Community Participation's Mediating Effect on Project Planning and Road Project Performance in Kenya's Arid and Semi-Arid Counties

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ABSTRACT

The road construction industry is inherently complex due to the involvement of numerous parties, including the government, contractors, consultants, stakeholders, and regulators. In Kenya, road projects have been facing challenges, resulting in delays, increased costs, and subpar quality. The study was anchored on theory of constraints and supported by Stakeholder Theory, Resource Based View Theory and Regulation Theory. The purpose of the study was to examine the mediating role of community participation in the link between project planning and road project performance in Kenya's arid and semi-arid counties. The study adopted positivism philosophy. The study applied a descriptive survey research design that was cross sectional in nature. The study adopted purposive sampling technique where primary data was collected using a questionnaire from 198 respondents. The study respondents were the contracted company's project managers, county public works officers and the local community leaders who are most advantageously placed and in the best position to provide the information required. Quantitative data was analyzed using descriptive and inferential statistics which included correlation and multiple regressions. The study results revealed that strong positive correlation (R=0.648) between project planning and performance of road projects; strong positive and statistically significant correlation (R=0.718) between project planning, community participation and performance of road projects; and that 51% (R^2=0.510) of variation in and performance of road projects is explained by the project planning, community participation. Further, community participation partially mediates the relationship between project planning and performance of road projects. The study recommends the development of comprehensive and workable project designs that take into account the one-of-a-kind conditions that are typical of arid and semi-arid regions. There is a need for greater investment in training and development efforts that target project planners and engineers, with the purpose of expanding their knowledge and understanding of the design and execution of road projects within arid and semi-arid regions. Establishment of project planning frameworks that are especially adapted to the contextual needs of arid and semi-arid settings is an absolute necessity if one wants to successfully handle the one-of-a-kind difficulties that are offered by arid and semi-arid environments.

Keywords: community participation, project planning, road project performance, Kenya

BACKGROUND OF THE STUDY

Roads are a fundamental component of transportation infrastructure that provides support for human society. They establish crucial connections between target markets, manufacturing facilities, and production hubs. They promote economic progress, which is evident in the form of increased employment opportunities as well as improvements in the social, health, and education sectors. These factors are crucial in combating poverty (Wandiri & James, 2020). Research conducted in the USA has found that project owners worldwide are reducing or canceling capital construction projects due to financial constraints, uncertainty regarding costs, inadequate management, and concerns about potential delays that could affect the project's feasibility (Gitonga, Muchelule & Nyang'au, 2022). According to Lu Shan (2018), Chinese construction firms successfully completed their projects on time and within budget by utilizing effective planning and control techniques, ensuring proper coordination between designers and contractors, and leveraging their technical and

professional expertise. According to Boddy (2015), the effective implementation of infrastructure projects relies on management commitment, proper information and communication channels, and qualified workers.

Studies in the Gulf region revealed that time and cost overruns had an impact on a number of construction projects (Gunduz & Elsherbeny, 2020). Due to issues including poor design and inaccurate schedule and cost predictions, over 85% of construction projects in Qatar ran over budget and into other problems (Gunduz & Elsherbeny, 2020). The construction industry in Bahrain has had similar issues, with projects being delayed as a result of crucial variables like poor scheduling and planning. Additionally, it was discovered that some construction projects in Oman faced scheduling delays of more than 40% above the initial plans (Yap et al., 2021).These studies in the Gulf region showed that among the most important factors causing schedule deviations and cost overruns are inadequate planning and poor scheduling of project activities, ineffective design phases, ineffective project stakeholder collaboration and ignorance of project requirements (Yap et al., 2021). According to Mishmish and El-Sayegh (2018), the primary factors behind project delays included poor scope definition, an unrealistic beginning or baseline plan, and changes in the requirements of project stakeholders, particularly owners. As a result, it is important to concentrate on project planning issues because they have a negative effect on the project's performance.

In Africa, delays in the operation of government-funded projects are a typical occurrence. In Nigeria seven out of ten projects surveyed had implementation delays (Ogbeide et al., 2022). Further, 5–10% of the pre-contract cost for government projects in Nigeria is based on contingency (Ogbeide et al., 2022). This has been determined to be insufficient, which occasionally results in additional financial obligations beyond the owner's capacity. Sometimes, clients are not ready for this, thus money in the form of loans is sought to cover these extra expenses. According to Ogungbile et al. (2018), construction delays are now commonplace in Nigeria. Mohamed and Adam (2020) note that despite a large number of reported cases, cost overruns are becoming more frequent in Sudanese construction projects, ranging from straightforward to highly complicated project platforms. This is according to a study that looked at the performance of construction projects in Sudan. Amoatey and Ankrah (2017) note that studies show an increase in cost overruns, delayed completion and unsatisfactory and missed project objectives in the majority of construction projects in Ghana, where this issue is also seen there. Pienaar (2021), research on the issue of project delays in South Africa, notes that this phenomenon can be ascribed to the project teams and the client's/his representative's incapacity to have a complete understanding of the construction project from origin to completion. They thus emphasize the necessity to raise public understanding of how much delays can harm project delivery.

Project Planning

Practices for project time planning comprise all planning steps required for a timely project completion. The activities definition, activity sequencing, schedule development, activity length estimation, and resource estimation of the activity are the planning processes in the time knowledge domain, according to PMBOK (2004). The time plan is one of the project's most crucial plans. Time schedules are created using a work-breakdown structure (WBS) that has already been defined. To create realistic and doable plans, tasks must be precisely scheduled, according to Antvik & Sjöholm (2007). The process of activity resource estimation includes calculating the projected amount of each resource to be consumed as well as the resources that are required. Materials planning procedures result from the need for equipment, manpower, and other resources. The procedure also includes scheduling the availability of each resource, particularly the material needed in the project (PMBOK, 2004).

Community Participation

Community participation is process by which an organization involves individuals (community stakeholders) who may be impacted by the decisions it makes or who may have an impact on how those decisions are implemented. Community participation, according to Michungu (2020), is the method utilized by an organization to involve pertinent stakeholders in order to accomplish desired objectives (Michugu, 2020). The community stakeholders are people or organizations that actively participate in a project, whom interests may be impacted by how well the project is carried out or completed, and who may also have an impact on the project's goal and results. Community stakeholders include neighborhoods, community development groups,

environmental organizations, development organizations, citizen associations and non-governmental organizations (NGOs). In this study, the term "Community Participation" is the same as "Community participation/participation" which refers to the procedure an organization uses to involve pertinent stakeholders in order to achieve predetermined goals.

Performance of Road Project

Evaluating project deliverables against key performance indicators (KPI) allows for the determination of road construction project performance. These key performance indicators (KPIs) assess the timeliness, cost-effectiveness, quality, efficiency, accuracy, safety, and profitability of project delivery (Vandevoorde & Vanhoucke, 2016). According to Pheng and Chuan (2006), the performance of a project may be evaluated from two perspectives: the stakeholders' viewpoint and the developer's viewpoint. Project time refers to the period starting at the beginning of a project and ending at its conclusion. According to Ngacho (2013), there are two primary time factors to consider: the project time and the actual completion time. Project time failures occur when there are excessive delays or overruns in the execution process (Lensinko, 2015).

Statement of the problem

Successful road construction is a stimulus for economic development, as stated in Kenya Vision 2030 (Kenya Vision, 2030). As a result, the government has made large investments in the construction of roads (Abdi, 2021). For example, in the 2017/2018 Financial Year, Kenya National Highways Authority (KeNHA) proposed to construct 13,238.73 kilometers of roads at an outlay of Ksh. 21,459,228,002, while Kenya Rural Roads Authority (KeRRA) planned to sustain 28,244 kilometers of roads with a spending plan of Ksh. 11,893,617,021. The Kenya Urban Roads Authority (KURA), on the other hand, supposed to maintain 2,339 kilometers of roads for a total of 5,206,382,979 people (KRB, 2016). Akali (2018) laments that, despite the government's continued investment in road building, nearly 75% of all projects (road construction) in Kenya's arid and semi-arid counties encounter a number of challenges that prevent them from being finished on schedule, incurring cost overruns, or falling short of the required quality standards. Furthermore, according to Abdi (2020), only 10% of the building projects carried out in the region by construction firms registered in Kenya using Constituency Development Funds (CDF) were successfully completed. The balance were either incompletely (30%) or never finished (60%) finished and therefore if current trend in road construction continues unaddressed, Kenya's Vision 2030 of enhancing domestic and regional trade through construction and upgrading 10,000 Kilometers of the national and county roads network won't be realized.

Research Objective

To determine the mediating effect of community participation on the relationship between project planning and performance of completed road projects in arid and semi-arid counties in Kenya.

Research Hypotheses

Ho_1: There is no significant mediation effect of community participation on the relationship between project planning and performance of road projects in arid and semi-arid counties in Kenya.

LITERATURE REVIEW

Theoretical Literature

Theory of Constraints (TOC)

Dr. Eliyahu Goldratt conceived the Theory of Constraints (TOC), and introduced it to a wide audience through his bestselling 1984 novel, “The Goal”. Because of this, TOC has kept changing and growing, and now it is an important part of best practices for management. The core concept of the Theory of Constraints is that every process has a single constraint and that total process throughput can only be improved when the constraint is improved. A very important corollary to this is that spending time optimizing non-constraints will not provide

significant benefits; only improvements to the constraint will further the goal (achieving more profit).Thus, TOC seeks to provide precise and sustained focus on improving the current constraint until it no longer limits throughput, at which point the focus moves to the next constraint. The underlying power of TOC flows from its ability to generate a tremendously strong focus on a single goal (profit) and to remove the principal impediment (the constraint) to achieve more of that goal. The Theory of Constraints provides a specific methodology for identifying and eliminating constraints, referred to as the Five Focusing Steps. As shown in the following diagram, it is a cyclical process.

The Five Focusing Steps are: Identify; identify the current constraint (the single part of the process that limits the rate at which the goal is achieved). Exploit: Make quick improvements to the throughput of the constraint using existing resources (i.e., make the most of what you have).Subordinate; Review all other activities in the process to ensure that they are aligned with and truly support the needs of the constraint. Elevate; If the constraint still exists (i.e., it has not moved), consider what further actions can be taken to eliminate it from being the constraint. Normally, actions are continued at this step until the constraint has been "broken" (until it has moved somewhere else). In some cases, capital investment may be required. Repeat; The Five Focusing Steps are a continuous improvement cycle. Therefore, once a constraint is resolved, the next constraint should immediately be addressed. This step is a reminder to never become complacent, aggressively improve the current constraint and then immediately move on to the next constraint.

Stakeholder Theory

In 1983, Edward Freeman introduced the stakeholder hypothesis, which posits that many parties have an impact on an organization's activities and may be seen as a consequence of those activities. Mishmish and El-Sayegh (2018), proponents of this idea, argue that organizations must include their stakeholders and prioritize their interests. According to this concept, successful firms are those that can consider the objectives of the bulk of the firm's many stakeholders. To implement this idea effectively, one must possess a comprehensive comprehension of the diverse array of stakeholders inside an organisation, as well as the extent of their impact on the firm. Stakeholder theory is a management and business ethics framework that acknowledges the influence and importance of various parties, not just shareholders, on a company or organization's success. It argues that businesses have a responsibility to consider the interests of all stakeholders who are impacted by their decisions and actions.

This study on road project performance in dry and semi-arid areas of Kenya is greatly influenced by stakeholder theory, which considers the effects of project design, government regulations, and community participation. The internal stakeholders in road projects include government agencies, project teams, contractors, and investors. External stakeholders include local people, landowners, environmental organizations, non-governmental organizations (NGOs), and companies. Impact of Stakeholders: Project planning involves seeking feedback from stakeholders, who may provide useful insights into route selection, design considerations, and possible effects. This collaborative approach enhances the effectiveness and inclusivity of the planning process. Government regulation may be informed by stakeholder involvement, which helps establish rules that address varied requirements and minimize negative repercussions. Community engagement: The active involvement of the community encourages a sense of ownership, enhances the likelihood of project success, and minimizes the risk of interruption or conflict.

Resource Based View Theory (RBV)

Edith Penrose's work laid the groundwork for the Resource-Based View (RBV) theory, it was

Birger Wernerfelt who is credited with formally introducing the RBV in his 1984 article "A Resource-Based View of the Firm." However, it was Jay Barney who further developed and popularized the theory, making significant contributions to its conceptualization and application. The Resource-Based View (RBV) is a management theory that focuses on how a firm can achieve sustained competitive advantage through its resources. It argues that companies can outperform their competitors by acquiring, developing, and utilizing valuable, rare, inimitable, and non-substitutable resources. According to Freeman et al. (2021), the key assumption of the resource-based view is that the organizational resources and capabilities of different

organizations might differ greatly from one another and even remain constant. An improved competitive advantage often gives stakeholders a greater sense of reassurance that their contributions, whether financial or in some other form, will be recognized and put to good use.

According to Collins (2021), the concept that underpins the resource-based outsourcing method is the notion that an organization should go to an external provider in order to address any gaps in its capabilities and resources that are substantial, uncommon, distinctive, and structured. When it comes to initiatives, stakeholders will be more interested in ones that properly manage the resources at their disposal. It is sometimes feasible to bring down the total expenses of a project by making use of resources that are contracted out. As a result, stakeholders may be convinced that the project managers are attempting to finish the project at the lowest feasible cost while still achieving the highest potential value and benefit (Collins, 2021).

Empirical Literature Review

Project planning, Community Participation and Performance of Road Projects.

The study by Huang, Shi, Pena-Mora, Lu and Shen (2020), examined how information and communication technology (ICT) affects team social capital (SC) and project performance in the construction industry. A theoretical model depicting the interconnections between several variables is constructed. This model considers two ICT skills (connectivity and communality) and two forms of social capital (bridging and bonding), in addition to building project success. We ran a survey using 221 questionnaires to confirm the practicality of this concept. The study found that the hypotheses about the relationship between connectedness and bonding did not show significant impacts, but the hypotheses related to the other dimensions were all significant. The mediating impact of bonding on performance is greater than the effect of bridging on performance. This research enhances the field of construction project management and supply chain literature by examining how the use of information and communication technology (ICT) impacts changes in the project-level team supply chain. This study has significance for understandings how past adjustments affect building project performance. Managers should consider implementing a suitable information platform for project participants, but they should not overstate the importance of ICT connections in strengthening internal bonds. Managers should choose various project organisation members to maintain a balance between bonding and bridging social capital. The current study will determine the mediating effect of community participation on the relationship between project planning and performance of completed road projects in arid and semi-arid counties in Kenya.

A study conducted by Ali, Zhang, Shah, Khan, and Shah in 2020 examined the mediating effects of psychological empowerment and innovative work behaviour on the relationship between humble leadership and project success. Data were collected from 337 individuals employed in the civil construction sector of Pakistan. The results showed that humble leadership is positively related to project success. Furthermore, psychological empowerment and innovative work behaviour partially mediate the relationship between humble leadership and project success. Drawing on conservation of resource theory, this study found that humble leadership is important for project success and thus extends the utility of the concept of humble leadership to the project literature. The current study will evaluate the mediating effect of community participation on the relationship between project planning and performance of completed road projects as conceptual variables in arid and semi-arid counties in Kenya rather than Pakistan.

A study conducted by Murugi and Nyang'au (2023) examined the influence of project planning on the performance of maintenance projects on trunk roads in Kenya. The study aimed to assess the correlation between project scope planning and the effectiveness of maintenance projects on trunk roads in Kenya, as well as the connection between project risk planning and the performance of maintenance projects on trunk roads in Kenya. The study used the census survey research method with a target population of 226 engineers, surveyors, and inspectors at KeNHA who are engaged in planning maintenance projects. 226 respondents were sent a questionnaire, and 210 of them answered, resulting in a 93% response rate. Descriptive and inferential statistics were used to analyse the data, using SPSS version 25 and MS Excel for data analysis. The research findings indicate that project scope planning and project risk planning significantly and positively influence project performance. The research found that project planning had a substantial impact on project performance

in trunk road repair projects in Kenya. The research suggested that project planning should include considerations for maintenance, specifically focusing on scale and risk. The current study will evaluate the mediating effect of community participation on the relationship between project planning and performance of completed road projects in arid and semi-arid counties in Kenya.

Conceptual Framework

RESEARCH METHODOLOGY

Research Design

Descriptive research design that is Cross-sectional in nature was used in the study.Cross-sectional surveys involve the collection of data at a specific point in time. In contrast to longitudinal designs, which examine variables over time, the cross-sectional design is suited for studies when data is obtained from a large sample with multiple variables being evaluated at the same time (performance). Mugenda and Mugenda (2013) report's that cross-sectional survey design may be used to explain or explore the existing status of two or more variables at a specific moment in time, and is typically the most appropriate measure of characteristics of large populations, it has been regarded as optimal

Target Population

The target population was all the contracted company's project managers, county public works officers and the local community leaders in all 88 completed road projects in ASAL Region, Kenya from 2016 to 2020 and therefore the study adopt a census research method. Most road projects in Kenya take 3-6 years to finish hence the choice of 6years (GoK, 2010). The study unit of analysis will be the 88 road projects constructed and completed during the 6 years period as per KeNHA, KURA, and KeRRA annual reports of the years 2016, 2017, 2018, 2019, and 2020.

Table 1: Population Distribution

Category	**Unit No.**
Contracted company's project managers	88
Local community leaders	88
County public works officers	22
Total	**198**

Source: KURA, KenHA, KeRRA, 2021

Sample size and Sampling design

A sample is a smaller, more representative group of individuals that is chosen from a larger population. Through the analysis of the sample, one may derive findings that can be applied to the broader population of interest (Sekaran & Bougie, 2011). This research utilized purposive sampling. Purposive sampling targets specific criteria or characteristics, making it ideal for studies that require specialized participants or specific conditions (Sekaran & Bougie, 2011). . In order to fulfill the main aim of this study, which is to examine the effect of project planning, government regulations, and community participation on the effectiveness of finished road projects in arid and semi-arid counties in Kenya, the most valuable participants are the project

managers from the contracted company, the public works officers from the county, and the leaders of the local community. Therefore, convenience sampling was employed. The research had a sample size of 198.

Data collection and procedure

The researcher handed out the questionnaires using either the drop-and-pick approach or the electronic option using e-mail for more convenience to the respondents. Each respondent received one set of a questionnaire. A questionnaire with a 5-likert scale was utilised to gather primary data from the research chosen respondents. The five sections of the questionnaire were used to collect data from respondents about various study-related topics.

Pilot Testing

A pilot test is an investigation which is carried out on a small group of respondents to make sure the questions being asked in the questionnaire are reliable (Marczyk, DeMatteo & Festinger, 2005). Pilot testing is indeed crucial as it ensures the viability of your research tools before a large-scale rollout. This study had 20 questionnaires for pilot study, representing 10% of study population, which were sent to the respondents via e-mail because this is faster, cheaper and reliable. The pilot study was conducted in Nairobi since majority of the road construction companies have their head offices in Nairobi.

DATA ANALYSIS AND RESEARCH RESULTS

Mediation effect of community participation on the relationship between project planning and performance of road projects

The purpose of this study was to evaluate the degree to which community participation serves as a mediator in the association between project planning and performance of road projects in arid and semi-arid counties in Kenya. A stepwise regression analysis was conducted in order to examine the relationship between community participation and project planning while also examining the extent to which community participation predicts performance of road projects in arid and semi-arid counties in Kenya.

Project Planning Predicting Performance of completed road projects

This step was intended to confirm the significance of the relationship between the project planning (X) and performance of completed road projects in arid and semi-arid counties in Kenya (Y) expressed as $X \rightarrow Y$. As shown in table 2, when project planning as the predictor is held constant performance of completed road projects in arid and semi-arid counties in Kenya will remain at 0.097. In addition, an enhancement in project planning by a solitary unit leads to an increase in performance of completed road projects in arid and semi-arid counties in Kenya by 0.917 units with a p-value of $0.000 < 0.05$. Findings shows that adjusted R-squared = 0.416 with F-calculated = 114.931 at a 2-tailed test at 95% confidence level and a p-value = $0.000 < 0.05$ as well as a significant positive elasticity (0.917). This implies that, project planning significantly predict constant performance of completed road projects in arid and semi-arid counties in Kenya: ***Y = 0.097 + 0.917X.***

Table 2: Coefficients

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**	**95.0% Confidence Interval for B**		**Collinearity Statistics**	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	.097	.345		.282	.778	-.583	.778		
Project planning	.917	.086	.648	10.721	.000	.748	1.086	1.000	1.000

Project planning predicting community participation

Table 3: Regression Coefficients on project planning and community participation

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.839	.282		2.978	.003
Project planning	.757	.070	.651	10.816	.000

a. Dependent Variable: Community participation

Findings as shown in table 3 show that, when project planning is held constant, community participation remains at 0.839. Additionally, a one unit increase in project planning leads to an increase in community participation by 0.757 units with a p-value of 0.000 < 0.05. Consequently, the researcher summarizes that, project planning significantly and positively predicts community participation as summarized by the following model:

Z = 0.839 +0.757X

Community participation predicting performance of completed road projects

Table 4: Regression Coefficients on community participation and performance of completed road projects

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	.672	.284		2.365	.019
Community participation	.800	.073	.657	10.995	.000

a. Dependent Variable: performance of completed road projects

Findings as shown in table 4 show that, when community participation is held constant, performance of completed road projects remains at 0.672. Additionally, a one unit increase in community participation leads to an increase in performance of completed road projects by 0.800 units with a p-value of 0.000 < 0.05. Consequently, the researcher summarizes that, community participation significantly and positively predicts performance of completed road projects in arid and semi-arid counties in Kenya as summarized by the following model:

Y = 0.672 +0.800Z

Project planning and community participation predicting performance of completed road projects

This step was intended to confirm whether project planning (X) and community participation (Z) significantly performance of completed road projects in arid and semi-arid counties in Kenya expressed as $Z|X \rightarrow Y$

Table 5: Coefficient of Determination on project planning and community participation predicting performance of completed road projects

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.718[a]	.516	.510	.43203	.516	84.159	2	158	.000

a. Predictors: (Constant), Project planning, Community participation

The findings shown in Table 5 indicate that the adjusted R-Square value is 0.510, which is statistically significant at a significance level of 0.05. The p-value of 0.00 further supports this conclusion. This finding suggests that there is a significant relationship between project planning and community participation on performance of completed road projects in arid and semi-arid counties in Kenya, accounting for 51% percent of the observed variance. This implies that the effect of project planning and community participation on performance of completed road projects in arid and semi-arid counties in Kenya is high. Additionally, this finding suggests that a 49% percent of the observed differences in performance of completed road projects in arid and semi-arid counties in Kenya cannot be accounted for just by the variables of project planning and community participation included in this particular model.

Table 6: Regression Coefficients on project planning and community participation Predicting performance of completed road projects

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.320	.324		-.988	.325
Community participation	.498	.089	.409	5.604	.000
Project planning	.541	.103	.382	5.232	.000

a. Dependent Variable: performance of completed road projects

The results in table 6 show that the coefficients of project planning on performance of completed road projects when the mediator community participation is controlled to be ß =0.541 and its significant p-value = 0.000 < 0.001. So the relationship between project planning and performance of completed road projects is still significant when the mediator community participation is controlled. The study shows that community participation is a partial mediator in the relationship between project planning on performance of completed road projects. This can be proven by the fact that the coefficients in table 2 between project planning and performance of completed road projects in arid and semi-arid counties in Kenya is ß =0.917 and its significant p-value = 0.000 < 0.05. This coefficient value reduces to ß =0.541 when a mediator community participation is introduced in the relationship between project planning on performance of completed road projects and therefore this means that community participation partially mediates the relationship between project planning and performance of completed road projects in arid and semi-arid counties in Kenya.

These findings were summarized in a model as:-

(ii) Performance of completed road projects = -0.32 + 0.541(project planning) + 0.498 (community participation).

The null hypothesis (*Ho_1)*, which posited that *there is no significant mediation effect of community participation on the relationship between project planning and performance of completed road projects in arid and semi-arid counties in Kenya,* was rejected. Consequently, the researcher concluded that there is indeed a significant mediation effect of community participation on the relationship between project planning and performance of completed road projects in arid and semi-arid counties in Kenya.

RESULTS DISCUSSION

The objective of the study was to determine the mediating (intervening) effect of community participation on the relationship between project planning and performance of road projects in arid and semi-arid counties in Kenya. The moderate value of the aggregate mean value showed that the respondents affirmed that community participation factors need to be improved in order to be effective towards the performance of road projects in arid and semi-arid counties in Kenya. Majority of the respondents strongly agreed with community participation statement that community empowerment provide them with complete freedom to take up judicious decisions on project performance, they also strongly agreed that involving community members in monitoring of project progress is helpful in ensuring project effectiveness. The respondents also highly ranked statement that Community members are allowed to share information which is an effective way of reducing costs during project performance and that the community empowerment encourages participative decision making during project performance.

This study objective was pursued on the basis of the null hypothesis that there is no mediation effect of community participation on the relationship between project planning and performance of completed road projects in arid and semi-arid counties in Kenya. The study findings rejected the null hypothesis and established that community participation did partially mediate the relationship between project planning and performance of completed road projects in arid and semi-arid counties in Kenya. The study revealed that there was strong positive correlation between project planning, community participation and performance of road projects and that variation in performance of completed road projects are explainable by a unit change in project planning and community participation which means an increase in mean index of community participation will increase the relationship between project planning and performance of road projects by a positive unit. The study therefore established that community participation positively impacts project planning on performance of road projects in arid and semi-arid counties in Kenya.

These findings concurred with Xiangshu, Zhenyu, Chunfang, and Yujuan's (2022) results, which supported the idea that a sense of community plays a role in the link between community participation and Chinese residential communities, agreed with these results. It was found that a sense of community responsibility and prosocial tendencies acted as mediators between a sense of community and involvement in the community. This relationship happened in a step-by-step way. This was the case for the relationship between a sense of community and involvement in the community. The findings of this research shed light on the mechanism that underlies the relationship between a sense of community and involvement in one's own local community, making the findings of this study an important contribution to the work that has been done in the past. In addition, the results are in line with what Ndungu and Karugu (2019) discovered during their investigation of community engagement and the efficacy of donor-funded youth initiatives in Korogocho, which is situated in Nairobi City County, Kenya. Ndungu and Karugu conducted their study in Korogocho. The correlational analysis of the study indicated that community participation in identification and planning had a strong positive effect on the performance of the project, and the results of the regression analysis indicated that community participation had a statistically significant positive effect on the performance of the project.

CONCLUSION AND RECOMMENDATION

The objective of the study was to determine the mediating (intervening) effect of community participation on the relationship between project planning and performance of road projects in arid and semi-arid counties in Kenya. The majority of the respondents strongly agreed with the community participation statement that community empowerment provides complete freedom to take up judicious decisions on project performance. Also, involving community members in the monitoring of project progress is helpful in ensuring project effectiveness. The community members should be allowed to share information, which is an effective way of

reducing costs during project performance, and community empowerment encourages participative decision-making during project performance. Additionally, community members' intercommunication leads to the allocation of the right authority for effective project performance, and the firm's should have in place a good stakeholder grievance management system. The community members' involvement in the management of funds enables the smooth running of the program. The community members should be fully involved in the entire project management cycle, and the community members' grievances can derail project success. The community members' analysis allows the project managers to determine what motivates the community to the project and that organizations should consider having strong intercommunication between team members and community members and that training the community members improves their capability of making program decisions. Further, the community members' views should be considered in decision-making with regard to projects.

The correlation analysis results established there existed a strong positive significant correlation of r=0.657 and p-value<0.001 between community participation and performance of completed road projects in arid and semi-arid counties in Kenya. This study objective was pursued on the basis of the null hypothesis that there is no mediation effect of community participation on the relationship between project planning and performance of road projects in arid and semi-arid counties in Kenya. The study findings rejected the null hypothesis (*Ho_2)*, and established that community participation did partially mediate the relationship between project planning and performance of road projects in arid and semi-arid counties in Kenya. The study revealed that there was strong positive correlation between project planning, community participation and performance of road projects and that variation in performance of completed road projects are explainable by a unit change in project planning and community participation which means an increase in mean index of community participation will increase the relationship between project planning and performance of completed road projects by a positive unit. The study therefore established that community participation positively impacts project planning on performance of road projects in arid and semi-arid counties in Kenya.

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