Moderating influence of stakeholder participation on the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County, Kenya

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ABSTRACT

The purpose of this study was to determine the moderating influence of stakeholder participation on the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County. Guided by stakeholder theory, the study adopted a pragmatic research philosophy, which integrates analytic frameworks of descriptive and inferential statistics. The target population was 419, with a sample of 234, which included 39 contractors, 193 Sub County Roads Committee (SCRC) members, and 2 Kenya Rural Roads Authority (KeRRA) engineers, selected by random and purposive sampling techniques. Data were collected with the help of a questionnaire for contractors and SCRC members and a research schedule for key informant interviews with engineers. Data were analyzed using both descriptive and inferential statistics with the help of the Statistical Package for Social Sciences, SPSS. The study utilized the t-statistic to test the null hypotheses. Validity and reliability of research instruments were ensured through a pilot survey and expert evaluation. The results showed that stakeholder participation has a significant influence on the relationship between risk management strategies and implementation of road construction projects. It has a positive and significant direct impact on road construction projects, with an estimated t-statistic value of $|t| = 10.321$, against the theoretical t-statistic value of $|t05| = 1.943$. In general, it is concluded that stakeholder participation significantly moderates the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County ($|t| = 10.321$). The study recommends that all categories of stakeholders need to be consulted and considered during the risk management process and implementation of road construction projects. In summary, KeRRA should institutionalize structured stakeholder engagement throughout the project lifecycle. Project managers should therefore integrate stakeholder participation into formal risk management plans rather than treating it as a peripheral activity.

Keywords: KeRRA, Migori County, Road Construction Projects, Stakeholder Participation, Risk Management

I. INTRODUCTION

In China, the Roads and Highway Construction industry has experienced rapid growth, fueled by urbanization, rising automobile ownership, increased freight, increased passenger road transportation volumes and greater government investment alongside the adoption of risk management strategies (Shubina et al., 2020). In 2020, the industry's revenue was projected to reach $263.2 billion, reflecting a 12.1% increase compared to 2018. Over the previous five years, revenue had grown at an average annual rate of 17.0%. Additionally, the rate of road project implementation doubled, rising from 35% to 74% Between 2016 and 2020, the total road network in China expanded from 3.7 million kilometres to an estimated 4.3 million kilometres, while the highway network grew from 60,300 kilometres to approximately 108,600 kilometres. By 2020, the industry comprised 46 enterprises operating 423 establishments and employing 739,696 workers, with a total payroll of $14.1 billion. Despite these advancements, the sector continued to struggle with time and cost overruns (Adhikari, 2020). Roya et al. (2022) carried out an analytical study of project governance and Stakeholder participation in Italy and discovered that despite the critical role of stakeholders in project governance, project management literature lacks a comprehensive framework that clearly defines the roles, relationships, and positions of internal and external stakeholders within and beyond an organization's governance structure. The study reviewed the existing literature on project governance to highlight the context in which stakeholders are situated, examine their roles and relationships both within and outside the organization, and propose new research directions.

In Rwanda, Mupende (2023) carried out an empirical analysis of project monitoring practices on implementation of road construction in Rwanda. The primary objective of the study was to analyze the impact of project monitoring practices on the implementation of road construction projects. The research was conducted on the Kicukiro-Bugesera Road in Kigali, Rwanda. The specific objectives included examining the effects of communication, monitoring tools, stakeholder participation, and staff competency on the implementation of road construction projects in Kigali. The study adopted a descriptive research design, targeting 84 project managers, committee members, and monitoring committee members. A structured closed-ended questionnaire was used to

collect primary data from the 84 sampled respondents. A pilot study was conducted to test the reliability and validity of the instruments. The study's quality and consistency were assessed using Cronbach's alpha. Data analysis was performed using the Statistical Package for Social Sciences (SPSS) version 23, and the findings were presented using frequency counts, percentages, means, standard deviations, regression, correlation, and in table format. The findings showed that 52.4% of respondents strongly agreed that project monitoring tools influence the implementation of road construction projects in Rwanda, while 41.7% agreed. No respondents remained neutral, and 5.9% disagreed, with none strongly disagreeing. This indicates that the majority of respondents (52.4%) believe that project monitoring tools play a significant role in the successful implementation of road construction projects in Rwanda. The study also found that effective monitoring processes require management support as a key factor for project success. It recommends that management provide support to all levels of stakeholders to ensure project success. Mupende (2023) study is similar to the current study in methodology, content and form with the only contrast being in research design. Though the geographical difference may mean differences in policies and overall results, it is important to carry out a similar study in the Kenyan context. Added to these, in a study, 15 fascinating project management statistics, Lim (2020), noted that the population considered for a research study is very crucial, the fewer the population the less likely the results will be a fair representation of the entire population, and in most cases the threshold is above 100 hence the population selected for this study (84) may yield inconclusive results. The current study used a population of 419 out of which 234 was sampled for the study.

In Africa, Opeoluwa et al. (2022) while studying external Stakeholder's impact on road infrastructure projects noticed that road infrastructure improves a country's economy through the transportation of goods and resources while providing access to various facilities. To achieve success in road construction projects, it is crucial to engage stakeholders involved to prevent conflicts and controversies during the project's execution. The successful completion of construction projects relies on meeting stakeholder expectations. However, the connection between stakeholders, risk management strategies and the implementation of road construction projects has been largely overlooked. In light of this, the current study aims to examine the moderating influence of stakeholder participation on the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County, Kenya. Despite extensive research on risk management and project implementation in the construction sector, several critical shortcomings remain in the literature; prior research has primarily examined main effects rather than conditional relationships. Many studies explore; the direct impact of risk management strategies (RMS) on project implementation success, and the influence of stakeholder participation (SP) on project outcomes.

However, few studies examine how stakeholder participation alters (moderates) the strength or direction of the relationship between risk management and implementation outcomes. In other words, does stakeholder involvement change how effective risk management strategies are in delivering successful project outcomes? By incorporating stakeholder participation as a moderator, the current study advances beyond simple correlational or direct-effect models to a conditional interaction model that better reflects real-world project dynamics. This study also integrates stakeholder theory with risk management frameworks. Most existing frameworks examine risk management and stakeholder participation in isolation. The current study bridges two theoretical domains by; situating stakeholder participation within risk management effectiveness models and providing evidence that supports an integrated theoretical framework where participation conditions risk outcome relationships. This contributes to theory by expanding existing risk management models and Introducing interaction effects that better mirror complex project environments that involves stakeholders.

1.1 Statement of the Problem

Klynveld Peat Marwick Goerdeler (KPMG) research consultants carried out an analysis of road infrastructure in Migori County and the neighbouring Kisii County in 2021. Both Kenya Urban Roads Authority (KURA) and KeRRA roads were included in the study. According to the study report, approximately 75% of KeRRA roads in Migori County had not been completed. Moreover, 70% of KURA roads also stalled. On the other hand, the study reported that 80% of KeRRA roads in Kisii County were completed and KURA road projects implemented had posted 98% completion rate. Implementation of selected roads in the devolved unit of Migori is below average. Road networks in the County is made up of 1,928 kilometres out of which 25% is gravel and 75% is earth, out of this, it is estimated that 69.9 % have not been successfully implemented both in terms of quality, meeting set budget and completion timelines. Observations in Machakos County show that few road construction projects fell behind implementation schedule when stakeholders were involved in the planning and execution of the projects. Extant studies have largely focused on urban roads, hence the constructs of rural roads have not been adequately addressed, and these studies also ignored the contribution of stakeholder participation on the dynamics of road project construction. It is against this backdrop that the current study wishes to establish the moderating influence of stakeholder participation on implementation of KeRRA road construction projects in Migori County, Kenya.

1.2 Research Objective

To determine the moderating influence of stakeholder participation on the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County.

1.3 Research Hypothesis

Stakeholder participation has no significant moderating influence on the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Stakeholder Theory

This theory was developed by Donaldson and Preston (1995), the theory posits that companies should consider the interests of all their stakeholders when making decisions. The theory recommends directly engaging with stakeholders which is crucial for understanding their concerns, expectations and values. This helps the project managers to make informed decisions that benefits all parties involved. Engaging in dialogue builds trust and allows project managers to be proactive in addressing potential conflicts. Further, stakeholder theory recommends promotion of sustainable practices by emphasizing the long term benefits of considering stakeholders' needs.in addition, by fostering positive relationships with all stakeholders, managers of projects create a stable and sustainable operating environment. The main hypothesis of this theory is that effective project implementation depends on managing diverse stakeholder interests, and that active stakeholder engagement positively moderates the relationship between risk management and project implementation. It is relevant to this study because it is recognised that poor stakeholder engagement for example land owners, politicians and the local community is a common cause of road project delays and sometimes even abandonment. It is applicable here as it helps study how identifying and managing stakeholder related risks contributes to a smoother project implementation.

This research focused more on the utility of stakeholder's theory for examining the complexities involved in local stakeholder participation in road project construction. Muturi and Oguya (2022) called for future stakeholder research to avoid theoretical debate, and instead use stakeholder theory's insights to examine real world problems with a view to creating solutions. Some of the solutions in the road construction sector can best be done at the planning stage by introduction of risk management strategies. Construction management, as a research field, primarily concentrates on planning and overseeing the diverse set of activities necessary to successfully execute a construction project, such as building a road or a structure (Odeck, 2021).

2.2 Empirical Review

2.2.1 Stakeholder Participation and Implementation of Kerra Road Construction Projects

A project's participants signify all those with any interest in the project's accomplishment or results (Rajeev & Pradeep, 2021). A stakeholder is any individual or entity with an interest or concern in a business or project (Bhasin, 2020). Stakeholders can influence or be influenced by the business or project outcomes. They are categorized into two types: internal and external stakeholders. Internal stakeholders include employees, managers, project managers, and sponsors, while external stakeholders encompass suppliers, government agencies, vendors, customers, users, communities, shareholders, and creditors. Lim (2020) emphasizes the importance of considering stakeholders as they can directly or indirectly impact the project's progress and success. Stakeholders often exhibit both interest and concern in a project to maximize its outcomes. Additionally, Vukawanadi and Mkandawire (2021) notes that stakeholders may either benefit from or be affected by the project's results or play a direct role in its execution. It is seriously imperative to use good stakeholder management practices and safeguard all participants' communication requirements to ensure their support and association that increases the chance of the success of implementation of a project (Kamassi et al., 2020).

Claus et al. (2020) looked at behaviour of internal stakeholder in project portfolio management and its impact on project success in Germany and found out that stakeholder behaviour and stakeholder management are key success factors within project portfolio management (PPM). Their empirical study of 197 project portfolios investigated the effect of the intensity of engagement (IoE) of portfolio-internal stakeholder on project portfolio success. While this study looked at internal stakeholders, the current study sought to investigate the moderating influence of stakeholder participation on road project implementation, emphasis was given to external stakeholders. The researcher sampled 115 portfolios for the study. The study revealed that the impact of stakeholders is specific to each phase and that role clarity, as an indicator of PPM maturity, influences the relationship between the involvement of stakeholders (IoE) and portfolio success. The influence of senior managers' involvement on success is not consistently positive, particularly in strategic portfolio structuring, and can even be negative in operational portfolio management within

well-established PPM systems. In less mature PPM systems, line managers often exploit their position in resource management. Interestingly, the role of portfolio managers in portfolio steering was found to be insignificant, there is therefore need to investigate the significance of stakeholders on implementation of roads. Overall, the paper highlighted the varied impact of stakeholder involvement on portfolio success.

In Africa, Opeoluwa et al. (2022) while studying external Stakeholder's impact on road infrastructure projects noticed that road infrastructure improves a country's economy through the transportation of goods and resources while providing access to various facilities. To achieve success in road construction projects, it is crucial to engage the external stakeholders involved to prevent conflicts and controversies during the project's execution. The study assessed the impact of stakeholders on the successful completion of road projects. A quantitative approach was used to investigate the effect of external stakeholders on road construction projects in South Africa. Data was gathered from both primary and secondary sources. A 76% response rate was obtained through a questionnaire survey, and the data collected were deemed suitable for analysis. Factor analysis was employed to reduce the large number of factors into four key clusters. The findings revealed that community unrest was the primary issue, followed by slow responses from current service providers, project delays, poor relationships among service providers, negative attitudes toward the project, frequent changes in local authority rules, regulations, and protocols, and resistance to property relocation. The study also found that involving stakeholders helps the public share information with regulatory bodies, which aids authorities in making more informed decisions and reduces the likelihood of project failure. Though the study underscored the importance of the stakeholder in a project especially in successful completion, it failed to clarify who the stakeholder is and did not consider internal stakeholders, additionally, the study lacked clarity on the crucial stages in which of stakeholders' involvement is crucial for project success to be achieved.

Opeoluwa et al. (2022) study draws a similarity with the current study in that both studies used secondary and primary data collection methods, the current study however, adopted concurrent triangulation research approach in investigating the moderating role of Stakeholder influence instead of the quantitative approach. Further, the study affirmed the important role of stakeholder participation and add that community participation is a requirement for development initiatives on roads but it failed to conclusively clarify whether stakeholder participation influence the project outcome per se or it is just another requirement. The current study sought to clarify this by analysing the moderating role of stakeholder participation on implementation of road construction projects. Asiedu and Faisal (2022) used online questionnaires while the current study used structured questionnaires handed over to the target respondents for their responses and Key informant interviews. The study also failed to identify the specific aspect of stakeholder satisfaction in relation to the study. The adoption and implementation of value co-creation in project management may enhance the definition of the project's scope, performance specifications and other criteria used to measure the success of a project, to meet the needs of stakeholder. By empirically presenting a project's success as a key mediator in shaping the effect of adopting value co-creation in project management on the stakeholder's satisfaction, this study laid a foundation for further theoretical explorations involving value co-creation in project management. While this study looked at how a project's success mediates the relationship between value co-creation and the stakeholder's satisfaction, the current study looked at the moderating role of stakeholder participation on influence of risk management strategies on implementation of KeRRA road construction projects.

Kalu and Maina (2021) explored the role of stakeholder involvement in the implementation of infrastructure projects at the Kenya Ports Authority. The study aimed to examine how stakeholder empowerment, communication, and grievance management influence the successful execution of these projects. Challenges encountered in project implementation at KPA included delays, cost overruns, scope changes, and compensation claims from the local community. The study was grounded in several theories, including stakeholder theory, empowerment theory, game theory, and communication theory. The similarity is that both studies employed the stakeholder's theory to underpin their research, however, the current study also employed risk management theory and project implementation theory. The study employed descriptive survey research design. The cadres of target population included persons in port electrical engineering, projects development and management, civil engineering, container operations, and conventional cargo operations departments totalling to 3,336 persons. The study used stratified sampling approach and the sample size was 358 persons in contrast, the current study employed simple random sampling using the lottery technique to obtain the sample size of 232 and purposive sampling was used for the Key Informants. A structured questionnaire with close-ended questions was used as the primary data collection tool. The validity of the instruments was ensured through content validity, construct validity, and face validity. The reliability of the instrument was tested using the Cronbach alpha coefficient. Data analysis was performed using Microsoft Excel and the Statistical Package for Social Sciences (SPSS) software. Multiple regression analysis was employed to assess the relationships and significance between the independent and dependent variables. The findings were presented using tables and charts. The study concluded that stakeholder empowerment enhances their ability and confidence in making decisions and choices. It recommended that stakeholders be empowered by involving them in decision-making processes, granting them greater control over their work environment, including tasks, pace, and reducing supervision. Additionally, the

organization should implement a clear and structured grievance management system that is well-known to all employees. These researchers underscore the significance of stakeholder participation in project implementation, however the study failed to specify explicitly as to whether stakeholder participation and its moderating role has direct link to the number of projects implemented successfully which is one of the concerns of the current study.

Wagude (2019) examined the moderating influence of conflict resolution on the relationship between transformational leadership and implementation of constituency development fund construction projects in public secondary Schools. In the study transformational leadership was depicted mainly in four dimensions; idealized behaviour, individual consideration, intellectual stimulation, and inspirational motivation. The study sought to explore whether Conflict Resolutions moderates the association between transformational leadership and implementation of Constituency Development Fund Construction Projects. Expost facto design was adopted in the study. Multifactor Leadership Questionnaire and Thomas Kilman Instruments were used as tools for data collection. Quantitative data was analysed descriptively using percentage, frequencies, mean, and standard deviation. Inferential analysis was carried out using correlations as well as regression analysis. The research hypothesis that encompassed five predictors of transformational leadership and conflict resolution did not significantly explain the variance in implementation of CDF funded construction projects, was tested at $\alpha = 0.05$ using Pearson correlation coefficient and the finding indicated a P-value 0.00, consequently, this meant that contrary to expectations, transformational leadership did not play any moderating role in the implementation of CDF funded construction projects in Kisumu County. The study explored the moderating effect of conflict resolution on the relationship between transformational leadership and the implementation of constituency development fund construction projects in public secondary schools. In contrast, the current study investigated the moderating role of stakeholder participation in the impact of risk management strategies on the implementation of KeRRA road construction projects, an area within infrastructure that has been largely overlooked.

Weyama (2020) investigated the impact of stakeholder involvement in institutional strategic planning practices in public secondary schools in Kenya, with a focus on Migori County as a case study. The research adopted a descriptive survey design. The target population included head teachers, deputy head teachers, and heads of departments from public secondary schools in Migori County, totalling 1,056 individuals. A sample size of 106 respondents was selected using stratified random sampling. Both primary and secondary data were used in the study. A questionnaire served as the primary data collection tool, which was distributed using the drop-and-pick method to reduce financial and time constraints. Secondary data were obtained from documents such as school strategic plans and minutes from B.O.G, P.T.A, and staff meetings. The collected data were both qualitative and quantitative. Qualitative data were analyzed through content analysis, while quantitative data were analyzed using descriptive statistics such as mean, mode, and median. The results of the study indicated that strategic planning process in public secondary schools involves stakeholders to a minimal extent mostly because of the time that it would involve. Case studies as research design have major analytical weaknesses especially when used with inappropriate sample size (Chohen, 2020). This study omitted an intervening or moderating variable, since each County makes its own independent bylaws, it is important to empirically find out the moderating influence of these variables the current study incorporated as one of the objectives, the moderating role of stakeholder participation on the influence of risk management strategies on implementation of KeRRA road construction projects in Migori County. As observed, majority of existing literature have examined stakeholder participation as an independent variable that directly influences project performance or implementation. However, few studies have explored how stakeholder participation changes or strengthens the relationship between other project management factors and project implementation**.** By introducing stakeholder participation as a moderating variable, this study provides a deeper understanding of how the level and quality of stakeholder engagement can enhance or weaken the effectiveness of KeRRA road project implementation.

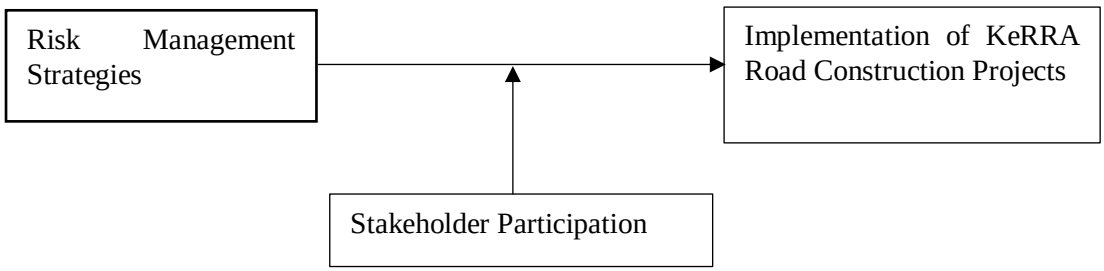

Figure 1
Conceptual Framework

Figure 1 illustrates the conceptual relationship among the study variables. A conceptual framework can be defined as an analytical device that consists of variations and contexts. It is applied to make conceptual differences and organize ideas. It captures real issues in a simple way that is easy to remember and apply. The conceptual framework helps in clarifying concepts and proposing relationships among the study concepts (Saunders et al., 2020). The conceptual framework depicts the influence of risk management strategies and Stakeholder participation on implementation of KeRRA road construction projects. According to Tserng et al. (2021) risk management theory attempts to explain the rationale behind organizations putting in place the right controls to support project implementation. The model demonstrates that Stakeholder participation is the moderating variable which may affect the road implementation process positively or negatively.

III. METHODOLOGY

3.1 Research Design

In this study, risk management strategies were measured by translating the concept into observable, quantifiable indicators that reflect how risks are identified, analyzed, mitigated, monitored, and communicated within KeRRA road construction projects in Migori County. Structured questionnaires were administered to the project stakeholders, which included project managers, engineers, and CRC members. Respondents rated the extent to which specific risk management practices are applied in their projects, using a Likert scale. Composite indices or mean scores were then computed for each dimension to represent the overall level of risk management strategy implementation. This approach ensured that risk management strategies were measured objectively, consistently, and in a way that supports statistical analysis of their relationship with project outcomes. To bring out concise and consistent results, Concurrent triangulation research design was employed. A research design is the plan or the overall strategy for conducting a research (Segal, 2020). Concurrent triangulation method involves converging or merging quantitative and qualitative data in order to provide an all-inclusive analysis of the research problem. In this design, the investigator collects both forms of data at the same time and then integrates the information in the interpretation of the overall results (Creswell, 2023). This can be diagrammatically represented as shown in Figure 2

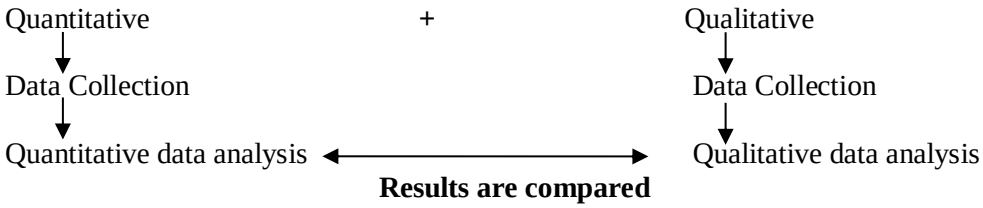

Figure 2
Concurrent Triangulation

Source: Creswell (2023)

Data for this study was collected through use of a questionnaire and an interview schedule. These two data sets were then analysed and compared to determine convergence or divergence.

3.2. Study Area

Migori County is one of the forty-seven Counties in Kenya that is located in the South Western part of Kenya along the Lake Victoria region. It lies between latitudes 1°24' and 1°40' South and between longitudes 34° and 50'East. It covers an area of between 2,586 km^2 to 2,596 km^2 most of which is land while 478 km^2 is covered with water (Lake Victoria). The County is bordering Republic of Tanzania to the South, Homabay County to the West and Transmara to the East. Migori County is divided into eight (08) Sub-Counties including Rongo, Awendo, Uriri, Suna East, Suna West, Nyatike, Kuria East and Kuria West Sub-Counties. The County is ethnically diverse comprising Luo, Kuria, Suba, Kisii, Luhya among others (Government of Kenya [GoK], 2023). In 2019, Migori County had a population of 1,116,400 persons comprising 48% males and 52% females (Kenya National Bureau of Statistics [KNBS], 2019). The major economic activity of Migori County is agriculture, trading and mining. Agriculture forms the largest source of livelihood and is dominated by livestock and crop production as well as fishing. The County is also a member of the 14-member Lake Region Economic Block (LREB). Total road network is 3,979 km out of which class A – international trunk road is 67.2km, class B – inter county roads is 130km, class C – major urban connections is 349.8km, class D – rural urban links is 233.8km, class E – rural access roads is 710.5km, class F – minor access roads is 186.7km, class G- local access roads is 1,342.7km and unclassified tracks or feeder roads is 958.3km. Of these roads, 5% is tarmacked, 43% gravel and 52% is earth road (GoK, 2023).

3.3 Target Population and Sample Size Determination

The target population for this study was 553 respondents. Out of this 92 comprised of 51 road contractors and 41 sub-contractors whose construction firms are listed in the Department of Roads, Transport and Public Works register as having been awarded contracts between 2020 and 2023 in Migori County. Also targeted were sub county roads committee members (SCRC) who normally carry out monitoring of roads projects. There are nine members per project hence, the 51 projects give a total of 459 respondents. Two Consultant Engineers who are KeRRA employees in the county were key informants for the study; therefore, the accessible target population for the study involved 553 respondents. According to information obtained from County Public Works Offices in Migori and confirmed from available reports, a total of 300 road contractors were prequalified and registered to perform road works in the county, though only 92 have been awarded contracts within the specified period, 51 of them to work on roads as main contractors and 41 as sub-contractors (County Integrated Development Plan, 2020).

Table 1: *Target Population*

No	Respondent	No. * Sub Counties	Total
1	Road contractors (companies)	50 Contractors and 41 Subcontractors	92
2	Sub County Roads Committee members	50 projects * 9 members of SCRC	459
3	Consultant Engineers	2 engineers for the County	2
	Total		**553**

Source: Migori County Public Works Office (2025)

3.4 Sampling and sample size

Table 2: Sample Size

No	Respondent	Target	Computations	Sample size
1	Road contractors (companies)	92	92/551*232	39
2	Sub County Roads Committee members	459	459/551*232	193
3	Consultant Engineers	2	All (100%)	2
	Total			**234**

Source: Migori County Public Works Office (2025)

The respondents were sampled as follows; 39 road contractors, 193 Sub County Road committee members and 2 consultant engineers.

3.4.1 Sampling Procedures

Sampling is the process of choosing a section of the accessible population from which the study is done through use of various techniques (Saunders et al., 2020). The sampling procedure guarantees that the inferences of the study can be generalised to the whole population, which was not selected (Segal, 2020). In selecting respondents for the investigation, probability and non-probability sampling methods were used. Simple random sampling method was applied in selecting Sub County Roads Committee members and KeRRA road contractors. This sampling technique allows each object or element in the sample frame to have an equal chance of being selected based on the proportion of their number in the target population. This design involved identifying a suitable sample frame, deciding on a suitable sample size, choosing the most appropriate sampling method and ensuring that the sample represents the whole population under investigation (Hodges, 2020).

With reference to Table 2, each category was selected. In order to select 39 out of 92 contractors, simple random sampling method was applied to select the respondents through use of lottery technique. This involved writing the contractors codes in sheets of paper (92) and thoroughly mixing the codes after which only 39 selections were made as representatives of the whole population. The procedure was repeated for SCRC members. The advantage of this method is that it allows the researcher to obtain a sample that best represents the entire population under study (Lincoln et al., 2020). This method ensures that each respondent has equal chance of being selected based on the proportion of their representation in the target population. On the part of KeRRA officials, purposive sampling method was used in their selection to collect information from them with regard to how they ensure that set standards of road constructions are followed and implemented by all stakeholders involved in KeRRA road construction projects.

3.5 Data collection tools and procedure

A questionnaire was used because it is easy to administer and the respondents filled the required data even in the absence of the researcher. Tserng et al. (2021) suggest that it is appropriate to collect data from samples using structured questionnaires. In the administration of the questionnaire to constituency roads committee members and

contractors, each respondent received a questionnaire, and a copy of the research authorization letter. For the interview, the consent letter was read to them in order for them to provide permission for the interview. The respondents were expected to voluntarily provide data and confidentiality of the data provided was guaranteed.

3.6 Data Analysis Techniques

3.6.1 Quantitative Data Analysis

Quantitative data was analysed by use of descriptive and inferential statistics. Inferential statistics was used to analyse data from the Likert scale. In descriptive analysis, frequencies, means and standard deviations were used to answer the research objectives. Coding and entry of quantitative data was done by use of Statistical Product and Service Solutions (SPSS) Version 25.0 computer software. Quantitative analysis begun by editing, coding, cleaning and transforming data. Once data were properly entered, analysis of data was undertaken. Regression analysis was done to determine the effect of the independent variable on the implementation of road construction projects (Gujarati, 2020). This was to establish the specific form and strength of the relationship between risk avoidance and implementation of KeRRA road construction projects. This was tested at 95% level of confidence, implying that 95 times out of 100 we can be sure that there is a significant influence between two sets of variables, and a 5% chance that the relationship does not exist. This error margin of 5% is used to test the null hypotheses. For the variables whose calculated p value were less than 0.05, the null hypothesis that corresponds to it is accepted.

The model is based on the assumption that, for any specific value of independent variable, the value of the Y variable is normally distributed - normality assumption, and that the variance for the Y variables is the same for each of the dependent variables - equal-variance assumption. The model aids in understanding how much of a variance in the dependent variable is explained by a set of predictors - independent variables. Multiple regression model is used to establish the influence of stakeholder participation on the implementation of KeRRA road construction projects. The information is presented using tables and statistical parameter estimates.

3.7 Ethical Considerations

This study was conducted with honesty and professionalism on the part of the researcher. The researcher obtained all the necessary research authorizations from the relevant authorities before embarking on the actual research. These included introductory letter from Rongo University School of Arts, Social Sciences and Business, and a research permit issued by the National Commission for Science, Technology and Innovation as well as a letter of introduction in which the researcher introduced himself, clearly informing the respondents of the purpose of the study, and assuring them of the confidential nature in which the information they provide would be treated. No data were captured from any respondent while he or she was unaware. The researcher obtained informed consent from all subjects used in the study.

IV. FINDINGS & DISCUSSION

4.1 Response Rate

Responses in this study were obtained from road contractors, sub county roads committee members and consultant engineers from Migori County KeRRA office. Data for the study came from 229 out of 232 questionnaires which were distributed to roads committee members during their scheduled meetings and contractors in their field offices. Interviews with the Consultant Engineers from the County Roads Department were effectively conducted in their respective offices. Administering the questionnaires at the convenience of the respondents ensured a high response rate. Three questionnaires were excluded from analysis because of incompleteness and problems of outliers, making the total response rate for questionnaires to be 229 which is 98.7%. This is shown in Table 3 below.

Table 3: Response rate

Sampled	Responded	Response Rate (%)
232	228	98.7%

According to Mugenda and Mugenda (2020) study report, the high percentage of response rate achieved in this study ensures a more accurate survey results as it classifies a response rate of above 75.0% to be extremely good in survey studies.

4.1.1 Stakeholder Participation in KeRRA Road Construction Projects in Migori County

The Constitution of Kenya demands that all public projects have to pass through stakeholder participation before commencement and during project implementation. Considering that risk management strategies on KeRRA roads projects have to follow the policies in place, stakeholder participation is taken as a moderating variable in this

study. Therefore, the study first asked the respondents to indicate how stakeholders are incorporated in risks management processes in the implementation of KeRRA road construction projects in Migori County. The statements on stakeholder participation were measured on a Likert scale of five. Firstly, a Likert scale is appropriate because stakeholder participation is a latent, multidimensional construct that cannot be observed directly. Elements such as consultation, involvement in decision-making, information sharing, and feedback mechanisms are best captured through respondents' perceptions and experiences. The Likert scale allows respondents to express the degree or intensity of participation in a standardized and easily interpretable manner, making it suitable for social science and project management research. Secondly, Likert scales enhance measurement reliability and validity. By using multiple statements to represent different aspects of stakeholder participation, the scale reduces random measurement error compared to single-item measures. The consistency of responses across items can be statistically tested (e.g., using Cronbach's alpha), thereby strengthening the credibility of the findings (Baker, 2021). Results are presented in Table 4. Key: SD-Strongly Disagree, D-Disagree, N-Neutral, A-Agree and SA-Strongly Agree.

Table 4

Stakeholder Participation in KeRRA Road Construction Projects in Migori County

Statements	SD	D	N	A	SA	Mean %	Std. Dev.
Key stakeholders are briefed on the project's progress and major decisions arrived at by the project managers	85	90	3	13	38	2.25 45%	1.43
Key stakeholders are given freedom to access relevant project data and documents	121	54	2	13	39	2.10 42%	1.51
Key stakeholders are being asked for their input before project implementation and feedback on the project before handing over	73	96	6	16	38	2.34 47%	1.41
Concerns of key stakeholders and their suggestions are prioritised	133	39	3	50	4	1.92 38.4%	1.27
Key stakeholders are given opportunity to actively participate in the project's prime decision making process	69	102	5	41	12	2.23 45%	1.20
Key stakeholders are given resources and support they need to contribute effectively towards project success	102	72	5	46	4	2.03 41%	1.19
Key stakeholders are satisfied with the level of participation they are accorded	93	78	6	49	3	2.08 42%	1.18
Key stakeholders' input is valued and their concerns are addressed well	151	23	1	10	44	2.00 40%	1.60
Composite scores						**2.12 42.2%**	**1.35**

Statistics in Table 4 show that respondents disagree (M=2.25, 45%, SD=1.43) that key stakeholders are briefed on progress of road construction projects and key decisions made by contractors. This suggests that stakeholders are neither consulted nor briefed on key decisions undertaken by project managers on road construction projects in Migori County. As to whether stakeholders are given freedom to access relevant project data and documents, many do not agree with this statement (M=2.10, 42%, SD=1.51). Whereas the Access to Information Act mandates individuals and organisations in the public sector to provide documents to concerned stakeholders, this practice is not adhered to during implementation of KeRRA road construction projects in Migori County. Key Informant number two stated that poor communication about project progress, changes and disruptions can lead to stakeholder dissatisfaction, negative media coverage and company reputational damage.

The respondents also disagree (M=2.34, 47%, SD=1.41) with the statement that key stakeholders are normally asked for their input before project implementation and given feedback on a project before handing over is done at the completion stage. This means that stakeholders play a minimal role as their input is rarely sought before and after completion of KeRRA road construction projects in Migori County. Further, the respondents disagree (M=1.92, 38.4%, SD=1.27) that concerns of key stakeholders and their suggestions are prioritized by implementing agencies. This means that the organisations involved in implementation of road construction projects do not value the comments and suggestions that different stakeholders raise during road project implementation. To avoid such kinds of incidents, stakeholder petitions need to be addressed and a well thought decision arrived at. When asked whether key stakeholders are accorded an opportunity to actively engage in project prime decision-making process, they appear to

disagree (*M*=2.23, 45%, *SD*=1.20) with this assertion. Therefore, active participation of key stakeholders in project decision making process is not evident for KeRRA road construction projects in Migori County.

Research findings also show that most respondents disagree (*M*=2.03, 41%, *SD*=1.19) with the statement that key stakeholders are provided with resources and support they require to effectively contribute towards road construction success. This means that unless the stakeholders use their own resources to make follow up of projects progress; the implementing agencies do not facilitate their participation. With respect to stakeholder satisfaction, most respondents disagree (*M*=2.08, 42%, *SD*=1.18) that they are satisfied with the level of involvement in KeRRA road construction projects implementation in Migori County. This means that stakeholders are unhappy with the way majority of KeRRA road construction projects are being implemented in Migori County since their input and contributions appear not to be taken into consideration. Lastly, the respondents also disagree (*M*=2.00, 40%, *SD*=1.60) with the statement that key stakeholders input is valued and concerns addressed to satisfaction during KeRRA road construction process. This means that stakeholder input is less valued by institutions involved in KeRRA road construction projects. Average data on the level of stakeholder participation are low (*M*=2.12, 42.2%, *SD*=1.35). This means that stakeholder participation in risk management on KeRRA road construction projects is low.

4.2 Hypothesis Testing

$IP = \beta_{01+} \beta_1 RA + \beta_2 RT + \beta_3 RR + \beta_4 RAV + \varepsilon_4$ (Model 1). Moel1 is used to establish the significance or otherwise, of effects of the four independent variables (Risk Acceptance, Risk Transfer, Risk Reduction and Risk Avoidance) on the implementation of KeRRA road construction projects. The model summary results are provided in Table 5.

Table 5

Model Summary of RMS and IP

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1	.840[a]	.705	.700	.54792717

a. Predictors: (Constant), RAV, RA, RT, RR

The theoretical t at the same degree of freedom and at the 5 percent level of significance is $|t_{05}| = 1.943$. Table 5 shows that the adjusted R-squared is 0.700, which means that 70.0% of the variation in the implementation of KeRRA road construction projects is explained by the four risk management strategies. The remaining 30.0% is attributable to other variables that were not included in the model.

$IP=0.071+0.066RA*SP+0.108RT*SP+0.221RR*SP+0.110RAV*SP+0.556SP+\varepsilon$ (Model 2)

Model 2 presents the relationship between the dependent variable (IP) and the interaction between stakeholder participation and each of the four risk management strategies, on the other hand. Performance of this expanded model is presented in Table 6

Table 6

Model output

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.918[a]	.843	.836	.40457272

a. Predictors: (Constant), SP, RT*SP, RA*SP, RR*SP, RAV, RAV*SP

Results in Table 6 show that introduction of stakeholder participation into the model as a moderating variable improves the predictive property of the model. The adjusted coefficient of multiple determination (Adjusted R-squared) increases from 0.700 (In Model 1) to 0.836 (In Model 2), implying that the explanatory variables in Model 2 explain 83.6% of the variation in the dependent variable.

Table 7

ANOVA Output

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	192.154	9	21.350	130.441	.000[b]
	Residual	35.846	219	.164		
	Total	228.000	228			

a. Dependent Variable: IP

b. Predictors: (Constant), SP, RT*SP, RR*SP, RAV, RAV*SP

Table 8

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	Std. Error	Beta		
1	(Constant)	.071	.041		1.749	.082
	RA*SP	.066	.039	.056	1.689	.093
	RT*SP	.108	.055	.074	1.958	.052
	RR*SP	.221	.063	.301	3.494	.001
	RAV*SP	.110	.063	.157	1.753	.081
	SP	.556	.054	.556	10.321	.000

a. Dependent Variable: IP

The theoretical t at the same degree of freedom and at the 5 percent level of significance is $|t_{05}| = 1.943$. The multiple linear regression function can be written as:

$IP=0.071+0.066RA*SP+0.108RT*SP+0.221RR*SP+0.110RAV*SP+0.556SP+\varepsilon$ … (Model 3)

The results in Table 8 show that there exist significant relationships between implementation of road construction projects in Migori County, on the one hand, and risk management strategies together with stakeholder participation as well as its interaction with risk management strategies, on the other hand. The coefficient of SP is positive and significant ($\beta_5 = 0.556$; ($|t| = 10.321 > |t_{05}| = 1.943$). This suggests that stakeholder participation has a positive and significant direct influence (direct moderating effect) on the relationship between the dependent variable and the explanatory variables. The null hypothesis, $H_{05,}$ is rejected as we accept the alternative hypothesis that stakeholder participation has a significant moderating influence on the relationship. The coefficient of RA*SP is also positive and significant ($\beta_6 = 0.066$; $|t| = 1.689 > |t_{05}| = 1.943$), which suggests that stakeholder participation also has a significant indirect moderating influence on the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County, through its interaction with risk acceptance strategy. The coefficient of RT*SP is positive and significant ($\beta_7 = 0.108$; $|t| = 1.958 > |t_{05}| = 1.943$), implying that stakeholder participation also has a positive and significant indirect influence on the relationship between the dependent variable and risk management strategies, through its interaction with risk transfer strategy.

The coefficient of RR*SP is positive and significant ($\beta_8 = 0.221$; $|t| = 3.494 > |t_{05}| = 1.943$). This suggests that stakeholder participation has an indirect moderating influence on the relationship between implementation of road construction projects in Migori County and risk management strategies, through its interaction with risk reduction strategy. The coefficient of RAV*SP is positive and significant ($\beta_9 = 0.110$; $|t| = 1.753 > |t_{05}| = 1.943$), which implies that stakeholder participation has yet another positive indirect moderating influence on the relationship between the dependent variable and the independent variables, through its interaction with risk avoidance strategy. Influence of stakeholder participation on the relationship between risk management strategies and implementation of KeRRA road construction projects is further demonstrated as illustrated:

$IP = \beta_{03}+\beta_1RA+\beta_2RT+\beta_3RR+\beta_4RAV+\beta_5SP+\beta_6RA*SP+\beta_7RT*SP+\beta_8RR*SP+\beta_9RAV*SP+\varepsilon$……(Model 4)

Where:

SP = Stakeholder participation;

RA*SP = Interaction between risk acceptance and stakeholder participation;

RT*SP = Interaction between risk transfer and stakeholder participation;

RR*SP = Interaction between risk reduction and stakeholder participation;

RAV*SP = Interaction between risk avoidance and stakeholder participation;

ε = Stochastic error term, which is assumed to be normally distributed with a zero mean and a constant variance;

β_{03} = Constant term;

β_5 = Coefficient of stakeholder participation, which measures the variation in the dependent variable which is attributable to a one unit change in stakeholder participation; it is the direct effect of stakeholder participation on the relationship between IP and the four risk management strategies;

β_6 = Coefficient of RA*SP, which is a measure of the variation in the dependent variable (IP), which is attributed to the effect of the interaction between stakeholder participation and risk acceptance. It is the indirect influence of stakeholder participation on the dependent variable arising from its interaction with the risk acceptance strategy;

β_7 = Coefficient of RT*SP, which measures the variation in the dependent variable which is attributed to the effect of the interaction between stakeholder participation and risk transfer. It is the indirect effect of stakeholder participation on the dependent variable through its interaction with risk transfer strategy;

β_8= Coefficient of RR*SP, which measures the variation in the dependent variable, which is attributed to the effect of the interaction between stakeholder participation on the dependent variable arising from its interaction with the risk reduction strategy;
β_9= Coefficient of RAV*SP, which measures the variation in the dependent variable, which is attributed to the effect of the interaction between stakeholder participation and risk avoidance. It is the indirect effect of stakeholder participation on the dependent variable arising from its interaction with the risk avoidance strategy.

Model 4 suggests that stakeholder participation (SP) has a direct influence on the dependent variable (IP) in its own role as an additional explanatory variable (SP); and that in addition it has indirect influences on the dependent variable through its interaction with individual risk management strategies; RA, RT, RR and RAV, as illustrated in figure 3.

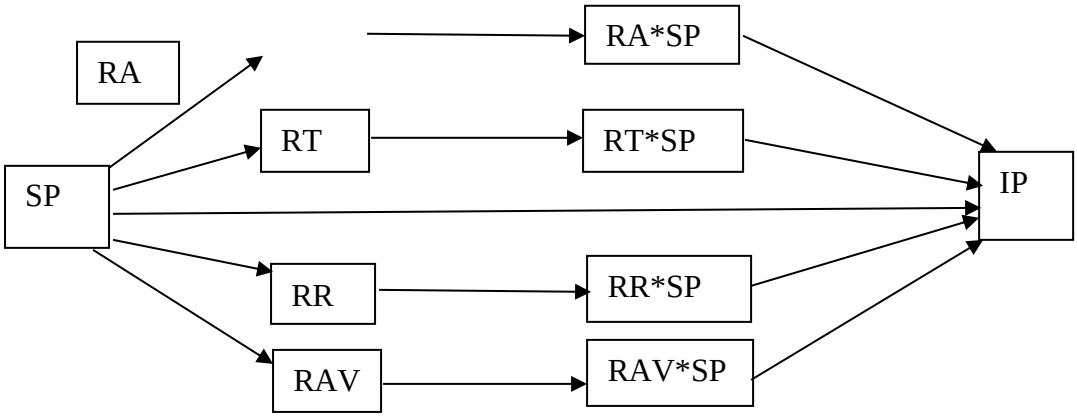

Figure 3
The Influence of Stakeholder Participation on Implementation of Road Construction Projects in Migori County

The variables RA, RT, RR, RAV and SP are measured as the mean values of the responses by each individual respondent to each of the questions under each variable, measured on Likert scale. These mean values are used in descriptive and inferential statistical analyses. The dependent variable (IP) is measured in the same way. Stakeholder participation, therefore, influences the relationship between implementation of KeRRA road construction projects in Migori County and risk management strategies indirectly through its interaction with the strategies and directly through its interaction with project implementation as a variable. Therefore, the null hypothesis that stakeholder participation has no significant moderating influence on the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County is rejected and the alternative hypothesis that it does have a significant moderating influence is accepted.

4.3 Discussion

4.3.1 Stakeholder Participation and Implementation of KeRRA Road Construction Projects

This study established that stakeholder participation has positive and significant direct as well as indirect moderating influence on the relationship between implementation of road construction projects and risk management strategies. The indirect influence of stakeholder participation arises from its interaction with each risk management strategy. The study, therefore, rejects the fifth null hypothesis (H_{05}), that stakeholder participation has no significant moderating influence on the relationship between risk management strategies and implementation of KeRRA road construction projects. Furthermore, introduction of stakeholder participation variable improves the predictive power of the linear multiple regression model. The adjusted coefficient of multiple determination (Adjusted R^2) increases from 0.700 to 0.836, which suggests that the extent to which changes in the explanatory variables explain variation in the dependent variable increases from 70% to 83.6%.

Stakeholder Theory posits that organizations and projects perform better when the interests, expectations, and influence of key stakeholders are actively recognized and incorporated into decision-making processes. The findings of the study largely support Stakeholder Theory by demonstrating that stakeholder participation significantly strengthens the relationship between risk management strategies and project implementation outcomes. Specifically, the results indicate that risk management strategies are more effective in projects with high levels of stakeholder participation than in those with low participation. This supports the central tenet of Stakeholder Theory that value is

created not solely through managerial or technical control, but through inclusive engagement of affected and influential stakeholders**.** By acting as a moderating variable, stakeholder participation validates the theory's argument that stakeholder involvement is not merely beneficial in isolation, but conditions the effectiveness of managerial practices**,** including risk management. However, where the findings show limited or insignificant effects of stakeholder participation in certain project phases, they also challenge the normative assumption of Stakeholder Theory that more participation always leads to better outcomes. This suggests that stakeholder participation must be structured, meaningful, and well-managed to yield positive results, thereby refining rather than rejecting the theory. The findings reveal several practical mechanisms through which stakeholder participation enhances risk management effectiveness in project implementation; Active stakeholder engagement builds trust between project implementers and affected parties. Trust encourages open communication, allowing stakeholders to share concerns and emerging risks without fear of exclusion or retaliation (Njogu, 2020). This transparency improves the accuracy and timeliness of risk information, strengthening risk monitoring and response.

It can, therefore, be concluded that stakeholder participation moderates the relationship between risk management strategy and implementation of KeRRA road construction projects in Migori County. This study finding is in conformity with Roya et al. (2022) finding in an analytical study of project governance and stakeholder participation in Italy, which observed that despite the importance of stakeholders in project governance, project management literature lacks an inclusive framework which defines the roles, relationships and positions of internal and external stakeholders, inside and outside of the organization's governance structure. From a theoretical perspective and considering the lack of theories to support general doctrine of stakeholder theory, this study finding also gives insights into the theory by confirming its importance as suggested by Muturi and Oguya (2022), who called for future stakeholder research to avoid theoretical debate, and instead use stakeholder theory's insights to examine real world problems with a view to creating solutions. When stakeholders are involved in planning and decision-making, they are more likely to understand project objectives and constraints. This sense of ownership minimizes opposition, disputes, and conflicts that commonly escalate into major project risks such as delays, legal challenges, or work stoppages. Stakeholder participation contributes to the development of practical and socially acceptable mitigation measures**.** For example, community input can inform compensation mechanisms, access routes, or construction schedules that reduce social and environmental risks while maintaining project momentum.

From the theoretical front, the finding concurs with the stakeholder theory as it considers the dearth of empirical studies to support general doctrine of stakeholder theory, this study suggests that future governance studies adopt a broader view in selection of theoretical lenses in order to include the social and psychological aspects of the management of the internal and external stakeholders, especially in road construction projects (Abdul-Rahman et al., 2021). The study provides an empirical validation that involvement of the stakeholder in projects positively influences their performance. In a divergent view, Weyama (2020), while exploring stakeholder influence in institutional strategic planning practices in public secondary schools in Kenya, tried to explore the influence of stakeholder in institutional strategic planning practices in public secondary schools using Migori County as a case study. The results of the study indicated that strategic planning process in public secondary schools involves stakeholders to a minimal extent mostly because of the time that it would involve in collecting their views, hence the study argues that other factors are more crucial than stakeholder participation.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Study results revealed that stakeholder participation was poorly conducted in KeRRA road construction projects in Migori County (M=2.12, SD=1.35). All the computed means were below 2.5, which suggests that the issue of stakeholder participation in road construction is not given much attention despite the positive impact it could have on ensuring road projects are conducted well. Nevertheless, the hierarchical regression coefficient Statistics showed that with the introduction of the moderator, the adjusted r-square changed from 0.700 to 0.836 which implies that stakeholder participation consideration in risk management practice could positively result to effective implementation of KeRRA road construction projects in Migori County. The moderating effect of stakeholder participation on implementation of KeRRA road construction projects is significant (|t| = 10.321). This meant that stakeholder participation significantly moderates the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County, Kenya. In general, it is concluded that stakeholder participation significantly moderates the relationship between risk management strategies and implementation of KeRRA road construction projects in Migori County (|t| = 10.321). The findings of this study have important implications for KeRRA road construction projects. The evidence that stakeholder participation moderates the relationship between risk management strategies and project implementation suggests that KeRRA should institutionalize structured stakeholder engagement throughout the project lifecycle. Early and continuous involvement of local communities,

contractors, county governments, and oversight agencies can enhance risk identification, reduce conflicts related to land acquisition and compensation, and improve the effectiveness of risk mitigation measures. Project managers should therefore integrate stakeholder participation into formal risk management plans rather than treating it as a peripheral activity.

5.2 Recommendation

Promote stakeholder engagement in in risk management. Involve all relevant stakeholders including local communities, contractors and government agencies in risk planning and response. The diverse perspectives would improve risk identification and create a broader ownership of risk management plans and the entire project. All categories of stakeholders need to be consulted and considered during risks management process and implementation of road construction projects. Additionally, since the study focuses on KeRRA projects within a single national context, the generalizability of the findings is limited. Future research should conduct cross-country comparative studies involving road authorities in different countries to assess whether the moderating role of stakeholder participation varies across institutional, cultural, and regulatory environments. Such studies would strengthen the external validity of the findings and contribute to a broader understanding of stakeholder participation in infrastructure project risk management.

Limitations of the Study

First, the study may be limited by its cross-sectional research design, which captures stakeholder participation and project outcomes at a single point in time. Such a design restricts the ability to observe how stakeholder participation evolves across different phases of the project lifecycle and limits causal inference regarding its moderating influence on risk management and project implementation. Secondly, stakeholder participation is a complex and context-dependent construct**.** Measuring it using standardized instruments (such as Likert scales and composite indices) may oversimplify qualitative aspects such as power dynamics, informal influence, and depth of engagement, thereby constraining the richness of the findings. Further data was obtained from Constituency roads committee members and Contractors through self-administered questionnaires, the self- reported data may be potentially biased.

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