

Relationship between community engagement in project implementation and performance of road construction projects in Juba County, South Sudan. A cross-sectional study.

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Abstract

Background:

At the project implementation stage, critics have been quick to point out that there is often a limited number of members of the community participating in such schemes. The aim of the study is to assess the relationship between community engagement in project implementation and performance of road construction projects in Juba county South Sudan.

Methodology:

A cross-sectional study employing quantitative data collection methods. The study used a combination of both random and non-random sampling techniques. Simple random sampling was used because of its simplicity and the ability to allow all respondents an equal chance of being included in a sample.

Results:

77% of the respondents were married, while 23% were single. Community participation in the Implementation Stage had a mean of 1.997 on a 5-point Likert scale, which is 40%, and a Std. Deviation of 1.021, reflecting a high disparity between respondents' opinions on the influence of Community Participation in the Implementation Stage on the sustainability of community-based water projects. 18.1% changes in the performance of road construction projects in Juba can be explained by community engagement in project implementation. factors. An increment in sound community engagement in project implementation leads to an increment in the performance of road construction projects in Juba by .438 units. The coefficient is significant at 5% significance level since the P value ($0.00 < 0.05$).

Conclusions:

Since Community engagement in the implementation stage of the community road construction project has a significant influence on the performance of community-based road construction Projects.

Recommendations:

Having found that Community engagement in the implementation stage of the community road construction project has an influence on the performance of community-based road construction Projects.

Keywords: Community engagement, Project implementation, Performance of road construction projects in Juba County.

Submitted: December 04, 2024 **Accepted:** November 10, 2025 **Published:** February 14, 2026

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Background

Many writers on rural Community Participation and the area of water resources consider monetary contributions as amounting to CPI (Claud, 1998). This study considers any contribution by community members, such as cash, labour, idea contributions in meetings, planning, materials support, and many other forms of community involvement, which also amounts to Community Participation. Ngowi and Mselle (1998) assert that Community participation at the implementation stage can be divided into sharing of costs and furnishing of labour. In most cases, cost sharing is achieved according to one of two alternative principles. One is to make those members of the community who will benefit from the facility bear the cost. The other is to let members of the community freely make donations

according to their perceived interests. Projects aimed at improving essential community services, such as waterworks and sewer systems, are usually financed by means of compulsory cost sharing. The free donation method is adopted for the construction of essential community facilities, such as children 's playgrounds. Sharing of labour is also achieved in two different ways. One is direct contribution of labour; the other involves initially contributing the monetary equivalent of one 's shares of labour, then getting the money back in the form of wages by personally participating in the work. For small-scale cooperative projects, members of the community will usually carry out the project by directly contributing their labour. If a project is larger and is implemented through government agencies contracting the work out to some

construction firm, the latter method of labour sharing is often adopted.

At the project implementation stage, critics have been quick to point out that there is often a limited number of members of the community participating in such schemes. In addition, their participation is generally restricted to simple matters, such as provision of labour and cost sharing, and not with the important issues faced during the process of decision making as it relates to project initiation and execution (Park, 1996). Furthermore, there is often a lack of competent voluntary leaders. Indigenous leaders cannot afford to devote enough time and energy to the task. Community-based activities, therefore, tend to lose momentum in many small-sized community units. Most of these problems can be traced to misleading assumptions about community and Participation informing these approaches. One fundamental assumption is that a distinct community exists, and approaches commonly focus on the people of a local administrative unit ...of cultural or ethnic group ... or of a local or rural area such as the people of a neighborhood or valley (IUNC/WWF/UNEP, 1991). Supporting independent community interests – this means helping the people to develop and carry out their own plans (Wilcox, 2003). The aim of the study is to assess the relationship between community engagement in project implementation and performance of road construction projects in Juba county South Sudan.

Methodology

Research Design

A research design is regarded as the conceptual structure within which research is conducted. The study used a cross-sectional research design. It adopted quantitative approaches; the quantitative approach was used to quantify and analyze the data gathered from the study sample. The cross-sectional survey research design was preferred for this

study because it was quick to conduct, data is only collected once, and it takes a snapshot of on-going situation, and because it allows analysis or mapping out of the relationship between two or more educational variables. Quantitative data were used in the study. Quantitative method was selected because most phenomena were described in numbers and measures.

Study population

This study was conducted in Juba County. The target population for the study was 42,589 respondents according to the South Sudan Bureau of Statistics census (2008). The population entailed the executive members of the leadership of Juba County, the technocrats, politicians, and the local community of Juba County.

Determination of the Sample Size

Sample size referred to the maximum number of respondents that was representative of an entire population. In other words, it is a subset of a population. From the above identified accessible population of 42,589 respondents, a sample size of 396 respondents was determined based on the Sloven's formula as calculated below;

$$n = \frac{N}{1 + N(e)^2}$$

Where **n** is the sample size, **N** is the population, and at the same time **e** is the error term, which will be 0.05; therefore, the sample size will be $n = 42,589 = 396$

$$1 + 42,589(0.05)^2$$

The sample of the study consisted of 396 respondents; 05 Counties and town councils.

Executives, 05 Counties and Town Council Top Administrative leadership, 02 Counties Local Road Contractors, 05 Town Councils & Chiefs, Road User Committees, and 379 local community members as shown in the table below.

Table 1: Accessible population, Sample size, and Sampling Techniques

Category	Accessible Population	Sample Size	Sampling Techniques
Counties and Town Council Executives.	18	05	Purposive Sampling
Counties and Town Council Administrative leadership	16	05	Purposive Sampling
County residence	10	02	Census
Town Councils, chiefs, and Road User Committees	42	05	Simple Random Sampling
Town Council community members and town council counsellors	42,503	397	Simple Random Sampling
TOTAL	42,589	396	

Source: Juba County Five-Year Development Plan (2012/17 and determined based on the Krejcie & Morgan Mathematical Table (1970).

Sampling Techniques and Procedure

Sampling is used to get information about a population. That is because it is often too expensive, time-consuming, practically impossible, or simply unnecessary to canvass the whole population. The study used a combination of both random and non-random sampling techniques. Simple random sampling was used because of its simplicity and the ability to allow all respondents an equal chance of being included in a sample. This technique was applied on identification of the local chiefs together with Road User Committees, and the community in the Town Council area to whom the questionnaires were administered. On the other hand, the purposive sampling method was used to select key informants for interviews. The purposive method was considered appropriate because it enabled the researcher to select the exact people who were involved in community projects in the area under study.

Data Collection Methods

Data collection is a process of collecting information from all the relevant sources in order to find answers to the research problem, test the hypothesis, and evaluate the outcomes. They were divided into two: primary and Secondary data collection.

Questionnaire

A questionnaire could be referred to as a predetermined written list of questions that may be answered by a respondent without supervision or explanation. It was developed in line with the objectives of the study, pretested for consistency, as it allowed the respondents to give free and independent opinions. The questionnaire involved a series of direct, closed, and open-ended questions designed to get answers from the respondents with responses of yes or no. Questionnaires were distributed to collect quantitative data from the determined sample of 02 members of Counties Local Road users, 05 members of Town Councils Local chiefs and Road User Committees, 379 members of Town Council community members, and Town Council counsellors. In case of non-response, the study will make a call up on respondents on whether they filled the questionnaire. A call-up enabled respondents to prioritize the study.

Interview

This is a method of data collection where the investigator gathers data through direct verbal interaction with the participant. It was adjusted by the researcher to meet many diverse situations. The researcher played a critical role in probing to acquire in-depth information about the key research questions of the study. An interview guide was used to collect data from key informants who included 05 members of the county and town council executive, 05 members of the chosen county and town council administrative leadership. The interviews involved face-to-

face discussions on issues pertaining to community engagement and performance of the road construction project in Juba County, located in South Sudan. The choice of the method enabled the researcher to gain a relationship with the respondents, in addition to aiding the researcher to probe for in-depth information and obtain clarity on any unclear issues.

Data Collection Instruments

Four main research instruments were used in the study, including the key information interview checklist, questionnaire, and documentary review checklist, as detailed below.

Interview guide/ Key informant Interview Checklist

The key information interview checklist or interview guide was used to collect data from key informants that included 05 members of the chosen counties and town council executive, 05 members of the Juba county and town council administrative leadership. The interviews involved face-to-face discussions on issues pertaining to community engagement and performance of the road construction project in South Sudan, specifically Juba County local government. The choice of the method was to enable the researcher to gain a relationship with the respondents, in addition to aiding the researcher to probe for in-depth information and obtain clarity on any unclear issues.

Questionnaire survey

A composite of questionnaires was designed to capture information about community engagement and performance of the road construction project in South Sudan, and especially in Juba County. The questionnaire was structured, with items that were easily interpreted by the respondents. Some items contained a list of alternatives from which respondents chose answers of their choice. In addition, the study used a five (5) Likert scale ranging from one (1) for strongly disagree to five (5) for strongly agree to mean that the higher the number, the greater the influence of community engagement and performance of the road construction project in Juba County, South Sudan. This was useful in the study as it helped in determining the relationship among the variables under investigation. The questionnaires were administered to two (02) members of Juba county locals, five (05) members of the town Councils, County chiefs and Road User Committees, three hundred and nine (379) members of the town council community members, and town council counsellors.

The choice of this instrument was made because it helped collect opinions, views, and beliefs from a large number of respondents in a relatively short time, as the generally literate respondents answered the questions in private without being affected by the researcher's presence. The advantage of a questionnaire was that it was looked at as a

single most suitable tool for collecting independent opinions, feelings, attitudes, perceptions, and views from a large number of different categories of relatively literate respondents within a short time.

Documentary Review Checklist

Page | 5 This instrument contained the use of a list of documents that were reviewed by the researcher to acquire more secondary data required for the study. Some of the documents that were included on the review list were: Juba County Budget Performance Report (2019/2014), South Sudan National Budget (2019/2024), and Juba County Financial Report (2018/19).

Validity and Reliability

To ensure quality instruments, validity and reliability checks were conducted as explained below;

Validity of the Instrument

Validity refers to the degree to which results obtained from the analysis of the data represent the phenomenon under study. Content validity index (CVI) was computed to ensure that the measure included was adequate and a representative set of items that tap into the community engagement and performance of the road construction project in Juba County local government, South Sudan. In the study, content validity of the questionnaire was obtained by identifying three people who were well versed with the measurement of the study attributes to rate the items for relevance to the study variables. Each of them was asked to rate each question as relevant, quite relevant, irrelevant, or quite irrelevant. The CVI for the whole instrument was then obtained by calculating the number of items declared relevant by all three judges divided by the total number of items in the questionnaire. $CVI = \frac{\text{No. of items declared relevant}}{\text{total number of items in the questionnaire}}$. If the $CVI \geq 0.70$, then the item is accepted as valid for the research purpose.

Reliability of the Instrument

Reliability is the degree to which an assessment tool produces stable and consistent results. The closer Cronbach's alpha is to 1 (one), the higher the internal consistency reliability. To ensure reliability, the research instruments were pre-tested, and data were collected and analyzed. A micro field research exercise was carried out to enable the researcher to select the key questions that would enable him to obtain the relevant data for the topic under study. In addition, the reliability measure was established by testing for both consistency and reliability. Consistency indicated how well the items measuring a concept hung together as a set. Qualitative responses obtained from the group of 10 respondents and pretested using the Cronbach's alpha reliability coefficient, a feature embedded in SPSS,

revealed whether the items were positively correlated to one another or not.

Data Analysis

Data was managed and analyzed by using quantitative methods

Quantitative Data Analysis

There are three objectives of data analysis, which include: getting a feel for the data, testing the goodness of the data, and testing the hypotheses developed for the research. Statistical Package for Social Sciences (SPSS) version was used to enter and analyze the numerical data collected from the questionnaires. After data collection, the researcher organized the data by counting the responses from the questionnaires, coding and tabulating them, and then the results were presented in groups according to the three research questions. Inferentially, data was presented using the simple linear regression - specifically model summary to determine the effect and variation in the dependent variable and independent variables under the study. Data was summarized descriptively in terms of frequencies, means, standard deviation, and percentages. In addition, the data were presented in tabular and graphical formats for discussion and interpretation.

Measurement of Variables

The study variables were categorized into the core independent variable and dependent variables. In this case, community engagement formed the independent variable while the performance of the road construction project represented the dependent variable. The variable measurement will be based on a five-point Likert scale of: 5 = Strongly Agree (SA); 4 = Agree (A); 3 = Undecided (UD); 2 = Disagree (D); 1 = Strongly Disagree (SD), and was measured based on the ordinal measure since the items were ranked or numerical data. On the other hand, nominal measurements were used on background variables, such as age, gender, and experience, among others.

Ethical considerations

The ethical issues for consideration in this study included confidentiality, anonymity, privacy, and informed consent, which were required in all studies and research using human participants. In seeking consent from the respondents, the researcher explained the purpose of the study, expected duration, procedures of the study, and what the information gathered was to be used for, ensuring informed consent. The researcher ensured that privacy matters were addressed from the inception of the research to the publication of the results. There were safety nets put in place to guarantee confidentiality. The instruments for collecting data guaranteed anonymity for all the respondents. The only amount of personal data that was collected for the research had minimal amount needed to ensure a proper sampling of

the population. Personal identifiable information was not collected or maintained unless necessary and consented to by the respondents. The participants remained anonymous throughout the study, even to the researcher himself. All the instruments, questionnaires, and interview schedules clearly explained the intention of the study to respondents. Respondents received full disclosure of the nature of the research, the benefits and risks involved, and an opportunity to ask questions. The researcher also explained to

respondents the major objective of the research as being purely for academic purposes. The researcher thereafter requested respondents to give their opinions on the problem under study.

Results

Respondents Background Information

Table 2. Demographic Information

Gender	Frequency	Percent
male	198	50
female	198	50
Total	396	100
Age		
Under 20	23	6
21-30	28	7
31-40	113	28
41-50	68	17
Over 51 yrs.	164	41
Total	396	100
Marital status		
single	91	23
married	305	77
Total	396	100
Academic qualifications		
'O' level	339	86
Diploma	45	11
Degree	12	3
Total	396	100.0

Table:2, present the demographic information and shows that the gender of the respondents was 50% male and 50% female, while on Age 41% were over 51 yrs. with 6% being Under 20yrs. Marital status of respondents shows that 77% were married, with 23% being single, and finally, on Academic qualifications, 86% were O-level

school leavers, with 3% having a degree level of education.

Community Participation in the Implementation of Construction Projects

Table 3: Community engagement in the implementation of road construction projects

	Frequency	Percentage
Are you satisfied with the implementation decision-making process used		
Yes	351	88
No	45	12
Total	396	100
How would you rate the flow of implementation information between the management and the community?		
Very goog	124	32
Good	249	63
Not sure	11	3
Not good	11	3
Total	396	100
Is the community wholly involved in the implementation of the laid-out plans?		
Yes	345	87
No	51	13
Total	396	100
How would you rate the implementation of the plans made to ensure sustainable technical sustainability of the services?		
Very good	79	20
Good	267	67
Not sure	51	13
Total	396	100

In what ways does the community participate in the implementation stage		
Provision of labor	311	77
Cost sharing	74	17
provision of other implementation resources	11	3
Total	396	100

Table 2, 87% said yes and 11% answered No, on how respondents would rate the flow of implementation information between the management and the community 63% said Good, while 3% said not good. Asked whether the community was wholly involved in the implementation stage of the laid-out plans, 87% said yes, while 13% said no. On how the respondents would rate the implementation of

the plans made to ensure sustainable technical sustainability of the services, 67% said it was good, while 20% said it was very good. On questions of in what ways the community participated in the implementation stage, 77% said through the provision of labour, while 17% said through cost sharing. Community Participation in the Implementation Stage

Table 4: Descriptive Statistics: Community engagement in Implementation of construction projects

	Likert scale					N	Mean	Std. Deviation n
	Very much (5)	Much (4)	Not sure (3)	Not much (2)	Not at all (1)			
To what extent do Sharing of implementation costs influence the sustainability of the community water project	20	38	12	0	0	70	2.06	.99106
To what extent does the Provision of implementation labour influence the sustainability of the community water project	35	27	8	0	0	70	1.73	0.94672

To what extent do Sharing of implementation resources influence the sustainability of the community water project	19	35	1	13	12	70	2.20	1.12417
Average							1.997	1.021

Table:4 Community Participation in Implementation Stage has a mean of 1.997 on a 5-point Likert scale, which is 40%, and a Std. Deviation of 1.021, reflecting a high disparity between respondents' opinions on the influence of Community Participation in the Implementation Stage on the sustainability of community-based water projects.

The effect of community engagement in project implementation on the performance of road construction projects

Table 5: A regression analysis on the effect of community engagement in project implementation on the performance of road construction projects

Unstandardised coefficients		Standardised coefficients			
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	2.172	.241		8.993	.000
Project implementation	.339	.083	.438	4.082	.000
Dependent Variable: performance of road construction projects					
R squared	.192				
Adjusted R-squared	.181				

Source: Primary data

Table 5, 18.1% changes in the performance of road construction projects in Juba can be explained by community engagement in project implementation. The 81.9% changes in explained by other factors. Furthermore, an increment in sound community engagement in project implementation leads to an increment in the performance of road construction projects in Juba by .438 units. The coefficient is significant at 5% significance level since the P value ($0.00 < 0.05$). This gives evidence that there is a significant effect of community engagement in project implementation on the performance of road construction projects. Therefore, it can be concluded that community

engagement in project implementation affects the performance of road construction projects in Juba.

Discussion

Community engagement in project implementation and performance of road construction projects in Juba.

The study revealed that there is a positive correlation between community engagement in project implementation and the performance of road construction projects in Juba City. It was also established that in Juba, stakeholders are called for meetings to engage in road design before the

launching of the road and monitor the road projects in Juba. The findings from the study are in line with the study by Mekong Economics Limited (2005), which pointed out that local people would like to see their roles in road projects increased since they are the primary road beneficiaries and are the ones who are most committed to the quality and sustainability of these roads. They want to be particularly involved in the design and supervision stages of these roads. Therefore, the more the stakeholders participate in road construction projects, the better the quality of roads constructed in a given community. The study further revealed that stakeholders are not given responsibilities during road construction and are not called for road launching. The findings are not in line with the literature by Mekong Economics Limited (2005), which pointed out that for the sustainability of any road project, local communities have to be given roles. Therefore, for any sustainability of a road construction project, different stakeholders have to be given responsibilities during the construction of the road project.

Conclusions.

Since Community engagement in the implementation stage of the community road construction project has a significant influence on the performance of community-based road construction Projects.

Recommendations

Having found that Community engagement in the implementation stage of the community road construction project has an influence on the performance of community-based road construction Projects.

There should be strict adherence to members' sharing of implementation costs, provision of implementation labor, and sharing of implementation resources.

The committee members should be accountable and transparent to the project members to maintain the goodwill of the members to continuously participate in the provision of implementation resources.

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PUBLISHER DETAILS

AfroGlobal Press



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Website: <https://afroglobalpress.com>

Address: Scholar's Summit, Nakigalala, East Africa

