

EFFECTS OF COMMUNICATION ON SUSTAINABILITY OF ROAD CONSTRUCTION PROJECTS IN EMBU GOVERNMENT, KENYA

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Abstract: The capability of a firm to carry out its objective or program well into the future is referred to as a project's sustainability. Improper enactment of projects is not necessarily a result of project management skills. Nevertheless, how a project is handled has a major impact on its realization. The problems faced throughout the use of project management competencies have included poor quality, money and schedule overruns, and inadequate project planning. The study investigated the effect of communication on sustainability of road construction projects in Embu Government, Kenya. This study used a descriptive research design. The entire number of ward representatives, county engineers, site engineers, road contractors, surveyors, and road construction technicians made the target population, which were 176. 20 ward representatives representing electoral wards where road projects were performed were thus included among the study's participants. It has 83 road construction technicians who have finished implementing road projects to bituminous standards, 25 county site engineers who are engaged on a permanent basis by the governments of Embu and Kenya, 13 road contractors and 20 surveyors. A population census was carried out because of the tiny population and the need to improve data accuracy in order to obtain accurate results. Questionnaires were used to gather the data, and both regression analysis and descriptive statistics were used to analyze it. The study found a strong and positive correlation between effective communication and the long-term viability of road construction projects. According to the study's findings, it is essential to keep lines of communication open, frequent, and accurate with all project staff members and stakeholders in order to ensure that capital expenditure projects are carried out successfully. The study recommends that throughout project implementation, project activities should be communicated to all parties involved, and county governments should set up the appropriate channels for message delivery and feedback in both top-down and bottom-up communication.

Keywords: Communication, Project Sustainability.

1. INTRODUCTION

Sustainability of projects is one of the biggest barriers to all local, national, and worldwide development efforts (Ahmed, Azhar, Castillo & appagantulla, 2012). Public construction projects have received billions of shillings in funding worldwide to enhance people's quality of life. The sustainability of local government initiatives is an emergent issue for régimes worldwide. In recent years, efficient project management and execution have become a growing concern (ZouP, Zhang, & Wang, 2017). This concern for reducing the fragmentation of development systems and changing how projects are implemented is reflected, for instance, in the shift from project mode to sector-wide methodologies, structural adjustment measures to programs-based approaches, direct budget support, and medium-term expenditure frameworks. Non-technical factors including management, social dynamics, community dynamics, monitoring and evaluation methodologies, staff

capabilities, and the level of stakeholder involvement in the project cause many initiatives to fail (Al-Bahar and Crandall, 2010).

In light of evolving social, economic, and political circumstances over time, sustainability may be taken into consideration. Ayudhya (2011) asserts that a community's ability to deal with change and adapt to novel circumstances is a sign of sustainability. Sustainability according to Hussin & Omran (2012), requires that stakeholders appropriately own new structures and maintain them throughout time with the use of local resources. The flow of sustainable benefits is what management of sustainability aims to maximize. It should be a continuous process that asks for evaluation and updating as conditions change and information is acquired from past encounters (Carignac, 2017). Most developing nations have made significant financial investments in creating and maintaining community-based programs, but little is understood about how these initiatives are maintained or what causes them to fail. Once its initial financing base runs out, the typical community-based initiative typically has a relatively limited existence. Numerous studies concentrating on how community initiatives can be sustained beyond their initial financial source and extend their durability in meeting the needs of the community have been done due to a lack of knowledge and awareness of what sustains community-based projects (Koushki, Al-Rashid & Kartam, 2015).

Four factors of sustainability were identified by Carlsson, Josephson, and Larson (2011) as needing attention and research. These include organizational culture, which describes how an organization interacts with its internal stakeholders, societal influence, which assesses how society influences a company in terms of the social contract and stakeholder influence, environmental impact, which arises from a company's actions on its geophysical environment, and finances, which offer a sufficient return for the level of risk taken in the pursuit of sustainable development. In order to preserve project benefits when considerable foreign funding has ended, it is envisaged that project participants (government, community organizations, and the corporate sector) will contribute an acceptable level of financial, managerial, and technical resources. However, in order to increase the possibility of sustainability and consolidate results, Some limited follow-up assistance, such as infrequent technical assistance (including sector advisory visits or increasing cash support), may be required from AID providers (Fapohunda & Stephenson, 2010).

As an illustration, county governments worldwide administer modern community hospitals, mobile hospital units, residential structures, feeder highways, connecting railway lines, development of tourism projects, waste management, agricultural projects, housing units, water projects, and other projects (Assaf & Al-Heiji, 2016). In each of these huge nations, specific states, counties, and municipalities or local states have undergone unequal development, according to Jha and Iyer's (2016) study on the expansion of manufacturing companies in America, Malaysia, Austria, and India. State and county laws, tax loads, and access to resources are the main reasons provided for the diverse development of states and counties, despite the fact that they exist in the same countries, politics, infrastructure, security, corruption, climatic conditions and cultural and educational factors (Olatunji, 2010). Project implementation has been significantly impacted in the majority of countries, up to a degree of 55%, by political opposition, technological advancement, the development of human resources, the distributing monetary resources from budgets, minerals availability, among many other things (Omran, Abdalrahman, & Pakir, 2012).

Fapohunda and Stephen (2010) assert that conflicts occur in Nigerian construction that have an impact on project sustainability between the stated project objectives and the appropriateness of cost, time, and quality. Despite the large number of events that have been documented, according to Omran, Abdalrahman, and Pakir (2012), cost overruns have increased in building projects of all sorts, from simple to complicated ones; this eventually leads to sustainability issues. Studies reveal that because sustainability concerns occur after projects are completed, the majority of road building projects in Ghana encounter escalating cost overruns, completion delays, and unsatisfactory and missing project objectives (Gaba, 2013). Studies conducted in South Africa show that the client and project team do not fully comprehend the road project from origin to completion (Olatunji, 2010). This has an impact on every step of a project's execution and sustainability procedures. In Nigeria, road construction is regularly delayed, which has an impact on sustainability.

It is evident that the bulk of projects funded significantly typically have sustainability problems (Carlsson et al., 2011). According to donors like the DFID, World Bank, USAID, and other bilateral aid organizations, while the trend with project execution is showing tremendous development, post-implementation sustainability remains relatively gloomy with very few programs being sustained (Jha & Tabishl, 2011; Mojahed, 2015). Kenya has invested significant funds in putting plans into action, however inadequate sustainability keeps them from seeing the benefits on their investments that they had hoped

for. Numerous problems contribute to poor project sustainability. There are some simple and challenging factors. There are some that the project management can control and others that are external risks (Nyaguthii & Oyugi, 2013).

In Kenya, where the construction industry is expanding, many new roads and structures have been built. The Kenyan road construction industry has attracted a lot of interest from foreign corporations. All 47 of Kenya's counties have seen a rise in road construction projects as a result of their perception of Kenya as an economic powerhouse in East and Central Africa and a base from which they can conduct business throughout Africa (Wambugu, 2013). Others include building initiatives that have received approval from organizations, the government, private citizens, private businesses, and multinational corporations. Several construction projects have been completed with notable differences in cost, scope, and timeline. Project sustainability, however, continues to be a significant obstacle, just as it is in other Kenyan counties. The need for a project to start fulfilling its objectives and recovering the committed expenditure motivates the need for sustainability in building projects. If this is not done, a number of things happen that eventually result in this reality.

Kenya Public Infrastructure Report of 2015 highlights that non-governmental organizations like the industrialized nations of the United States, Canada, and Sweden, via their respective development funding agencies, Canadian International Development Agency (CIDA), United States Agency for International Development (USAID) and Sweden International Development Agency (SIDA), are responsible for funding the majority of Kenya's public infrastructure. Many academics have claimed that public infrastructure projects in impoverished countries like Kenya are frequently not fully completed in accordance with their original concepts and goals (Stiglitz & Sappington, 2017; Chatelus & Perrot, 2016; Klein & Dailami, 2015; Reeves, 2014).

According to Ogwueleka (2010), factors that affect the sustainability of road construction projects have to do with the inputs into a management system that directly or indirectly affect a project's success—or lack thereof. The most significant influences on the project's time, cost, and quality are considered to be the essential aspects in sustainability of road building projects, according to Adnan, Sheriff, and Saleh (2019). According to Bourne (2006), it is essential for project managers to make sure that all variables that affect how successfully construction projects run are taken into account. According to Aziz and Asmaa (2016), the main factors that impacted the performance of road development projects in Egypt were financing factors like delayed payment by the financier, postponements in client approval, unsuitable contractor choice, poor planning, and geological problems there, unachievable contractual rates, staffing issues, and disagreements with stakeholders.

2. STATEMENT OF THE PROBLEM

In general, a project's completion within the allocated budget, time, scope, and quality requirements, as well as its ongoing sustainability, constitute the project's success. Olukotun (2017) states that a construction project is successfully sustained if it satisfies the following four success test criteria: time, cost, effectiveness, and client satisfaction. Time refers to the length of sustenance; cost, budgetary allotment; effectiveness, efficiency; and quality standards. Client satisfaction refers to acceptance by the intended users or clients. The bulk of projects, however, are poorly maintained because of government officials' poor management skills, cost overruns, insufficient resource allocation, and a lack of proper program monitoring and assessment (Aibinu & Jagboro, 2017).

The majority of the duties traditionally performed by Kenya's national government, such as the provision of healthcare, early childhood education, and local road maintenance, are now overseen by the country's 47 County Governments. Article 203(2) of the Kenyan Constitution mandates that devolved administrations get financing from the central government in order to efficiently support service delivery (Wambugu, 2019). Even though the construction sector is one of the main sectors that might boost Kenya's economy, an increase in project delays is hurting the nation's economy since they squander resources, raise project costs, and annoy clients. Investing in construction projects, together with accompanying infrastructure and services, has a number of direct and indirect advantages. It establishes both forward and backward links through increasing investment in the production of building materials, transportation, and governance (GoK, 2015).

For many projects, especially those involving public infrastructure like roads, schools, hospitals, and health centers, the Embu County Government continues to serve as the major capital project implementer and the implementing agency. In Embu County, where the researcher calculates that only 30% of development projects have been finished so far, sustainability problems exist. Many infrastructure projects never get implemented as a result of issues such a lack of political will, ineffective time management, and financial limitations. According to Ayudhya (2011), a project's feasibility depends on achieving its goals within the allocated time and financial constraints. Since the projects that the County Government

funds don't give adequate consideration to sustainability issues, this hasn't happened frequently in Embu County. A number of problems prevent the implementation of development programs in Embu County. In the fiscal year 2010–2011, only 25 of the 56 CDF projects initiated were completed. Ten projects were unsuccessful, fourteen remained unfinished, five were abandoned, and two had delays in their implementation (NTA, 2012). The constituency of Machakos Town was listed as the third-largest recipient of public funds for the fiscal year 2011/2012. 25 trash cans were allegedly allotted for failed projects.

3. LITERATURE REVIEW

Theoretical Literature Review

In 1950, Penrose developed the RBV theory; in 1995, he proposed the idea that an organization is a resource pool. According to this hypothesis, a firm's resources are very important in predicting its performance and competitive advantage. Despite the fact that resources can be divided into many different categories, including tangible and intangible ones, the former helps organizations carry out business procedures while the latter may give them a competitive edge by enabling the deployment of novel and advantageous ways (Ray, et al., 2004; Barney, 1991). Resources are unequally distributed across enterprises, and productive resources cannot be transferred between firms without incurring expenses, claims Barney (1991). These two premises provide the basis for RBV. According to RBV, only an intangible resource that is valuable, unusual, challenging to duplicate, and lacking in strategically equal alternatives is needed to preserve a firm's competitiveness (Barney, 1991). Since project management skills are formed on both tangible and intangible resources, RBV is essential in projects (DeFillippi & Arthur, 1998; Fernie, et al., 2003). The application of established methods, templates, tools, and techniques that are widely available within the discipline is an example of a tangible resource in the field of project management (Crawford, et al., 2006; Jugdev & Mathur, 2006). Yet, non-tangible project management competencies like teamwork and leadership may provide you a competitive edge (Killen, et al., 2012; Hunt, 1997; Jugdev & Mathur, 2006). Being valuable, unique, and imperfectly imitable resources, teamwork and leadership are thus expected to have an impact on project outcomes. RBV is criticized for not being used since there is disagreement about how to define concepts like competences, assets, and resources. RBV is also criticized for being unable to evaluate and lacking a method to estimate non-tangible assets (Barney et al., 2011). The Resource Based Perspective theory is relevant because one of the financial aspects being looked at in the current study on how financial factors affect Nyandarua county government project success is the accessibility of project financing. A physical resource called money is necessary for the efficient performance of county government operations. To ensure project success and give the projects a competitive edge, the financial resources identified by the resource-based view theory should be organized through project resource planning. The idea is pertinent to this study because it aids in the identification of crucial financial resources whose use may be carefully controlled to produce the desired project outcomes.

Empirical Literature Review

Nyandongo and Davids (2020) investigated the impact of communication on project performance through an empirical study. The results revealed a sizable positive correlation between communication and project results. Through communication, project success rates are raised and overall project performance is enhanced. The survey's actual results show that people are aware of the value of communication. The tools and strategies required to manage communication effectively are recognized, along with the supporting information and communication technology (ICT) tools. Project managers who consider communication to be one of the most important factors in a project's success have, according to the study's findings, outperformed the other participants in terms of project success rates.

Nzuki and Mutuku (2023) looked into the effect of communication on the Kenya Urban Roads Authority's road development projects in Nairobi City County, Kenya. This study employed a descriptive research design as its method of choice. The five projects that KURA is implementing between 2018 and 2022 were the study's target population. 75 people made up the target responders, comprising 5 project managers and 70 members of the project team. The study's sample size was 75 respondents, or a sample. All sampled respondents received questionnaires as part of the primary data collection process. They found that communication had a significant positive impact on these projects. Therefore, the study investigates the effect of communication on sustainability of road construction projects in Embu Government, Kenya.

Chen (2021) examined the impact of communication on the success of capital projects using a mediated moderation model. Using a longitudinal survey and bootstrap-based structural equation modeling, this study demonstrates how project

competences and team innovative behavior influence the relationship between project communication and capital project performance. Project managers were polled twice for this study: just after the start and planning stages ended and right after the project was finished. This study's sample, which excludes replies with missing data, consists of 108 capital projects. This study found that project technical and managerial skills completely mediate the relationship between project communication and project performance.

4. RESEARCH METHODOLOGY

This study used a descriptive research design. The entire number of ward representatives, county engineers, site engineers, road contractors, surveyors, and road construction technicians made the target population, which were 176. 20 ward representatives representing electoral wards where road projects were performed were thus included among the study's participants. It has 83 road construction technicians who have finished implementing road projects to bituminous standards, 25 county site engineers who are engaged on a permanent basis by the governments of Embu and Kenya, 13 road contractors and 20 surveyors. A population census was carried out because of the tiny population and the need to improve data accuracy in order to obtain accurate results. Questionnaires were used to gather the data, and descriptive statistics and regression analysis were used to analyze it.

5. FINDINGS

The descriptive statistics results of communication are presented in Table 1.

Table 1: Communication

Statement	Mean (M)	Standard Deviation (SD)
The project's goals are effectively communicated to all stakeholders.	4.08	0.406
Throughout the project's execution, management, personnel, and stakeholders meet regularly	4.00	0.123
Plans for communication are often reviewed and modified.	4.71	0.860
For the project's implementation, the organization has devised communication tactics to help reduce potential disagreements and misunderstandings.	4.89	0.471
In order to determine the demands of the clients, there is transparent communication that gives stakeholders the chance to remark or vote	4.20	1.623

The majority of respondents strongly concurred with the claims that the company has put in place communication methods to assist reduce potential conflicts and misunderstandings during project implementation and that communication plans are regularly reviewed and adjusted as shown by mean score of 4.89 and 4.71 respectively with respective significance variance of 0.471 and 0.860. This is in line with the findings of Afroze and Khan (2017), who discovered that these procedures have a significant and positive impact on project performance even while project complexity has little bearing on the relationship between communication and performance.

The respondents concurred with the statements that there is effective communication of project objectives to all stakeholders and that ongoing meetings between management, staff, and stakeholders are held during project implementation. The respondents also agreed that there is clear communication giving stakeholders the opportunity to comment or vote in order to identify clients' needs as indicated by mean score of 4.20, 4.08 and 4.00 respectively and with standard deviation of 1.623, 0.406 and 0.123. This supports Affare's (2012) findings that ineffective communication contributed to project delays, cost overruns, and project abandonment.

6. RESULTS OF REGRESSION ANALYSIS

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.688 ^a	.473	.403	.472

As per the results in Table 2 is that communication contributed to a variation in the sustainability of road construction projects in Embu Government, Kenya by 0.403. Furthermore, this implies that components not examined in this research account for 59.7% of the project sustainability.

Table 3: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.411	.904		4.235	.000
Communication	.711	.081	1.020	2.142	.002

The regression model will consequently be displayed after the output that is illustrated;

$$\text{Project sustainability} = 0.411 + 0.711 (\text{communication})$$

As noted in the table above, communication (t=2.142, p=0.002) is statistically significant at the 95% confidence level as being positively connected to project sustainability.

7. CONCLUSIONS AND RECOMMENDATIONS

The study concludes that to ensure the successful implementation of capital expenditure projects, it is essential to maintain open, frequent, and accurate lines of communication with all project staff members and stakeholders. The study recommends that project activities should be shared with all parties involved during implementation, and county governments should determine the best resources for efficient project implementation.

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