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PROJECT MANAGEMENT STRATEGIES AND PERFORMANCE OF PUBLIC PRIVATE PARTNERSHIP ROAD INFRASTRUCTURE PROJECTS IN NAIROBI CITY-COUNTY, KENYA

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ABSTRACT

The primary goal of this inquiry is to understand how project management strategies influence the performance of Public Private Partnership Road infrastructure projects in Nairobi City County, Kenya. The study focused on examining the effects of project planning, monitoring and evaluation, risk management, and stakeholder involvement on road project success. The target population was 11 PPP road projects comprising 99 road construction specialists. The census method was used comprising of 99 respondents. Primary data was collected using semi-structured questionnaires for both quantitative and qualitative data. The response rate of 83% was obtained from 82 respondents who returned filled questionnaires. In this research, data was descriptively and inferentially analyzed using percentages, means and standard deviations. Furthermore, correlations and regression analysis were conducted to establish significant relationships as well as influence of independent variables on the outcome variable. The study revealed that Project Planning ($\beta=0.251$) and Project Monitoring and Evaluation ($\beta=0.206$) significantly affected Project Performance. Similarly, Project Risk Management ($\beta=0.213$) and Stakeholder Engagement ($\beta=0.416$) substantially affect Project Performance. The study concluded that correct application of project management strategies is critical for project performance and success. It emphasizes the need for project team members to undergo project management training, ongoing monitoring throughout every project stage, and continuous data collection and analysis for improvement assessment. Technical requirements must be met for a project to yield measurable outcomes. The project team should remain vigilant about potential hazards that may impede successful completion, creating procedures to manage identified hazards. Stakeholder engagement is crucial for mutual understanding and respect of objectives, enhancing project execution effectiveness. The study recommends adherence to financial constraints, thorough monitoring of each project phase, routine data gathering, and examination for informed decision-making, implementation of a risk response plan to mitigate project risks, and continuous stakeholder involvement throughout the project's duration for success.

Key Words: Project Management Strategies, Project Performance, Infrastructure Projects

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INTRODUCTION

Public-Private Partnership (PPP) policy agreements have been adopted by numerous developed and developing nations to ensure a consistent pipeline of long-term projects in the road industry. However, as Peng (2018) points out, the implementation of PPP varies depending on the industry and the country. PPP projects in the road sector have been undertaken by countries such as Canada, France, and India on a global scale. PPPs in Canada can take several forms, with distinct finance sources used in road contracts, resulting in varying outcomes. A good PPP project that emphasized relevance, cost-effectiveness, and stakeholder engagement is Canada's "Highway 407 Express Toll Route (ETR)". Nevertheless, an assessment of the lasting benefits and risk elements of these initiatives indicated that the government incurred additional costs after project beginning. The A65 highway project in France was built using a DBFOMT paradigm, as demonstrated by Laponoh (2021).

In France, Chatain (2022) indicated that PPP road projects are seen as successful investments that may effectively and economically address infrastructure deficiencies. According to Mangu (2021), the implementation of the PPP road Guidelines Agenda in 1992 in India resulted in a booming road sector through the use of numerous PPP methodologies. These authors argue that PPPs have significantly benefited India's road sector, exemplified by the successful completion of Panagarh-Palsit Highway project in 2001 within the framework encompassing design, construction, operation and maintenance. Nonetheless, PPP projects have encountered challenges, particularly during the design, implementation, and management phases, resulting in delays and quality issues due to conflicts related to land availability, scope changes, and discrepancies in PPP agreements (Wanjohi, 2016).

The Lekki Toll Road, a prominent PPP road project connecting Lagos's Victoria Island and Lekki Peninsula in Nigeria, was considered essential for

improving government service delivery, according to Toriola-Coker (2020). However, tolling was discontinued due to community protests against toll payments (Bolomope, 2020). Despite the enactment of the PPP Act in 2015, Uganda's road sector has not experienced significant growth in PPP adoption, as observed by Ndandiko (2018). While progress has been made, projects like the Kampala-Jinja highway have experienced short comings, including institutional capacity issues within the PPP framework (Nuwagaba, 2020).

According to Nalo (2018), PPP Act of 2013 in Kenya works as the legal and policy framework for PPP in the transport sector, with all relevant institutions mandated to follow it. The Act specifies the roles and responsibilities of organizations in charge of governing, regulating, and monitoring PPP contracts, with the PPP Unit within the National Treasury tasked with coordinating project and contract assessments, approvals, policy development, and transaction coordination (Kamau, 2016). The road construction sector in Kenya has attracted significant attention from foreign companies due to Kenya's status as a commercial hub for sub-Saharan Africa, leading to a surge in road development projects in Nairobi and its environs. These projects encompass government-sanctioned initiatives, privately-funded endeavors, multinational corporation projects, and institutional undertakings (Matu, 2020).

In 2007, a parliament passed an act that established KeNHA, KeRRA, and KURA, to play supervision role in the development and maintenance of roads in Kenya. KeNHA assumed the vital obligation of handling and overseeing the national roads. These are the roadways of utmost importance, connecting major cities, regions, and serving as critical transportation arteries for both people and goods. KeRRA is responsible for rural roads, and KURA took on the responsibility of managing public roads within towns and municipalities across Kenya (Kembu, 2020).

Kinyua, Ogollah, and Mburu (2015) discovered a link between risk management strategy

implementation and project performance in a study done in Kenya. They found that the project risk management was directly impacted by risk assessments, data analysis, and risk mitigation techniques utilized to mitigate hazards in software development. Project managers employ various essential steps to ensure project success, including initiation, planning, execution, monitoring, evaluation, and establishing communication channels (Kathure, 2020). These processes are critical for ensuring that work is carried out correctly, within budget, on schedule, and in accordance with quality standards. Effective project management strategies are crucial in the construction sector, as they play a significant role in project performance (Kamau, 2016). Kimutai (2018) identified group management strategies, scheduling, communication, monitoring, and evaluation as primary factors influencing project success when using an index. Project managers need to have expertise in these areas because they have a substantial effect on the successful accomplishment of projects. These project management procedures include project scheduling, communication, provision of resources, M&E (Agyeya, 2021).

Road sector plays a pivotal role in economy, and its notable growth in recent years has had a significant impact. In 2017, the sector experienced substantial expansion, as corroborated by reports from the Kenya KNBS (2018) and Kenya Economic Outlook (2019). These reports highlighted key indicators of the construction industry's robust performance during that period. According to the KNBS and Kenya Economic Outlook reports, the construction sector expanded by a remarkable 8.6% in 2017. One of the notable trends in 2017 was the surge in GFCF for both residential and non-residential buildings. Specifically, there was a substantial 15.9% increase in investment for residential properties, indicating a strong demand for housing. Moreover, other non-residential properties saw a noteworthy 13.6% increase in GFCF compared to the preceding year.

Nairobi County, as Kenya's capital and a major economic hub, is undergoing significant road development initiatives to address the growing transportation needs of the region. These projects encompass a wide array of road types, including bypass roads, link roads, and extensions of existing link roads. Importantly, these infrastructure endeavors often rely on diverse Public-Private Partnership (PPP) concepts to secure funding, manage resources, and ensure successful execution (Giti, 2019). Most of road projects in Kenya, including those in Nairobi County, experience delays and fail to meet their scheduled timelines, leading to significant cost overruns (Kisavi & Ngugi, 2019). This indicates a systemic issue of road projects execution in the country. The NCCG often resorts to delaying project operations as a risk management strategy. Numerous projects in 2009 faced difficulties due to poor risk management, equipment challenges, changes in project routes, and restrictions in drawing plans, among other issues. These challenges resulted in project failures and delays.

Statement of the Problem

Efficient management of road projects is unquestionably vital for fostering economic development and prosperity in any nation, and Kenya is no different. The Kenyan government has acknowledged the importance of establishing strong road infrastructure and has introduced diverse initiatives aimed at improving both the road network and its management. A significant achievement in this endeavor was the establishment of agencies like KENHA, responsible for highways, KURA for urban roads, and KeRRA for rural roads, complemented by the implementation of the 2007 Road Act (Kundu, 2023).

Despite the precautions, PPP road projects in Kenya have encountered challenges that have hampered their performance, according to a 2019 KPMG assessment study. The survey found that, on average, 39.4 percent of the different businesses' road construction projects were completed on schedule and within the budget in Kenya. However,

only 35 percent of the projects local firm constructed roads, according to Kisavi and Ngugi (2019), met the necessary quality standards. Furthermore, their analysis discovered that more than half of the country's road projects did not meet their anticipated completion deadlines, resulting in major cost overruns. These challenges are not limited to Nairobi County, indicating broader issues with the execution of construction projects. Lack of stakeholder involvement, poor planning, and an absence of suitable risk management methods, M&E processes are some of the factors that contribute to poor road project performance. Prior literatures have primarily majored on the performance of infrastructure projects in other sectors such as power, ports, and rail, with limited emphasis on road projects (Chumba, 2020) and (Wamuyu, 2018). Additionally, many of these studies have been conducted in first-world countries, highlighting the need for research specific to Kenya and Nairobi City. Therefore, this study intended to investigate impact of management strategies on Kenya's PPP road projects performance, with a specific emphasis on Nairobi City County.

Objectives of the Study

The broad objective was to assess the effect of project management strategies on the performance road infrastructure project under PPP in Nairobi City County. The study specific objectives were;

- To examine the effect of project planning on the performance of PPP constructed roads projects in Nairobi City County.
 - To evaluate the effect of M&E on the performance of PPP constructed roads projects in Nairobi City County.
 - To determine the effect of project risk management on the performance of PPP constructed roads projects in Nairobi City County.
 - To establish the effect of stakeholder involvement on the performance of PPP constructed roads projects in Nairobi City County.
- The examine the influence of project management strategies and the performance of public-private partnership road infrastructure projects in Nairobi City County, Kenya, and the moderating impact of government policy.

LITERATURE REVIEW

Theoretical Review

Theory of Constraints

Eliyahu M. Goldratt, a management expert, created the TOC management concept and approach. To increase general efficiency and accomplish organizational objectives, it focuses on locating and eliminating restrictions or bottlenecks within an organization's processes. The core idea is that an organization is limited by its weakest link or constraint, and by identifying and alleviating this constraint, an organization can enhance its performance.

According to Lamb, Robert, and Boyden (2002), project challenges include time and resources. However, a complex issue lies in optimizing the resource allocation to meet predefined goals. TOC emphasizes that there is always at least one constraint in any system, and this constraint restricts the system's ability to achieve its objectives. To increase overall throughput, the focus should be on increasing the flow through this constraint. Constraints in a system can be either internal or external. Internal constraints typically arise from issues related to equipment, personnel, or policies within the organization. External limitations happen when the system has more capacity than the market can handle. In the latter scenario, the company must look for ways to increase demand for its goods or services.

Therefore, TOC primarily focuses on improving organizational processes by addressing constraints, the concepts of TOC can be valuable in the field of project management. Identifying and managing constraints within a project's scope, time, and budget are essential for achieving project objectives

and ensuring successful project outcomes. TOC gives critical insights into the challenges faced in road project management. It highlights the importance of understanding and addressing constraints within the project to enhance performance. While traditional project management methods often prioritize cost reduction, the TOC emphasizes that improving project performance should take precedence. This concept provides a rationale for the consideration of project performance as a key variable in the research.

Contingency Theory

The contingency hypothesis, presented by Fred Fiedler in 1960, set the groundwork to explore the realm of firm outline within framework of the contingency theory of organizational structure (Donaldson, 1995). Scott (1992) indicated, contingency theory plays an important role in organizational theory, particularly when examining structures at the analytical level. It points out optimal design of an organizational structure takes into consideration potential outcomes. This approach diverges from earlier methods and models, such as those advocated by Taylor and Fayol, because it recognizes the uniqueness of each organization, the presence of distinctive contingency factors, and the need for innovative approaches to address them.

Depending on their specific configurations, companies employ this theory for Monitoring and Evaluation (M&E), allowing managers to assess performance through various methods and provide feedback through either a top-down or bottom-up approach. In some instances, M&E processes can be automated. Additionally, organizations utilize a range of M&E technologies at different stages throughout the life cycle of a project. Stakeholders are people or organizations that depend on the operations and environment of an organization. The ability of an organization to manage relationships with important stakeholder groups—including employees, customers, suppliers, donors, communities, and other parties having the potential

to have an impact on its goals—is crucial to the success of project endeavors. This concept underscores the interconnection with the variable of project planning.

Realistic Evaluation Theory

In 1997, David Pawson introduced a groundbreaking theory that revolutionized the way we assess the impact of project interventions. This theory offers a structured framework for not only determining the outcomes resulting from these interventions but also delving into the underlying mechanisms that drive these outcomes. Furthermore, it sheds light on the crucial role played by various environmental factors in shaping the ultimate results of these interventions (Pawson & Tilley, 2004).

At the heart of Pawson's theory is the fundamental query "in which situations, for whom, to what extent and through what means does something prove effective. This question serves as the cornerstone of what is known as realistic evaluation, a concept further articulated by Ray Pawson and Nick Tilley in 1997. Realistic evaluation provides a structured approach to evaluating the effectiveness of interventions by examining not only whether they work but also how and for whom they work under specific conditions. The power of this model lies in its ability to unravel the complex web of factors that contribute to the success or failure of an intervention. It's not just about whether an intervention achieves its intended outcomes; it's about understanding why and how it does so. This understanding is crucial for replicating successful interventions in different contexts.

Fukuda-Parr (2002) emphasized the importance of looking beyond the surface and exploring the contextual factors that contribute to organizational effectiveness. In other words, realistic evaluation encourages us to dig deeper and uncover the contextual variables that can either facilitate or hinder the success of an intervention. Now, when we apply this concept to the realm of Monitoring and Evaluation (M&E) within organizations, it becomes clear how valuable it can be. Realistic

evaluation allows us to comprehensively analyze the various elements at play during the M&E process. It helps us understand not only whether a project is achieving its intended results but also why it is or isn't, for whom it is working or not, and under what specific conditions. In essence, realistic evaluation enhances our ability to make sense of the intricate web of variables involved in monitoring and evaluation. It empowers organizations to fine-tune their project plans based on a deep understanding of what drives success and what doesn't, ultimately leading to more effective and impactful projects.

Empirical Review

In Ondiek's (2018) study, it is argued the implementation of project planning plays a crucial role in ensuring the efficient accomplishment of projects in Uasin Gishu. Ondiek employed descriptive survey research techniques and revealed that project planning has a significant impact on the overall success of road projects. The study found that four key elements collectively accounted for 83.4% of project success. Project scope and risk planning were identified as the most crucial aspects influencing project success, with project time planning having little to no impact on project performance.

Mongina's (2021) study, conducted with a descriptive design, discovered a strong and favourable relationship exist in utilization of different project management strategies as well as effective completion of road projects in Kenya. Emphasizing the critical role of planning in the project lifecycle, the study recommended a sequential approach involving planning, monitoring and evaluation, funding, and project risk management. By leveraging project management techniques, this study provided valuable insights to project managers working on road projects, aiming to enhance project implementation.

In a study conducted by Kamau and Densford (2018), using a comprehensive investigation encompassing 41 distinct road projects within the Kenyan context. Their research unearthed

compelling evidence suggesting that the efficacy of local enterprises' endeavors in road development is notably influenced by the robustness of project monitoring and evaluation (M&E) mechanisms. It is imperative to underscore that the success of road projects is intrinsically tethered to the meticulous and unwavering implementation of M&E procedures, coupled with the provision of sufficient financial resources to sustain these critical activities. Furthermore, the pivotal role of personnel equipped with the essential skills and expertise cannot be overstated; they play an indispensable role in ensuring the seamless execution of M&E protocols, ultimately shaping the outcome of road development initiatives.

In a study conducted by Mutua (2020), a descriptive research was embraced, involving participation of 150 individuals from diverse organizations, including KeNHA, KeRRA, KURA, KWS, and various stakeholders situated in Kilifi County. Through this research endeavor, a compelling revelation emerged, highlighting a robust and favorable correlation between the execution of projects and the meticulous utilization of project monitoring procedures. The findings of this investigation distinctly underscored the pivotal role played by effective project monitoring methodologies in enhancing the execution of road projects within the geographical scope of Kilifi. The empirical evidence furnished by Mutua's research demonstrated that the conscientious implementation of project monitoring techniques exerts a positive and significant impact on the overall success as well as efficiency of road projects in Kilifi region

In a research study conducted in Nairobi, Njuguna (2019) employed the conceptual framework of Enterprise Risk Management Theory and employed a descriptive research approach to examine the impact of risk transfer on project success within the Nairobi context. The study's outcomes yielded compelling evidence suggesting a positive and advantageous relationship between the practice of risk transfer and the overall success

of projects in Nairobi. Moreover, Njuguna's investigation shed light on the widespread adoption, utilization, and implementation of risk transfer strategies by firms engaged in various projects in Nairobi. This observation underscores the importance of risk transfer as a prevalent and practical approach within the local business environment. Additionally, the study unveiled that mitigation of risk strategies had a substantial and noteworthy effect on project performance. This finding emphasizes the important role undertaken by managing risk techniques in assisting the outcomes of projects undertaken in Kenya's capital city

Kinyua (2015) explored the consequences of risk management methods on project outcomes in the context of SMEs in Kenya's ICT sector in a study. It used an explanatory research technique and discovered that risk management strategies have a substantial effect on project performance in Kenyan SMEs' ICT projects. According to the poll, many ICT organisations in Kenya understand the relevance of risk management procedures in effectively managing ICT projects, and they actively manage risks to optimise performance. ICT firms that effectively manage risk benefit from increased productivity, reduced costs, higher project success rates, and more informed decision-making.

Omondi (2020) study concluded that taking the views of stakeholders at all stages such as project identification, planning, implementation, and M&E stages substantially improved the success of road construction projects in Kenya's Kilifi County. Most of the population in the area gained from engagement of stakeholders in road projects, such as the evaluation, analysis, and selection of workable and viable road projects, it was discovered.

In a study conducted by Mutua (2017), a descriptive research methodology was employed to investigate the significance of involving both the community and key development practitioners in the project planning process with the aim of enhancing project performance. The research

findings underscored the critical role of community engagement in project planning as a fundamental driver of project success, with specific relevance to the context of INADES Formation Kenya. The research put forward several actionable recommendations, with a central focus on closely monitoring and facilitating community involvement right from the project's planning stage. This approach was identified as pivotal for ensuring the achievement of project goals and objectives. By emphasizing the importance of engaging not only development practitioners but also the local community, Mutua's research contributes valuable insights to the discourse on effective project management, particularly within the framework of INADES Formation Kenya. These findings align with the growing recognition of the vital role played by stakeholder engagement in project planning and its direct impact on project performance.

Kenya has legal and regulatory framework for road management. These legislative and regulatory initiatives were created with the goal of creating sustainable economic growth while also promoting the expansion and effective management of the road sub-sector. Three main organizations were founded under the Roads Act, each with distinct duties: KENHA. The nation's highways must be planned, built, repaired, maintained, and under KENHA's supervision. This agency plays a pivotal role in ensuring the development and upkeep of Kenya's major road networks, facilitating both local and international transportation. KURA is in charge of managing public roadways in cities. Its duties include supervising and maintaining Kenya's roads in cities and towns to ensure smooth traffic flow and connection throughout urban areas. The management of Kenya's rural roads is the responsibility of KeRRA. This organization focuses on enhancing the transport network in rural and distant locations, aiding in the socioeconomic growth of these places. Together, these organizations serve critical roles in guaranteeing the expansion and upkeep of the nation's road

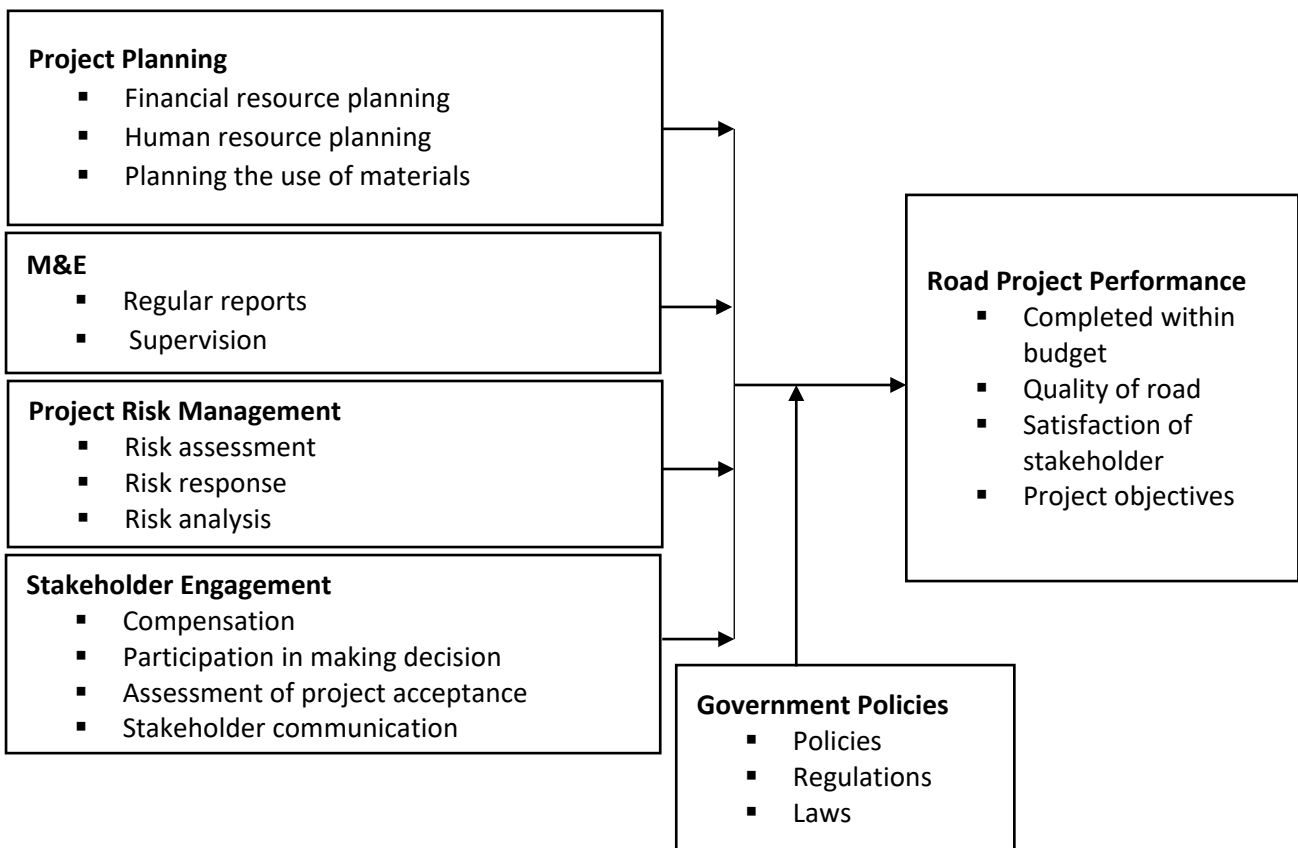
infrastructure network, fostering regional connections and Kenya's economic growth.

The NTP was implemented in May 2009 to better outline the responsibilities of extra parties involved in the conception and management of road infrastructure. This policy initiative was mandated by the PPP Act of 2013, aiming to provide a comprehensive framework for the development and management of transportation infrastructure in Kenya. Through the NTP, various stakeholders, including governmental bodies, private sector entities, and development partners, collaborate to enhance the efficiency, sustainability, and accessibility of Kenya's transportation networks,

thereby supporting the country's socio-economic development goals.

Government agencies involved with orchestrating and overseeing the construction process must impose rigorous standards on construction firms. Morris' 2009 research, as well as Odeyinka and Yusuf's 2010 investigations in Nigeria, found that government authorities scrutinized specific road projects to ensure compliance with quality assurance criteria. The study also showed that while contractors were awarded for outstanding achievements, they were subject to sanctions if the required requirements for road projects were not met.

Conceptual Framework



Independent Variables

Source: Researcher (2023)

Figure 1: Conceptual Framework

Moderating Variable

Dependent variable

METHODOLOGY

The study assessed how management practices and road performance interact using a descriptive

research approach. The study concentrated on 11 road projects with total of 99 road construction specialists. The study was carried on using census

method and 99 respondents were employed. Both secondary and primary data was collected, with a primary focus on the latter. Secondary data will be obtained from annual reports on roads produced by the Ministry of Roads and peer-reviewed journals. To collect primary data, a standardized questionnaire with a 5-point Likert scale was used. The study performed a pilot study of two road projects in Kiambu County which are also under PPP before beginning data collection: The Kikuyu Ruaka road and the Githurai-Kimbo route. To ensure the validity of the research instruments and content, the researcher engaged with experts, including their supervisor, who can provide content recommendations and assess the accuracy of the materials. Before inspecting the study, the researcher conducted a diagnostic check to assess heteroscedasticity, multicollinearity, and the

normality of the data. To ensure the reliability of the statistical analysis and to avoid skewed, inefficient, and inconsistent parameter estimates, the research data was rigorously tested for compliance with assumptions of the Classical-Linear-Regression Model (CLRM), as advised by Gujarati (2003).

DATA ANALYSIS AND DISCUSSION

Descriptive Analysis

Project Planning and Project Performance

The first objective of the current research was to examine the effect of project planning on the performance of PPP constructed roads projects in Nairobi City County. The descriptive statistics used include percentage and standard deviation.

Table 1: Project planning and Performance

Statement	SD	D	N	A	SA	Mean	SD
Project costs were accurately predicted.	13%	18%	12%	35%	21%	3.31	1.35
Allotted material resources were fully utilized	11%	23%	9%	30%	27%	3.39	1.38
Members of the project team received training	6%	26%	11%	35%	22%	3.41	1.25
During the planning phase, project information and organization were effectively shared	11%	20%	11%	29%	29%	3.46	1.38
The performance of the project depends on how clearly deadlines are defined in the project's initial plan	12%	21%	17%	30%	20%	3.24	1.31
The project could be finished with the budgeted amount of money.	13%	15%	21%	33%	18%	3.28	1.29
The right information was provided	12%	17%	17%	34%	20%	3.31	1.30
The total delivery of the project is impacted by the clearly defined deliverables in the initial project plan	10%	21%	18%	28%	23%	3.34	1.30
The project's performance is enhanced by clearly defining roles and duties for the project team.	12%	17%	18%	34%	18%	3.29	1.29
The project's success depends on a thorough study of the needs of the stakeholders.	7%	24%	17%	45%	6%	3.18	1.10
SMART projects are used	12%	15%	24%	32%	17%	3.26	1.25

Source: Survey data (2024)

An effective project's completion depends heavily on the application of project management. According to the study, 56 % of the participants indicted that project costs were accurately predicted. Similar findings were reported by 57% of those who reiterated that allotted material resources were fully utilized. Project team members need to be trained in project management in order to be effective in their performance. In this study,

57% agreed that members of the project team received training. In a similar vein, 51% agreed that the total delivery of the project is impacted by the clearly defined deliverables in the initial project plan. Similarly, 49% observed that SMART projects are used. Organizing a project entail coordinating the activity of all parties involved and facilitating communication between them. In this research, 58% of the participants affirmed that during the

planning phase, project information and organization were effectively shared. Similar observations were made by 52% of those who reiterated that the project's performance is enhanced by clearly defining roles and duties for the project team. Projects must be implemented in accordance with the available budget for it to be successful. The finding found that 51% were of the opinion that the project could be finished with the budgeted amount of money. Similar views were put forward by 54% of those who agreed that the right information was provided.

A thorough analysis of the needs of the stakeholders is the critical phase in project management. According to the research, 51% of participants indicated that the project's success depends on a thorough study of the needs of the stakeholders. In a similar vein, 50% of the participants affirmed that the performance of the project depends on how clearly deadlines are

defined in the project's initial plan. According to Heravi, Coffey, and Trigunarysyah (2015), stakeholders can influence the way resources connect and flow within an organization in addition to frequently providing the resources that are required. Furthermore, since they eventually have a significant impact on an organization's ability to survive, proper management and the participation of relevant stakeholders have to be a major component of any project management strategy. Project administrators must create thorough plans for stakeholder involvement in order to address the varying needs of different groups of stakeholders.

Project Monitoring and Evaluation and Project Performance

The second objective of the study was to evaluate the effect of M&E on the performance of PPP constructed roads projects in Nairobi City County. The study used percentages, means and standard deviations.

Table 2: Project Monitoring and Evaluation and Project Performance

Statement	SD	D	N	A	SA	Mean	SD
Utilizing the right monitoring tools helps with efficient project time and expense management.	18%	17%	13%	38%	13%	3.10	1.35
Regularly carry out M&E work for road developments	18%	21%	15%	26%	21%	3.09	1.42
The expense of monitoring and evaluation should make up between 5 and 10 percent of the total budget.	16%	22%	12%	29%	21%	3.17	1.40
Project performance is enhanced when monitoring and assessment are given a sufficient monetary allocation.	20%	15%	12%	33%	21%	3.20	1.43
A project's effectiveness can be increased through ongoing evaluation.	9%	26%	13%	26%	27%	3.36	1.34
Stakeholders took part in every step of the M & E process.	16%	20%	16%	37%	12%	3.09	1.30
A skilled monitoring and evaluation team impacts the M&E outcomes' quality	17%	18%	18%	17%	29%	3.23	1.47
Acquiring personnel with the necessary skills for M&E activities	12%	23%	18%	30%	16%	3.14	1.28
Monitoring and evaluation enhance management output, outcome, and input in the future	11%	22%	24%	21%	22%	3.20	1.31
The amount allotted for medical and emergency expenses is sufficient.	6%	30%	12%	39%	12%	3.20	1.18
Monitoring and evaluation provide a true picture of where the funded project is at in order to make all the necessary adjustments in the project execution process	15%	18%	21%	23%	23%	3.21	1.37
Despite being an essential staff job, M&E has been carried out by outside consultants.	17%	18%	18%	32%	15%	3.08	1.33
M&E aids project developers and planners in determining the extent to which projects have achieved the goals outlined in the project-related papers	16%	18%	23%	26%	17%	3.09	1.32

Source: Survey data (2024)

It is critical to emphasize that the careful and consistent application of M&E procedures is a necessary condition for road projects to succeed. In this study, 51% of respondents affirmed that utilizing the right monitoring tools helps with efficient project time and expense management. Similar findings were affirmed by 47% of those who specified that they regularly carry out M&E work for road developments.

Each phase of the project ought to be monitored, and data must be continuously gathered, examined, and put to use. The study established that 50% aver that the expense of monitoring and evaluation should make up between 5 and 10 percent of the total budget. Furthermore, 54% avowed that project performance is enhanced when monitoring and assessment are given a sufficient monetary allocation. Similar view was put forward by 51% of the participants who reiterated that the amount allotted for medical and emergency expenses was sufficient. Monitoring and evaluation are thought to help businesses determine where they may make improvements and gauge how well their initiatives are working. According to 53% of the participants, a project's effectiveness can be increased through ongoing evaluation. Similar 49% of participants indicated that stakeholders took part in every step of the M & E process

A skilled monitoring and evaluation team impacts the M&E outcomes' quality as per 46% of the participants. In a related finding, 46% of the

respondents affirmed that acquiring personnel with the necessary skills for M&E activities. Monitoring and evaluation enhance management output, outcome, and input in the future as indicated by 43% of the participants. Correspondingly, 46% were of the view that monitoring and evaluation provide a true picture of where the funded project is at in order to make all the necessary adjustments in the project execution process. In a project, evaluation and monitoring offer data based on empirical evidence to guide the development and execution of plant. According to 47% of the participants, despite being an essential staff job, M&E has been carried out by outside consultants. In similar finding, 43% of the participants affirmed that M&E aids project developers and planners in determining the extent to which projects have achieved the goals outlined in the project-related papers. The study proved that more effective M&E is produced when it is conducted independently by businesses and individuals, unaffected by those in charge of organizing and carrying out development assistance. Clearly allocating a sizeable percentage of the M&E budget within the overall project cost, this technique was recognized for its ability to maintain projects on schedule.

Project Risk Management and Project Performance

The third objective was to examine the effect of project risk management on the performance of PPP constructed roads projects in Nairobi City County. Proportions, means and standard deviations were utilized.

Table 3: Project Risk Management and Project Performance

Statement	SD	D	N	A	SA	Mean	SD
To prevent cost and schedule overruns, the project makes sure that technical requirements are followed	16%	13%	23%	23%	24%	3.26	1.38
Hazards were identified using a variety of tools and procedures, e.g study of the material, brainstorming, judgement, and interviews.	16%	20%	17%	27%	21%	3.17	1.38
The likelihood and impact of each risk were evaluated for each one that was identified	6%	20%	29%	35%	10%	3.23	1.06
Practices were created to control the hazards that were identified	12%	22%	22%	28%	16%	3.13	1.27
A number of the practices included using insurance covers, performance guarantees, retention sums, and defect liability periods.	13%	18%	20%	34%	15%	3.18	1.27

Source: Survey data (2024)

In order to deliver a quantifiable result on the project, certain technical standards must be met. In this study, 47 % of the participants indicated that to prevent cost and schedule overruns, the project makes sure that technical requirements are followed. Technical specifications allow projects to be carried out in a way that meets client expectations. The study by 45 % of the participants indicated that the likelihood and impact of each risk were evaluated for each one that was identified. It is always important for a project team to identify potential risks that could hamper effective project implementation. In this study, 44% of the participants agreed that practices were created to control the hazards that were identified. This was also buttressed by 48% of those who suggested that

these hazards were identified using a variety of tools and procedures, such as a study of the material, brainstorming, expert judgement, and interviews. There are numerous ways of averting risks in construction projects. According to 49% of the respondents, a number of the practices included using insurance covers, performance guarantees, retention sums, and defect liability periods.

Stakeholder Engagement and Project Performance

The fourth objective of the research was to evaluate the effect of stakeholder involvement on the performance of PPP constructed roads projects in Nairobi City County. This study used percentages, means, and standard deviations.

Table 4: Stakeholder Engagement and Project Performance

Statement	SD	D	N	A	SA	Mean	SD
Identifying the wants and issues of the different groups helps to realize project objectives.	13%	28%	16%	28%	15%	3.02	1.30
Project success results from including stakeholders in tracking project progress.	7%	26%	23%	35%	9%	3.12	1.11
Project performance suffers when resources are not mobilized beforehand	18%	16%	23%	28%	15%	3.04	1.33
All participants are motivated to complete the project's objectives when they are given tasks to plan	18%	18%	23%	21%	20%	3.04	1.38
Considering both individual and group behavior has a significant impact on how well initiatives operate	18%	21%	16%	29%	16%	3.03	1.37

Source: Survey data (2024)

Stakeholder engagement is a crucial process used to ensure that every party appreciate each other's goals and aspirations. According to 43% of the respondents, identifying the wants and issues of the different groups helps to realize project objectives. Engaging stakeholders is necessary to improve project execution efficiency. In this study, 44% of respondents affirmed that project success results from including stakeholders in tracking project progress. A similar finding established that 41% of the participants affirmed that all participants are motivated to complete the project's objectives when they are given tasks to

plan. Considering both individual and group behavior has a significant impact on how well initiatives operate as put forward by 45% of the participants. Similarly, 43 % reiterated that project performance suffers when resources are not mobilized beforehand. The outcomes are consistent with those of Kihuha (2018), who conducted a comprehensive analysis of the programs. The research investigated the dynamics of stakeholder participation at different phases of project development, including crucial elements like funding distribution and project milestone designation.

Project Performance

The dependent variable for this research was Project Performance. This variable was evaluated

based on project completion within budget, project quality, stakeholder satisfaction and within project objectives.

Table 5: Project Performance

Statement	SD	D	N	A	SA	Mean	SD
Providing high-quality services is a sign of successful projects.	16%	20%	17%	23%	24%	3.20	1.42
The output/deliverable complied with the planning stage standards.	16%	27%	15%	26%	17%	3.01	1.36
The performance of a project is determined by the timely delivery of its deliverables	10%	20%	12%	29%	29%	3.48	1.35
A key factor in determining how satisfied the client is with the project overall is the absence of reworks or job revisions	12%	23%	16%	29%	20%	3.20	1.33
Successful projects are those that are delivered on time and within budget	12%	18%	18%	34%	17%	3.25	1.28
The task was done well.	5%	30%	16%	28%	21%	3.29	1.24
Project costs were accurately predicted.	18%	16%	15%	35%	16%	3.14	1.37

Source: Survey data (2024)

According to the finding, 47% of the participants agreed that providing high-quality services is a sign of successful projects. In addition, 43% observed that the output/deliverable complied with the planning stage standards. The performance of a project is determined by the timely delivery of its deliverables as proposed by 58% of the participants. In a comparable manner, 49% of the participants affirmed that a key factor in determining how satisfied the client is with the project overall is the absence of reworks or job revisions. Furthermore, 51% of the participants indicated that Successful projects are those that are delivered on time and within budget. Appropriate budgeting and cost planning facilitate efficient risk management for a particular project. In this study, 51% of the participants affirmed that project costs were accurately predicted. Finally, 49% concluded that

the task was done well. According to Martins and Eseosa (2022), the Project Cost Estimate is always determined utilizing cost estimating approaches, taking into account the methods, techniques, and modalities available to the professional project manager to anticipate the real project cost. To enable him to make cost provisions, the project manager must also model the risk associated with the project.

Project Management techniques and Government Policies

The fifth objective was to determine the link between project management techniques and the success of public-private partnership road infrastructure projects in Nairobi City County, Kenya, and the moderating impact of government policy.

Table 6: Project Management techniques and Government Policies

Statement	SD	D	N	A	SA	Mean	SD
With the appropriate government support mechanisms, it is easier for public-private collaboration in road projects under PPP	7%	22%	19%	42%	10%	3.26	1.13
All the construction procedures in PPP road projects are standardized	9%	21%	17%	44%	10%	3.25	1.15
Late disbursement of fund influence ability to plan and implement the road projects	15%	16%	22%	30%	17%	3.19	1.30
The government regulations guiding the M&E affect the performance of road projects	14%	18%	20%	29%	20%	3.21	1.34
The government allocates sufficient resources as budgeted in road projects	13%	17%	28%	29%	12%	3.09	1.22
There is enough assessment of the projects upon completion before being used by the public	13%	21%	13%	33%	20%	3.24	1.34

Source: Survey data (2024)

According to the findings, 54 % agreed that with the appropriate government support mechanisms, it is easier for public-private collaboration in road projects under PP. Similar view were propounded by 52% of those who agreed that all the construction procedures in PPP road projects are standardized. On-time government funding disbursement improves the efficacy of the project's outcome. In this study, it was established that 47% of respondents affirmed that late disbursement of fund influence ability to plan and implement the road projects. This view was supported by 41% of those who aver that the government allocates sufficient resources as budgeted in road projects. Tracking the success of an initiative at any point in time is made easier by monitoring and evaluation. In this study, 49% of the respondents affirmed that the government regulations guiding the M&E affect

the performance of road projects. In conclusion, 53% of the respondents affirmed that there is enough assessment of the projects upon completion before being used by the public. These findings align with those of Mabare and Otieno (2019), who argued that since M&E is becoming a more vital tool for project management, it is necessary for projects in all economic sectors.

Pearson Correlation Analysis

In research, the statistical technique termed correlation analysis is employed to calculate the association and gauge the magnitude of a linear relationship between two factors. The linear link between two variables' magnitude and direction can be quantitatively summarized using the coefficients of correlation. In this study, Pearson correlation was used to examine this relationship between independent and dependent variables.

Table 7: Correlation Matrix

		Project Performance	X1	X2	X3	X4
Project Planning	Pearson Correlation	.860**	1			
	Sig. (2-tailed)	.000				
	N	82	82			
Project Monitoring and Evaluation	Pearson Correlation	.688**	.597**	1		
	Sig. (2-tailed)	.000	.000			
	N	82	82	82		
Project Risk Management	Pearson Correlation	.825**	.875**	.544**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	82	82	82	82	
Stakeholder Engagement	Pearson Correlation	.848**	.720**	.521**	.674**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	82	82	82	82	82

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

X1= Project Planning; X2= Project Monitoring and Evaluation; X3= Project Risk Management; X4= Stakeholder Engagement

Source: (Survey data 2024)

The results established that Project Planning significantly correlates with Project Performance at 0.05 alpha ($r=0.860^{**}$; $p=0.000$). This shows that aspects of planning such as financial resource, Human resource and materials could influence positively Project Performance. Secondly, there was evidence of a significant correlation between Project Monitoring and Evaluation and Project Performance ($r=0.688^{**}$; $p=0.000$). This implies that monitoring project processes could enhance efficiency in the project.

Furthermore, it was observed that Project Risk Management significantly correlates with Project Performance ($r=0.825^{**}$; $p=0.000$). This implies that when risk is instantly assessed with an appropriate response is put forward, Project Performance will be achieved. Finally, there was a positive and statistically significant relationship between Stakeholder Engagement and Project Performance ($r=0.848^{**}$; $p=0.000$). The implication of this finding is that involving stakeholders in making decision

and assessment of project could lead to improved project performance. The results above are in agreement with Kimutai (2021) who also established that Project Planning, Monitoring and Evaluation, Risk Management and Stakeholder Engagement showed positive and significant correlation to Project Performance.

Regression Analysis

One effective statistical technique for examining the relationship between two or more variables of interest is regression analysis. It is employed when we wish to forecast a variable's value depending on the value of another variable. Multiple moderated linear regression was utilized in this investigation.

Model Summary

The degree of correlation between the predictors and the dependent variable is reported in the model summary table. The model identity, type, and calculation are shown in the model summary.

Table 8: Model Summary

Model	R	Adjusted R Square	Std. Error Change Statistics			df1	df2	Sig. Change	F
			R of Estimate	the R Change	Square F Change				
1	.941 ^a	.886	.880	.33413	.886	149.172	4	77	.000

a. Predictors: (Constant), Stakeholder Engagement, Project Monitoring and Evaluation, Project Risk Management, Project Planning

Source: (Survey data 2024)

By using the main effects variables, 88% in Project Performance is explainable using Stakeholder Engagement, Project Monitoring and Evaluation, Project Risk Management, Project Planning. In this research when interaction term was added, there were no significant variation observed (Sig. F Change =0.105). The percentage

variance accounted for in the dependent variable was relatively low 0.4%.

ANOVA

The overall impact of a category-specific predictor or the effect of interaction between two or more categories of predictors on the final result can be tested in any research using ANOVA.

Table 9: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	66.618	4	16.654	149.172	.000 ^b
	Residual	8.597	77	.112		
	Total	75.215	81			

a. Dependent Variable: Project Performance

b. Predictors: (Constant), Stakeholder Engagement, Project Monitoring and Evaluation, Project Risk Management, Project Planning

Source: (Survey data 2024)

The main effect model established that all the predictors (Stakeholder Engagement, Project Monitoring and Evaluation, Project Risk Management, Project Planning) have a significant contribution to the model. In addition, by adding

the interaction term, the model improved substantially.

Coefficients

To find a typical operational relationship among factors, statistical metrics denoted coefficients of regression are employed.

Table 10: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.157	.134		1.170	.245		
	Project Planning	.238	.083	.251	2.854	.006	.192	5.197
	Project Monitoring and Evaluation	.179	.042	.206	4.230	.000	.626	1.599
	Project Risk Management	.191	.072	.213	2.651	.010	.230	4.339
	Stakeholder Engagement	.361	.049	.416	7.343	.000	.462	2.167
	Interaction term (Government Policy)	.024	.015	.133	1.640	.105	.221	4.524

Source: (Survey data 2024)

a. Dependent Variable: Project Performance

As per the table 10 the coefficients of regression model are as per the equation below:

$$Y=0.157 +0.251X_1 +0.206X_2+0.213X_3+0.416X_4$$

The general regression equation was expressed such that Y is Project Performance, X₁ is Project Planning, X₂ is Project Monitoring and Evaluation, X₃ is Project Risk Management and X₄ is Stakeholder Engagement. The results indicates that the coefficient of determination is not statistically significant. The other coefficients of the variables have values which are statistically significant. Thus, the Project Planning ($\beta=0.251$) as well as Project Monitoring and Evaluation ($\beta=0.206$) both have positive effect on Project Performance. Similarly, Project Risk Management ($\beta=0.213$) and Stakeholder Engagement ($\beta=0.416$) have substantial and positive effect on Project Performance. In the moderated model, that was testing the interaction effect government policy, the ($\beta=0.133$; $p>0.05$) being statistically not significant thus implying there was no influence of government policy on the Project Performance. The resultant regression equation becomes Project Performance = $0.251(\text{Project Planning}) + 0.206(\text{Project Monitoring and Evaluation}) + 0.213(\text{Project Risk Management}) + 0.416(\text{Stakeholder Engagement})$.

The above findings are in agreement with Matu et al (2020), who established that Project Planning and Monitoring and Evaluation have exhibited relationship with Project performance. Further Abdi (2021) established that Project Risk management and stakeholder engagement have positive effect on Project Performance.

SUMMARY

The successful completion of a project greatly depends on the use of project management. It was observed that more than 50% of the respondents indicated that the project costs were estimated with accuracy. A subset of respondents reported comparable results, restating that the material resources allocated had been fully utilized. To function effectively, members of the project team must receive project management training. Most

participants in this study concurred that training was provided to project team members. Similarly, more than half of the participants concurred that the project's overall delivery is influenced by the precisely specified deliverables in the original project plan. In a similar vein, a significant portion noted the utilization of SMART projects. A project's organization involves facilitating communication and coordinating the actions of all parties involved. Participants in this study attested to the efficient sharing of project information and structure during the planning stage. Those who reaffirmed that defining roles and obligations for the project team in a clear and concise manner improves the project's success shared similar conclusions.

It is imperative to stress that successful road projects require the meticulous and regular implementation of M&E protocols. Within this survey, more than half of participants confirmed that effective project time and cost management is facilitated by the use of appropriate monitoring tools. Similar results were confirmed for individuals who indicated that they conduct M&E work for road developments on a regular basis. Every stage of the project needs to be tracked, and information needs to be constantly collected, analyzed, and used. Half of the participants in the study said that between 5 and 10 percent of the overall budget should go toward monitoring and evaluation. Additionally, the part declared that improved project success results from adequately funding monitoring and review. A segment of the attendees expressed a similar opinion, reiterating that the sum allocated for emergency and medical costs was adequate. A separate budget may be added to the overall project budget in order to provide the monitoring and evaluation function in project management the due importance it deserves.

A project team should always be aware of potential hazards that can interfere with the successful completion of the project. Some of the study participants concurred that the procedures were developed in order to control the hazards that were found. This was further supported by some

who proposed that a range of methods and instruments, including a review of the literature, expert opinion, brainstorming, and interviews, were used to identify these risks. ICT organizations that effectively manage risk can benefit from increased output, reduced costs, improved project success rates, and improved decision-making. In building projects, there are several strategies to reduce risk. Using insurance coverage, performance guarantees, retention sums, and defect liability periods were among the practices mentioned by a significant portion of the respondents.

In order to make sure that all parties understand and respect one another's objectives, stakeholder engagement is an essential procedure. Some of the respondents stated that recognizing the concerns and desires of the various groups aids in achieving the goals of the project. Project managers should prioritize sustainability issues in addition to other performance criteria like schedule and cost, and they should closely monitor stakeholder input. In order to increase the effectiveness of project execution, stakeholders must be involved. A segment of the participants in this research confirmed that involving stakeholders in the monitoring of project advancement leads to project success. According to a related study, some participants attested to the fact that everyone is driven to complete the project's goals when given planning chores. Openness in the project's operations is encouraged when all major stakeholders participate. As suggested by some of the participants, taking into account both individual and group behavior has a big impact on how well initiatives work. In a similar vein, the section restated that failure to mobilize resources in advance degrades project performance.

CONCLUSION

Applying project management techniques correctly is critical to the successful completion of any project. For the purpose of performing effectively, members of the project team must undergo project management training. To be successful, projects have to be carried out within

the constraints of the allocated funds. In addition, the project's performance is contingent upon how well the project's original plan defines deadlines. Project managers need to develop comprehensive plans for including stakeholders so that they can meet the various needs of various stakeholder groups.

It is imperative to underline that road projects cannot succeed unless M&E procedures are applied carefully and consistently. Monitoring should be applied to every stage of the project, and data collection, analysis, and utilization should be ongoing. Lastly, it is believed that monitoring and evaluation can assist companies in identifying areas for improvement and assessing the effectiveness of their projects.

A number of technical requirements must be satisfied for the project to produce a quantifiable outcome. A project team should always be aware of potential hazards that can interfere with the successful completion of the project. Creating procedures to manage the hazards that are found may fall under this category.

In order to make sure that all parties understand and respect one another's objectives, stakeholder engagement is an essential procedure. In order to increase the effectiveness of project execution, stakeholders must be involved. A segment of the participants in this research confirmed that involving stakeholders in the monitoring of project advancement leads to project success. Openness in the project's operations is encouraged when all major stakeholders participate.

RECOMMENDATION

The study suggests that in order for projects to be successful, they must be completed within the constraints of the finances allotted. Furthermore, how well deadlines are defined in the project's original strategy will determine how effective it is.

It is crucial to stress that rigorous and consistent application of M&E procedures is a prerequisite for the success of road projects. Every phase of the

project must be properly monitored, and data must be routinely gathered and examined in order to make informed decisions.

A project team's ability to recognize possible hazards that can impede the successful completion of the project is always crucial. Consequently, in order to reduce or eliminate any risks to the project, the management team should provide a risk response plan. Furthermore, it can be utilized to enhance the potential that positive risk presents.

In order to make sure that all parties respect one another's ambitions, stakeholder engagement is a

critical procedure. As a result, across the whole project lifespan, all pertinent stakeholders should be included.

Suggestion for further Research

Any construction project's performance is contingent upon multiple elements. Numerous investigations have been carried out to assess and enhance performance within the construction sector. Three primary metrics have always been used by the sector to assess its performance: time, cost, and quality. More research in this area might be done to find and clarify how government policies affect project performance.

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