Impact of Stakeholder Engagement on Performance of Construction Projects in Lusaka District

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Abstract

In spite of the many studies on the role of stakeholders' engagement in road construction projects in Zambia, little is known about their impact on performance. One pertinent issue was to address the challenge of ineffective stakeholders' engagement in road construction projects by way of considering stakeholders' needs and expectations prior to commencement of project implementation. This study was undertaken with the intention to evaluate the impact of stakeholders' engagement on performance of road construction projects in Lusaka District under the L400 roads project. The study's aim was achieved through the assessment of relationships between stakeholder engagement and the three performance parameters namely; project cost, project schedule and project specifications. The research approach that was adopted was a quantitative with descriptive research design. Both primary and secondary data were collected using a semi structured questionnaire which gave a 98% response rate. Findings revealed presence of a strong and positive correlation between stakeholder engagement and project schedule also between stakeholder engagement and project specifications. Results also showed that stakeholder's engagement was strongly but negatively correlated to project cost. A model was recommended for the development and adoption in the management of stakeholders during road construction projects with room for future improvement.

Keywords

Project Cost, Project Model, Project Schedule, Project Specification, Stakeholder Engagement

1. Introduction

The World Bank report (2018), stated that improved infrastructure leads to increased productivity and growth either directly or indirectly thus contributing to Gross Domestic Product (GDP). The construction sector is widely considered to be the major GDP contributor for any nation (Mirawati, 2015). Rhodes (2015) revealed that in the year 2014, the United Kingdom's (UK) construction industry managed to contribute One hundred and Three billion pounds towards the economy, translating to 6.5% of the total economic output. Although infrastructure is critical to the development

of emerging economies, most of the African countries do not allocate sufficient resources to develop their infrastructure such as roads. In the World Bank Report (2018) it was approximated that Africa's infrastructure requirements amounted to $130-$170 billion annually, thus giving a funding gap of $68-$108 billion.

Transport infrastructure such as roads, play a vital role in creating an environment that supports economic growth, employment and contributes to poverty reduction in most developing countries. But to develop a robust infrastructure system which can successfully contribute to economic development and poverty reduction, it is essential that project managers focus on delivering their projects on time, within budget and to specifications as mentioned by Mambwe et al. (2020). Critical to achieving these goals is the involvement of stakeholders in all the phases of the project. It is important that when the project is implemented, all key stakeholders are incorporated in the project in order to attain ideal results (Ankukumah, 2016; Menoka, 2014).

Since infrastructure plays a key role in fostering national economic growth, it is prudent that projects involving infrastructure are managed and delivered timely, within cost and meet specifications of clients with the view to support a country's economic development. In order to achieve that, its imperative that all factors affecting performance of infrastructure projects are identified and clearly understood. Stakeholder engagement produces construction sustainability that eventually leads to improved performance of construction projects as asserted by Mwanaumo et al. (2018). In a study carried out in Kenya to determine the influence of stakeholder involvement on project performance in Automobile Emission Control Project in Nairobi, it was revealed that stakeholder participation resulted in reduced carbon emission, meeting customer needs, timeliness carbon control, minimized costs variances and efficiency. To this effect, the research concluded that stakeholder engagement directly impacted on performance of projects and as such, it must be included throughout project cycle (Njogu, 2016).

However, in Zambia, during the last decade, the road sector received significant investment from both Government and donors. Government's motivation to build a good road network infrastructure had been driven by the desire to alleviate poverty, support employment creation and stimulate economic growth. Against this background, the Government of the Republic of Zambia (GRZ) through the Roads Development Agency (RDA) embarked on a $340 million project dubbed Lusaka 400 (L400), which was designated to run from 2012 to 2016. The aim of the project was to decongest and improve traffic flow in the urban areas of Lusaka (RDA, 2014). This significant investment in infrastructure shows how committed the Bank is towards enhancement of member countries economy.

The Zambian construction sector has experienced rapid growth in recent years. The annual growth for the sector was projected to be at 17.5% in the last 12 years. The boom in infrastructure was born from the realisation that infrastructure serves as central delivery mechanism in achieving sustainable economic development and in the generation of quality social-economic development in the country (Mambwe, et al., 2020). Infrastructure development in Zambia is one of the Government's priority areas and is upheld in both the Seventh National Development Plan (7^{th}NDP) and the national Vision 2030. However, reports of high failure rates in construction projects, more especially in developing countries including Zambia continue to emerge to the frustration of project managers and stakeholders. The problem of projects not being delivered on time, recording cost overruns and not meeting specifications is partly linked to poor stakeholder engagement according to Davies (2012). There is a prognosis by a growing number of researchers that tends to associate project performance to stakeholder engagement. According to Mwanaumo et al. (2019), it was concluded that organizations which strongly engage their key stakeholders in road construction projects are likely to succeed. It was also established in the study that stakeholder engagement had influence on construction project performance.

Hence, the aim of the study was to evaluate the impact of stakeholder engagement on performance of road Construction projects in Lusaka District. This was done in order to determine the relationship between stakeholder engagement and project costs involving L400 roads project in Lusaka District, analyse the relationship between stakeholder engagement and project schedule involving L400 roads project in Lusaka, and examine the effect of stakeholder engagement on ultimate project specifications involving these L400 roads project. The study is significant for the RDA and other government projects as it provides ways in which different stakeholder engagement can impact performance of road construction projects in Lusaka district, Zambia.

2. Literature Review

Stakeholder Engagement is defined as a process of ensuring that all individuals, groups or institutions affected or maybe affected by the project outcome take part in project planning and decision-making determinations in order to include their expectations and needs (Talley, et al., 2016). Early stakeholder engagement in New Zealand construction projects was identified to be the main contributor of efficiency and effectiveness in project performance (Einur, et al., 2016). Additionally, Heravi (2015) in Australia highlighted that contractor involvement tends to be low just when the project starts thus resulting into low performance. It was stated that to overcome this, there was need to consider contractors early in the project possibly by employing a unified project conveyance approach. It was further stated that, project owners and lenders should come up with ways to enhance stakeholder involvement and adopt them from the beginning to finish (Heravi, 2015). From studies reviewed in Cambodia, India and Gaza Strip, project cost overruns were associated with poor construction project performance.

Rahman and Alzubi (2015) pointed out that, ineffective stakeholder engagement significantly contributed to construction projects cost overruns which resulted into project failure. It was also clearly noted from the aforementioned findings that stakeholder issues must be handled as emergencies to avoid projects cost overruns. In India Sindhu and Karthiyayini (2016) reported that ineffective stakeholder involvement in construction projects in India was number one priority factor that contributed to increased cost overruns in construction project. In line with the findings, Rajeev and Kothai (2014) mentioned that, in construction projects where the interactions and interrelationships among stakeholders were not strong, it was observed that projects were not executed within the budgeted cost whereas in situation where interrelationships and interactions between stakeholders were strong, projects where implemented within their initially budgeted cost.

Kivitis (2013) added by stating that effective stakeholder engagement benefits project performance by eliminating conflicts and reducing costs through increased stakeholder participation in projects decision making. The findings were also echoed by Dacha and Juma (2018) who observed that, stakeholders need to be effectively engaged in construction projects procurement processes in order to avoid cost overruns which may come in form of delays. In Cambodia, Durdyev (2017) reported that besides poor project management skills, poor planning and poor resource allocation, inadequate involvement of key stakeholders namely, Contractors, Consultants and Clients was noted to be the main contributor of increased cost overruns in construction projects. Furthermore, ineffective stakeholder engagement contributed to problems such as inaccurate drawings and planning (Durdyev, 2017). On the contrary, Afunanya et al. (2016) stated that cost overruns being reported in the construction industry of Nigeria have continued to hinder performance improvement of various construction projects in the Country. It was noted that affected projects were characterized by disputes of which further investigations revealed that whenever interest and expectations of key stakeholders were not taken into consideration, that has always been the case. It was also noted in the study by Mwanaumo and Mambwe (2019) that once stakeholders are engaged on a project, the risk of accidents, incidents and fatalities on site is reduced, thus mitigation of poor scheduling that could arise from lost time.

Project Scheduling is influenced by a number of factors as cited by a study conducted in India of which one notable factor was poor stakeholder engagement (Rajeev & Kothai, 2014). Further investigations revealed that, incorrect computations of time estimates were as result of poor stakeholder involvement as they were not engaged during the process. This was furthered by Chilongo and Mbetwa (2017) that poor project scheduling was mainly attributed to lack of stakeholder involvement thereby influencing project schedules. It was affirmed by Mambwe et al. (2020) and Aigbavboa et al. (2014) that ineffective scheduling of projects was attributed to poor stakeholder involvement.

Stakeholder engagement and ultimate project specification in construction projects was related as demonstrated by Rajeev and Kothai (2014), who added that specifications of project products where mainly determined by stakeholder needs and interests, hence, there was adequate need to effectively incorporate stakeholders in projects. It was further analysed that, effective stakeholder involvement in strategic planning plays a key role of ensuring that decisions arrived at were of great quality and meet expectations and needs of the clients (Kivitis, 2013). Additionally, Rahman and Alzubi (2015) revealed that service quality, communication skills, adherence to budget, safety performance, adherence to schedule, sit personnel skills, and management capabilities were essential in preventing project failure when addressing changes in specification with stakeholders.

In Zambia, it was stated that, project delays currently experienced were highly as a result of failure by sponsors to pay contractors on time, or authorization of main alterations in the scope of work. According to Mambwe et al. (2020), it was the contractors actions of expressing unwillingness or delays towards the projects which in-turn resulted into increased cost overruns. On the other hand, Chilongo and Mbetwa (2017) study on factors contributing to construction project failure in Lusaka District revealed that effective engagement of stakeholders namely, Contractors, Consultants and Client was cardinal thereby contributing more to the development of the construction project. It was thus important to note that effective stakeholder engagement influenced construction project outcomes although it is not yet known how Lusaka L400 roads project could have been affected by that.

3. Methods

The research methodology employed was quantitative, with descriptive research design in which a questionnaire survey was adopted. A similar research method was applied in Wanjiru (2016) study which looked at the influence of stakeholder engagement on performance of street children rehabilitation programmes in Nairobi County, Kenya. The population target of the study focused on construction firms directly involved in the construction of roads under Phase Two of the Lusaka (L400) roads project in Lusaka District for the past five (5) years. Suffice to mention that all construction firms involved were registered with National Construction Council (NCC). Additionally, the population also included contractors (53), Project Managers (40), Consultants (3) and Civic Leaders who are ward Councillors, (30) indicating a total of 126. To calculate the sample size, the Slovens's Formula was adopted:

$$n = N/ [1 + N (e)^2] \qquad \textbf{Equation 1}$$

Where n =Sample size, N =Population size, e = Margin of error. Thus, N = 126; e = 5% with 95% confidence level, giving a sample size of 95 respondents. The sampling proportions attained 75%. Stratified random sampling technique was employed in order to determine both the sample size and respondents who were a representation of the entire population. Kombo and Tromp (2013) defines stratified sampling as involving segmenting a population into subgroups that are homogenous in nature through the selection of a simple random sample from each group. This gave a sampling size of Contractors (40), project managers (30), consultants (2), and civic leaders (23). Data was collected using a standard questionnaire. The self-administered questionnaire with a 5-point Likert scale was used to enable respondents provide the appropriate solution to the questions raised. It was developed to collect quantitative data which used a stratified random sampling technique to determine the sample size and respondents who were a representation of the entire population.

The regression analysis was used to describe relationships between the independent and dependent variable. The independent variable which was stakeholder engagement factors include Stages of Engagement and Methods of engagement (X_n); while project costs, schedule and specifications were dependent variables (or predicted values, 'Y') for performance of road construction projects. The y-intercept, B_0 is the change in 'Y' when all other parameters are zero. Further, the study adopted X_1, X_2 … X_k as independent variables that are being explained by the variance in Y. The regression model also included the 'β_n' which are the Beta coefficient or slope of the variables. The standard error of the coefficients, 'ε' was also included. Hence, the equation modified by Shipuku and Mbithi (2017) was adopted for the study:

$$Y = X_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots. + \beta_n X_n + e \qquad \textbf{Equation 2}$$

Data was analysed using descriptive analysis techniques with the help of Statistical Package for Social Sciences (SPSS) version 26.0. Thereafter, the study employed simple regression analysis to determine relationships stakeholders' engagement (independent variable) and project cost, schedule and specification (dependent variables). Reliability test prior to the distribution to respondents, of the questionnaire, was done for internal reliability. A validity test was conducted using a pilot study where five respondents answered the questionnaire and gave feedback on clarity of some questionnaires.

4. Data Analysis, Numerical and Graphical Results

The following are the findings of the study. A response rate of 98% was obtained, as a total of 93 out of 95 questionnaires were filled in and brought back while two (2) meant for the Contractors were not returned. The 98%

response rate used by the researcher was considered credible for further analysis, in line with Creswell (2014) who stated that a response rate of over 70% is acceptable. The following are findings to the study aimed to evaluate the impact of stakeholders' engagement on performance of roads construction projects in Lusaka District under the L400 roads project.

4.1 Reliability and Validity Test of Results

A reliability of at least 0.07 at α=0.05 significance level of confidence was accepted using Cronbach's Alpha Coefficient which is a measure of internal coefficient. This reliability threshold was adopted based on Tashakkori & Creswell (2007) threshold for the Cronbach's alpha value which is equal to or above 0.70, and qualifies the questionnaire as being acceptable. The Cronbach's Alpha value of the sample size of the pilot test was 0.726 above the threshold of 0.70, hence the questionnaire designed was acceptable for the entire study sample selected.

According to Taherdoost (2016), validity is defined as determining what is projected to be measured. It could also be perceived as elucidation of how well the collected data covers the actual area of study. In order to ensure that the study questionnaire measures what really is needed to be measured, validity test was conducted. Validity of the questionnaire was 100% implying that, data collected using the study questionnaire covers 100% of the actual area of study. All the data contained in the designed questionnaire was relevant, reasonable, readable and clear to the ten (10) respondents where the pilot study was conducted upon.

4.2 Relationship between Stakeholder Engagement and Performance of Project Costing in L400 Roads Project

Stages of engagement

Table 1 shows the Correlation analysis results, with a correlation coefficient of -0.628 being computed, which indicated the presence of a strong linear relationship between Stakeholders' Engagement in project costing stages and Performance on project Cost. The Pearson Correlation Coefficient negative sign indicates that the two variables were inversely related despite the correlation being strong.

Table 1. Correlation between stakeholder engagement in stages of project costing and performance on project cost

Details		Stakeholders' Engagement in project costing stages	Project Cost
Stakeholders' Engagement in project costing stages	Pearson Correlation	1	-0.628
	Sig. (2-tailed)		0.000
	N	93	93
Performance on project Cost	Pearson Correlation	-0.628	1
	Sig. (2-tailed)	0.000	
	N	93	93

The stipulated correlation was significant at the 0.01 level (2-talied) since $p<0.05$. This implies that an increase in stakeholders' engagement levels across the project costing stage, reduces project costs thus ensuring that the project is executed within the set budget.

Table 2. Regression analysis - Predictors: (Constant), Stakeholder Engagement in project costing stages

Model	R	R Square	Adjusted R Squared	Std. Error of the Estimate
1	-0.628	0.394	0.388	0.76507

From Table 2, the coefficient of determination, R-square value of 0.394 or 39.4% was computed. This R square value of 39.4% meant that only 39.4% of the variations in dependent variables(performance of project cost) were explained by an independent variable (stakeholder engagement) whereas the remaining 60.6% variations were explained by other factors other than the one mentioned in the project.

Methods of Engagement

Table 3 results show that there was a strong negative linear relationship between Stakeholders' Engagement Methods and performance on project Cost as demonstrated by Pearson Correlation coefficient of (r=-0.685). Furthermore,

results showed existence of significant correlation between independent variable (Stakeholders' Engagement Methods) and dependent variable (Performance on project Cost) since $p<0.05$ at 0.01 level (2-talied).

Table 3. Correlation between Stakeholder Engagement Methods and performance on project cost

Details		Performance of Project Cost	Stakeholders' Engagement Methods
Performance on project Cost	Pearson Correlation	1	-0.685
	Sig. (2-tailed)		0.000
	N	93	93
Stakeholders' Engagement Methods in project costing	Pearson Correlation	-0.685	1
	Sig. (2-tailed)	0.000	
	N	93	93
** Correlation is significant at the 0.01 level (2-tailed)			

This implies that as the levels of effectiveness of stakeholder engagement method increases, the project cost on the other hand is reduced thus increasing the chances of implementing projects within budget. Results indicate that the two variables' Coefficient of Determination (R^2) was set at 0.470 thus 47.0%, meant that only 47.0% of the variations in performance of project cost were explained by stakeholder engagement methods whereas the remaining 53.0% variations were explained by factors other than the one revealed in the project.

4.3 Relationship between Stakeholder Engagement and Performance of Project Schedule in L400 Roads Project

Stages of engagement

According to Table 4, using SPSS application, Pearson's' Correlation (r) calculated a value of 0.711 or 71.1%. This implied a strong and positive linear relationship between stakeholder engagement (independent) variable and project scheduling (dependent) variable. The results also showed significance correlation between variables at 0.01 level (2-tailed) where p-value was seen to be less than 0.05 ($p<0.05$).

Table 4. Correlation of Stakeholder Engagement in Stages of Scheduling and Performance on Project Scheduling

Details		Stakeholders' Engagement in project scheduling stages	Performance of Project scheduling
Stakeholders' Engagement in project scheduling stages	Pearson Correlation	1	0.711
	Sig. (2-tailed)		0.000
	N	93	93
Performance on project scheduling	Pearson Correlation	0.711	1
	Sig. (2-tailed)	0.000	
	N	93	93

The study sought to determine whether there exists an important variation between the performance of project scheduling and stakeholder engagement in project scheduling. The R-squared value was computed in order to indicate the variation in the dependent variable that could be explained by the independent variable. The R-squared was 0.711 implying that 71.1% of the performance in project scheduling in road construction projects could be explained by the independent variable stakeholder engagement methods in project scheduling.

Methods of Engagement

Table 5 designates a strong and positive linear relationship between and independent dependent variables under analysis from Pearson's Correlation value of 0.651. The results also showed significant correlation between independent and dependent variables at 0.01 level (2-tailed) since p-value was found to be less than 0.05 ($p<0.05$). This indicates that as the effectiveness of stakeholder engagement method in project scheduling increases so is the performance of project scheduling hence projects in such instances tend to be executed within schedule.

Table 5. Correlation between Stakeholder Engagement Methods and performance on project scheduling

Details		Performance on project scheduling	Stakeholders' Engagement Methods in project scheduling
Performance on project scheduling	Pearson Correlation	1	0.651
	Sig. (2-tailed)		0.000
	N	93	93
Stakeholders' Engagement Methods in project scheduling	Pearson Correlation	0.651	1
	Sig. (2-tailed)	0.000	
	N	93	93
Correlation is significant at the 0.01 level (2-tailed)			

The R-squared value was computed in order to indicate the variation in the dependent variable that could be explained by the independent variable. The R-squared was 0.423 implying that 42.3% of the performance in project scheduling in roads construction projects could be explained by the independent variable stakeholder engagement methods in project scheduling.

4.4 Effects of Stakeholder Engagement and Performance of Project Specifications in L400 Roads Project

Stage of engagement

Table 6 results shows the Pearson Correlation coefficient of 0.800 indicated with a positive and strong linear correlation between independent and dependent variables. This meant that, stakeholder engagement increases in tandem with performance of project specifications. Results also showed that correlation was significant at the level 0.01 where p-value (0.000) was less than 0.05.

Table 6. Correlation between stakeholders' engagement and project specifications

Details		Stakeholders' Engagement in project specifications design stages	Performance on project specifications
Stakeholders' Engagement in project specifications design stages	Pearson Correlation	1	0.800
	Sig. (2-tailed)		0.000
	N	93	93
Performance on project specifications	Pearson Correlation	0.800	1
	Sig. (2-tailed)	0.000	
	N	93	93
**Correlation is significant at the 0.01 level (2-tailed)			

The R-squared value was calculated in order to show the differences in the dependent variable that could be explained by the independent variable. The R-squared was found to be 0.639 implying that 63.9% of the performance in project specifications in roads construction projects could be explained by the independent variable, stakeholder engagement in project specifications.

Method of engagement

According to Table 7 results, Pearson Correlation of 0.835 meant that there was a positive and strong linear correlation between the independent and dependent variables. This implied that an increase in stakeholder engagement methods in project specifications directly led to increased performance on project specifications.

Table 7. Correlation between stakeholders' engagement methods and project specifications

Details		Performance on project specifications	Stakeholders' Engagement Methods in project specifications
Performance on project specifications	Pearson Correlation	1	0.835
	Sig. (2-tailed)		0.000
	N	93	93

Stakeholders' Engagement Methods in project specifications design	Pearson Correlation	0.835	1
	Sig. (2-tailed)	0.000	
	N	93	93
**. Correlation is significant at the 0.01 level (2-tailed)			

According to the Coefficient of Determination (R^2) of 0.698 or 69.8% were computed in order to assess the variations of variables of the study. The R-squared value of 69.8% meant that only 69.8% of the variations in project specifications design were explained by stakeholder engagement methods while 30.2% variation was explained by factors other than the one mentioned in the study.

5. Validation

One of the objectives of the study was to determine the relationship between stakeholder engagement and project costs involving L400 roads project in Lusaka District. The study found that, there was a significant relationship between stakeholder engagement and project costs in roads construction projects. The two variables were also noted to be negatively correlated though with strong linear relationship. This entails that as stakeholder engagement levels increase, performance on project costs tend to reduce since they are inversely correlated. That in-turn would ensure that the project is executed within the budget, thus avoiding cost overruns. The findings are in line with those of Mwanaumo et al. (2018) and Durdyev et al. (2017) that stakeholder involvement in construction projects play a critical role in attaining project success through reduced cost overruns. The findings stipulated that, as a result of less stakeholders' engagement in construction projects, it was discovered that most of the projects experienced cost overruns. The results indicate that ineffective stakeholders' engagement significantly contributed to cost overruns in construction projects. Similarly, Aigbavboa, et al. (2013) revealed that it was actions of the stakeholders that contributed greatly to increased cost overruns thus delaying project delivery. The findings were supported by Chilongo and Mbetwa (2017) who established that, effective stakeholder engagement in construction projects significantly influenced project success by avoiding adjustments in budgets.

Furthermore, the study also analysed the relationship between stakeholder engagement and project schedule involving L400 roads project in Lusaka District. The results of this study denoted that stakeholders' engagement was positively and strongly correlated to project scheduling. It was also observed that the two variables were significantly related as supported from the p-value (0.00) of less than 0.05. The situation was similar even when stakeholder engagement methods were compared to project scheduling maintaining the interpretation. From the two situations, 49.5% and 57.7% variations in project scheduling could be attributed to stakeholders' engagement in project scheduling stages and methods respectively. The findings agreed with Talley et al. (2016) who indicated that, project scheduling in construction projects was significant related to stakeholders' engagement as such for a project to succeed, there should be effective stakeholders' engagement. Furthermore, Einur, et al. (2016) pointed out that in projects which were reported to have had been completed within schedule, stakeholder engagement was observed to have been effectively applied. In line with the above findings, Chilongo and Mbetwa (2017) stated that stakeholder engagement in construction projects directly affected performance of projects particularly scheduling. Mambwe et al. (2020) agreed with the findings by stating that it was thus vital to note that for scheduling to be accurate, there was need for project managers to consider engaging stakeholder needs and expectations throughout the project cycle.

Lastly, the study established that there was a significant relationship between stakeholders' engagement on performance of project specifications. Regression Analysis results also showed that there is a linear correlation between stakeholder engagement and performance of project specifications such that stakeholder engagement could be used to predict levels of performance of project specifications. Also, if stakeholder engagement levels increase, so are the levels of performance of project specifications. The findings agreed with Mwanaumo, et al. (2018) who observed that, effective involvement of stakeholders in projects led to improved product specifications. Dacha and Juma (2018) also added that, specifications of projects' products where mainly determined by stakeholder needs and interests hence, there was adequate need to effectively consider incorporating stakeholders in projects. Additionally, Shipuku and Mbithi (2017) established that the Pearson's correlation coefficient gave a strong and important correlation between stakeholder engagement and project specification of (r=0.844). They further stated that stakeholder engagement impact specifications of project outcomes as it was discovered that stakeholders do get

involved in project quality throughout the stages as such their inputs regarding quality are incorporated in final quality decisions.

5.1 Stakeholder Engagement Model

Figure 1 shows an ideal stakeholder engagement model for roads construction projects implementation developed by the study. The model was validated through interviews by ten respondents sampled purposefully for correctness, adequacy and applicability and was found suitable by 70%. The stakeholder engagement model for road construction projects implementation was presented in form of process flow chart using 19 steps and include:

Step 1 - Consider road project from Annual Work Plan: The first step in the ideal model is consideration of road project to be constructed from the annual work plan. The study considered roads projects constructed under the Lusaka 400 (L400) road projects funded by the Government of the Republic of Zambia through the RDA. **Step 2 - Select project of highest priority:** Ensuring the road to be undertaken holds the first priority as advised by technocrats, has economic benefits than any other road on the annual plan. It is more justifiable to lobby resources for a project which is economically viable than one which offers less economic benefits. **Step 3 - Mobilize resources and Budget Ceiling:** The model recommends selection process of priority project is undertaken, so is the mobilization of resources accompanied by availing of budget ceiling. The resources to be mobilized include financial, human, machinery, material and so forth. As soon as the mobilization process is complete, the project budget ceiling is availed to in order to kick start the road construction project. **Step 4 - Identify stakeholders:** This step marks the commencement of stakeholder engagement process for the project in which key stakeholders on the project are identified and classified based on their roles. **Step 5 - Identify the needs:** Stakeholder engagement should be embarked just before the project starts in order to ensure all their needs and interests are considered throughout the project phases. **Step 6 - Select method of engaging stakeholder:** The next step is selection of stakeholder engagement method which is guided by prioritized and mapped needs and expectations of those involved. **Step7 - Engage Stakeholders:** Stakeholders are engaged from different points of view in order to seek their inputs on project performance measurements namely specifications, cost and schedule. Their engagement helps with formulation of acceptable performance levels. **Step 8 - Define Project Specifications:** This step enables project managers to come up with acceptable designs and specifications of the project so that standards are set high with involvement of stakeholders. **Step 9 - Define Project Schedule:** This step involves planning the entire project duration from the start to finish so that stakeholders can factor in their contributions in form of activities and time in order to minimize project failure.

Step 10 - Define Project Costing: Stakeholders need to be involved and their inputs should be considered. Defining projects cost, specifications and schedules should be conducted at the same time though with different steps as shown from this proposed model. **Step 11 - Select project specifications:** The process of selecting appropriate project specifications requires effective stakeholder engagement in order to include inputs from stakeholders and acceptability. **Step 12 - Select project schedule:** During the project scheduling, the model assumes that selections of other performance parameters such as costs, specifications and so forth also is undertaken at the same time thus their steps fall on the same level and should be done with the views of stakeholders. **Step 13 - Select project cost:** According to the study findings, project cost positively and strongly relates to stakeholder engagement hence, the model advocates for placing project cost selection at a position where they are supported by stakeholders.

Step 14 - Implement Project: Soon after selections of project cost, specifications and schedule are complete, implementation process starts and should be supported by stakeholders. The process is based on assuming that the correct performance parameters are selected with the presence of stakeholders. **Step 15 - Evaluate Project Performance:** The project should be evaluated with the stakeholders so as to check whether it was conducted within the cost and schedule. **Step 16 - Do outcomes conform to set specifications?** It is important to assess if the features of the constructed roads were in conformity with set specifications as agreed by the stakeholders. It is done so as to address issues pertaining to quality. **Step 17 - Is the project delivered within schedule?** Ascertaining whether the project is implemented within schedule should be addressed. This step looks at the success of the project from the point of it being completed within schedule as selected and agreed earlier in the project. **Step 18 - Is the project delivered within cost?** For the project to be successful, it must be delivered within budgeted cost without cost overruns as earlier agreed by stakeholders preventing project failure. **Step 19 - Project Delivered:** In order to reach at this stage, it implies that the project has been executed within cost, schedule and met set specifications with the presence of stakeholders during the project life cycle.

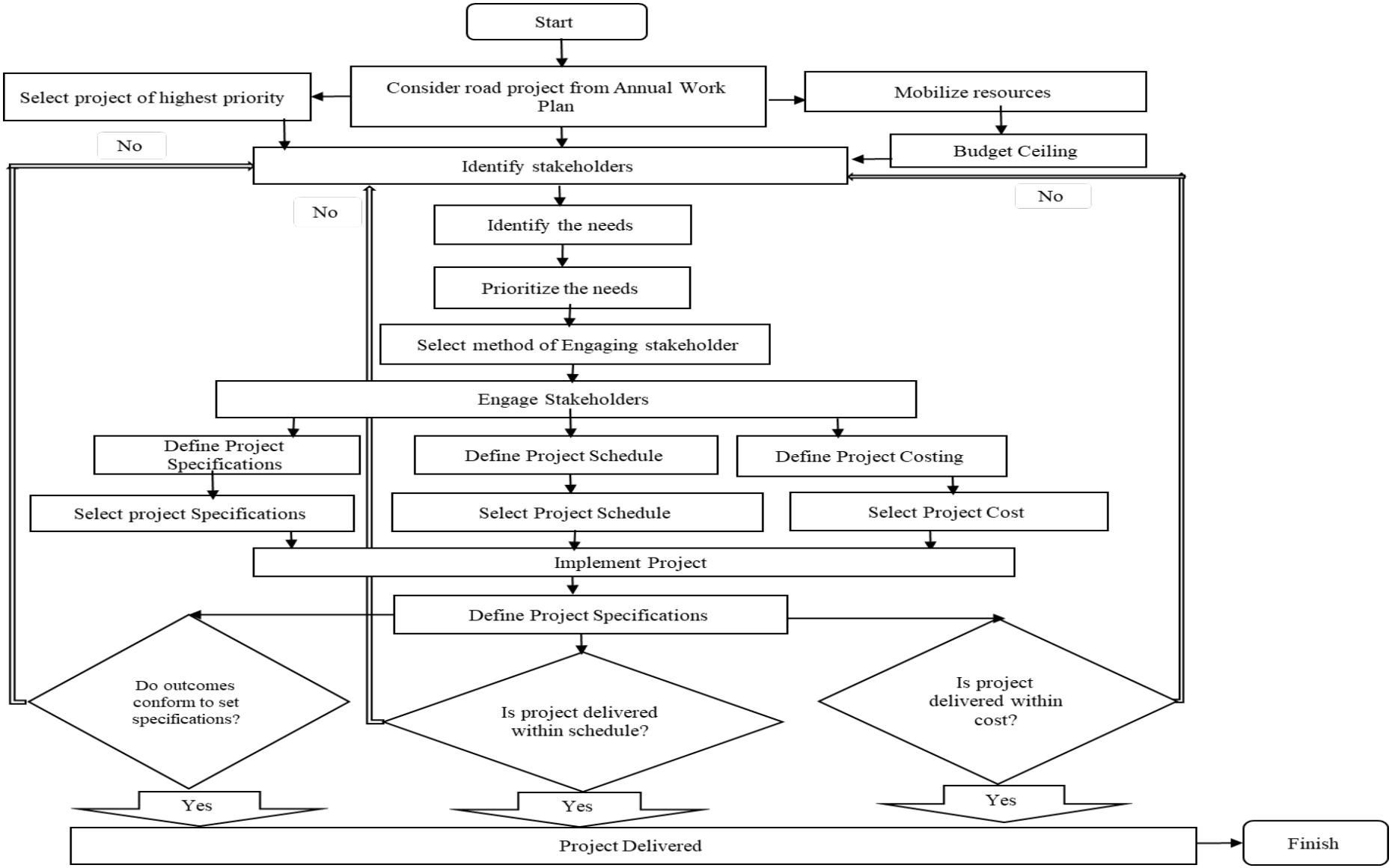

Figure 1. Stakeholder Engagement Model for Roads Construction Projects execution

6. Conclusion

The purpose of the study was to evaluate the impact of stakeholder engagement on performance of roads construction projects in Lusaka District under the L400 roads project. The study concluded that stakeholder engagement was strongly but negatively linear related to project costs in roads construction projects under the L400 roads project in Lusaka District, Zambia. The study also concluded that stakeholder engagement significantly relates to project cost, schedule and specifications. The study found that stakeholder engagement during stages of project scheduling was strongly and positively linear related to project scheduling. Furthermore, it was found that stakeholder engagement during stages of project scheduling was applied to a great extent.

The study recommends that stakeholder engagement in road construction projects should be enhanced as this would significantly contribute to performance of projects in-terms of cost. The respondents indicated that stakeholder engagement strongly but negatively relates to project cost such that when one variable increases the other variable decreases. The study also recommends that stakeholder engagement in project costing should not be detached episodes but rather be applied throughout the project cycle. The study further recommends that, stakeholders should be involved throughout the stages of project scheduling in order to ensure that project produces required outcomes as set by concerted efforts. Thus, it is recommended that a model developed for implementing stakeholder engagement in road construction projects be adopted with room for other researches. The study limitations was that some participants especially the Civic Leaders were not very conversant with the Lusaka Four Hundred (L400) Roads project as they claimed to have less knowledge about it.

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