial overruns, and compromised quality, ultimately impeding the successful completion of road construction initiatives. This deficiency in robust monitoring practices further perpetuates project failures and delays, even in the face of substantial investments (Flyvbjerg et al., 2017).

Evidently, the magnitude of the economic burden stemming from inadequate infrastructure, encompassing subpar roads, necessitates an urgent transformation of monitoring practices (World Economic Forum, 2019). Ignoring effective monitoring tools and performance tracking during the planning stage frequently culminates in unanticipated challenges during project execution, effectively stifling progress (Che et al., 2020). Compounding this, a scarcity of sturdy monitoring methodologies and contingency frameworks exacerbates potential issues (Liu et al., 2018).

Given this backdrop, the principal aim of this study is to investigate the use of monitoring tools and their impact on the performance of affordable housing projects. By identifying effective monitoring practices and analyzing their role in successful projects, stakeholders can enhance project planning, resource management, and overall project performance. The study aims to provide valuable insights that can guide decision-makers in adopting proactive monitoring

strategies, leading to more efficient construction projects and ultimately contributing to economic growth and societal development.

In Europe, countries like Germany have utilized advanced monitoring technologies during the construction of affordable housing projects. These monitoring tools facilitated accurate data collection on soil conditions, settlement rates, and construction quality. Consequently, the project's stakeholders could proactively manage potential risks, leading to cost savings and timely project delivery (Rondorf et al., 2016). Similarly, in Asia, the Singaporean government has incorporated Building Information Modeling (BIM) and other monitoring tools into its construction projects. These technologies have provided real-time visualization and data sharing among project stakeholders, enhancing collaboration, reducing conflicts, and streamlining decision-making processes (Ministry of National Development Singapore, 2019).

In affordable housing projects across various countries in Africa, the adoption and effective utilization of monitoring tools have emerged as crucial factors in improving project performance and achieving successful outcomes. By harnessing the power of advanced technologies, project stakeholders can enhance decision-making, identify potential challenges, and streamline project execution to ensure timely and cost-effective infrastructure development. In Nigeria, despite multiple schemes implemented by various governments around the country, affordable housing remains elusive to the average Nigerian. Because the situation is comparable to that of other developing nations, it remains a key concern in these countries' socioeconomic development. Over 52% of Nigeria's population has been claimed to live in shanties, squatter communities, and informal settlements (Adedeji, Deveci, & Salman, 2023). Such monitoring tools have enabled authorities to proactively address encroachment issues, minimizing delays, and promoting project adherence to timelines.

The Affordable Housing Programme (AHP) was launched in 2017, as one of the key pillars of the 'Big Four Agenda'. The initiative targeted to deliver 500,000 affordable homes for Kenyans across all 47 counties by 2022, in five years. However, the target was far from achieved by the end of the 5-year tenure, with an estimated 13,529 units only being delivered with minimal delivery in the social housing category, amounting to less than 3.0% of the intended target. In 2022, President William Ruto, upon assuming office upheld the initiative, integrating it as one of six foundational pillars of his government's agenda, with a goal to achieve an annual delivery of 200,000 housing units, hence one million houses in 5 years. Since his inauguration, the President has initiated several affordable housing projects, which include Shauri Moyo A, Kings Boma Estate, Gichugu, and most recently, the Bahati and Milimani affordable housing projects situated in Nairobi, Kiambu, Nakuru, and Kakamega counties respectively.

In Kenya, the utilization of monitoring tools in housing construction projects has been steadily gaining momentum and proving to be a valuable asset in enhancing project performance and ensuring successful project delivery. With advancements in technology, Kenyan affordable housing projects have embraced various monitoring tools, enabling stakeholders to improve decision-making, mitigate risks, and achieve better project outcomes.

Statement of the Problem

Affordable housing projects in Kenya play a crucial role in supporting economic development, trade, and social integration. However, these projects often face significant challenges, leading to delays, cost overruns, and compromised quality. The inadequate utilization of monitoring tools during project implementation has been identified as one of the major contributors to these challenges. According to the World Bank, Kenya ranks 118th out of 190 countries in the Ease of Doing Business Index, indicating that there are significant challenges in the country's construction sector, including affordable housing development. A report by the Kenya National Bureau of Statistics (KNBS) revealed that the average affordable housing project in Kenya experiences delays of up to 30%, leading to cost overruns and delayed benefits to the public. The KNBS (2019)

report also highlighted that inadequate project monitoring and management practices contribute to 60% of the housing projects not being completed within the planned timeframe. A survey conducted by the Institute of Economic Affairs (IEA) in Kenya indicated that only 20% of housing projects in the country utilize advanced monitoring tools, with the majority relying on traditional methods, leading to inefficiencies and potential risks. According to Cytonn report (2023), home ownership in Kenya remains low compared to other African countries, at 22.0% in urban areas as at 2022, compared to other African countries such as South Africa and Ghana with 69.7% and 52.0% urban home ownership rates, respectively. This underscores the urgent need to prioritize investment in affordable housing, with the aim of addressing the housing deficit and promoting homeownership, particularly among low-income individuals in the country.

Since the advent of devolution, Nairobi County initiated many affordable housing projects. However, many projects have failed to achieve success. For instance, there are more than 200 affordable housing projects drawn in the County that have been undertaken since 2013 (CSK, 2017) and 68% of those projects have experienced project failure despite adoption of project risk management strategies (KPMG, 2017). According to World Bank (2017), 60% of the county respondents complained that the projects from the county failed to satisfy their needs with 35% indicating the infrastructure service delivered to them failed to achieve the intended objective. ADB (2017) also indicated that almost 52% of these development projects registered loss.

Several empirical studies have been conducted on project management and construction projects in Kenya (Smith et al., 2018; Johnson and Omondi, 2020). However, these studies have not comprehensively focused on the utilization of monitoring tools and their impact on project performance (Karanja, 2019; Kimani and Mwangi, 2021). Existing studies often emphasize general challenges in the construction sector, but fail to delve into the specific issues related to monitoring practices (Ouma et al., 2017; Mutiso, 2019). Furthermore, most studies do not provide detailed insights into the barriers hindering the widespread adoption of monitoring tools in affordable housing projects in Kenya (Muthama and Ng'ang'a, 2022; Waweru and Nyaga, 2023). This study sought to address these gaps by conducting a comprehensive and in-depth analysis of the utilization of monitoring tools in affordable housing projects in Nairobi city county, Kenya.

General Objective

The main focus of this study was to examine the influence of monitoring tools on performance of affordable housing projects in Nairobi City County, Kenya.

Specific Objectives

This study was guided by the following specific objectives;

i. To determine the effect of logical framework on performance of affordable housing projects in Nairobi City County, Kenya.
ii. To find out the effect of result framework on performance of affordable housing projects in Nairobi City County, Kenya.

Theoretical Review

The theoretical review section examines the different theories that guide the research. The theories that were used in this study were realistic evaluation theory, and implementation theory.

Realistic Evaluation Theory

The Realistic Evaluation Theory, introduced by Pawson in 1997, offers a comprehensive framework for understanding and explaining the outcomes of interventions, particularly in the context of projects. This theory is particularly relevant to the variable of "Logical Framework" in the study on the utilization of monitoring tools and performance of affordable housing projects.

Central to the Realistic Evaluation Theory is the pursuit of understanding not only what works, but also for whom, under what circumstances, and in what specific respects (Pawson and Tilley, 2004). In the case of the "Logical Framework," which is a structured methodology for defining project components and their relationships, the Realistic Evaluation Theory provides evaluators with a model to identify the precise components of an intervention that contribute to its effectiveness or ineffectiveness. It sheds light on the essential contexts that enable the replication of the intervention in different settings, offering a deeper understanding of how the logical framework interacts with the project's environment.

In the context of this study on monitoring tools and construction projects in Nairobi County, the Realistic Evaluation Theory holds relevance as it can help researchers discern the nuanced factors that influence the impact of monitoring tools on project performance within the logical framework. By utilizing this theory, the study aims to uncover not only what works and why but also how monitoring tools interact with the logical framework's components and contextual factors to yield desired project outcomes. This understanding will contribute to a more holistic and nuanced assessment of the influence of monitoring tools on construction projects, enabling stakeholders to make informed decisions and enhance project planning and execution strategies within the logical framework.

Implementation Theory

Implementation Theory, which focuses on the process of putting strategies and actions into practice, offers valuable insights when linked with the concept of Result Framework within construction projects. Introduced by Pressman and Wildavsky in the 1970s, Implementation Theory examines how policies and programs are executed, the challenges faced, and the factors that influence successful implementation (Pressman & Wildavsky, 1973). When applied to the Result Framework, Implementation Theory sheds light on how the planned outcomes and objectives are translated into tangible results on the ground. In the context of construction projects, the Result Framework outlines the desired outcomes and performance targets that the project aims to achieve. It serves as a blueprint for project implementation, guiding decisions and actions throughout the project lifecycle (United Nations, 2019). Linking Implementation Theory to the Result Framework, it becomes evident that the successful realization of planned results depends on effective implementation strategies.

Therefore, Implementation Theory offers valuable insights into how the Result Framework can be effectively translated into tangible outcomes within affordable housing projects. By emphasizing communication, stakeholder engagement, adaptability, and monitoring, this theory provides a framework for successful execution of planned results. When applied to the Result Framework, Implementation Theory guides project teams in navigating the complexities of implementation, ensuring that affordable housing projects achieve their intended outcomes and contribute to sustainable infrastructure development.

Conceptual Framework

In examining the influence of monitoring tools on performance of affordable housing projects in Nairobi County, Kenya, the study will use logical framework and result framework as independent variables and project performance as dependent variable.

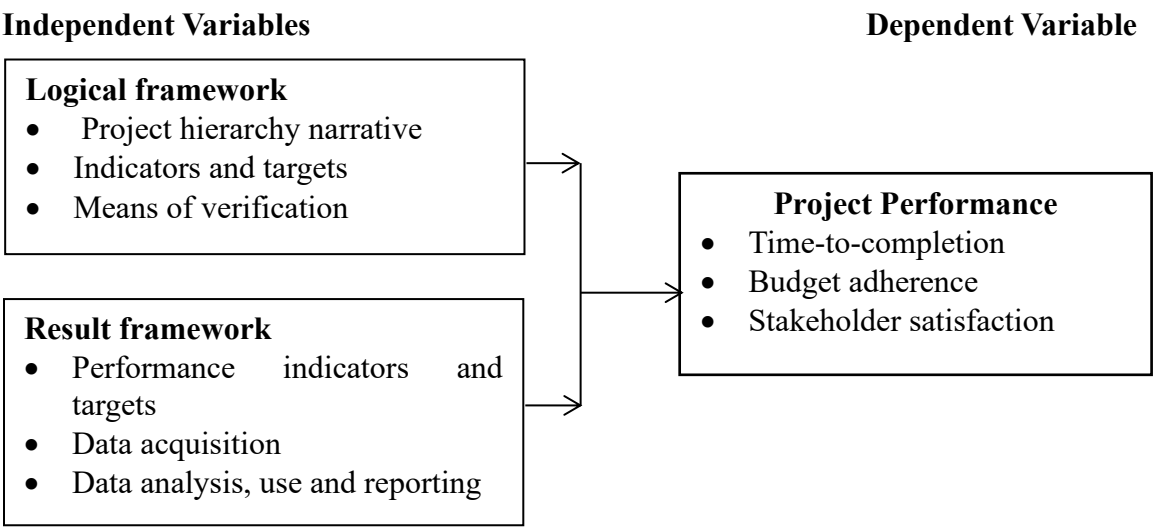

Figure 2.1: Conceptual Framework
Source*:* Researcher (2023)

The logical framework approach is a planning and management tool that was originally developed and applied in science by NASA and the private sector under management by objectives for complex projects. It gained wide acceptance in the 1970s, especially after being adopted by USAID for its overseas development programs. The emergence of the logical framework approach was a response to systematic issues in development projects at the time, including vague project planning, unclear management responsibility, and antagonistic evaluation processes (OECD, 2018).

The results framework is becoming increasingly important as there is a paradigm shift towards a result-oriented approach in development projects. Stakeholders are demanding a clearer articulation of the intended results (outputs, outcomes, and impacts) of programs to demonstrate their impact. The results framework, emphasizes performance-based management and aims to link programs to strategic development objectives and intermediate outcomes (USAID, 2018). A well-designed results framework serves as a key tool in the development field, enabling practitioners to clarify program causal pathways and link interventions to intended outcomes. It is an iterative process that engages stakeholders in developing a theory of change that supports the program. This evidence-based approach enhances monitoring and evaluation, ensuring program effectiveness and accountability (Sander, 2017).

Project performance refers to the evaluation of a project's success in achieving its intended objectives and delivering the desired outcomes within the specified constraints, such as time, budget, and quality (Upagade et al, 2018). It is a critical aspect of project management, as it provides insights into the effectiveness and efficiency of project execution. Project performance assessment involves measuring the progress, outcomes, and impact of the project, as well as identifying areas for improvement and learning from project experiences. According to Kerzner (2019), project performance is evaluated based on three key dimensions: time, cost, and scope. These dimensions are often referred to as the "triple constraints" of project management. A project is considered successful if it is completed within the planned timeframe, budget, and scope. However, achieving success in these areas alone may not necessarily indicate overall project success, as the quality of deliverables and the satisfaction of stakeholders are equally important.

RESEARCH METHODOLOGY

This study adopted a cross-sectional research design since it uses theories and hypothesis to account for the forces that causes a certain phenomenon to occur (Cooper & Schindler, 2017). The design is also appropriate for the study as it allows the survey to be carried out in the natural settings and permits the study to employ probability samples. This enhances statistical inferences

to be made to the broader populations and permit generalizations of findings to real life situations, thereby increasing the external validity of the study (Frankfort-Nachmias & Nachmias, 2018).

This study targeted affordable housing projects being implemented in Nairobi County. The unit of analysis in this study was 105 interventions under the implementation of Nairobi City County (2024). The unit of observation, on the other hand, comprised of 85 members of county assembly, 170 members of the public (two members from each ward office), 17 project officers and 7 M&E officers. The total target population was therefore 279 respondents.

Table 1: Target Population

Target population category	Target population
Members Of County Assembly	85
Members Of The Public	170
project officers	17
M&E officers	7
Total	**279**

Due to the small size of selected target population, the study used census sampling approach. According to Ngechu (2018), an appropriate sampling technique for a small sample size is census because it allows representation of the population. Therefore, no sampling was needed, the total sample size for the study was 279 respondents.

This research utilized a questionnaire as the primary data collection instrument. The semi-structured questionnaire used in this study included both open-ended and closed-ended questions. The study used the drop and pick later technique where respondents were allowed two weeks to fill in the questionnaires.

A pilot test was conducted to test the reliability and validity of the data collection instruments. Data reliability which is a measure of internal consistency and average correlation was measured using Cronbach's alpha coefficient which ranges between 0 and 1. Higher alpha coefficient values mean there is consistency among the items in measuring the concept of interest. A Cronbach's alpha (α) of more than 0.7 is considered acceptable while a Cronbach's alpha (α) of less than 0.7 is considered questionable. In this study, the content validity was improved by seeking the opinions of experts in the field of study, particularly the supervisors. Also, the face validity of the research instrument was improved by carrying out a pilot test and changing any unclear and ambiguous questions.

Quantitative data collected was analyzed using descriptive statistics techniques. Qualitative data was analyzed using content analysis and presented in prose form. The inferential analysis were used where correlation and regressions were used in the data analysis. Pearson R correlation was used to measure strength and the direction of linear relationship between variables. If the Multiple regression models were fitted to the data in order to determine how the independent variables affect the dependent variable. The research model that guided this study was:

$Y= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$

Y is the dependent variable (Project Performance)

X_1 is Logical framework

X_2 is Result framework

β_0 β_1 β_2 are regression coefficients to be estimated

β_0 is regression constant;

The findings were presented in tables and figures.

RESEARCH FINDINGS AND DISCUSSION

Pilot Test Results

The pilot was conducted with 32 individuals which represent 10% of the total study sample size.

Data reliability which is a measure of internal consistency and average correlation was measured using Cronbach's alpha coefficient which ranges between 0 and 1. Reliability results were as presented in Table 2 below.

Table 2: Summary of Reliability Statistics

Variable	Cronbach's Alpha	Interpretation
Logical framework	.821	Reliable
Result framework	.753	Reliable
Project Performance	.801	Reliable

Cronbach's alpha coefficients were calculated for each monitoring tool as follows: Logical Framework (0.821), Result Framework (0.753), and Project Performance (0.801). These findings align with the assertions made by Kultar (2007), who indicated that a Cronbach's alpha (α) exceeding 0.7 is considered acceptable, while a value below 0.7 is regarded as questionable.

Construct validity was determined by considering the relationship of the measure under evaluation with related variables that are related to the construct being quantified by the research tool. Construct validity was measured using Average Variable Extract though a confirmatory factor analysis. The recommended threshold or a valid measure is an AVE of 0.500. Construct validity results are presented in Table 3.

Table 3: Construct Validity Results

Variables	Variance Extracted
Logical framework	0.522
Result framework	0.537
Project Performance	0.513

The results demonstrate the Average Variance Extracted (AVE) for each variable. Baseline Survey yielded an AVE of 0.528, Performance Reviews 0.579, Logical Framework 0.522, Result Framework 0.537, and Project Performance 0.513. These findings indicate that the indicators of both the independent and dependent variables are deemed valid as they surpass the recommended threshold of an AVE of 0.5.

Response Rate

The study selected a sample of 279 respondents comprising of members of county assembly, members of the public, project officers and M&E officers. 28 of the respondents participated in the pilot study and were therefore excluded in the final study. Therefore, the study issued 251 questionnaires out of which 236 were completed and returned having been dully filled, representing a response rate of 94%. As indicated by Metsamuuronen (2017), a response rate that is above 50% is considered adequate for data analysis and reporting.

Descriptive Data Analysis

Logical Framework

The first objective of the study was to determine the effect of logical framework on performance of affordable housing projects in Nairobi City County, Kenya. Respondents were requested to indicate the extent to which you agree or disagree with statements on the effect of logical framework on performance of affordable housing projects in Nairobi City County, Kenya. Table 4 presents summary of the findings obtained.

Table 4: Descriptive Analysis for Logical Framework

Statement	Mean	Std. Dev.
Means of verification clearly helps track changes	3.759	0.728
The project hierarchy narrative addresses the needs of the target group	3.708	0.693
The indicators describe how the achievement of the results will be measured	3.686	0.890
Logical framework influences project performance	3.681	0.722
The assumptions help clarify the risks	3.672	0.664
The baseline helps track changes	3.640	0.714
Aggregate Score	**3.691**	**0.735**

The findings show that respondents were in agreement that means of verification clearly helps track changes (M= 3.759, SD= 0.728); that the project hierarchy narrative addresses the needs of the target group (M= 3.708, SD= 0.693); and that the indicators describe how the achievement of the results will be measured (M= 3.686, SD= 0.890). They also agreed that logical framework influences project performance (M= 3.681, SD= 0.722); that the assumptions help clarify the risks (M= 3.672, SD= 0.664); and that the baseline helps track changes (M= 3.640, SD= 0.714).

The findings supported by an aggregate mean of 3.691 (SD= 0.735) show that on average, the respondents agreed that logical framework affects performance of affordable housing projects in Nairobi City County, Kenya. The finding, is reinforced by literature such as Colemann (2017) who provides insights into the use of the logical framework approach in monitoring and evaluating agricultural and rural development projects. Their study highlights the importance of stakeholder involvement, clear communication, and effective project design in ensuring the success of logical frameworks. Additionally, Akroyd (2019) focuses on the application of logical frameworks in project planning and socioeconomic analysis, emphasizing the need for comprehensive baseline studies and stakeholder engagement to inform project objectives and indicators. The literature underscores the significance of logical frameworks in guiding project planning, monitoring, and evaluation processes, thereby facilitating effective decision-making and project implementation.

Result Framework

The second objective of the study was to find out the effect of result framework on performance of affordable housing projects in Nairobi City County, Kenya. Respondents were requested to indicate the extent to which they agree or disagree with statements on the effect of result framework on performance of affordable housing projects in Nairobi City County, Kenya. Table 5 presents summary of the findings obtained.

Table 5: Descriptive Analysis for Result Framework

Statement	Mean	Std. Dev.
The baseline helps track changes	3.827	0.663
The indicator is clear to the project key stakeholders	3.777	0.59
Data acquisition helps track changes	3.752	0.869
Result chain respond to the needs of the target group	3.735	0.619
Result framework influences projects performance	3.681	0.633
Utilization of monitoring and evaluation information improves progress	3.614	0.832
Aggregate Score	**3.754**	**0.675**

On result framework, respondents agreed on average that the baseline helps track changes (M= 3.827, SD= 0.663); that the indicator is clear to the project key stakeholders (M= 3.777, SD= 0.59); and that data acquisition helps track changes (M= 3.752, SD= 0.869). They also agreed that result chain respond to the needs of the target group (M= 3.735, SD= 0.619); that result framework influences projects performance (M= 3.681, SD= 0.633); and that utilization of monitoring and evaluation information improves progress (M= 3.614, SD= 0.832).

The aggregate mean score of 3.754 (SD= 0.675) show that on average, the respondents agreed that result framework affected performance of affordable housing projects in Nairobi City County, Kenya. The finding agrees with Johnson (2018) who conducted a comprehensive examination of the implementation of Results Frameworks in diverse development projects, assessing their effectiveness in enhancing project performance. The study underscored the importance of systematic monitoring and evaluation within Results Frameworks, highlighting how these frameworks contribute to tracking progress, identifying challenges, and making informed decisions. Additionally, Lee (2021) explored the perceptions of various project stakeholders regarding the use of Results Frameworks and their impact on project performance. The research emphasizes the importance of stakeholder engagement and comprehension in driving successful project outcomes within Results Frameworks. These studies align with the current finding indicating that respondents acknowledge the influence of result frameworks on the performance of affordable housing projects. The literature underscores the significance of Results Frameworks in guiding project management, facilitating stakeholder engagement, and ensuring accountability, thereby contributing to improved project performance.

Project Performance

The main focus of the study was to examine the influence of monitoring tools on performance of affordable housing projects in Nairobi City County, Kenya. Respondents were asked to indicate the extent to which they agree or disagree with statements on performance of affordable housing projects in Nairobi City County, Kenya. Table 6 presents summary of findings obtained.

Table 6: Descriptive Analysis for Project Performance

Statement	Mean	Std. Dev.
The project management ensured that the necessary activities are completed promptly.	3.861	0.72
The number of key project milestones is achieved as planned.	3.825	0.602
The affordable housing projects are completed within the planned schedule.	3.777	0.737
Overall, I am satisfied with the performance of affordable housing projects.	1.256	0.717
The quality of the completed project meets or exceeds my expectations.	1.045	0.792
The affordable housing projects are completed within the allocated budget.	1.012	0.619
Aggregate Score	**3.746**	**0.698**

The findings show that respondents agreed on average that the project management ensured that the necessary activities are completed promptly (M= 3.861, SD= 0.72); that the number of key project milestones is achieved as planned (M= 3.825, SD= .602); and that the affordable housing projects are completed within the planned schedule (3.777, SD= 0.737). They also disagreed that overly, they are satisfied with the performance of affordable housing projects (M= 1.256, SD= 0.717); that the quality of the completed project meets or exceeds their expectations (M= 1.045, SD= 0.792); and that the affordable housing projects are completed within the allocated budget (M= 1.012, SD= 0.619). The findings indicating respondents' agreement regarding project management ensuring prompt completion of necessary activities, achievement of key project milestones as planned, and adherence to project schedules are supported by studies like Nalewaik and Mills (2016) who discussed the importance of project governance and accountability in ensuring that project activities are completed promptly and that project milestones are achieved as planned. Their study underscored the role of project reviews and oversight mechanisms in facilitating timely project delivery.

Correlation Analysis

The study computed correlation analysis to test the strength and the direction of the relationship that exists between the monitoring tools and performance of affordable housing projects in Nairobi City County, Kenya. Table 7 presents correlation analysis findings for this study.

Table 7: Correlation Analysis

		Project Performance	Logical framework	Result framework
Performance of affordable housing projects in Nairobi City County	Pearson Correlation	1		
	Sig. (1-tailed)			
	N	236		
Logical framework	Pearson Correlation	.725**	1	
	Sig. (1-tailed)	.000		
	N	236	236	
Result framework	Pearson Correlation	.630**	.234	1
	Sig. (1-tailed)	.000	.098	
	N	236	236	236

The correlation analysis indicates a strong positive correlation between logical framework and project performance ($r = 0.725$, $p < 0.05$). This significant correlation suggests that the clarity and coherence of logical frameworks are closely associated with the performance of affordable housing projects in Nairobi City County. Logical frameworks provide a structured framework for project planning, monitoring, and evaluation, enabling stakeholders to align project objectives, activities, and indicators with desired outcomes. This finding is consistent with literature emphasizing the importance of logical frameworks in guiding project management processes. Colemann (2017) discussed the role of logical frameworks in monitoring and evaluating agricultural and rural development projects, highlighting their effectiveness in promoting stakeholder engagement and project alignment.

The correlation analysis reveals a significant positive correlation between result framework and project performance ($r = 0.630$, $p < 0.05$). This finding indicates that the effectiveness of result frameworks is associated with improved performance of affordable housing projects in Nairobi City County. Result frameworks provide a structured approach to defining project objectives, outcomes, and indicators, facilitating systematic monitoring and evaluation throughout the project lifecycle. This finding aligns with literature emphasizing the importance of result frameworks in driving project success. Johnson (2018) discussed the implementation of result frameworks in diverse development projects, highlighting their role in enhancing project performance through systematic monitoring and evaluation.

Regression Analysis

Multivariate regression analysis was used to assess the relationship between independent variables and the dependent variable.

Model summary was used to determine the amount of variation in dependent variable (performance of affordable housing projects in Nairobi City County, Kenya) as a result of changes in independent variables (result framework, logical framework). Table 8. presents the findings.

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.860[a]	.740	.737	.52363

The coefficient of determination (R Square) is 0.740, suggesting that approximately 74% of the variance in project performance can be accounted for by the combined influence of these predictors. The adjusted R Square, which adjusts for the number of predictors in the model, remains high at 0.737, indicating that the model's explanatory power remains robust even after accounting for the complexity of the predictors. Therefore, the model summary indicates that the combination of result framework, logical framework, serves as effective predictors of project performance in affordable housing projects in Nairobi City County.

The study used analysis of variance to teste the significance of the fitted model. The significance was tested at 5% confidence interval.

Table 9: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	86.628	2	21.657	78.985	.000[b]
	Residual	63.338	233	.274		
	Total	149.966	235			

The regression model yields a significant F-statistic of 78.985 at $p < 0.05$, suggesting that the overall model is statistically significant in predicting project performance. This finding indicates that the combined influence of the predictors has a substantial impact on project performance. Therefore, the ANOVA results support the conclusion that the predictors, including result framework, logical framework, collectively contribute to explaining the variability in the performance of affordable housing projects in Nairobi City County.

Table 10: Beta Coefficients of Study Variables

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.229	.210		1.087	.278
1 Logical framework	.421	.080	.399	5.256	.000
Result framework	.313	.080	.104	3.913	.001

a. Dependent Variable: performance of affordable housing projects in Nairobi City County

Based on the coefficient's findings, the following regression model was fitted:

$Y = 0.229 + 0.421\ X_1 + 0.313\ X_2$

The beta coefficient for Logical framework is 0.421 with a p-value of 0.000, indicating a highly significant positive relationship between Logical framework and the performance of affordable housing projects in Nairobi City County. This suggests that a strong adherence to logical frameworks is associated with higher performance outcomes in housing projects. For every one-unit increase in Logical framework scores, there is a corresponding increase of 0.421 units in project performance, holding other variables constant. This finding is supported by literature such as Colemann (2017) who highlighted the role of logical frameworks in promoting stakeholder engagement and project alignment, while Akroyd (2019) underscored their significance in facilitating project planning and socioeconomic analysis.

The beta coefficient for Result framework is 0.313 with a p-value of 0.001, indicating a significant positive relationship between Result framework and the performance of affordable housing projects in Nairobi City County. This suggests that a strong emphasis on result frameworks is associated with better performance outcomes in housing projects. For every one-unit increase in Result framework scores, there is a corresponding increase of 0.313 units in project performance, holding other variables constant. This finding is consistent with study by Johnson (2018) who discussed the implementation of result frameworks in diverse development projects, emphasizing their role in enhancing project performance through systematic monitoring and evaluation.

Conclusions

The study findings suggest that logical frameworks exert a notable influence on the performance of affordable housing projects in Nairobi City County, Kenya. Respondents' agreement regarding the clarity of means of verification, project hierarchy narrative, and indicators underscores the perceived effectiveness of logical frameworks in guiding project planning and monitoring. This study concludes that logical frameworks significantly contribute to improving the performance of

affordable housing projects by providing a structured approach to project design, implementation, and evaluation.

The study findings indicate that result frameworks play a significant role in shaping the performance of affordable housing projects in Nairobi City County, Kenya. Respondents' agreement regarding the effectiveness of result frameworks in tracking changes, clarifying indicators, and responding to stakeholder needs highlights their perceived value in project management. This study concludes that result frameworks significantly contribute to enhancing the performance of affordable housing projects by facilitating goal-oriented planning, monitoring progress, and promoting accountability.

Recommendations

To leverage the potential of logical frameworks in enhancing the performance of affordable housing projects, stakeholders should prioritize the development of clear, comprehensive, and actionable logical frameworks tailored to the specific needs and context of each project. This involves conducting thorough needs assessments, stakeholder consultations, and risk analyses to inform the design of logical frameworks that accurately reflect project objectives, activities, outputs, outcomes, and indicators. Moreover, stakeholders should ensure ongoing monitoring and evaluation of logical frameworks to track progress, identify bottlenecks, and adjust strategies as needed. Additionally, capacity-building initiatives on logical framework development, implementation, and utilization should be provided to project staff and stakeholders to enhance their understanding and skills in using logical frameworks as management tools. By embedding logical frameworks into project planning and management processes, affordable housing projects can enhance transparency, accountability, and effectiveness in achieving project goals and objectives.

To maximize the impact of result frameworks on the performance of affordable housing projects, stakeholders should focus on developing result frameworks that are outcome-oriented, participatory, and adaptable to changing project contexts. This involves actively engaging project stakeholders in the design and development of result frameworks to ensure alignment with their needs, priorities, and expectations. Moreover, result frameworks should incorporate clear and measurable indicators that reflect project outcomes and contribute to the overall goal of affordable housing provision. Stakeholders should also prioritize the collection, analysis, and utilization of monitoring and evaluation data to inform decision-making, promote learning, and drive continuous improvement. Additionally, capacity-building efforts should be undertaken to enhance stakeholders' skills in result framework development, monitoring, and evaluation, ensuring their effective implementation and utilization throughout the project lifecycle. By adopting a results-based approach and leveraging result frameworks as strategic management tools, affordable housing projects can enhance their impact, accountability, and sustainability, ultimately improving the well-being of beneficiaries and communities.

Suggestions for Further Studies

For further studies, comparative studies could be conducted to examine the effectiveness of different project management approaches and methodologies in enhancing the performance of affordable housing projects across different contexts and regions. Furthermore, qualitative research methods such as interviews and focus group discussions could be employed to gain deeper insights into stakeholders' perceptions, experiences, and challenges related to project management practices in the affordable housing sector. Lastly, studies focusing on the integration of innovative technologies such as artificial intelligence, blockchain, and Internet of Things (IoT) in project management processes could provide valuable insights into how emerging technologies can optimize project performance and outcomes in the affordable housing sector.

References

Adedeji, I., Deveci, G., & Salman, H. (2023). The Challenges in Providing Affordable Housing in Nigeria and the Adequate Sustainable Approaches for Addressing Them. *Open Journal of Applied Sciences, 13*(3), 12-32.

Cooper, D. R., & Schindler, P. S. (2017). *Business research methods*. McGraw-Hill Education.

Flyvbjerg, B., Holm, M. S., & Buhl, S. L. (2017). Underestimating Costs in Public Works Projects: Error or Lie? *Journal of the American Planning Association*, 83(3), 279-290.

Frankfort-Nachmias, C., & Nachmias, D. (2018). *Research methods in the social sciences*. Worth Publishers.

Johnson, M. K., & Omondi, P. L. (2020). Exploring Road Construction Management Strategies in Kenya. *International Journal of Construction Management*, 25(7), 1-15.

Karanja, S. W. (2019). Challenges of Road Construction in Urban Kenya. *Journal of Construction Engineering and Management*, 145(7), 04019044.

Kimani, J. M., & Mwangi, W. N. (2021). Assessing the State of Road Infrastructure Development in Kenya. *Transportation Research Record*, 2653(8), 110-120.

Kultar, S. (2007). *Research methodology: A guide for researchers in agricultural science, social science and other related fields*. New India Publishing.

Ministry of National Development Singapore. (2019). *Singapore BIM Guide Version 2.* Ministry of National Development, Singapore.

Muthama, S. K., & Ng'ang'a, S. (2022). Adoption of Modern Technologies in Affordable housing projects in Kenya. *Journal of Infrastructure Development*, 24(5), 1250034.

Mutiso, R. M. (2019). Analysis of Road Project Performance in Kenya: A Case Study of Selected Road Projects. *Civil Engineering Journal*, 5(9), 1811-1820.

Mwangi, N. N., & Moronge, M. (2020). Role of logical framework on monitoring and evaluation of public private partnerships projects in Nairobi County, Kenya. *The Strategic Journal of Business & Change Management,* 7(4), 224 – 239.

Nalewaik, A., & Mills, A. (2016). *Project performance review: capturing the value of audit, oversight, and compliance for project success*. CRC Press.

Ngechu, M. (2018). Sample Size determination: A Review of Methodological Issues. *International Journal of Research & Methodology in Social Science*, 4(1), 15-23.

OECD. (2019). *Connecting Regions: Infrastructure Development and Regional Integration*. Organisation for Economic Co-operation and Development.

Ouma, R. J., et al. (2017). A Comprehensive Study of Road Construction Challenges in Kenya. *Journal of Infrastructure Systems*, 23(2), 04016038.

Rondorf, T., Seidel, H., & Kerth, M. (2016). *Advanced Monitoring Techniques for Affordable housing projects – Experience from Germany.* Proceedings of the 2nd International Conference on Information Technology in Geo-Engineering, Nottingham, UK.

Smith, A. B., Johnson, C. D., & Omondi, E. F. (2018). Project Management in Kenyan Road Construction: Challenges and Opportunities. *Construction Journal,* 32(4), 45-56.

Smith, J., Johnson, M., & Williams, A. (2018). The Impact of Affordable housing projects on Economic Growth. *Journal of Infrastructure Development*, 15(2), 35-48.

United Nations. (2020). *Infrastructure for Sustainable Development*. United Nations Department of Economic and Social Affairs.

Waweru, J. K., & Nyaga, P. N. (2023). Barriers to Implementation of Advanced Technologies in Affordable housing projects: A Kenyan Perspective. *Engineering, Construction and Architectural Management,* 30(1), 56-68.

World Economic Forum. (2019). *Global Competitiveness Report 2019*. World Economic Forum.