

**EVALUATION OF THE PERFORMANCE OF DONOR  
FUNDED ROAD CONSTRUCTION PROJECTS IN  
KENYA**

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**Evaluation of the Performance of Donor Funded Road Construction  
Projects in Kenya**

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## DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

Signature..... Date .....

**Ali Ibrahim Hassan**

This thesis has been submitted for examination with our approval as University Supervisors.

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## **DEDICATION**

I dedicate this work to my family whose love and support has been unparalleled.

## **ACKNOWLEDGMENT**

I wish to acknowledge God for His gift of life and wisdom. Further, I acknowledge my Supervisors and Lecturers Prof. Henry Bwisa and Prof. Amuhaya Iravo for their intellectual support throughout the research period.

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## OPERATIONAL DEFINITION OF TERMS

- Donor Funded Projects:** They are projects sponsored by external donations normally provided by international aid or development agencies (Mujungu, 2015).
- Effectiveness:** Effectiveness is the extent to which the project's objectives were achieved, or are likely to be achieved and seeks to control the factors that influence accomplishment or non-achievement of the objectives (Ngacho, 2013).
- Efficiency:** Efficiency is the maximization of output for a set level of input or resources, which is the extent to which desired effects are achieved at a reasonable cost (Takim & Adnan, 2009); (Niringiye & Ayebale, 2012).
- Evaluation:** Project evaluation is a systematic and objective assessment of an ongoing or completed project whose aim is to determine the relevance and level of achievement of project objectives, development effectiveness, efficiency, impact and sustainability (UNODC, 2005).
- Impact:** Impact is defined as the positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended. Impact is the result that links to the development objective as described in the project document. It is often only detectable after several years and usually not attained during the life cycle of one project. For this reason, there is a need to plan for

impact, recognizing that the project will likely achieve outcomes (UNODC, 2005).

**Performance:** Performance is the accomplishment of a given task in this case a project measured against preset known standards of accuracy, completeness, cost, and speed (Pitagorsky, 2013).

**Relevance:** Relevance is the extent to which an intervention's objectives are related to the needs, problems and issues to be addressed, it is concerned with the extent to which the objectives of the programme are consistent with policy identified needs and objectives. Relevance is also about consistency with existing priorities and policies effective demand (Niringiye & Ayebale, 2012).

**Sustainable Development:** Sustainable development is a process of growth which meets the needs of the present, as perceived by all concerned and maintained over a long period after project inputs have ceased, without compromising the ability of current and future generations to meet their needs (Ostrom, 2010).

## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>EIA</b>	Environmental Impact assessment
<b>GOK</b>	Government of Kenya
<b>IDPM</b>	International Development Project Management
<b>KeNHA</b>	Kenya National Highway Authority
<b>KeRRA</b>	Kenya Rural Roads Authority
<b>KPI</b>	Key Performance Indicators
<b>KURA</b>	Kenya Urban Roads Authority
<b>MDGs</b>	Millennium Development Goals
<b>NGO</b>	Non-Governmental Organization
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>PIU</b>	Project Implementation Unit
<b>PM</b>	Performance Measurement

## ABSTRACT

Investments made in building world class infrastructure serve as a major catalyst for attracting local and foreign investors. In developing nations, road projects are some of the largest donor funded projects. In Kenya, given the road network size, traffic volume, traffic composition and projected future growth rates, the need to invest in road infrastructure development is very high and exceeds the country's budgetary financing capacity. Outside budgetary financing has therefore become necessary in order to enable the country meet the challenge of the growing road traffic. The private sector participation plays a major role in bridging the financial gap, so does the foreign aid. Construction industry is the means through which a society realizes its goals of urban and rural development. Despite immense study focusing on factors affecting the performance of road construction projects in Kenya, majority have focused on projects undertaken by local contractors. The general objective of the study was to evaluate the performance of donor funded road construction projects in Kenya. It aimed at bridging the knowledge gap by evaluating the factors affecting the performance of road construction projects with an emphasis on donor funded road construction projects. The specific objectives being to assess the efficiency, effectiveness, relevance, sustainability, impact and their effect on the performance of donor funded road construction projects in Kenya. A descriptive survey design was used while a questionnaire was used to gather primary data. Secondary data was also used to validate the communicative and realistic validity of primary data. The study targeted all road construction companies and regulatory bodies involved in ongoing and most recently completed donor funded road construction projects in Kenya. Out of the 331 questionnaires administered to the sample group, 298 were duly returned which represented 90% response rate. The data collected from the field was analyzed using SPSS and Microsoft excel. Descriptive statistics gave a summary of the data and a description of the sample characteristics. Correlations analysis showed the relationships among the variables hence finding statistical support of the hypotheses of the study. The findings revealed that all the variables of the study that is efficiency, effectiveness, relevance, sustainability, impact had statistically significant influence on the performance of donor funded road construction projects. Findings further showed that efficiency in donor funded road projects was not satisfactory; effectiveness had positive influence which could be attributed to the strict guidelines imposed by donors. In addition, they showed that donor funded projects were relevant in the development objectives and goals of Kenya. It was noted that sustainability was not well defined meaning that it did not meet the expectations of the respondents. Findings on the economic impact revealed that donor funded projects preserved a reasonable balance between peoples' economic aspirations and their sustainable development priorities. Based on the findings of the study, it can be concluded that effectiveness, efficiency, sustainability, relevance and impact all affect the performance of road construction projects positively. The adoption of better mechanisms in the management of these projects could however enhance performance levels. Monitoring of donor funded road construction projects is vital in order to evaluate performance and also aid in determining their successful completion. This study did not include all donor projects and a further study is recommended to include social empowerment projects among others.

## **CHAPTER ONE**

### **INTRODUCTION**

This chapter presents the background of the study, statement of the problem, objectives and significance of the study.

#### **1.1 Background of the Study**

Infrastructure development globally plays a crucial role in determining the overall productivity and development of a country's economy. Investments made on building international class infrastructure serve as major catalyst towards attracting local and foreign investors Sharma and Vohra (2009). The authors further state that poor quality infrastructure pushes firms away from a location more often than good infrastructure will attract them. According to Ika, Diallo and Thuillier (2012) projects remain the tools of choice for policy makers in international development. However there are challenges associated with donor assistance which include; a country's incapability to use donor funds effectively because of limited infrastructure, the unpredictability of donor assistance from year to year, and the complex monitoring and evaluating requirements that vary by donor (Management Sciences for Health, 2012). In acknowledgment of some of these challenges, donors and recipient countries have been collaborating to improve harmonization of funding requirements. Performance-based funding is another trend being used to improve the effectiveness of development aid.

Therefore, for developing nations the formation of satisfactory and state of art infrastructure becomes imperious. In developing nations, road projects are some of the largest donor-funded projects and the largest cause of resettlement (DeGrassi, 2005). The development of roads has been extensively supported as poverty mitigation instrument by donor institutions. It is argued that road construction projects are the key to raising living standards. By cutting down on transport costs, roads are expected to generate market activity, affect input and output prices and nurture economic connections (Van de Walle, 2009). As a result, the local economy

goes through tremendous change including; the boosting of agricultural production, donor investment and this has a cascading effect on income-earning opportunities (citizens are capacitated), governments are able to collect more revenue and consequently there is population redistribution all over a country. There has been claims that better roads facilitate access to social service facilities thus enhancing social outcomes.

Kamau and Mohamed (2015) states that the monitoring and evaluation of such projects is imperative if the project objectives and success is to be realized. He further says that project monitoring and evaluation practice adds value to the overall efficiency of project planning, management and implementation by presenting corrective action to the variances from the expected standard. Observed in contradiction of the vastness of the subcontinent Gwilliam et al. (2008) opines, the road network of Sub-Saharan Africa is sparse. It is usually less dense than the networks of other developing regions. When viewed against the region's population and income, and its capability to pay for maintenance then the road density starts to look high.

Mills (2008) says studies have shown that governments which devote their money on indispensable public facilities get high rates of return. It is in the same line that DeGrassi, (2005) states that roads can be a response to political pressure, as well as a means for it. When transport is improved, it may improve access to bureaucratic officials and political representatives, therefore increasing downward accountability.

In Uganda the effect of donor aided projects is felt in the social and economic welfare of the rural poor because according to Mujungu (2015) there is improvement in production, food security and household incomes of beneficiaries. In Cameroon the development concept and implementation of reforms in the context of a larger sector programme, several donors participate by providing finance for consultancy and investments. This being a joint exercise has shown a larger influence and proven to be effective on the road sector. In Tanzania, efficiency of road transport systems wanting as it is in many developing countries despite the importance of the sector.

They are often constrained by high vehicle operation and maintenance costs due to poor road conditions (Mlinga, 2016).

The Kenyan transport sector comprise of five transportation modes: roads, rail, air, maritime transport and pipeline Assessment, (Irandu, & Malii, 2013). The Kenyan road network comprises of 63,300 km of classified roads and 114,500 km of unclassified roads. About 14% of the classified road network (i.e. 9,100 km) is paved, the rest being of gravel or earth surface. Road transport is the leading mode of transport in Kenya, accounting for about 85% of the total domestic transportation.

The Kenya Vision 2030, a long term planning blueprint launched in the year 2008 recognizes the improvement of infrastructure as one of its foundations to creating a globally competitive and prosperous country with high quality of life by the year 2030 (Kenya Rural Roads Authority, 2013). However, this comes in a background of inadequate rural road network in terms of coverage to meet current and future demands. At the current levels of funding and output the Authority targets to increase the rural road network under tarmac from the current 1.7 % to 5.9% and another 90,000 Kilo Meters (61.3%) of well-maintained rural roads as part of her contribution to Vision 2030.

Developments in the road construction industry in Kenya are increasing in size, technology complexity, interdependencies, and variations in demands from clients. The road network in Kenya at independence was 45,000km out of which only approximately 2000km were paved while the rest was mainly earth. In order to support the country's development objectives, the country embarked on a programme of upgrading trunk roads to bitumen standard and improving rural roads to gravel standard. As a result, the paved road network was expanded from 2000 km in 1963 to 11,189 km in 2009. The Kenya road sub-sector has been largely dominated by road expansion and upgrading programmes since the year 2009, when the Kenya Vision 2030 was launched. Given the road network size, traffic composition and projected future growth rates, the demand for road infrastructure investment in Kenya is very high and exceeds the country's budgetary financing capacity. Outside budgetary financing has therefore become necessary in order to enable the country

meet the challenge of the growing road traffic. The private sector participation has played a big role in bridging the financial gap Kenya Rural Roads Authority (2013) so does the foreign aid.

### Donor Funded projects

Donors have over the years increased aids to development programs in the developing countries the targets to improve their livelihoods (Gaturu & Muturi, 2014). A number of development partners are active in the Kenyan transport sector and offer their support in the rehabilitation or reconstruction of some fundamental road links that are vital to the Kenyan Economy.

### Donor Intervention in the Road Sector in Kenya

No.	Development Partner	Current Commitment (Million US\$)
1	European Union	171.50
2	World Bank	160.00
3	African Development Bank Group	159.20
4	BADEA/OPEC	65.85
5	Agence Francaise Developpement	56.06
6	KfW (Germany)	52.78
7	China	26.11
8	Korea	25.00
9	JICA (Japan)	25.00
10	SIDA	20.00
<b>TOTAL</b>		<b>761.50</b>

**Figure 1.1: Donor Intervention in Kenyan Road Sector**

Source: (Gaturu & Muturi, 2014)

Figure 1.1 above gives a summary of the present level of donor commitment in the sector (Assessment *et al.*, 2013). Aid Projects are inherently political, notes Jacques (2010) because they create social economic and environmental impacts they also have different stakeholders with high levels of abilities and therefore requires complex reporting. Gaturu and Muturi, (2014) note that the completion of donor-funded projects in a timely manner is often a critical factor and a measure of project success but in many cases, delays plague the delivery of donor-funded projects in many developing countries where such projects are often implemented. The

operating environment of donor funded projects is often contextualized by matters that make traditional project management tools and approaches less appropriate he adds. These concerns include geographic distances between projects actors (recipient country, contractors and funding agency), cultural differences between project actors, and competing agendas between project stakeholders, challenging operating conditions and unpredictable socio-political environments (Jacques, 2010).

According to Takim and Akintoye (2002), there are parameters identified by Key Performance Indicators (KPI) for benchmarking projects in order to achieve a good performance. Some of these indicators are: Construction cost, time, defects, client satisfaction with the product and the service, promotion of the result orientated thinking, predictability of construction cost and time to name but a few. In this study, therefore, we shall assess how performance indicators are evaluated in the donor-funded construction in Kenya.

## **1.2 Statement of the Problem**

Construction industry is the means through which a society realizes its goals of urban and rural development (Enshassi, Hallaq & Mohamed, 2006). It has a big impact on the economy of all countries. In spite of the high importance of the sector, many of its projects experience extensive delays and thereby exceed initial time. The construction industry is intricate in its nature because it comprises large numbers of parties as owners or clients, i.e. contractors, consultants, stakeholders, and regulators. Exploring the causes of delay has become a significant input for improving construction industry performance. Several studies have been done on road construction projects in Kenya. Hassan (2013), says monitoring and evaluation of road projects implementation is paramount in determining successful completion. The study showed that project mission, structural capacity, processes and outcome mapping components of monitoring and evaluation influenced project quality. On the other hand, Bundi, (2011), on the challenges in the management of procurement services at Kenya Rural Roads Authority (KeRRA) revealed that political interferences and inadequate allocations of funds hinder completion of KeRRA roads. Donors, ranging from development banks to philanthropic charities, aim to

generate economic growth and reduce poverty through finance investments and interventions in transport sector which can improve economies in massive ways. Literature shows that there are ample studies on the performance of development aid though few relatively focus on evaluation of these projects but the ones that have evaluations conducted remain classified and unpublished (Goodwin, & Walton, 2012). Additionally, many of the studies have concentrated on projects undertaken by local contractors. The study aims at bridging this knowledge gap by evaluating the factors affecting the performance of donor funded road construction projects.

### **1.3 Objectives of the Study**

#### **General Objective**

To evaluate the performance of donor funded road construction projects in Kenya.

#### **Specific Objectives**

1. To assess how efficiency affects the performance of donor funded road construction projects in Kenya.
2. To determine how effectiveness affects the performance of donor funded road construction projects in Kenya.
3. To determine how relevance affects the performance of donor funded road construction projects in Kenya.
4. To assess the role of sustainability in the performance of donor funded road construction projects in Kenya.
5. To evaluate the importance of impact in the performance of donor funded road construction projects in Kenya.

### **1.4 Hypotheses**

H<sub>0</sub>: Efficiency does not affect the performance of donor funded road construction projects in Kenya.

H<sub>0</sub>: Effectiveness does not affect the performance of donor funded road construction projects in Kenya.

H<sub>0</sub>: Relevance does not affect the performance of donor funded road construction projects in Kenya.

H<sub>0</sub>: There is no sustainability measures for the donor funded road construction projects in Kenya.

H<sub>0</sub>: Impact does not affect the performance of donor funded road construction projects in Kenya.

### **1.5 Significance of the Study**

This study will be of value to the Government agencies dealing with donor funded projects in Kenya. The findings will reveal the factors that impede the performance of donor funded road projects in Kenya and offer insights into what needs to be done to make the performance of donor funded projects satisfactory. The research is also important to the donors as it points out the factors that may have influence on the various projects they carry out in the country and will enable them plan effectively before initiating projects. The beneficiaries of various donor funded projects will also find the results of this study useful as it points out the important role stakeholders play in establishing effective donor funded projects in Kenya. The reason as to why the study looks at the donor funded projects is because there is a gap in the literature on these projects. There is no sufficient literature on donor funded road projects in Kenya. Secondly the author would want to build on the previous work done on M&E which mainly focused on government funded projects.

### **1.6 Scope of the Study**

The study covers donor funded road construction projects in Kenya. The target population of this study were all the road construction contractors and regulatory bodies involved in ongoing road construction projects in Nairobi city and its environs. The study covered all the road contractors licensed and contracted to undertake donor funded road construction.

### **1.7 Limitation of the study**

One of the major limitation encountered is the availability of respondents, who were too busy to fill out the questionnaire. Secondly, some were reluctant to fill in the questionnaire citing its expense.

### **1.8 Delimitation of the study**

To counter the problems, the researcher made appointments even over their breaks such as tea and lunch-breaks. In addition the weekends provided ample time for data collection. The researcher used the drop and pick method for the ones that could not fill them immediately. One other method that the researcher used was to opt for scanned responses which were emailed on time. To counter the issue of size, the researcher patiently asked the questions and filled in the responses.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter contains the conceptual framework and also discusses the literature related to the performance of donor funded projects.

#### **2.2 Theoretical Framework**

According to Edmunds and Marchant (2008), developments in theory and methodology of Monitoring and Evaluation (M&E) have been remarkable during the last forty years. Gosling (2010) point of view, M&E is about clarifying what you are trying to do, collecting and analyzing information to show whether you are doing it or not and how you might do it better.

Evaluation (1984) defines monitoring “as a continuous assessment both of the functioning of project activities in the context of implementation schedules and of the use of project inputs by targeted populations in the context of design expectations”. Monitoring was perceived internal project activity and a very important aspect of good management practice. Evaluation was defined as “periodic assessment of the relevance, performance, efficiency, and impact of the project in the context of its stated objectives”. In addition, it was said to include comparisons in time, area, or population demanding information from outside the project.

Beaudry and Sera (2007) posits that, conducting monitoring and evaluation efforts, there are specific aspects to consider and this depends on the actual intervention, and its stated outcomes. Funds payment is the most important aspect of project implementation. It is on this basis that scheduled project activities are translated into measurable outputs in the execution of the project objective by the Project Implementation Unit (PIU). Disbursement is a critical aspect of project financial management since projects are modeled on capital budgeting principles and as such, all relevant cash flows associated with the undertaking must be ascertained with a

fair degree of accuracy so that the desirable returns are achieved within the set time periods. Therefore all decisions made during project implementation invariably have financial implications hence the need for utmost care and diligence in arriving on the same (Keng'ara, 2014)

According to (MBOM, n.d.) Apparently, there still exists a gap between Africa's aid needs and the amount of aid that is supplied. Riddell (1999) accentuates that, in spite of donor commitments, aid is predominantly influenced by the trends within the donor countries. The aid machinery functions in such a way that it has done little to enhance sustainable development as the aid dependency it has created within the aid circle (Riddell, 1999).

Project success is project efficiency and effectiveness. This was in the opinion of Slevin and Pinto (1986) way back. Project success remains an ambiguous, broad, multidimensional concept and its definition and measurement are bound to a specific context (Ika, 2009). In their research, Ika, Diallo, and Thuillier (2010), it was established that project success was insensitive to the level of planning efforts but on the other hand ascertained that a significant correlation existed between the use of monitoring and evaluation tools and project profile. Monitoring and evaluation is more critical than planning in achievement of project success (Ika *et al.*, 2010).

According to Yeung, Chan, Chan, Chiang, and Yang (2012), scholars have conducted investigation on project performance evaluation and benchmarking in the construction management discipline and there is therefore a great need for construction industry to pinpoint the common indicators by project managers in measuring construction performance at the project level. Wadugodapitiya, Sandanayake, and Thurairajah (2010) explain performance measurement (PM) as a fundamental part of management and defines it as a process of quantifying both the efficiency and effectiveness of an action. In addition, PM is important for organizations to appraise its actual objectives compared to the predefined goals and to make certain that they are doing well in the competitive environment. Performance indicators, or individual units of measurement, have the potential to break down a complex program in to understandable and comparable units, offering

the potential to make these cross comparisons in a reasonable way. Traditional indicators such as cost, time and quality do not in isolation; provide a balance view of the projects' performance (Wadugodapitiya *et al.*, 2010).

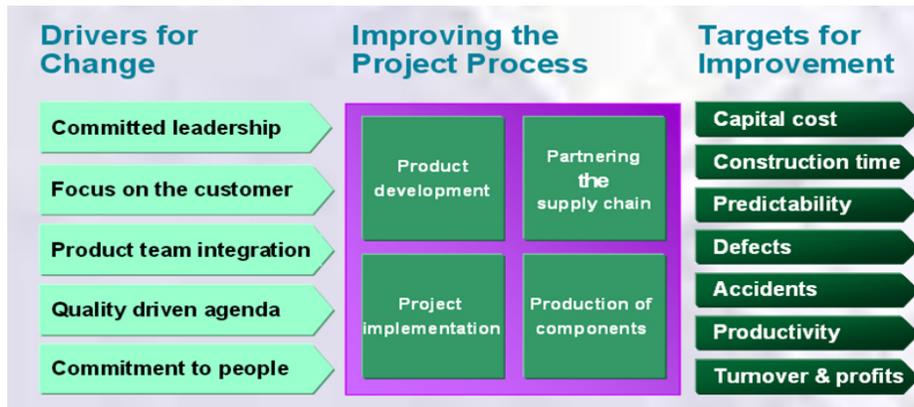
Morris (2002) posits that, management-of-projects is broad in that it has an almost revolutionary impact on the way one thinks about the relationship between performance and the project objectives. He argues that project management is much more closely aligned with the project sponsors', or the clients', perspective. The issue is not so much simply whether the project will be accomplished on time, within budget, and to scope, but whether the business success – the success in meeting the project's key performance indicators (KPIs) justifies the effort, and the risk, expended in undertaking the project. Indeed, it could be that the original baseline targets are no longer relevant: that it is in the sponsor's business interests for the project to exceed its baseline cost, schedule or scope targets. The idea of improving performance rather than just achieving the initial baseline targets is now being captured in new 'Maturity' models of project management (Morris, 2002).

## **Models**

Construction projects require the ability to coordinate activities of numerous individuals participating in tasks that often have high levels of complexity and uncertainty.

## **Rethinking Construction Model**

A Key Performance Indicator (KPI) is the measure of performance that is critical to the success of an organization (Swan and Kyng, 2005). The construction industry KPIs allow the benchmarking of an organization against industry standard data. Swan and Kyng (2005) defines, benchmarking as the process of comparing a company's performance against a target to assess current performance and generate a plan to drive improvement towards the standard level.



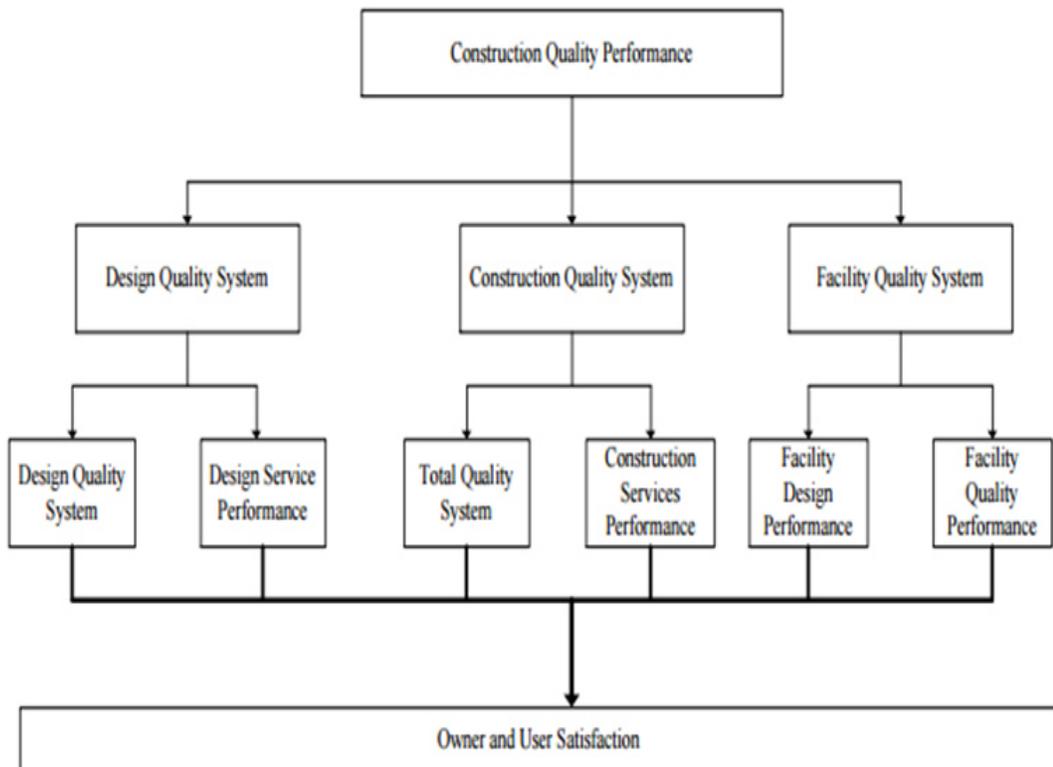
**Figure 2.1: Rethinking Construction Model:** Source (Crane 2004)

Crane (2004), on a drive towards better construction came up with the above model in figure 2.1. This was a model with recommendations based on tried and tested methods from other industries.

Similarly, Slevin and Pinto (1986), opined project success deals with matters of the project itself’ as well as the issues of the client. The two components play different roles, the combination of achieving both project management success and project-product success is the hallmark of a completely successful project cycle. Based on Van Der Westhuizen and Fitzgerald (2005) study, the two components have a common attribute which is quality. They argue that quality is a very important attribute that helps an organization determine how successful the project will be. Quality is a tool that can be used to build client loyalty and strong brand reputation. In their study Farinde and Sillars (2012), citing Ibrahim and Sodangi, (2007) postulates, quality performance can be evaluated at both the corporate-level and project-level. He continues to say Ibrahim and Sodangi, (2007) in their conclusion identified the following as being essential to meeting and/or exceeding the clients’ requirements: the quality of the organizational culture, quality of the project-product, as well as the quality of the construction and design services.

## Construction Quality Performance Model

To adapt the models of information systems as suggested by Van Der Westhuizen and Fitzgerald (2005), to the construction industry, the role of each element in the project success model is placed within the context of a construction project environment. The Project success Model has elements like 'system quality,' 'information quality' and the 'service quality' attributes. Basing on the construction quality performance framework by Ibrahim and Sodangi (2007) and the project success model, a new model was developed as shown in the figure 2.2 below.

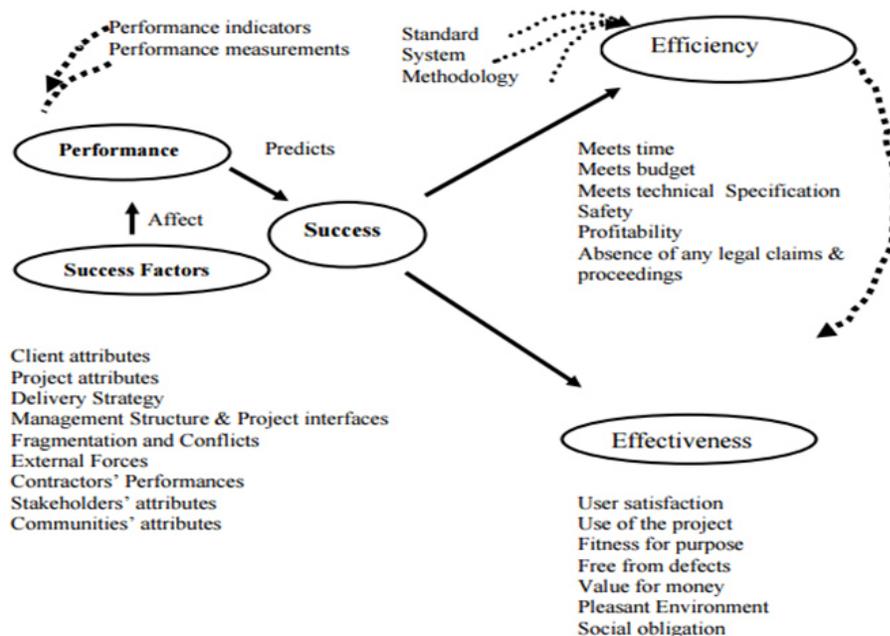


**Figure 2.2: Construction Quality Performance Model**

Source (Ibrahim & Sodangi, 2007)

## A framework on the Relationship between Success Factors, Project Performance and Project Success

Takim and Adnan (2009) argue that, performance predicts success and success factors affect performance. To identify the ‘real’ success factors of construction projects, the role of the stakeholders in relation to the construction project performance is paramount. Citing Cooke-Davies, 2002), they add that the element of success in a project refers to efficiency and effectiveness measures. Efficiency measures correspond to the strong management and internal organizational structures (adherence to schedule, budget and Performance) and effectiveness measures refer to user satisfaction and the use of the project. Efficiency is achieved through having standard, systems and methodology. Takim and Adnan (2009) came up with a diagram that shows the relationship between success factors, project performance and project success. The figure 2.3 shows the relationship.

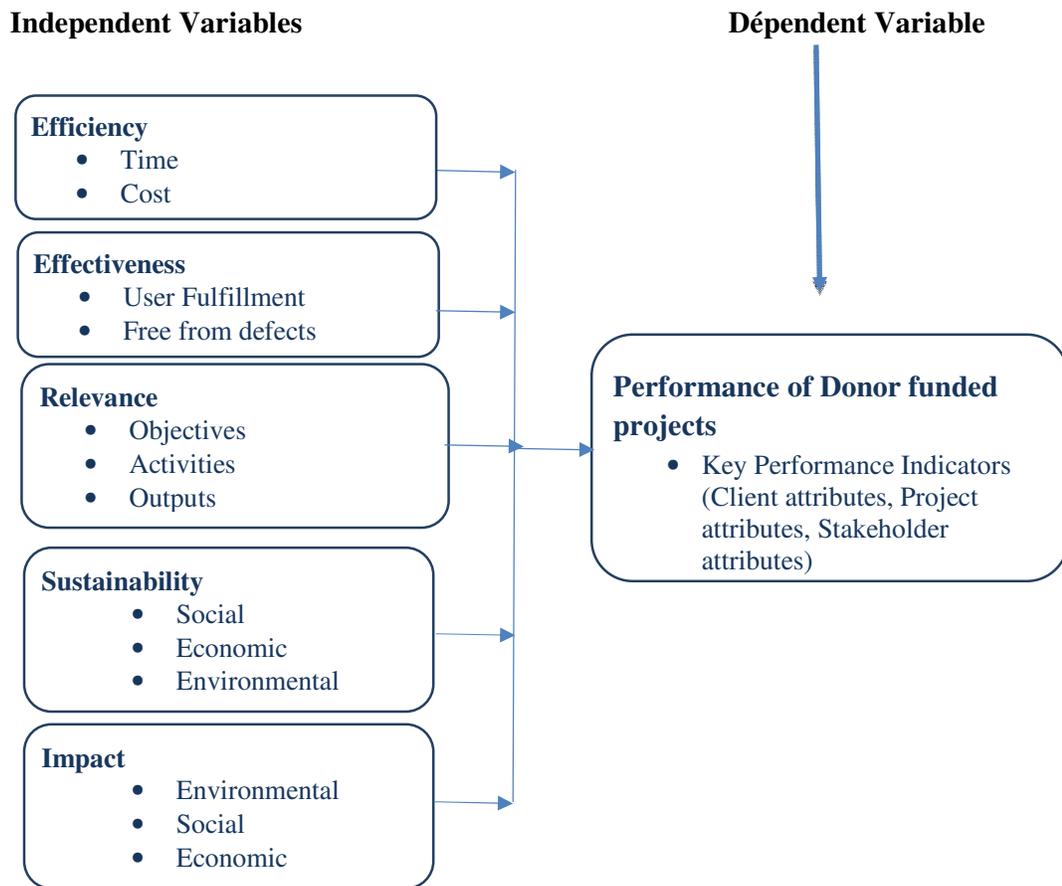


**Figure 2.3: The Relationship between Success Factors, Project Performance & Project Success.:** Source Takim and Adnan (2009)

This research borrowed from the two models and the above framework to highlight the variables identified from this study; Efficiency, Effectiveness, Relevance and, sustainability that are likely to affect the performance of donor funded projects.

### 2.3 The Conceptual Framework

The conceptual framework indicates the effect of the five evaluation criteria (efficiency, effectiveness, relevance, sustainability and impact) and their effect on the performance of donor funded road construction projects. As depicted by figure 2.4 below.



**Figure 2.4: Conceptual Framework**

## **Empirical Review**

In most African Governments, the setting up of efficient road networks has been the central focus and a key ingredient in the development efforts (Magidu, Alumai, & Nabiddo, 2010). The provision of infrastructure in these countries is critical for economic productivity, therefore benefits in terms improving accessibility of such social services cannot be understated (Lartey, 2011). Nevertheless numerous researches globally have been carried out revealing the fact that the performance problems of these projects in both developing and the developed countries (Otim & Alinaitwe, 2013). Generally, performance measurements may have one or more indicators, and could be influenced by various project characteristics. The development of any construction project Takim and Akintoye (2002) notes, encompasses numerous parties, many processes, different phases and stages of work and a lot of input from both the public and private sectors, with the main aim being to bring the project to a successful finish.

A lot of literature written and said about project success Ika, Diallo and Thuillier (2012) but authors are yet to exhaust this meaning and measure. All the same there is unanimity that project success entails both efficiency and effectiveness; that it is a matter of perception, that there are project success criteria, principles used to define project success, and critical success factors that refer more specifically to conditions contributing to project success. According to Afande (2013), the extent of success of donor funded projects is determined by both technical and managerial capability of the human resources of the implementing agencies, consequently, suitable supportive infrastructure is a requisite.

In Ika *et al.* (2012) view, project success in International Development Project Management (IDPM) is also described by ambiguity but says there is consensus that international development project success criteria consist of relevance, efficiency, effectiveness, impact, and sustainability. Relevance of a project refers to the extent to which the project suits the main concerns of the target group, the recipient and the donor. On the other hand, efficiency refers primarily on percentage resource usage, while still managing to achieve the desired results. Effectiveness is about the extent

to which the project meets its objectives. Impact refers to the positive and negative changes produced by the project, directly or indirectly, intentionally or not, finally sustainability refers to whether the benefits of the project are likely to be carried on after donor funding has been withdrawn.

According to Makori and Wanyoike (2015), there is an increased call for results from donor funded projects in the 21st century, therefore benefiting countries should view donor support/aid as a business rather than free donations or grants and aim at succeeding in these projects. Strategies at the country level, donor agencies must improve their effectiveness to realize real development effects and eliminate poverty Afande (2013) notes. There is a fresh pressure for a more result based policy from aid opponents, civil society, donors and recipients alike has resulted to a formal process that led to the adoption of the Paris Declaration on Aid Effectiveness. This implementation of the Paris agenda is compelling both donors and recipients to look more analytically at the tangible results of development efforts. It seems now that the Paris declaration is a significant step in the right direction (Afande, 2013). According to Khang and Moe (2008) the success of projects determines the socioeconomic progress in the recipient countries but also the effectiveness of the contribution of the donor countries and agencies. Understanding the critical factors that influence project success enhances the ability of donors and implementing agencies to ensure desired outcomes. In addition, it helps them forecast the future status of the project, diagnose the problem areas, and prioritize their attention and scarce resources to ensure successful completion of the projects.

According to Karabegovi and McMahon, (2006) aid has conventionally been seen as short-term, that is only complementing existing national resources and efforts. However, after its many years of existence, it has become somehow permanent. Moreover, aid has turned out to be a significant force in the national economy, making those countries more or less completely dependent on it. In Kenya Chege, (2008), notes that aid disbursed by different donors varies greatly from year to year, depending on the country's institutional ability to absorb funds and delays in project preparation and tendering.

## **Efficiency**

Takim and Adnan, (2009); Niringiye and Ayebale, (2012) define efficiency as the maximization of output for a set level of input or resources, that is the extent to which desired effects are achieved at a reasonable cost. Efficiency in Pinto and Slevin, (1988) interpretation, refer to it as a stout management and internal organizational structures i.e. adherence to schedule and budget, and elementary performance expectations this means that efficiency measures deal with ‘time, budget and specifications’. According to Takim and Adnan, (2009), project efficiency can only be realized through having a standard system and methodology put in place. Because efficiency measures strong management and internal organizational structures adherence to schedule and budget is of critical concern. In assessing efficiency, a project evaluation may look into the extent to which resources are being used to yield the anticipated outputs and how resources could be used more efficiently to realize the intended results (" Handbook on Planning, Monitoring and Evaluating for Development Results," n.d.).

### **a) Time**

Project time can be considered as being the duration from the inception of a project to its completion Ngacho, (2013). He points out two time aspects in project time: planned or expected project time and actual completion time. A project experiences time overrun/delay when actual project completion time exceeds the planned time. Delays have a great impact on project delivery process and usually postpone project activities. Time performance can be considered upon three measures: construction time, speed of construction and time variation (Chan & Chan, 2004).

In Lensinko (2015) defines project time as the absolute time that is calculated as the number of days/weeks from the beginning on site to the actual practical completion of the project. However, he says the speed of project implementation is the relative time. Citing Peterson & Fisher 2009 he notes that construction firms are usually more concerned in monitoring project time variance and confirming contractor progress payments requests.

## **b) Cost**

According to Chan and Chan (2004) project cost is defined as the degree to which the general conditions promote the completion of a project within the estimated budget. Project cost is not only limited to the tender sum only, but it is the overall cost that a project incurs from inception to completion, so it includes any costs arising from variations, modification during construction period and the cost created by the legal claims, such as litigation and arbitration. Niringiye and Ayebale (2012) in their opinion say that cost efficiency quantifies how economically resources/inputs are converted to benefits/output and in addition explains the degree to which desired effects are achieved at a sensible cost, including the management structures and the way they support a cost-effective operation. However, Magnussen and Samset (2005) opine that the potential for decreasing costs in major projects during implementation may perhaps be considerable.

Value, Takim and Adnan (2009) says is a necessary term in project management. It is a measure stated in currency, effort, exchange, or on a comparative scale that reflects the need to obtain or retain an item, services or ideal. Citing Kloot and Martin 2000, Takim and Adnan (2009) define 'value for money' as the provision of satisfactory services without wasting limited resources and also make sure services are reasonable in price. Earlier work on 'value for money' associated value for money in terms of cost reduction and higher quality starting point that lead to greater client satisfaction. Value for money therefore is the optimum combination of whole life cost and project quality to meet a client's need and expectation, and value management aims to maximize the functional value of a construction facility to the clients. Value for money is an effectiveness measure of project success.

Nonetheless, in majority of projects cost overrun in absolute terms may be considerable, but quantified alongside operating costs after the project has been completed could be inconsequential. They cite one Norwegian hospital whose project had a 10 per cent increase in construction costs that was equal to only months of operating costs. In another example, they cite an airport train shuttle project that had a 30 per cent cost overrun which was termed as immaterial this was in relation to

long-term cost and revenue for the investment cost was completely out of amount of the potential revenue from the limited number of passengers using the airport. This advocates that in relative terms, cost increases may be even less significant if seen against life-cycle costs and revenues in a cost-effectiveness perspective (Magnussen & Samset, 2005).

### **Effectiveness**

Ngacho (2013) defines effectiveness as the extent to which the project's objectives were achieved, or are likely to be achieved and seeks to control the factors that influence accomplishment or non-achievement of the objectives. Accountability is a main pillar of effectiveness says (O'connell & Soludo, 2001). He defines it as the transparency concerning the purpose, content, responsibility and performance of the development agency. Donor Aid effectiveness remains a main concern for the international development community. Afande (2013) says whether the donor agencies are tackling the global Millennium Development Goals (MDGs) or working collaboratively on Poverty Reduction Strategies at the country level, they must develop their effectiveness to achieve tangible development outcomes and eradicate poverty. The proper assessment of the effectiveness of aid entails a valuation of what would have happened had aid not been provided opines (Carlsson, Somolekae, & Van de Walle, 1997). In addition, Afande (2013) notes, the success of donor funded projects is determined by both technical and managerial capacity of the human resources of the implementing agencies and fitting supportive infrastructure is a necessity.

According to Guillaumont (2008) there are two chief factors of aid effectiveness that have emerged. One is policy, institutions and governance. The idea is that aid is more effective when the policy and institutional environment is "good", it is expected to be used sensibly. A second category of factors is related to exogenous shocks and structural economic vulnerability, to which can be added the post-conflict situation. While vulnerability to exogenous shocks, external or natural, is a negative factor of growth, aid is likely to dampen their effects, lowering the relative shortfall of resources and avoiding economic collapse Guillaumont (2008). Moreover, it can be

argued that aid, by dampening the impact of shocks, makes growth not only faster, but also more pro-poor, because more unstable growth is less pro-poor.

#### **a) User Fulfillment**

According to Takim and Adnan (2009) user fulfillment defines the level of 'happiness' of persons affected by a project. A client is satisfied when the project is delivered to quality, reliability, on-time deliveries, high service levels and minimum cost of ownership. Latest pressure says Afande (2013) for a more result focused on policy from aid opponents, civil society, donors and recipients has given rise to a correct process that has led in the implementation of the Paris Declaration on Aid effectiveness. Enactment of the Paris agenda is compelling both donors and recipients to look better and more analytically at the actual results of development efforts.

Ekanayakage and Halwatura (2013) beneficiary input is an essential factor for donor funded projects because there are many benefits and that the eventual product belongs to the community. Therefore many donors are always insisting the projects with should have the beneficiary participation. Atkinson (1999), says that there are two possible criteria that would be used to measure project success from effectiveness dimension are the resultant system (i.e. the product) which meets customers' satisfaction and benefits many stakeholders such as users. He says that end-users are not contented if the end product does not meet their requests in terms of functionality and quality of service. Nevertheless, there are many hurdles for there to be a successful execution of beneficiary participatory projects. It's therefore necessary to identify those downsides and address them. In order to satisfy stakeholders, it is necessary to identify who the stakeholders are on a project, their interests and develop means of meeting their expectations (Nguyen *et al.*, 2009). The data is collected through a questionnaire and analyzed according to the existing data from the donor funded executed project (Ekanayakage and Halwatura, 2013). The findings should show the factors that affect stakeholder participation in project and act as a guide for current and future projects.

## **b) Free from defects**

Construction defects is work performed that falls below the standard guaranteed or expected by the client of the work (Prahl, 2002). A common feature of construction contracts is what is known as a defects liability period. The defects liability period is the period of time within which the contractor is contractually obliged to return to the construction site to repair defects which have appeared in the contractor's works. The defects liability period usually commences on practical or substantial completion and extends for a specified period, commonly 12 months. It is not uncommon for a further defects liability period, often equal to the original period, to apply to repaired works.

## **Relevance**

Niringiye and Ayebale (2012) defines relevance is the extent to which an intervention's objectives are related to the needs, problems and issues to be addressed. In addition, they say it is concerned with the extent to which the objectives of the programme are consistent with policy identified needs and objectives. Relevance is also about consistency with existing priorities and policies effective demand. Skinner, Staiger, and Fisher (2010) points out that relevance is a significant issue during the course of the intervention cycle. Consequently therefore, during planning and preparation, the responsible organizations should make a first assessment of the relevance of the objectives of the intervention. In addition, make sure that the intervention strategy is complete.

In his explanation, Chianca (2008) says while evaluating the relevance of a program or a project, it is important to consider some questions such as: To what extent are the objectives of the program still valid? Are the activities and outputs of the program consistent with the overall goal and the attainment of its objectives? Are the activities and outputs of the program consistent with the intended impacts and effects?

"Handbook on Planning, Monitoring and Evaluating for Development Results," (n.d.), relevance concerns the congruency between the perception of what is required

as intended by the initiative planners and the reality of what is needed from the perspective of intended beneficiaries. Moreover, a crucial sub-category of relevance is the standards or criteria of suitability that concerns the cultural approval as well as feasibility of the activities of delivery of a development initiative. While relevance examines the importance of the initiative relative to the needs and priorities of intended beneficiaries, appropriateness examines whether the initiative as it is operationalized is acceptable and is feasible within the local context (“Handbook on Planning, Monitoring and Evaluating for Development Results,” n.d.). An initiative may be relevant in that it addresses a need that intended beneficiaries perceive to be important, but unsuitable since the method of delivery is different with the culture or not practicable given geographic or other contextual realities. In applying the criterion of relevance, evaluations should explore the extent to which the planning, design and implementation of initiatives takes into account the local context.

#### **a) Objectives**

“pi\_handbook\_180808.pdf,” (2008.), project objective is single statement of the broader aim of a project, that is how the project can contribute to a larger national or international development plan or action. The objectives are specific, time-related targets that describe the tangible outcomes that the project will accomplish. Zewo (2008) describes the project objectives as the intended and direct, short- and medium-term effects on the target group. The project objective must lie within the scope of the project, and one must be able to directly attribute the effects to the project. The project objective ought also to describe an outcome, meaning the effect of change that the project is supposed to cause for the target group. In practice, it is often not quite so simple to distinguish outcomes from outputs, i.e. the project’s products and deliverables. Well-formulated, genuine outcome (and impact) objectives are therefore of great importance if the outcome and impact assessment is to have any significance. A well-formulated project objective provides a concrete description of the project’s effect at the outcome level; was developed in a participatory process; is accepted by the target group and other stakeholders; is clear and concise (Zewo, 2008).

## **b) Activities**

Activities according to Parsons, Gokey, and Thorton (2013) are important in order to appreciate the extent to which a project was delivered as planned, and to highlight obstacles to implementation. The activities provide a way of describing the various project components in specific and measurable terms, as well as show the resources required and individuals responsible for various tasks. They are most valuable when you are able to connect a given set of activities to a particular output or outcome.

It is important that activity indicators capture those elements of the project that are essential for its success. Activity indicators should include three essential elements; who conducted the activity, what they did, and where were they working (Parsons *et al.*, 2013).

## **c) Output**

Parsons *et al.*, (2013), output indicators describe the delivery of products, including, but not limited to: the providing training and technical assistance; creating standards and legislative documents; investing in buildings and infrastructure; and hiring staff required to implement a project. They are also the tangible and intangible products that result from project activities. They can also be considered to be the first level of results associated with a project. Often confused with “activities”, outputs are the direct term results allied with a project. In short, they are generally what the project has achieved in the short term. An informal way to think about outputs is to quantify the project activities that have a direct link on the project goal (Odhiambo, 2013).

When combined with measures of inputs and activities, output indicators can provide measures of economy and efficiency, describing the relationship between investments in a project and products. It is usually important to track output indicators at regular intervals over the life course of an initiative, as a way of assessing progress towards project goals and detecting delays. While achieving project outputs offers no guarantees that your project will be successful, without achieving your outputs the chances of success may be slim (Parsons *et al.*, 2013).

There is often confusion about the differences between project outputs (products) and outcomes (the short and medium term benefits that those products deliver). One easy way to distinguish between outputs and outcomes is to consider whether the indicator describes project effectiveness (an outcome). For example, installing fingerprinting technology in district police precincts and training the police on forensic techniques are both outputs; they offer no indication of whether the new technology is actually used or whether it improves police effectiveness. The outcomes for this project, their short to medium term effects, may include increased use of forensic evidence in court, changes in the rate of successful prosecutions, or reductions in the use of police interrogation as the primary method of gathering evidence. Going one step further, potential long term impacts for a project of this sort might include reductions in the rate of violent and property crimes and/or increased public confidence in the police (Parsons *et al.*, 2013).

### **Sustainability**

Sustainability emerged in the 1960s in reaction to concern about environmental degradation brought about by poor resource management. As the environment became increasingly key as a world concern, sustainability was adopted as a common political goal. As a result Organization for Economic Cooperation and Development (OECD) was formed to endorse policies that would achieve ‘the highest sustainable economic growth and employment in Member countries in order to stimulate employment and increase living standards’ (McKenzie, 2004).

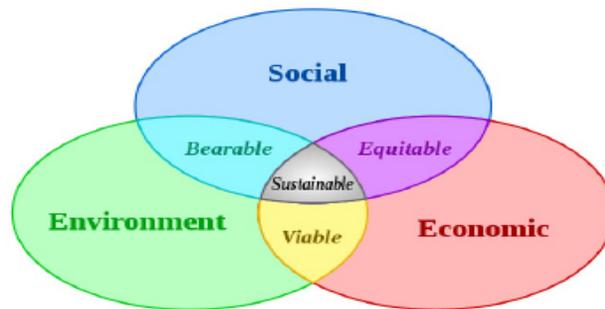
However, this concept of sustainability gained wider use after the World Commission on Environment and Development published “Our common future”. The commission defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland *et al.*, 1987). The idea arose in reaction to economic growth models that characterized development models over the last half century. Tache (2011) opine that sustainable investment projects play an essential part in the growth and development processes of all economies. He defines sustainable investment as a discrete investment action, with a specific starting point and a specific ending point, intended

to accomplish specific economic, social and environmental objectives simultaneously and in addition it encompasses a well-defined structure of investments that are expected to result in a stream of specific benefits over time.

Clevenger, Ozbek, and Simpson (2013) explored and compared six prominent emerging sustainable infrastructure rating systems: BEST-in-Highways, Envision, Green LITES, Green roads, I-LAST and Invest. For example, the Green roads purpose is to stimulate sustainability in highway construction by awarding credits to projects that have successfully incorporated sustainable best practices. It offers an all-inclusive means of considering and evaluating roadway sustainability for new construction, reconstruction and rehabilitation through a quantitative method that informs decision making. It also addresses operations and maintenance through an Operations and Maintenance Plan, which is evaluated when the project is scored. The system does not apply to day to day maintenance of highways. Sustainability factors are designed to address sustainability throughout the project stages namely; planning stage, project development stage, operation and maintenance stage. Sustainability of infrastructure transportation development is through its impacts on the economy, environment and generally social benefits; measured by system efficiency and effectiveness (Khalid *et al.*, 2012; Jeon & Amekudzi, 2005).

Lim and Yang (2007) highlights the importance of infrastructure project deliverables stages to be guided by the principles of sustainable development to ensure the project's sustainability. On the other hand Nthenge (2014) stresses that the success and sustainability of any project or program largely depend on constant feedbacks about project on going activities. Oino, Towett, Kirui, and Luvega (2015) say a number of the projects have, been successful. However, little evidence is available on the true impact of funded programs on the lives of the poor in Kenya. One of the most critical obstacles is the extent to which the projects are able to persist despite the exit of donors, while the beneficiaries reap dividends, and appreciate their participation and ownership role in the project. Apparently, little evidence indicates that, it is sustainability that makes the difference between success and failure of community-based projects.

Silvius and Schipper (2010) see sustainability as the balance or harmony between economic sustainability, social sustainability and environmental sustainability as shown on figure 2.5 below, citing (John Elkington, 1997).



**Figure 2.5: The Triple-P concept of sustainability**

Source Silvius and Schipper (2010)

**a) Social**

According to McKenzie (2004) social sustainability is a life-enhancing condition in communities, and a process within communities that can achieve that condition. This include equity of access to key services (including health, education, transport), equity between generations - that future generations will not be disadvantaged by the actions of the current generation, the widespread political partaking of citizens not only in electoral processes but also in other areas of political activity, particularly at a local level, a sense of community obligation for preserving that system of transmission and mechanisms for a community to collectively identify its strengths and needs (McKenzie, 2004).

Haroun and Adam (2015) say donors have the objective of assisting and improving the livelihood of the local communities through direct involvement or providing funding to supplement government's budgetary provision to the various sectors. Regrettably, the funds provided by most of these donors are project-driven short-term funds that do not factor the whole funding mechanism policies that guarantees the projects are sustainable after donor funds have been withdrawn.

Haroun and Adam (2015) says a very essential factor for the sustainability of projects is the candid participation of local people because their concerns and experience are fundamental to the project's success. The level of community support determines whether a project becomes established, how quickly and successfully it consolidates, and how it responds and adapts to meet changing need. According to Ndegwa (2015), foreign donors have conventionally been careful while involving with local stakeholders community leaders, the larger community or local donors who in the contemporary setting of the developing world are acknowledged widely as essential to effective sustainability of development projects.

Social requirements Akotia (2014) are important in developing an energetic society, as a result it is imperative that the requirements for such social issues are clearly set out, to drive the social values, processes and systems towards achieving their anticipated objectives. For any community to meet its social aspirations, it is a necessity that the people living in such a community have access to social services and facilities.

#### **b) Economic**

Koglin (2009) defines economic sustainable development as development that puts the profit into action to enable a more sustainable society, such as higher wages, ecological modernization, and effective technologies. The growth progress must however be sustainable also for future generations, likewise those generations have to work and economic progress. Economic sustainability requires that the different kinds of capital that make economic production possible must be maintained or augmented. These include manufactured capital, natural capital, human capital, and social capital. Some substitutability may be possible among these kinds of capital, but in broad terms they are complementary, so that the maintenance of all four is essential over the long term.

According to Akotia (2014) a primary limitation confronting the sustainable development and regeneration agenda is the way the development projects can be carry out and preserve a reasonable balance between peoples' economic aspirations and their sustainable development priorities. In addition, the promotion of

employment and investment prospects, together with the heightening of skills are deliberated as crucial benefits, regeneration projects are meant to deliver. Consequently, such added value enables communities to respond favorably to economic transformation and effectively tackle issues of deprivation.

Economic sustainability also ensures Shen, Li Hao, Tam, and Yao (2007) financial affordability to the anticipated recipients, stimulate job creation; boost competitiveness, to select environmentally accountable suppliers and contractors, and to maintain capacity to meet the needs of future generations. It is generally suggested that meeting such economic sustainability drivers forms a crucial part of achieving the economic regeneration of communities Treasury (2007). According to Akotia (2014), delivering sustainable economic sustainability ambitions point toward placing more emphasis on the economic empowerment of individuals and the society as a whole. In conclusion, he says that seeking to improve the economic productivity ventures such as regeneration projects is fundamental because issues dealing with economic sustainability have far reaching implications on individuals' general economic survival.

### **c) Environmental**

According to (Bhandari, 2009) an environmentally sustainable system needs to preserve and uphold a stable resource base, avoid overexploitation of renewable resources and preserve biodiversity. Ngacho (2013) notes that generally, construction projects have irreversible impact on the local environment as construction processes not only consume enormous energy but also generate the most waste, use large quantity of non-energy related resources and are responsible for the most pollution. Additionally, he says the environmental effect being indirect and long term in nature has implications on sustainability of the project within the community. Montgomery, Schirmer Jr, and Hirsch (2015) in agreement says that transport projects can have substantial effects on the environment and local communities if not addressed openly in the design and implementation of projects and programs. They further suggest that it is important to move to more environmentally sustainable projects and programs that offer extra benefits. They note that currently, project stakeholders are

increasingly demanding and expecting environmental sustainability to be integrated into infrastructure projects. Currently, a number of regulatory incentives are pushing organizations to adopt environmentally friendly construction methods to ensure that they develop the capability of delivering sustainable projects within acceptable cost constraints (Ngacho, 2013).

In the Oino, Towett, Kirui, and Luvega (2014) view, environmental sustainable development is one that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. It is strengthened if environmental issues are well-thought-out at all stages of the project cycle, he adds. Environmental impact assessment (EIA) is often a key tool for strengthening the environmental sustainability of programs and projects. Environmental impact, being indirect and long term in nature, can hardly be captured for inclusion under any of the three traditional measures, but has implications on sustainability of the project within the community (Ngacho, 2013).

Construction projects have irremediable impact on the local environment because construction processes consume huge energy and also create the most waste. They also use big quantity of non-energy related resources and are responsible for the most pollution (Eriksson and Westerberg, 2011). It is, therefore, necessary to include environmental impact into the performance metric of construction project performance.

## **Impact**

There is always an assumption that development aid should have positive effects on growth when it is used properly. According to Keiner (2005) the question about the effectiveness of aid should perhaps be: "how best, if at all, can aid transfers be designed to finance and support growth-promoting activities? He adds that, the period over which the impact of aid is measured matters. Aid for critical infrastructure is likely to have an immediate impact on incomes and growth, whereas the impact of aid for health and education is longer-term (Keiner, 2005).

Similarly Tott, (2013), says, while aid has a positive impact on growth in developing countries with good fiscal, monetary and trade policies, it has little impact on countries where such policies are not followed. Aid itself has small and insignificant impact on growth but aid interacting with good policy has a positive impact on growth as suggested he adds.

In Assessment, Irandu, and Malii (2013) view, the Thika Highway Improvement Project (THIP) is having major environmental, as well as social and economic impacts, like any other project of its kind.

#### **a) Environmental Impact**

Barrow (1997) says, the word environment refers to our surroundings. He expounds it as the context within which we exist. All things, living or non-living, exist surrounded by other things, and therefore all have an environment. For instance, to humankind, the environment means, the biosphere i.e. on a broad scale.

According to Daigle (2010), environmental effects of roads comprise of spatial and temporal dimensions and biotic and abiotic components. He opines that, the effects can be either local i.e. along a road segment or extensive i.e. related to a large road network. In addition to direct loss of habitat and ecosystems caused by the footprint of resource roads, another spatial aspect is the “road-effect zone”<sup>3</sup> that can radiate out from the sides of the road and/or extend downstream where effects on aquatic conditions may be located a distance from the source. The road-effect zone also changes light conditions and disturbs soils and thus creates conditions suitable for invasive plants. He accentuates that spatial effects of roads vary because species habitat requirements and ecosystem characteristics are diverse. He gives an example of the less mobile wildlife species who tend to have smaller habitats whereas wide-ranging mammal and bird requirements tend to be spread across macro-environments.

Tram Warrington and Law (2011), says that dust, has one of the effects to the humankind surrounding, has the potential to be generated during construction activities. This happens as a result of clearing, disturbance of soils, and movement of

machinery and wind effects on dry soil especially during the dry season. Tram Warrington and Law (2011), also adds that particulates in the local air shed may also increase marginally as a result of construction machinery operating on site and traffic delays during construction. Dust is likely to arise during construction activities as a result of clearing, disturbance of soils, movement of machinery and wind effects on dry soil. Particulates from exhaust fumes may also increase marginally as a result of construction machinery operating on site and traffic delays during construction. Burningham (1996) says, National Environmental Policy Act (NEPA) which was established in 1969 requires that Environmental Impact Statements (EIS) be prepared for any government projects which significantly affect the quality of the human environment. He stipulates that the preparation of an Environmental Impact Assessment (ETA) should be an interdisciplinary process including contributions from social scientists as well as from natural scientists and engineers.

#### **b) Social Impact**

A report by the UNEP 2009 on Thika Road Super Highway shows a baseline of what was happening before the road was constructed. They gave a brief view of the problems that faced the commuters, residents and business owners along Thika Road. These included heavy congestion, dilapidated infrastructure, poor air quality, and high accident and fatality rates. According to a report by (KARA, 2012). The average urban growth rate for Nairobi is approximately 4%. They add that the comparable rate for the satellite towns like Ruiru has been estimated as even higher. The rapid urbanization coupled with inadequate transportation infrastructure, maintenance and transport policies have led to a significant gap in meeting the travel needs of public transit users, pedestrians, and cyclists. High rates of traffic and travel demand, both motorized and non-motorized, paired with poor road conditions, have all but strangled mobility and urban access and reduced safety in the metropolitan area this has resulted to high rates of road accidents that mostly involve the pedestrians. The beneficial impacts Wanjiku (2014) can include: a better standard of living due to increased access to employment, business opportunities, training and education, greater access to and from a community and increased funding to improve programs.

### **c) Economic Impact**

Weisbrod and Weisbrod (1997) defines economic impacts as the effects on the level of economic activity in a given area. They may be viewed as: business output, value added, wealth (including property values), personal income or jobs. The effect on any of these measures can be an indicator of improvement in the economic well-being of area residents, which is usually the major goal of economic development efforts. According to ESIA (2014), construction works contribute towards poverty reduction through improved disposable incomes realized from employment of skilled and unskilled local labour, expenditures by the road contractors as well as road users on purchase of supplies (consumables and road construction materials, for instance gravel, and many more.) and accommodation services.

In Batkin (2001) opinion, in many projects, the main objective is poverty reduction through improving economic and social infrastructure through by ensuring drinking water supplies, irrigation, the condition of schools and clinics, access roads, etc. is in good order. While the local poor are engaged to provide unskilled manual labor, the emphasis is on the selection of essential social and economic infrastructure, the quality and efficiency of works, and future.

Literature on impacts of foreign aid on savings and growth in developing countries, besides having made a good case for increased flow of foreign aid, raise questions on the utilization of these funds on their designated projects (White, 1992). The donor community has become increasingly concerned that part of the development assistance intended for crucial projects finances projects other than those earmarked for funding. For example, a study by Uganda Debt Relief Network (2000) revealed that only 35% of the external funds reaches the designated targets, underscoring the notion that aid to developing countries is fungible. Whereas the question of fungibility is important, empirical analysis of the linkage between aid and total expenditure is necessary when assessing the impact of aid in developing countries.

## **Performance of Donor funded projects**

The success completion of any construction process Karanja (2014) says is influenced by the manner in which the project team members work together. It depends upon them getting the same objectives for the project and recognizing that what each of them achieves depends upon what others do, for example, the work of the contractor, depends on the work of the subcontractors. According to Kitivi (2014), performance measurement is a management tool that can help govern success of both organizational and functional performance. It is affiliated with organizational missions, policies and objectives. He points out that if donors include the opinions of recipient stakeholders in assessments of effectiveness, then multilateral organizations will need to pay closer attention to issues of governance and ownership. He says the views beneficiaries, both governmental and non-governmental, about donor performance will therefore become more important, and methodologies of this type will be increasingly used by donors to assess effectiveness before channeling funds.

### **a) Client attributes**

According to Rad (2003), project success attributes, from the clients' perspective, are derived from the limited product characteristics and areas of performance that will facilitate successful competitive positioning of the desires of the client. The success therefore in the areas where the client is involved signify project performance.

Similarly, Ngacho (2013), accentuates that any construction process starts with the client realizing the need for a construction product. He adds that there are some indulgent done including giving direction to the project implementation agencies in terms of construction related activities. The type and nature of the client either in public or private sector, the competency of the client in terms of his ability to brief, make decisions and define roles, not excluding the precision of the project mission, have been found to significantly affect the performance of the client and the project performance. In this case the client plays an important role to source for the funds which is another key determinant of project success. In Abedi, Fathi, and Mohammad, (2011) view, interference by the client for instance, by changing the design can lead to both cost overrun and time overrun therefore interfering with the

project performance. The client's financial position and experience would most likely determine the kind of materials, labour and equipment to be used for construction.

According to Pheng and Chuan (2006), project management is only one of the many criteria upon which project performance is reliant, but it is also equally significant the people who formulate the processes and systems that deliver the projects. They argue that the clients' actions before, during and after the project can affect greatly the performance of the project.

The client's focus is primarily on the goals and objective of the project, and specifically on the scope and quality aspects of the deliverables of the project. Of secondary importance are cost and schedule attributes of the project. To some extent, the client does not, and need not, become concerned with all those activities and procedures that were implemented in the process of fabricating, assembling, crafting, or creating the deliverables of the project. The project objectives can be associated with the achievement of an identifiable level of performance or certain attributes of the deliverable. The objectives will include characteristics such as physical size, capacity, length, height, or strength. It may also involve the achievement of a certain level of quantified reliability, the attainment of a critical speed, the establishment of a quantified level of system availability, the ability to handle a given number of transactions within a defined period of time etc. (Rad, 2003).

#### **b) Project attributes**

Project success attributes, as viewed by the team, are derived from the limited project management activity categories that should receive constant and careful attention from the project management team Rad (2003). In order for the project to be considered successful, all of the activities indicated by the team factors must be managed well regardless of the phase and regardless of the incremental changes to scope, schedule, and cost. However, the time spent on these activities, and the impact of that activity on the deliverables, might change during the project lifecycle.

Once the success factors that are appropriate for the organization are identified and validated, the foundation for an informed project monitoring process can be established. The availability of these quantified factors will allow the project manager to work with an established archive of historical data in order to keep all aspects of the project within the standards of acceptability of the organization. Such standards and procedures will ultimately improve the probability of the team's success in achieving project goals. The mission of the project team is to plan the delivery of the desired product, implement those plans in a dynamic environment, and manage all of those issues that influence the performance of the team in delivering the desired product.

### **c) Stakeholder attributes**

Project stakeholders are individuals and organizations that are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or project completion; they may also exert influence over the project and its results. The stakeholders involved in public construction projects include the government agencies, project designers, contractors and the community for which the project is being undertaken. In road construction projects, especially the donor funded constructions, the government is the main client and the community constitute the beneficiaries. According to Nthenge (2014), stakeholder's role is critical in project sustainability. Sustainability cannot be achieved without the involvement and support of the stakeholders.

Ngacho (2013), breaks the stakeholders' interests as: Consultant's norms for measuring success are: a satisfied client (this gives him/her a leeway to obtain a repeat work), satisfactory quality of architectural product, acceptance of design fee and many more. They consider professional staff fulfilment (for instance gain experience, learn new skills), meet project budget and schedule as additional criteria of success. They aim at producing marketable product/ process that is appealing to the client, other consultants and other contractors while involving minimum cost. They seek to meet or exceed quality specifications as they pursue profit objectives.

In Windapo and Qamata (2015) view, subjective metrics of project success are considered to be only important when viewed from the angle of a specific observer. Different stakeholders view project success in different perceptives. It therefore essential to make clear the point of view at which the subjective success metric is being measured. The interest of stakeholders may be same, overlapping or conflicting in nature, but the project implementing agency should attempt to harmonize all these interests in order to achieve project success. So, stakeholders may not necessarily be involved in the project, but their interests may be affected by the project either positively or negatively. It is important to take the negative stakeholders into account on a project (Kerzner, 2013)



**Figure 2.6: Categories of stakeholders**

Source (“5th Edition PMBOK® Guide—Chapter 2,” 2013)

In figure 2.7, the innermost circle is that of the people actually working on the project: the Project Manager, the Project Management Team etc. The second circle is that of the Sponsor, the person or group that provides the financial resources for the project and the one who champions the project within the organization when it is first conceived. In our case the donor countries who are equally involved during the running of the road construction projects. The third circle contains those higher-level organizers of projects, such as the program manager, who manages related projects in a coordinated way, and a portfolio manager, who manages a collection of projects

or programs which may not be related in content, but which all serve the business model of the organization at large. The next circle represents the interests of the ongoing operational work, with the functional managers in charge of areas such as human resources, finance, accounting, and procurement. The circle outside of the organization, but one in which there is a business relationship between the organization and that stakeholder.

The last circle consists of elements of society that may not have any formal relationship to the organization, but which may contain groups that are affected by the project or that can influence the project. According to (5th Edition PMBOK® Guide—Chapter 2, 2013) labels this group generically as “Other Stakeholders”. A non-governmental organization (NGO) such as an environmental awareness group that is an NGO would also be an example of a stakeholder at this level.

## **2.5 Critique of Literature**

Donor funded projects in Africa have had one major short fall which is poor management by the Africans themselves so a management audit should be done for every project to detect and avoid fraud, corruption and other foul play.

Ofori (2013) accentuates, while defining project success, there is a challenge in understanding project management and consequently assessing its performance. He adds that projects generally fail as a result of poor planning, constant changes in the scope and consequently deadline and budget, as well as the lack of monitoring and control.

In Kazhibekova and Jusufovic (2010) view, the distinction between the project execution and project management there is no clear cut. They give an illustration of meeting site personnel in a construction site which can be regarded as an element of both project execution and project management. It is therefore concluded that project management, which involve project planning, monitoring, controlling and motivation, has vital implications on a project’s fate, success or failure.

## **2.6 Research Gap**

In conclusion, very little has been said about the performance factors for donor funded road construction projects. There is a clear consensus that good monitoring throughout the project is essential, but is also frequently inadequate. This is as shown in the literature Kazhibekova and Jusufovic (2010). It has been shown that blueprint projects which are finalized at preparation are less likely to be successful without proper measures in place, as referenced in Ofori (2013) study. This implies that there must be a regular and reliable programme of measuring, recording and reporting the progress of these projects. Frequent communication with the beneficiaries is of equal importance and defined indicators of project performance this is supported in Pheng and Chuan (2006) study. Evaluation studies show that it is very common for insufficient attention to be given at project preparation to working out plans for monitoring and evaluation, and the lack of a clearly laid out plan encourages project staff to give it low priority. In specific, there is a substantial lack of structured evidence concerning performance of donor project and it is for this reason this study tries to explore the area.

## **2.7 Research Summary**

Donor funding is expected to be an increased direct source of funding which is factored either in investing or financing activities of the government. This provision of funds which are long term and cheaper may lead into improved performance. There is an assumption therefore, that there is exists a direct relationship between donor and performance of the projects funded (Cheboi, 2014).

Efficiency measures strong management and internal organizational structures adherence to schedule and budget, it is therefore of critical concern. In assessing efficiency, a project evaluation may look into the extent to which resources are being used to yield the anticipated outputs and how resources could be used more efficiently to realize the intended results(“Handbook on Planning, Monitoring and Evaluating for Development Results,” n.d.)

Accountability is a main pillar of effectiveness says (O'connell & Soludo, 2001). Silvius and Schipper (2010) sees sustainability as the balance or harmony between economic sustainability, social sustainability and environmental sustainability citing (John Elkington, 1997). The success completion of any construction process therefore, Karanja (2014) says is influenced by the manner in which the project team members work together.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the research methodology adopted in this thesis. It first outlines the philosophy that underpins the approach taken with the research, discussing the researcher's position to research and the consequent choice of a research approach. It also presents the methodology that was used in data collection and analysis. It also provides an overview of the data collection methods used for the thesis, as well as the means used to analyze the data. The chapter concludes with sections on the limitations of the research.

#### **3.2 Research Philosophy**

Research philosophy according to Elli (2012) citing Saunders, Lewis and Thornhill (2007) says is the first step in a research process that is concerned with knowledge creation and its nature. Further, he says there are three main schools of thought regarding research philosophy, namely Positivism, Interpretivist and Realism.

This study adopted the Realism approach. According to Elli (2012) realism can be believed as the application of positivism in social context. Realism believes that there exists reality but there also exists factors that influence the perception of reality among people of society. In realism philosophy, there are social forces that influence people without themselves being aware of being influenced by these forces. It takes these forces responsible for human perception and behavior and is a philosophy that well suits the study of human behavior in order to investigate individual's perception of social constructs and meanings

#### **3.3 Research Design**

The research design was descriptive survey. This study design involved describing the characteristics of a particular individual or of a group of variables Kothari (2008). It is used to determine how people feel about a particular issue by enabling them to

describe their experiences. The purpose of a descriptive survey is to provide an in-depth description of a phenomenon or the relationships between two or more phenomena. It has three common goals; it explains how service beneficiary or program characteristics relate to one another, describes community service/resource utilization and implore opinions of a group of people on an issue i.e. survey Project (Star, 2006). Data-gathering techniques were precise as per the requirements of a descriptive study. This study adopted descriptive research design which involved; analysis of existing data /information, survey of data relating to program experiences, a preliminary outcome measures or tests that allowed to test if the research area is operating as intended and finally statistical analysis of data collected. The study aimed to provide data for these major evaluation objectives that include relevance, effectiveness, efficiency, impact and sustainability and show their relationship with the dependent variable which is performance.

### **3.4 Target Population**

The population of this study was all the road construction contractors in the Ministry of Transport & Infrastructure, Kenya. The study targeted a population of estimated 2391 contractors under the then Ministry of Works GoK (2012) which is now Ministry of Transport and Infrastructure Kenya involved in ongoing road construction projects across the country. Being key informant the study targeted the project managers involved in 42 road construction projects in Nairobi which are ongoing or completed (kura.go.ke, 2016).

### **3.5 Sampling Frame.**

Kothari (2014) describes sampling frame as a list of members of the research population from which a random sample may be drawn. For this study, the sampling frame was the 2391 contractors under the then Ministry of Works and the project managers involved in road construction projects in Kenya which are ongoing or competed.

### 3.6 Sampling and Sampling size

A Sample is a subset of a population, selected to participate in a study Anderson, (2011). Sampling is a process of selecting a subset of the population in which entire population is represented. Stratified sampling was used to secure a representative group which enabled the researcher to gain information about a population according to (Mugenda & Mugenda, 2003). Nduati (2015) observed that the larger the size of the sample, the more precise the information given about the population. According to Mugenda and Mugenda (2003), the minimum sample size can be evaluated as follows:

$$n = \frac{Z^2 pq}{d^2}$$

Where:

$n$ = the minimum sample size if the target population is greater than 10,000

$Z$ = the standard normal deviate at the required confidence level.

$p$  = the proportion in the target population estimated to have characteristics being measured. Use 0.5 if unknown.

$$q = 1-p$$

$d$ = the level of significance set.

If the target population is less than 10,000 then the minimum sample size is obtained using the formula:

$$n_s = \frac{n}{1 + \frac{n}{N}}$$

Where:

$n_s$  = the minimum sample if the target sample size is less than 10,000

$n$  = the minimum sample size if the target population is greater than 10,000

$N$  = the estimate of the population size.

Once the required sample size has been determined, proportion allocation will be used to obtain the number of contractors and project managers.

With  $Z=1.96$ ,  $p=q=0.5$  and  $d = 0.05$ ;

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05 \times 0.05} = 384$$

Since the target population is less than 10000. We adjusted the sample size accordingly

$$n_s = \frac{384}{1 + \frac{384}{2433}} = \frac{384}{1.16} = 331$$

To obtain at least 10% of the project managers, the sample size was distributed as 5 managers and 326 contractors.

### 3.7 Data Collection Instruments

Data was collected mainly by use of questionnaire method. A questionnaire Kothari, (2004) consists of a number of questions printed or typed in a definite order on a form or a set of forms. A total of 331 Questionnaires were disbursed and they had both open ended and closed questions. Open ended questions provided the opportunity for self-expression openly and honestly. They allowed the respondents to give their ideas, concerns & feelings (Kenya Institute of Management (KIM, 2009). The closed questions made it easier and quicker for the researcher to record responses and compare code and statistically analyze. The questions according to

Maina (2012) include all possible answers/prewritten response categories and the respondents were asked to choose among them. The questionnaires contained Likert Scales which allowed for degrees of opinion, and even no opinion at all. Their advantage is that they do not expect a simple yes / no answer from the respondent.

### **3.8 Data Collection Procedure**

The research obtained an introduction letter from the university and a research permit from the bodies and ministry officials identified. The drop and pick method was used in the data collection in the specified department. This allowed the respondents to work on the questionnaire in private and when it is convenient.

### **3.9 Pilot Study**

A pilot study was conducted where the content validity and reliability of the questionnaires were tested. The validity and reliability of the data collection instrument was enhanced through discussion of the questionnaire contents with 33 randomly selected respondents from the various road construction bodies.

### **Validity and Reliability**

The content validity tested whether all the important aspects of the constructs are measured. This was done by first testing the instruments on 10% of the sample and reviewing the findings. Reliability of the responses was tested using the Cronbach alpha. Normally,  $\alpha$  should be between 0.7 – 0.9 (Santos, 1999).

According to Gay (1992), reliability is a measure of degree to which a particular measuring procedure gives consistent results or data after a repeated trial. The research study used a test-retest method which involved administering the same scale or measure to the same group of respondents at two separate times. This was done after a time lapse of one week. The test was administered twice at two different points to the same respondents. Cronbach's Alpha was utilized to calculate the correlation co-efficient in order to ascertain the degree of consistency in giving similar response each time the questionnaire was administered. The formula that was

used to calculate the Reliability Coefficient is as follows:  $(N / (N-1)) ((\text{Total Variance} - \text{sum of Individual Variance}) / \text{Total Variance})$ .

Validity was determined by the use of face and content validity. Face validity tests whether the questions appear to be measuring the intended constructs, while content validity the test content to determine whether it covers a representative sample of the behavior area to be measured and covered.

### **Results of Pilot Test**

### **Discussion**

From the discussion, it was agreed that the road construction projects are in Billions or Hundreds of Millions of Shillings. The study adopted Billions of Shillings. Secondly the duration of these projects was changed from yearly to a minimum of 5years. The reliability of the data instrument was tested through statistical package for social sciences (SPSS) and Cronbach alpha correlation coefficient was used to satisfy the reliability tests and the results were as shown below.

### **Reliability Results using Cronbach Alpha**

**Table 3.1: Efficiency**

<b>Reliability Statistics – Efficiency</b>		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.902	.899	16

**Table 3.2: Effectiveness**

<b>Reliability Statistics – Effectiveness</b>		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
841	.837	17

**Table 3.3: Relevance**

<b>Reliability Statistics - Relevance</b>		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
<b>.902</b>	<b>.900</b>	<b>13</b>

**Table 3.4: Sustainability**

<b>Reliability Statistics – Sustainability</b>		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
<b>.757</b>	<b>.755</b>	<b>7</b>

**Table 3.5: Impact**

<b>Reliability Statistics – Impact</b>		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
<b>.830</b>	<b>.831</b>	<b>9</b>

Cronbach's alpha should be 0.7 and above for reliability. From the reliability statistics, all the five variables were tested and the results are as shown on tables 1-5 above. The results indicate that the questionnaire was reliable.

### **3.10 Statistical Model**

Regression analysis was used to test the relative relationship between the independent and dependent variables. The regression analysis determined the significance of each of the variables with respect to performance of donor funded road construction projects.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

### **3.11 Data Analysis and Presentation**

The data collected from the field was captured using Statistical Package for Social Sciences (SPSS) version 21 and Microsoft Excel (2013). Descriptive statistics including frequency, percentages and means was employed and a summary graphs, pie charts and frequency distribution tables given. Content analysis was used to analyze qualitative data to help triangulate quantitative data. In the qualitative part of the questionnaire, answers were first read and categorized for keyword analysis. Correlations for the variables that was defined as the performance components was done and results presented in tables.

### **3.12 Inferential Statistics**

Inferential statistics mainly involved the testing of correlation among the various variables. For nominal data Pearson's Chi Square statistics together with correlation coefficient compute. For ordinal data Spearman's Rank correlation coefficient was used. In both cases, a relationship was deemed significant if the associated p value is at most 0.05.

## CHAPTER FOUR

### RESEARCH FINDINGS AND DISCUSSION

#### 4.1 Introduction

This chapter deals with data analysis and interpretation. The analysis is of two types namely; descriptive statistics and inferential statistics. Descriptive analysis was used to describe the data and mainly involved frequency distributions, calculation of mean and standard deviation. On the other hand, inferential analysis involved regression analysis to find the relationship of various variables.

#### Response Rate

The study sought to work out the number of respondents involved in the study because a good response rate can aid in producing useful results. The response rate is shown in table 4.1.

**Table 4.1: Response Rate**

Questionnaire Status	Frequency	Percentage Response
Returned	298	90.0%
Not Returned	33	10.0%
<b>Total</b>	<b>331</b>	<b>100.0%</b>

A total of 331 questionnaires were dispatched and 298 were duly filled and returned. This represented a response rate of 90% which according to Mugenda and Mugenda (2003) is good response rate.

## 4.2 Descriptive Statistics

### Type of Project

It was significant to check the ratio of projects by the different bodies in Kenya. The various types of projects are shown in table 4.2 below.

**Table 4.2: Type of Project**

Type of Project	Frequency	Percentage
KeNHA	164	55.0%
KURA	60	20.1%
KeRRA	51	17.1%
Others	23	7.7%
<b>Total</b>	<b>298</b>	<b>100.0%</b>

According to the findings most of the projects were under KeNHA at 55.0%. Table 4.2 shows a high response rate from KeNHA. This may possibly be accredited to the fact that the authority is currently focusing on performance management of the highway networks, which are supposed to ensure efficient customer service delivery by offering quality road standards. Most likely, many respondents have been assigned projects under KeNHA.

### Position in the Project

Respondents were asked about their position in the project. Majority of them, 131, were consultants' representatives; 123 were contractors' representatives while 21 were client representatives and 23 respondents worked in other capacities. This is shown in table 4.3 below.

**Table 4.3: Position in the Project**

<b>Position on the Project</b>	<b>Frequency</b>	<b>Percentage</b>
Clients representatives	21	7
Consultants representatives	131	44
Contractors representatives	123	41.3
Others	23	7.7
<b>Total</b>	<b>298</b>	<b>100.0</b>

Majority of the respondents were consultants' representatives probably because of the many roads constructed across the country.

**Respondents' Duration on the Project**

Results showed that 51.0% of the respondents had served between three to six years on their respective projects, 36.6% had served below three years whereas 12.4% had served over six years. This information is displayed in table 4.4 below.

**Table 4.4: Duration on the Project**

<b>Duration on the Project</b>	<b>Frequency</b>	<b>Percentage</b>
Below 3 years	109	36.6
3 - 6 Years	152	51.0
Over 6 years	37	12.4
<b>Total</b>	<b>298</b>	<b>100.0</b>

According to the respondents, most of the projects seem to last between 3 and 6 years. The possible reason for this could be the magnitude of the scope of works and challenges in the execution of the works.

### Number of the Projects per Decade

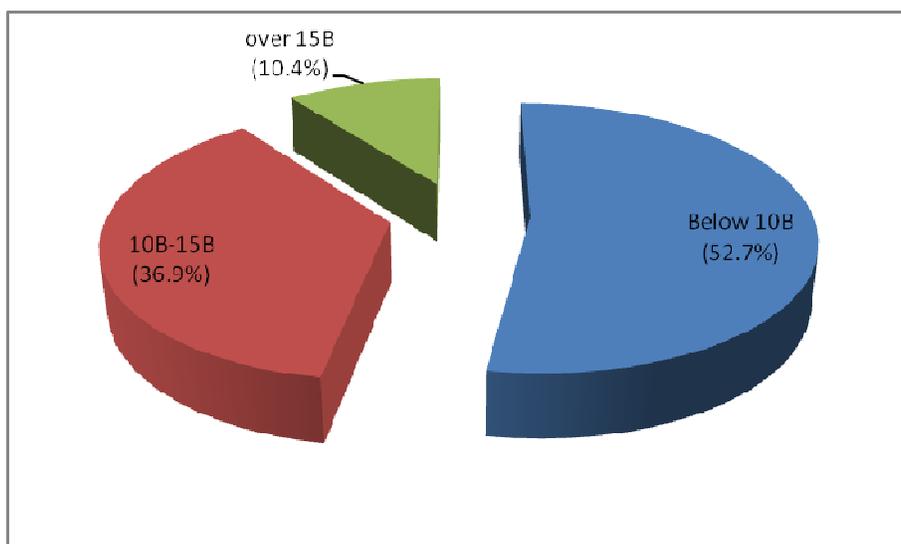
Respondents were asked the number of projects their firm handles on average in 10 years. A majority 131 handled between four to six projects. 75 handled up to 3 projects, 74 handled between seven and nine projects whereas 18 handled ten or more projects per decade. Table 4.5 displays this information.

**Table 4.5: Number of the Projects per Year**

<b>Number of the Projects per Decade</b>	<b>Frequency</b>	<b>Percentage</b>
Up to 3 projects	75	25.2
4 - 6 projects	131	44.0
7 - 9 projects	74	24.8
10 and above	18	6.0
<b>Total</b>	<b>298</b>	<b>100.0%</b>

### Value of the Project

Results showed that for 52.7% of respondents stated that the value of the project was below ten Billion Kenya shillings. 36.9% of the respondents stated that the value of the project was between ten and fifteen Billion Kenya shillings whereas for 10.4% of the respondents said that the value of the project was over fifteen Billion Kenya shillings. Figure 4.3 shows these figures.



**Figure 4.1: Value of the Project**

#### **Type of Project and Overall value of the project cross-tabulation**

The study wanted to find out the projects distribution in terms of value and the responsible roads authorities. Table 4.6 below displays the results.

**Table 4.6: Type of Project and Overall value of the project cross-tabulation**

<b>Type of Project * Overall value of construction works done in the last 3 years Cross-tabulation</b>					
		Below 10B	10B– 15B	Over 15B	Total
Type of Project	KeNHA	88	59	17	164
	KURA	32	20	8	60
	KeRRA	28	19	4	51
	Others	9	12	2	23
<b>Total</b>		<b>157</b>	<b>110</b>	<b>31</b>	<b>298</b>

From the findings in table 4.6 above, majority of the projects are implemented by KeNHA. It's the same KeNHA which also handles the costliest road projects across the country as the table above indicates.

## Efficiency of Donor Funded Construction Projects

**Table 47: Time Efficiency**

The study sought to understand the level of time efficiency in the donor funded road construction projects.

Table 4.7 below displays the results.

<b>Statement</b>	<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>	<b>Mean</b>	<b>Standard deviation</b>
There was timely delivery of resources	-	88	143	64	-	295	2.92	0.714
There exists a clear formulated plan.	30	85	90	72	22	289	2.93	1.108
At handover, there were no apparent defects	24	79	100	70	22	295	2.96	1.063
No delays were experienced in securing funds during project implementation.	25	80	95	68	24	292	2.95	1.086
<b>Overall</b>	<b>79</b>	<b>332</b>	<b>428</b>	<b>274</b>	<b>68</b>	<b>1171</b>	<b>2.94</b>	<b>0.993</b>

**Key: SD=strongly disagree, D=disagree, I=indifferent, A=Agree, SA=strongly agree**

The mean response ranged from 2.92 to 2.96 out of 5 with the standard deviation ranging from 0.714 to 1.108. On the overall the mean response rating for efficiency of donor funded projects was found to be 2.94 with a standard deviation of 0.993. The findings of this study show that time efficiency as a component of the 5 evaluation criteria was achieved slightly above average. These results could indicate that the projects could have experienced time overrun/delay. This could have led to the actual project completion time exceeding the planned time. This finding corroborates with (Chan & Chan, 2004) who opined that time exceed could have a great impact on project delivery process and usually postpone project activities.

**Table 4.8: Position in the project/Timely delivery of resources Cross-tabulation**

		Timely delivery of resources			
		D	I	A	Total
Position in the project	Client	8	11	1	20
	Consultant	31	70	30	131
	Contractor	44	51	27	122
	Others	5	11	6	22
<b>Total</b>		<b>88</b>	<b>143</b>	<b>64</b>	<b>295</b>

Table 4.8 shows the sentiments from the respondents running the projects. From the findings, only 21.7% of the respondents agreed that timely delivery of resources was achieved in donor funded road projects.

## Cost Efficiency

The study sought to understand cost efficiency in donor funded road projects in Kenya. The respondents were asked questions that were rated on a Likert scale and the responses are shown in table 4.9 below.

**Table 4.9: Cost Efficiency**

Statement	SD	A	I	A	SA	Total	mean	Standard Deviation
There was stable labour costs	23	80	97	75	21	296	2.97	1.059
Minimum variations on costs were incurred to project completion.	34	79	102	60	60	295	2.84	1.059
No financial claims at completion	23	80	94	71	24	292	2.98	1.079
Working capital was adequate.	27	80	93	65	24	289	2.93	1.098
<b>Overall</b>	<b>107</b>	<b>319</b>	<b>386</b>	<b>271</b>	<b>129</b>	<b>1175</b>	<b>2.93</b>	<b>1.074</b>

The overall mean response rating for cost efficiency of donor funded road construction projects was found to be 2.93 explaining a rating of 58.6%. The findings of this study are consistent with Magnussen and Samset (2005) who say that majority of projects cost overrun in absolute terms may be considerable. Efficiency is applied as an internal process rating. The highest degree of efficiency is obtained when a process is: free from defects, have a low unit cost, short cycle time, no waste, and low cost of poor quality. The overall findings from the respondents about efficiency are shown in table 4.10 below.

**Table 4.10: Efficiency in Construction of Donor Funded Road Projects**

<b>Was efficiency achieved?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	132	45.4%
No	159	54.6%
<b>Total</b>	<b>291</b>	<b>100.0%</b>

The findings reveal that efficiency in donor funded road projects is not satisfactory. Issues like procurement procedures, change of scope, incomplete designs, flow of funds and payment procedures negatively affect projects' time thus delaying projects start dates, timely payments and final projects completion dates. This shows there could have been some underlying issues in the project planning, financial arrangements, execution and implementation. According to Takim and Adnan (2009), project efficiency can only be realized if an efficient standard system and methodology are put in place. However, donor funded projects have an advantage due to proper coordination of qualified personnel, plants and equipment and other necessary resources which are generally mobilized in good time thus making work to progress fast and decision making efficient. Moreover, the return period for securing funds is minimal which translates to very little interruptions.

## Effectiveness of Donor Funded Construction Projects

**Table 4.11: Effectiveness on Free from defects**

The study sought to find out effectiveness in terms of defects.

Statement	SD	D	I	A	SA	Total	Mean	Standard Deviation
At the time of handover, the current project was free from apparent defects	53	60	80	73	30	296	2.89	1.251
The consultant was highly committed to ensuring construction work is done according to design and specifications.	46	66	76	75	31	294	2.93	1.236
No variations in original design took place in the current project during construction phase.	50	79	64	63	42	298	2.89	1.306
The level of technological sophistication considered in the project was satisfactory.	35	99	60	59	43	296	2.92	1.260
The constructor adhered to the requisite Quality standards.	44	64	74	79	34	295	2.98	1.244
<b>Overall</b>	<b>228</b>	<b>368</b>	<b>354</b>	<b>349</b>	<b>222</b>	<b>1479</b>	<b>2.992</b>	<b>1.259</b>

Table 4.11 above shows respondents' statements regarding effectiveness. The mean response was 2.992 interpreting to 59.8%. This implies that the projects might have been completed with a few flaws. Because of strict guidelines imposed by donors, most of donor funded projects are managed effectively. There are also technical measures such as audits which are done by both local and international auditors periodically. Nevertheless, (Nguyen *et al.*, 2009) says there are many hurdles for there to be a successful execution of beneficiary participatory projects. Therefore, it is necessary to identify those shortcomings and address them way in advance in order to reduce the flaws.

**Table 4.12: Type of Project versus community issues cross-tabulation**

The study sought to understand if there were any issues regarding the projects from various project bodies in Kenya. There appeared to be disputes raised by the community as reported by the project bodies as seen in table 4.12.

Type of Project /The community did not raise any social, political or cultural issues against construction of the current project Cross-tabulation

**Table 4.12: Type of Project versus community issues cross-tabulation**

		The community did not raise any social political or cultural issues against construction of the current project.					
		<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>
Type of Project	<b>KeNHA</b>	25	37	42	38	19	161
	<b>KURA</b>	6	18	12	14	9	59
	<b>KeRRA</b>	12	13	11	10	5	51
	<b>Others</b>	0	8	7	6	2	23
<b>Total</b>		43	76	72	68	35	294

This could have occurred due to less involvement of the benefiting communities. It is in agreement with Haroun and Adam (2015) who opine that it is an essential factor for the candid participation of local people because their concerns and experience are fundamental to the project's success. The respondents were asked if effectiveness was achieved for the donor funded road projects. They were required to answer yes or no to the questions and below were the findings.

### **Achievement of Effectiveness in Construction of Donor Funded Road Projects**

The study sought to check if effectiveness was achieved by including a general question whose response was either a yes or no. The percentage responses are indicated on table 4.13 below.

**Table 4.13: Achievement of Effectiveness**

<b>Was effectiveness achieved?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	190	65.1%
No	102	34.9%
<b>Total</b>	<b>292</b>	<b>100.0%</b>

In general, as per table 4.13 above 65.1% said effectiveness was realized. This is perhaps accredited to the diligence of the implementing bodies such as the government by involving stakeholders from the initial stage of project identification to the implementation stage. In fact Afande (2013) notes, the success of donor funded road projects are determined by both technical and managerial capacity of the human resources of the implementing agencies and fitting supportive infrastructure.

### **Relevance of Donor Funded Road Construction Projects**

The third objective of the study was to establish the relevance of the donor funded road construction projects. Data for this objective was gathered using Likert scale, table 4.14 displays the results.

**Table 4.14: Relevance of Objectives**

<b>Statement</b>	<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>	<b>Mean</b>
There is relevance between donor-funded road projects and the overall development goals of the government	14	67	94	78	35	288	3.18
There was consistency between donor funded road projects and the government planned road projects	10	59	101	80	44	294	3.30
There was a road construction policy plan in the Kenyan vision 2030.	15	60	85	100	34	294	3.27
Relationship between the stakeholders' needs and the project objectives.	9	65	110	74	38	296	3.23
<b>Overall</b>	<b>48</b>	<b>251</b>	<b>390</b>	<b>332</b>	<b>151</b>	<b>1172</b>	<b>3.245</b>

**Key: SD=strongly disagree, D=disagree, I=indifferent, A=Agree, SA=strongly agree**

On average 65.9% of the respondents thought that the donor funded road projects were in line with the objectives of the government and also the stakeholders. The findings are in agreement with Chianca (2008) who articulates that before any project is laid out, there is an evaluation of several aspects such as the extent to which the objectives of the program are valid, whether the activities and outputs of the program are consistent with the overall goal and the attainment of its objectives and whether the activities and outputs of the program are consistent with the expected impacts and effects. It was important to understand the view of various bodies on the relevance of these projects.

**Table 4.15: Relevance of Output**

<b>Statement</b>	<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>	<b>Mean</b>	<b>Standard deviation</b>
There was improvement in transport sector policy?	11	60	99	76	47	293	3.30	1.082
There is a relationship between donor-funded road projects and development goals?	15	58	106	74	42	295	3.24	1.081
There is a master plan to ensure relevance between donor-funded road projects/programs and development goals?	9	61	85	93	41	289	3.33	1.058
<b>Overall</b>	<b>35</b>	<b>179</b>	<b>290</b>	<b>243</b>	<b>130</b>	<b>877</b>	<b>3.29</b>	<b>1.074</b>

The percentage mean response was 65.8%. This was a confident response indicating that donor funded road projects brought some positivity in the development objectives and goals in the roads sub-sector. As supported by literature, the development of roads has been extensively supported as poverty mitigation instrument by donor institutions. It is argued that road construction projects are the key to raising living standards. By cutting down on transport costs, roads are expected to generate market activity, affect input and output prices and nurture economic connections Van de Walle (2009). A general question was asked about the relevance of donor funded road projects and the response displayed in table 4.16 below.

**Table 4.16: Relevance of Construction in Donor Funded Road Projects**

<b>Was relevance achieved?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	241	80.9%
No	57	19.1%
<b>Total</b>	<b>298</b>	<b>100.0%</b>

80.9% of the respondents agreed that relevance was achieved in donor funded road projects. Relevance explains the consistency with existing priorities and policies effective to demand. The findings are in agreement with Skinner et al. (2010) who say that during planning and preparation, the responsible organizations should make a first assessment of the relevance of the objectives of the intervention.

#### **Sustainability of Donor Funded Road Construction Projects**

Sustainability is a key factor for donor projects. The study looked for sustainability issues at different aspects. Table 4.16 gives a rundown of the results.

**Table 4.17: Economic Sustainability**

<b>Statement</b>	<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>	<b>Mean</b>	<b>Standard Deviation</b>
Participation processes included the empowerment of communities so that their opinions were considered throughout the project cycle	28	65	95	84	21	293	3.02	1.087
The communities took part in the process of initiating the project, review of the design and evaluation of the final product as a means of indicating whether they were satisfied with project	28	52	100	89	27	296	3.12	1.100
The project was managed within the existing institutional structure to facilitate sustainability after it ended or was a special project organization created	21	65	114	72	24	296	3.04	1.036
<b>Overall</b>	<b>77</b>	<b>182</b>	<b>309</b>	<b>245</b>	<b>72</b>	<b>885</b>	<b>3.06</b>	<b>1.074</b>

**Key: SD=strongly disagree, D=disagree, I=indifferent, A=Agree, SA=strongly agree**

The mean response ranged from 3.02 to 3.12 out of 5 with the standard deviation ranging from 1.036 to 1.100. This translated to a rating of 61.2%. This implies that the respondents agreed in their assessment of economic sustainability of donor funded projects. This goes in line with (Koglin, 2009) who defines economic sustainable development as developments that puts the profit into action to enable a more sustainable society, such as higher wages, ecological modernization, and effective technologies. However, he adds that the growth progress must be sustainable also for future generations. Similarly, those generations have to work and ensure the progress of the economy. A cross-tabulation of sustainability vs project body was carried out and 4.17 displays the results.

**Table 4.18: Cross-tabulation Type of Project vs Communities took part in the evaluation**

		<b>Communities took part in the evaluation, design and review of conclusions as a means of indicating whether they were satisfied with project benefits</b>					
		<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>
Type of Project	<b>KENHA</b>	16	26	53	51	16	162
	<b>KURA</b>	10	9	21	14	6	60
	<b>KERRA</b>	1	13	15	19	3	51
	<b>Others</b>	1	4	11	5	2	23
<b>Total</b>		<b>28</b>	<b>52</b>	<b>100</b>	<b>89</b>	<b>27</b>	<b>296</b>

The findings indicate that 39.2% of the respondents agreed that communities took part in project evaluation, design, review and conclusion meaning that they were not fully involved. The respondents were asked a general question in their assessment of the sustainability of the donor funded projects. According to the respondents, involvement in KENHA was 41.4 %, KURA was 33.3%, KERRA 43.1% and others 30.4%. KERRA had the highest participation level.

#### **Definition of Sustainability of Construction of Donor Funded Road Projects**

The study sought to understand whether sustainability was defined for the projects. Results disclosed that 52.3% said that sustainability was not defined while 47.7% agreed that it was defined. This is as indicated on table 4.18 below.

**Table 4.19: Definition of Sustainability of Construction of Donor Funded Road Projects**

<b>Was sustainability defined?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	142	47.7%
No	156	52.3%
<b>Total</b>	<b>298</b>	<b>100.0%</b>

This response could mean that the sustainability defined did not meet the expectations of the respondents. Probably the stakeholders were not aware of the documented evidence of the sustainability of these donors funded projects. The findings are in agreement with Oino *et al.* (2015) who say that a number of the projects have been successfully completed, nevertheless, little evidence is available on the true impact of funded programs on the lives of the poor in Kenya. Khalid *et al.* (2012); Jeon and Amekudzi (2005) says that sustainability factors are designed to address sustainability throughout the project stages. They add that sustainability of infrastructure development is through its impacts on the economy, environment and generally social benefits; measured by system efficiency and effectiveness. On the other hand Nthenge (2014) stresses that the success and sustainability of any project or program largely depends on constant feedbacks about the projects and the ongoing activities.

## Impact of Donor Funded Road Construction Projects

**Table 4.20: Economic Impact**

It was crucial to understand the possible economic impacts of the donor funded road construction projects and the response is shown in table 4.20 below.

Statement	SD	D	I	A	SA	Total	Mean	Standard deviation
The project had a positive effect on the Macro-economic conditions (such as interest rates, inflation)	1	24	97	104	65	291	3.71	0.916

**Key: SD=strongly disagree, D=disagree, I=indifferent, A=Agree, SA=strongly agree**

The average mean of the response was 3.71 translating to 74.2% this is an indication that donor funded projects did not affect the economy in a negative way. This finding is in agreement with Akotia (2014) who observes that donor funded projects should preserve a reasonable balance between peoples' economic aspirations and their sustainable development priorities and that they promote employment and investment prospects, together with transfer of skills which is a crucial social benefit, as that is what regeneration projects are meant to deliver. According to ESIA (2014), construction works contribute towards poverty reduction through improved disposable incomes realized from employment of skilled and unskilled local labour; expenditures by the road contractors as well as road users on purchase of supplies (consumables and road construction materials, for instance. gravel, and many more.) and accommodation services.

**Position on the project /Macro Economic conditions did not significantly affect the execution of this Project Cross tabulation**

A cross-tabulation was carried out to get the feel of the different players in donor funded projects and their effect on macro-economic conditions. Table 4.21 below explains the results.

**Table 4.21: Position on the Project versus Macro Economic conditions**

		<b>Macro-Economic conditions did not significantly affect the execution of this Project</b>					
		<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>
<b>Position on the project</b>	<b>Client</b>	0	3	7	6	5	21
	<b>Consultant</b>	1	12	41	46	25	125
	<b>Contractor</b>	0	8	43	42	29	122
	<b>Others</b>	0	1	6	10	6	23
<b>Total</b>		<b>1</b>	<b>24</b>	<b>97</b>	<b>104</b>	<b>65</b>	<b>291</b>

The findings indicate that the respondents who agreed and strongly agreed were a total of 169 out of 291 (58.07%). The response is slightly above average meaning the projects have a significant effect on the macro-economic conditions. According to (Akotia, 2014), delivering sustainable economic sustainability ambitions points towards placing more emphasis on the economic empowerment of individuals and the society as a whole. Furthermore, he points out that seeking to improve the economic productivity ventures such as regeneration projects is fundamental because issues dealing with economic sustainability have far reaching implications on individuals' general economic survival.

### Environmental impact

The study sought to understand the kind of environmental impacts these donor projects had. Respondents were asked questions that were rated on the Likert scale displayed in table 4.22 below. From the response above a mean of 3.75 equivalent to 75% was captured. This could explain that the agencies behind the donor funded projects are cautious about environmental issues when they are designing and carrying out the implementation.

**Table 4.22: Environmental impact**

Statement	SD	D	I	A	SA	Total	Mean	Standard deviation
There were measures taken to encounter drainage issues that could arise	3	21	106	89	72	291	3.71	0.954
Removal of vegetation along the route had an effect on the surrounding environment	2	20	95	97	80	294	3.79	0.943
The wastes were taken care of according to the set environmental standards	-	24	93	107	71	295	3.76	0.910
<b>Overall</b>	<b>5</b>	<b>65</b>	<b>294</b>	<b>293</b>	<b>223</b>	<b>880</b>	<b>3.75</b>	<b>2.200</b>

According to literature put forth by Montgomery *et al.* (2015) transport projects can have substantial effects on the environment and local communities if not addressed openly in the design and implementation of projects and programs.

### Social Impact

It was important to check whether the projects have social impacts as well. Table 4.22 below shows the responses. The mean response ranged from 3.71 to 3.84 out of 5 with the standard deviation ranging from 0.914 to 0.976. On the overall the mean

response rating for social impact of donor funded projects was found to be 3.777 with a standard deviation of 0.940. This translated to a rating of 75.4%.

**Table 4.23: Social Impact**

<b>Statement</b>	<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>	<b>Mean</b>	<b>Standard deviation</b>
Construction of roads improve security	1	23	91	84	93	292	3.84	0.976
The community did not raise any social, political or cultural issues against the construction of the project.	1	19	101	100	76	297	3.78	0.914
Proper medical facilities were available for people working on the project		24	107	87	71	289	3.71	0.931
<b>Overall</b>	<b>2</b>	<b>66</b>	<b>299</b>	<b>271</b>	<b>240</b>	<b>878</b>	<b>3.777</b>	<b>0.940</b>

The projects seem to have brought positive impact on the community. The beneficial impacts according to Wanjiku (2014) include; a better standard of living due to increased access to employment, business opportunities, training and education, greater access to and from a community and increased funding to improve programs.

### **Economic and Socially Impact of Donor Funded Road Projects**

According to the results 78.6% of the respondents agreed that donor funded road projects had economic and social impact. The information is displayed in table 4.24 below.

**Table 4.24: Economic and Social Impact of Donor Funded Road Projects**

<b>Donor funded projects have economic and social impact?</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	231	78.6%
No	63	21.4%
<b>Total</b>	<b>294</b>	<b>100.0%</b>

(Akotia, 2014) avers that the promotion of employment and investment prospects, together with the heightening of skills are deliberated as crucial benefits that projects are meant to deliver. Consequently, such added value enables communities to respond favorably to economic transformation and effectively tackle issues of deprivation.

#### **Performance of Donor Funded Road Construction Projects**

On the overall the mean response rating for performance of donor funded road projects was found to be 3.313 with a standard deviation of 1.069. This translated to a rating of 66.2%. This is shown on table 4.25 below.

**Table 4.25: Performance of Donor Funded Road Construction Projects**

<b>Statement</b>	<b>SD</b>	<b>D</b>	<b>I</b>	<b>A</b>	<b>SA</b>	<b>Total</b>	<b>Mean</b>	<b>Standard deviation</b>
The client needs were met (socially, economically and environmentally)	15	50	108	74	45	292	3.29	1.081
Client financial position was satisfactory	16	46	104	84	45	295	3.33	1.080
Project was completed on time	11	53	81	104	46	295	3.41	1.068
Project was completed as per the original scope	13	52	108	73	47	293	3.30	1.076
Project was completed within the budget	19	51	94	79	49	292	3.30	1.136
Project met the required specifications & standards	15	43	105	96	36	295	3.32	1.031
The community expectations were met	9	50	116	74	45	294	3.33	1.026
The relation between the Government and the Donor was satisfactory	12	65	101	78	37	293	3.22	1.056
<b>Overall</b>	<b>110</b>	<b>410</b>	<b>817</b>	<b>662</b>	<b>350</b>	<b>2349</b>	<b>3.313</b>	<b>1.069</b>

**Key: SD=strongly disagree, D=disagree, I=indifferent, A=Agree, SA=strongly agree**

This implies that the respondents agreed that the performance of donor funded road projects was satisfactory. This is in accordance with Pheng and Chuan (2006), who say that the client's focus is primarily on the goals and objectives of the projects, and specifically on the scope and quality aspects of the deliverables of the projects. Of secondary importance are cost and schedule attributes of the project.

### 4.3 Summary of the variables effect on the dependent variable

#### Relationship between Efficiency and Performance of donor funded Road Construction Projects

**Table 4.26: Relationship between Efficiency and Performance**

		Performance				Total	Statistics	Value (Significance)
		D	I	A	SA			
Efficiency	D	15	60	13	0	<b>88</b>	Chi Square	37.014 (<0.001)
	I	14	82	47	2	<b>145</b>	Correlation	0.283 (<0.001)
	A	3	31	25	3	<b>62</b>		
	SA	0	1	1	1	<b>3</b>		
<b>Total</b>		<b>32</b>	<b>174</b>	<b>86</b>	<b>6</b>	<b>298</b>		

**Key: D=disagree, I=indifferent, A=Agree, SA=strongly agree**

The chi-square test of independence shows that there is a positive correlation between efficiency and performance of donor funded construction projects. This relationship is significant ( $p < 0.001$ ). As seen on table 4.26 above.

**Relationship between Effectiveness and Performance of donor funded Road Construction Projects**

**Table 4.27: Relationship between Effectiveness and Performance**

		Performance				Total	Statistics	Value (Significance)
		D	I	A	SA			
<b>Effectiveness</b>	<b>SD</b>	0	1	0	0	<b>1</b>	Chi Square	63.196 (<0.001)
	<b>D</b>	23	59	7	1	<b>90</b>	Correlation	0.425 (<0.001)
	<b>I</b>	8	82	42	1	<b>133</b>		
	<b>A</b>	1	32	37	4	<b>74</b>		
<b>Total</b>		<b>32</b>	<b>174</b>	<b>86</b>	<b>6</b>	<b>298</b>		

**Key: D=disagree, I=indifferent, A=Agree, SA=strongly agree**

The chi-square test of independence shows that there is a positive correlation between effectiveness and performance of donor funded road construction projects. This relationship is significant (p<0.001). This is shown on the table 4.27 above.

**Relationship between Relevance and Performance of Donor Funded Road Construction Projects**

**Table 4.28: Relationship between Relevance and Performance**

		Performance				Total	Statistics	Value (Significance)
		D	I	A	SA			
<b>Relevance</b>	<b>D</b>	8	28	6	0	42	Chi Square	30.202 (<0.001)
	<b>I</b>	20	79	32	0	131	Correlation	0.291 (<0.001)
	<b>A</b>	4	64	45	6	119		
	<b>SA</b>	0	3	3	0	6		
<b>Total</b>		<b>32</b>	<b>174</b>	<b>86</b>	<b>6</b>	<b>298</b>		

**Key: D=disagree, I=indifferent, A=Agree, SA=strongly agree**

The chi-square test of independence shows that there is a positive correlation between relevance and performance of donor funded road construction projects. This relationship is significant ( $p < 0.001$ ). As shown on table 4.28 above.

**Relationship between Sustainability and Performance of donor funded Road Construction Projects**

**Table 4.29: Relationship between Sustainability and Performance**

		Performance				Total	Statistics	Value (Significance)
		D	I	A	SA			
<b>Sustainability</b>	<b>SD</b>	0	3	0	0	<b>3</b>	Chi Square	27.576 (0.006)
	<b>D</b>	13	47	12	1	<b>73</b>	Correlation	0.260 (<0.001)
	<b>I</b>	15	83	32	3	<b>133</b>		
	<b>A</b>	4	40	41	2	<b>87</b>		
	<b>SA</b>	0	1	1	0	<b>2</b>		
<b>Total</b>		<b>32</b>	<b>174</b>	<b>86</b>	<b>6</b>	<b>298</b>		

**Key: D=disagree, I=indifferent, A=Agree, SA=strongly agree**

The chi-square test of independence shows that there is a positive correlation between sustainability and performance of donor funded road construction projects. This is shown on table 4.29 above. This relationship is significant ( $p < 0.001$ ).

**Relationship between Impact and Performance of donor funded Road Construction Projects**

**Table 4.30: Relationship between Impact and Performance**

		Performance				Total	Statistics	Value (Significance)
		D	I	A	SA			
<b>Impact</b>	<b>D</b>	3	3	0	0	<b>6</b>	Chi Square	48.825 (<0.001)
	<b>I</b>	19	46	7	1	<b>73</b>	Correlation	0.342 (<0.001)
	<b>A</b>	10	120	77	5	<b>212</b>		
	<b>SA</b>	0	5	2	0	<b>7</b>		
<b>Total</b>		<b>32</b>	<b>174</b>	<b>86</b>	<b>6</b>	<b>298</b>		

**Key: D=disagree, I=indifferent, A=Agree, SA=strongly agree**

The chi-square test of independence shows that there is a positive correlation between impact and performance of donor funded construction projects. As indicated on table 4.30 above. This relationship is significant at ( $p < 0.001$ ).

**4.4 Regression and Correlation Analysis**

**Correlation Analysis**

Pearson’s correlation coefficient was used to check whether the variables are related. Crawford (2006) upholds that, correlation provides a “unitless” measure of association between 2 variables, which range from  $-1$  which indicates a perfect negative association to  $0$  that shows no association to  $+1$  indicating a perfect positive association. The variables are treated equally in that neither is considered to be a predictor or an outcome. The Pearson correlation coefficient assumes that X and Y are jointly distributed as bivariate normal, i.e. X and Y each are normally distributed, and that they are linearly related. Pearson’s correlation coefficient will be used to test collinearity in this study because it is the most widely known measure of dependence as it is easily calculated and it measures the linear relationship between two variables Wawrzyniak (2006). It follows that the strength of the relationship between the

variables decreases positively as the coefficient moves from positive one towards zero and increases negatively as it reduces from zero towards negative one.

Critical to the discussion is the fact that the correlation coefficient could be used to check for the existence of multicollinearity. As evidenced, Nduati (2015) posits that multicollinearity exists between two variables if the two variables are correlated. Further, Ngumi (2013) reveals that two variables are linearly related if the p value obtained from the correlation coefficient between the variables is less than 0.05, otherwise the variables are not related. The results in table 4.31 shows there a significant linear relationship between the dependent variable and the independent variables. It is also evident that there is no collinearity between the independent variables as they are not highly correlated to one another.

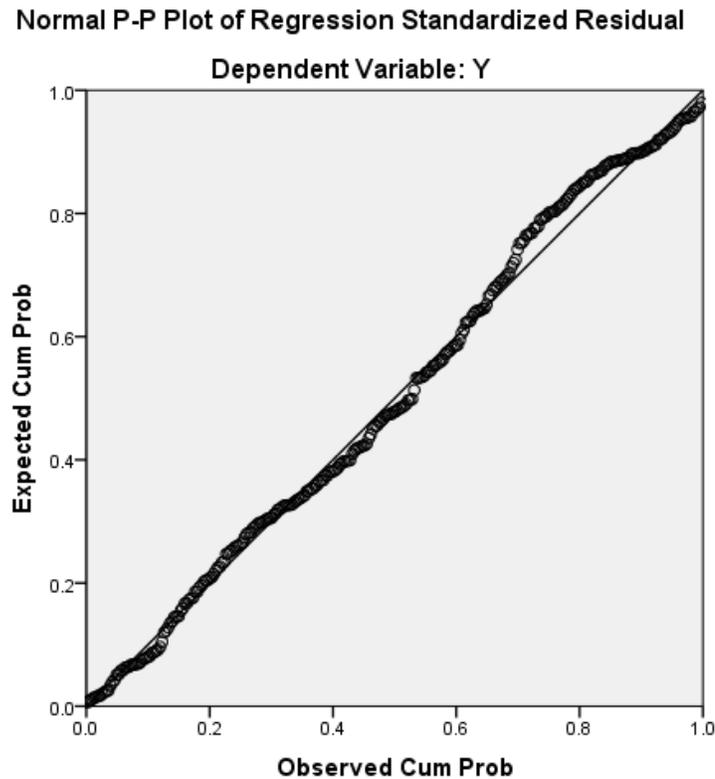
**Table 4.31: Pearson Correlation Coefficients**

		Correlations					
		Y	X1	X2	X3	X4	X5
Y	Pearson Correlation	1	-.065	.018	-.142*	-.126*	.029
	Sig. (2-tailed)		.263	.758	.014	.030	.624
	N	298	298	298	298	298	298
X1	Pearson Correlation	-.065	1	.032	-.004	.004	.010
	Sig. (2-tailed)	.263		.584	.948	.944	.864
	N	298	298	298	298	298	298
X2	Pearson Correlation	.018	.032	1	.000	-.017	-.040
	Sig. (2-tailed)	.758	.584		.993	.772	.491
	N	298	298	298	298	298	298
X3	Pearson Correlation	-.142*	-.004	.000	1	.061	.052
	Sig. (2-tailed)	.014	.948	.993		.294	.370
	N	298	298	298	298	298	298
X4	Pearson Correlation	-.126*	.004	-.017	.061	1	.023
	Sig. (2-tailed)	.030	.944	.772	.294		.694
	N	298	298	298	298	298	298
X5	Pearson Correlation	.029	.010	-.040	.052	.023	1
	Sig. (2-tailed)	.624	.864	.491	.370	.694	
	N	298	298	298	298	298	298

\*. Correlation is significant at the 0.05 level (2-tailed). This is shown on the above table 4.31

### Tests for Normality

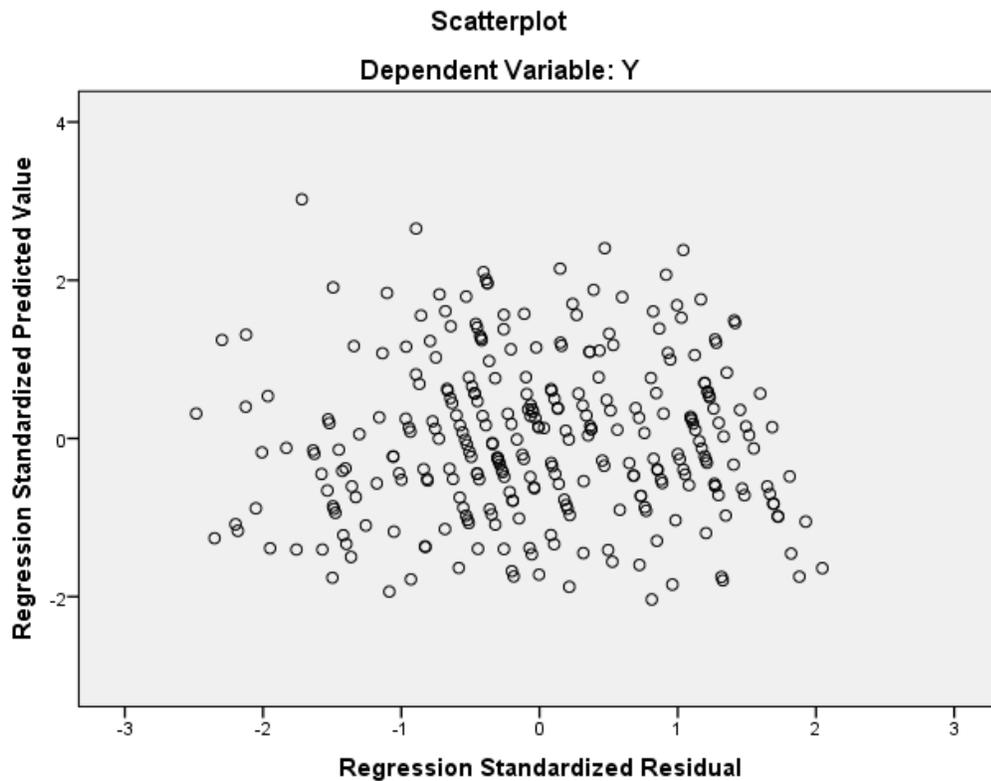
To carry out a linear regression, it is assumed that the dependent variable has to be normally distributed. To check this assumption, a normal probability plot as shown in figure 4.2 was plotted. From the plot, it can be seen that the points lie on the straight line that goes up from bottom left corner to the top right corner. This indicates that the normality assumption was satisfied.



**Figure 4.2: Test for Normality**

### Test for Heteroscedasticity

The study examined the homogeneity of variance assumption by plotting a scatter plot of the regression standardized residuals against the regression standardized predicted value. From the plot below figure 4.3, it could be inferred that the homogeneity of variance condition was fulfilled. This owes to the fact that the points in the scatter plot do not follow a specific pattern Chatterjee and Hadi (2015).



**Figure 4.3: Test for Heteroscedasticity**

#### **4.5 Inferential Statistics**

The inferential statistics applied on this study are mainly multiple regression analysis among independent variables and the dependent variable. Four multiple regression models were developed. These were one each for the client attributes, project attributes, stakeholder attributes and an overall to measure the performance of donor funded road construction projects.

### Multiple Regression Analysis for Client Attributes

Table 4.31 shows the results of multiple regression analysis for the performance of the client attributes

**Table 4.32: Multiple Regression Analysis for Client Attributes**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-2.143	.425		-5.041	.000
Efficiency	.238	.053	.207	4.509	.000
Effectiveness	.437	.061	.330	7.163	.000
Relevance	.382	.055	.323	6.992	.000
Sustainability	.180	.051	.163	3.532	.000
Impact	.462	.075	.285	6.178	.000

From the regression findings, the substitution of the equation becomes

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

$$Y = -2.143 + 0.238X_1 + 0.437X_2 + 0.382X_3 + 0.180X_4 + 0.462X_5$$

Where Y is the dependent variable (overall performance), X<sub>1</sub> is efficiency, X<sub>2</sub> is effectiveness, X<sub>3</sub> is relevance, X<sub>4</sub> is sustainability and X<sub>5</sub> is impact. According to the regression equation, taking all factors constant at zero, performance will be 0 out of 5. The data findings also show that a unit increase in efficiency will lead to a 0.238 increase in performance; a unit increase in effectiveness will lead to a 0.437 increase in performance, a unit increase in relevance will lead to a 0.382 increase in performance; a unit increase in sustainability will lead to a 0.180 increase in performance; and a unit increase in impact will lead to a 0.462 increase in performance.

### Multiple Regression Analysis for Project Attributes

Table 4.33 shows the results of multiple regression analysis for the performance of the project attributes

**Table 4.33: Multiple Regression Analysis for Project Attributes**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.989	.342		-5.813	.000
Efficiency	.227	.042	.227	5.349	.000
Effectiveness	.485	.049	.421	9.887	.000
Relevance	.266	.044	.258	6.039	.000
Sustainability	.298	.041	.310	7.267	.000
Impact	.340	.060	.241	5.650	.000

From the regression findings, the substitution of the equation becomes:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

$$Y = -1.989 + 0.227X_1 + 0.485X_2 + 0.266X_3 + 0.298X_4 + 0.340X_5$$

Where Y is the dependent variable (overall performance), X<sub>1</sub> is efficiency, X<sub>2</sub> is effectiveness, X<sub>3</sub> is relevance, X<sub>4</sub> is sustainability and X<sub>5</sub> is impact.

According to the regression equation, taking all factors constant at zero, performance will be 0 out of 5. The data findings also show that a unit increase in efficiency will lead to a 0.227 increase in performance; a unit increase in effectiveness will lead to a 0.485 increase in performance, a unit increase in relevance will lead to a 0.266 increase in performance; a unit increase in sustainability will lead to a 0.298 increase in performance; and a unit increase in impact will lead to a 0.340 increase in performance.

### Multiple Regression Analysis for Stakeholder Attributes

Table 4.34 shows the multiple regression analysis results for stakeholder attributes performance.

**Table 4.34: Multiple Regression Analysis for Stakeholder Attributes**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-2.522	.360		-7.004	.000
Efficiency	.362	.045	.343	8.106	.000
Effectiveness	.481	.052	.394	9.300	.000
Relevance	.141	.046	.129	3.041	.003
Sustainability	.186	.043	.183	4.326	.000
Impact	.570	.063	.381	8.999	.000

From the regression findings, the substitution of the equation becomes:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

$$Y = -2.522 + 0.362X_1 + 0.481X_2 + 0.141X_3 + 0.186X_4 + 0.570X_5$$

Where Y is the dependent variable (overall performance), X<sub>1</sub> is efficiency, X<sub>2</sub> is effectiveness, X<sub>3</sub> is relevance, X<sub>4</sub> is sustainability and X<sub>5</sub> is impact. According to the regression equation, taking all factors constant at zero, performance will be 0 out of 5. The data findings also show that a unit increase in efficiency will lead to a 0.362 increase in performance; a unit increase in effectiveness will lead to a 0.481 increase in performance, a unit increase in relevance will lead to a 0.141 increase in performance; a unit increase in sustainability will lead to a 0.186 increase in performance; and a unit increase in impact will lead to a 0.570 increase in performance.

### Regression Analysis for Overall Performance of Donor Funded Projects

Table 4.35 shows the multiple regression analysis results for stakeholder attributes performance.

**Table 4.35: Multiple Regression Analysis for Overall Performance of Donor Funded Construction Projects**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-2.227	.226		-9.843	.000
Efficiency	.280	.028	.332	9.987	.000
Effectiveness	.472	.032	.484	14.519	.000
Relevance	.248	.029	.284	8.522	.000
Sustainability	.226	.027	.279	8.361	.000
Impact	.457	.040	.383	11.475	.000

From the regression findings, the substitution of the equation becomes:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

$$Y = -2.227 + 0.280X_1 + 0.472X_2 + 0.248X_3 + 0.226X_4 + 0.457X_5$$

Where Y is the dependent variable (overall performance), X<sub>1</sub> is efficiency, X<sub>2</sub> is effectiveness, X<sub>3</sub> is relevance, X<sub>4</sub> is sustainability and X<sub>5</sub> is impact.

According to the regression equation, taking all factors constant at zero, performance will be 0 out of 5. The data findings also show that a unit increase in efficiency will lead to a 0.280 increase in performance; a unit increase in effectiveness will lead to a 0.472 increase in performance, a unit increase in relevance will lead to a 0.248 increase in performance; a unit increase in sustainability will lead to a 0.226 increase in performance; and a unit increase in impact will lead to a 0.457 increase in performance.

#### 4.6 Test of Hypothesis

**Table 4.36: Test of Hypotheses**

**Tests of Hypotheses**

Dependent Variable: Overall Performance

Source	Type Sum Squares	III of df	Mean Square	F	Sig.
Corrected Model	79.124 <sup>a</sup>	5	15.825	122.487	0.001
Intercept	12.516	1	12.516	96.878	0.000
Efficiency	12.886	1	12.886	99.743	0.001
Effectiveness	27.233	1	27.233	210.791	0.011
Relevance	9.384	1	9.384	72.631	0.040
Sustainability	9.031	1	9.031	69.898	0.000
Impact	17.011	1	17.011	131.665	0.001
Error	37.725	292	.129		
Total	3116.750	298			
Corrected Total	116.850	297			

a. R = 0.823 R Squared = .677 (Adjusted R Squared = .672)

ANOVA table shows that the model for overall performance is significant with an F value of 122.487 ( $p < 0.001$ ). The coefficients indicate that the correlation coefficient (R) between the independent variables and project performance is 0.823 which is a positive strong relationship. The coefficient of determination (R Square) of 0.677 indicates that the model can explain 67.7% of the variations or changes in the dependent variable of project performance. In other words, efficiency, effectiveness, relevance, sustainability and impact can explain 67.7% of changes in performance of donor funded road construction projects in Kenya.

Table 4.36 presents the analysis of variance (ANOVA) on the efficiency, effectiveness, relevance, sustainability, impact and their effect on performance of donor funded road construction projects in Kenya. Therefore, the results indicate that the model is statistically significant on the effects of the five independent variables on dependent variable – Performance at a level of significance of 0.001 and fail to accept the null hypotheses and conclude that efficiency, effectiveness, relevance, sustainability, impact and have a positive effect on the performance of donor funded road construction projects in Kenya.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This study evaluated the performance of donor funded road construction projects in Kenya. The evaluated factors studied included; efficiency, effectiveness, relevance, sustainability and impact and their effect on the performance of donor funded road construction projects. Performance indicators that were studied are, client, project and stakeholders' attributes. This chapter summarizes the findings of the study and makes conclusions upon which recommendations are drawn. Recommendations for further study are also given as a way of filling the gaps identified in the study. The study pursued five objectives and five hypotheses upon which conclusions are based on.

#### **5.2 Summary of Major Findings**

##### **Efficiency of donor funded road construction projects in Kenya**

The first objective of the study was set to assess the efficiency levels. The findings indicated that efficiency in donor funded road projects was not satisfactory. Issues like procurement procedures, change of scope, incomplete designs, flow of funds and payment procedures negatively affect projects time thus delaying projects start dates, timely payments and final projects completion dates. However, donor funded projects have an advantage due to proper coordination of qualified personnel, plants and equipment and other necessary resources which are generally mobilized in good time thus making work progress faster and decision making efficient. Moreover, the return period for securing funds is minimal which translates to very little interruptions. This finding is supported by the coefficient of determination which shows that unit increase in efficiency will lead to an increase in the performance of donor funded road construction projects. The influence of efficiency on performance is also statistically significant and hence the alternate hypothesis was accepted.

### **Effectiveness of donor funded road construction projects in Kenya.**

The second objective of the study sought to establish how effectiveness contributed to the performance of donor project. Results from table 4.16 revealed that effectiveness had positive influence. Because of strict guidelines imposed by donors, most of donor funded projects are managed effectively. There are also technical measures such as audits done by both local and international auditors periodically for instance, the European Union (E.U) funded projects. This is supported by the coefficient of determination which shows that the level of effectiveness explains the variations in return on the performance of donor funded projects. The cross-tabulation between the project bodies versus community issues reviewed a mutual agreement on the level of effectiveness of donor funded road projects. The test for significance also showed that the influence was statistically significant and hence the alternate hypothesis was accepted. This means that a unit increase in effectiveness will lead to an increase in the performance of donor funded road construction projects.

### **Relevance of donor funded road construction projects in Kenya.**

The third objective of the study was to establish the relevance of donor funded road construction projects. The results showed that the response was assertive indicating that donor funded projects brought some positivity in the development objectives and goals. As supported by literature, the development of roads has been extensively supported as poverty mitigation instrument by donor institutions. Cross-tabulations were carried out to test the view of various bodies regarding the relevance of these projects. It was clear that majority of the respondents felt that there was relevance of the road construction projects. The significance test showed that relevance was statistically significant and hence the alternate hypothesis was accepted.

### **Sustainability of donor funded road construction projects in Kenya.**

The fourth objective sought to establish the sustainability level of donor funded road construction projects. Findings on the sustainability showed that sustainability was not defined. This response could mean that the sustainability defined did not meet the

expectations of the respondents. Probably the stakeholders were not aware of the documented evidence of the sustainability of this donor funded projects. A cross-tabulation results indicate that less than half of the respondents agreed that communities took part in project evaluation, design, review and conclusion meaning that they were not fully involved. The significance test showed that sustainability was statistically significant and hence fail to accept the null hypothesis.

### **Impact of donor funded road construction projects in Kenya.**

The fifth objective of the study sought to establish the impact of donor funded road construction projects. The findings on the economic impact revealed that donor funded road construction projects had promoted employment and investment opportunities together with knowledge/skills transfer which are crucial benefits to the communities as regeneration projects are meant to deliver. The projects preserved a reasonable balance between people's economic aspirations and their sustainable development priorities. A cross-tabulation was carried out to get the feel of the different players in donor funded projects and their effect on macro-economic conditions. Foreign Aid has significant impact on economic growth of the recipient countries. They bring added values that enables communities to respond favorably to economic transformation and effectively tackle issues of deprivation.

### **Performance of Donor Funded Road Construction Projects**

The coefficient of determination (R Square) which indicates that the model explains 67.7% of the variations or changes in the dependent variable of project performance. In addition, it presents the analysis of variance on the efficiency, effectiveness, relevance, sustainability, impact and their effect on performance of donor funded road construction projects in Kenya. The results therefore, indicate that the model is statistically significant on the effects of the five independent variables on dependent variable – Performance. Consequently, based on the given data at a significance level of 0.001 significance the study fails to accept the null hypotheses and therefore conclude that efficiency, effectiveness, relevance, sustainability and impact have a positive effect on the performance of donor funded road construction projects in Kenya.

### **5.3 Conclusion**

Based on the findings of the study, it can be concluded that effectiveness, efficiency, sustainability, relevance and impact all affect the performance of donor funded road construction projects. The adoption of better mechanisms in the management of these projects could however enhance performance levels. Monitoring of donor funded road construction projects is essential in order to quantify and evaluate its social economic contribution in societies and also aid in determining successful completion of projects within set budgetary and time constraints. Generally, stakeholders' involvement is crucial during identification and implementation of projects in order for projects to meet their expectations with minimum displacements and conflicts with the project implementers. Donor funded road construction projects come with plenty of benefits for the recipient countries. They bring added value that enables communities to respond favorably to economic transformation and effectively tackle issues of deprivation. According to the findings of this study, sustainability mechanisms were unsatisfactory. This could have been brought about by poor engagement of the stakeholders, insufficient feasibility studies, and other factors that affect the communities socially and economically. Generally, from the findings, the performance level of donor funded road construction project could be said to be satisfactory.

### **5.4 Recommendations**

#### **Efficiency of donor funded road construction projects in Kenya**

Project efficiency can only be realized through having a standard system and methodology in place. Therefore, during the project planning, execution and implementation proper measures should be strictly adhered to. This could include setting up a centralized tracking mechanism, synchronization of planning, monitoring and evaluation procedures between the donors and government finance docket. Key components for the database required for tracking advancement and disbursement to projects should be developed such as key performance indicators, existing financial obligations, achievement of key activities, responsibilities, costs, time line for completion of activities, annual planned disbursement and actual annual

disbursement. Further, the project groundwork and design should be completed before securing finances. It is advisable that project management team be part of those formulating and designing of the project.

### **Effectiveness of donor funded road construction projects in Kenya.**

The government and the donor community should come up with accountability and transparency policies to counter fraud and misuse of resources. Officers assigned to project implementation should sign performance contracts to commit themselves to improve the accountability of the budgeted project funds. This is critical in improving utilization of donor-funded projects. Secondly to ensure successful completion, the personnel handling projects should be knowledgeable and as such capacity building should be continuously done in all government bodies as well for all the staff involved in the projects.

### **Relevance of donor funded road construction projects in Kenya.**

By definition relevance is the extent to which an intervention's objectives are related to the needs, problems and issues to be addressed. Therefore, all the institutions running projects should ensure that the activities and outputs of the program are consistent with the overall goal and the attainment of its objectives. Donors should agree to accept only projects and programs based on recipient Government therefore should be a clear definition and communication of donors versus government priorities.

### **Sustainability of donor funded road construction projects in Kenya.**

Sustainability factors are designed to address sustainability throughout the project stages namely; planning stage, project development stage, operation and maintenance stage. Sustainability of infrastructure transportation development is through its impacts on the economy, environment and generally social benefits; measured by system efficiency and effectiveness. It is therefore recommended that the sustainability factors be incorporated at all levels of the stakeholders handling the donor funded projects. Secondly, it was found out that a few gaps in the designs need

to be addressed before the launch of any construction project. More checks by the agencies in Kenya should ensure designs are complete and capture every detail because donors provide guidelines on sustainability.

### **Impact of donor funded road construction projects in Kenya.**

Foreign Aid has significant impact on economic growth of the recipient country. It is therefore important for appropriate policies to be put in place to foster good relations with donors. Designs must also be adequate with all the details required for implementations. Implementing agencies should work closely with the leadership of local communities for project success. Kenyan Government should ensure that payment is set aside to minimize interest claims on delayed payments.

### **5.5 Areas for Further Research**

This study did not include all donor projects and a further study is recommended to include social empowerment projects among others. The study variables only accounted for 67.7% of performance of donor funded road construction projects. A more detailed study can be conducted to establish the other factors that contribute towards performance of these projects.

## REFERENCES

- Afande, O. F. (2013). Factors Affecting use of Donor Aid by International Non Governmental Organizations in Kenya: A case of USAID. *International Journal of Business Management and Administration*, 2(5), 089-116.
- Akotia, J. K. (2014). *A framework for social and economic sustainability benefits evaluation of sustainable regeneration projects in the UK*. Salford: University of Salford.
- Assessment, A. E., Irandu, E., & Malii, M. J. (2013). Nairobi-Thika Highway Improvement Project. Retrieved from: [erepository.uonbi.ac.ke](http://erepository.uonbi.ac.ke)
- Atkinson, R. (1999). Project management: cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management*, 17(6), 337–342.
- Barrow, C. J. (1997). *Environmental and social impact assessment: an introduction*. Arnold, Hodder Headline: PLC.
- Batkin, A. (2001). Social funds: theoretical background. *Social Protection in Asia and the Pacific*, Isabel Ortiz (Ed), Asian Development Bank, 431.
- Beaudry, S., & Sera, Y. (2007). Monitoring & evaluation: tips for strengthening organizational capacity. *Washington, DC: The Social Development Department of the World Bank Group*.
- Bhandari, H. (2009). *Sustainability of rural development projects*. Asia: IFAD.
- Brundtland, G., Khalid, M., Agnelli, S., Al-Athel, S., Chidzero, B., Fadika, L., ... & Singh, M. (1987). Our common future ('brundtland report').
- Bundi, L. (2011). *Challenges in the management of procurement services within Kenya Rural Roads Authority*. Unpublished PhD thesis, Nairobi: University of Nairobi.

- Burningham, K. (1996). *The Social Construction of Social Impacts: An Analysis of Two Case Studies of Local Responses to New Roads*. Unpublished PhD thesis, Surrey: University of Surrey.
- Carlsson, J., Somolekae, G., & Van de Walle, N. (1997). *Foreign Aid in Africa: Learning from country experiences*. Botswana: Nordic Africa Institute.
- Chan, A. P., & Chan, A. P. (2004). Key performance indicators for measuring construction success. *Benchmarking: An International Journal*, 11(2), 203–221.
- Chandurkar, D., & Sen, N. (2014). *Developing Monitoring and Evaluation Framework for Budget Work Projects*.
- Chatterjee, S., & Hadi, A. S. (2015). *Regression analysis by example*. John Wiley and Sons.
- Cheboi, N. J. (2014). *The effect of donor funding on the organizational performance of government ministries in Kenya*. Unpublished PhD thesis: Nairobi: University of Nairobi.
- Chege, M. (2008). Economic relations between Kenya and China, 1963–2007. Washington, DC: CSIS.
- Chianca, T. (2008). The OECD/DAC criteria for international development evaluations: an assessment and ideas for improvement. *Journal of Multidisciplinary Evaluation*, 5(9), 41–51.
- Clevenger, C. M., Ozbek, M. E., & Simpson, S. (2013). Review of sustainability rating systems used for infrastructure projects. In *49th ASC Annual International Conference Proceedings* (pp. 10–13).
- Crawford, S. L. (2006). Correlation and regression. *Circulation*, 114(19), 2083–2088.

- Daigle, P. (2010). A summary of the environmental impacts of roads, management responses, and research gaps: A literature review. *Journal of Ecosystems and Management, 10*(3).
- DeGrassi, A. (2005). Transport, poverty and agrarian change in Africa: models, mechanisms and new ways forward. *IDS Bulletin, 36*(2), 52–57.
- Edmunds, R., & Marchant, T. (2008). Official Statistics and Monitoring and Evaluation Systems in Developing Countries: Friends or Foes? *The Partnership in Statistics for Development in the 21st Century (PARIS21)*.
- Ekanayakage, S. V., & Halwatura, R. U. (2013). *Success factors in donor funded projects: case study on internal estate roads*. Moratuwa: University of Moratuwa.
- Elli, S. (2012). *Investigating factors influencing customers intension for choosing electronic banking services*. Unpublished MSc thesis, Lulea: Lulea university of technology.
- Enshassi, A., Al-Hallaq, K., & Mohamed, S. (2006). Causes of contractors' business failure in developing countries: the case of Palestine. *Journal of Construction in Developing Countries, 11*(2), 1–14.
- ESIA. (2014). *The NTS is based on "Environmental and Social Impact Assessment (ESIA) Study Report" (August 2014) prepared by AECOM RoA (PYT) Ltd. and CAPE CONSULT, Aquaclean Services Limited (NEMA Reg. No. 1899), with minor adjustments by EIB*.
- Evaluation, U. N. A. T. F. on R. D. P. on M., (1984). *Guiding principles for the design and use of monitoring and evaluation in rural development projects and programmes*. ACC Task Force, Monitoring and Evaluation Publications.
- Gosling, L. (2010). *Monitoring and evaluation*. London: Bond for International Development.

- Guillaumont, P. (2008). Adapting aid allocation criteria to development goals. In *An essay for the 2008 Development Cooperation Forum, United Nations Economic and Social Council*.
- Gwilliam, K., Foster, V., Archondo-Callao, R., Briceño-Garmendia, C., Nogales, A., & Sethi, K. (2008). The Burden of Maintenance: Roads in Sub-Saharan Africa. *Background Paper, 14*.
- Haroun, A. A. S. S. O., & Adam, M. (2015). Factors affecting project sustainability beyond donor's support. the case of area development scheme (ads) in umkadada locality, north darfur state, western sudan.
- Hassan, A. I. (2013). An Investigation of Structural Capacity as a Component of Monitoring and Evaluation in Project Success of Road Construction Projects in Kenya. *International Journal of Academic Research in Business and Social Sciences, 3*(8), 443.
- Ika, L. A. (2009). Project success as a topic in project management journals. *Project Management Journal, 40*(4), 6–19.
- Ika, L. A., Diallo, A., & Thuillier, D. (2010). Project management in the international development industry: the project coordinator's perspective. *International Journal of Managing Projects in Business, 3*(1), 61–93.
- Ika, L. A., Diallo, A., & Thuillier, D. (2012a). Critical success factors for World Bank projects: An empirical investigation. *International Journal of Project Management, 30*(1), 105–116.
- Ika, L. A., Diallo, A., & Thuillier, D. (2012b). Critical success factors for World Bank projects: An empirical investigation. *International Journal of Project Management, 30*(1), 105–116.

- Kamau, C. G., & Mohamed, H. B. (2015). Efficacy of Monitoring and Evaluation Function in Achieving Project Success in Kenya: A Conceptual Framework. Retrieved from: researchgate.net
- KARA. (2012). *The Social/Community Component of the Analysis of the Thika Highway Improvement Project*. Nairobi: KARA.
- Karabegovi, A., & McMahon, F. (2006). Foreign Aid & Africa. In *Fraser Forum* (pp. 17–19).
- Karanja, J. N. (2014). *An investigation into the causes of delays in government housing construction projects: a case study of the national housing corporation-Nairobi county*. Unpublished PhD thesis, Nairobi: University of Nairobi.
- Kazhibekova, A., & Jusufovic, V. (2010). *Critical Success Factors in the Implementation of International Development Projects in Kazakhstan*. Umea: Umea University
- Keiner, M. (2005). *History, definition (s) and models of sustainable development*. Eidgenössische Technische Hochschule (Zürich) Institut für Raum-und Landschaftsentwicklung.
- Keng'ara, R. (2014). Effect of Funds Disbursement Procedures on Implementation of Donor Projects in Homabay County, Kenya. *Universal Journal of Accounting and Finance*, 2(1), 9–23.
- Kenya Institute of Management (KIM). (2009). *Fundamentals of Management Research Methods*. Nairobi: Macmillan Kenya (Publishers) Limited.
- Kenya Rural Roads Authority. (2013). *Kenya Rural Roads Authority - Annual Report*. Nairobi: Kenya Rural Roads Authority.

- Khang, D. B., & Moe, T. L. (2008). Success criteria and factors for international development projects: A life-cycle-based framework. *Project Management Journal*, 39(1), 72–84.
- Kitivi, D. M. (2014). *Performance of poverty eradication donor funded projects in Mwingi sub-county–Kenya*. Unpublished PhD thesis, Nairobi: K.U.
- Koglin, T. (2009). Sustainable development in general and urban context: a literature review. *Bulletin 248/3000*.
- Kothari, C. R. (2004). *Research Methodology (Methods and Techniques)* (second). New Delhi: New Age International (P) Limited Publishers.
- KURA. (2016). Kenya Urban Roads Authority – Efficient and Safe Urban Roads. Retrieved from <http://kura.go.ke/>
- Lartey, E. W. (2011). *Evaluation of donor-funded social service infrastructure development projects in Lusaka compounds/townships*. Unpublished MSc thesis, Lusaka: Copperbelt University
- Lensinko, N. (2015). Factors influencing performance of monitoring and evaluation of government projects in Kenya: a case of constituency development fund projects in Narok east sub-county, Kenya. Retrieved from <http://erepository.uonbi.ac.ke/handle/11295/90612>
- Lim, S. K., & Yang, J. (2007). Enhancing Sustainability Deliverables for Infrastructure Project Delivery. In *Creating livable, healthy and environmentally viable cities: an Asian perspective-Proceedings of the World Sustainable Building Conference 2007* (pp. 467–480). The Hong Kong Professional Green Building Council (PGBC).
- Magidu, N., Alumai, J. G., & Nabiddo, W. (2010). *Public expenditure tracking on road infrastructure in Uganda: The case study of Pallisa and Soroti Districts*. Kampala, Uganda: Economic Policy Research Center.

- Magnussen, O. M., & Samset, K. (2005). Successful megaprojects: Ensuring quality at entry. *EURAM 2005 Responsible Management in an Uncertain World, May 4-7th*.
- Maina, S. (2012). *Qualitative and Quantitative Research Methods Simplified*. Nairobi: mwituria publishers.
- Makori, J. O., & Wanyoike, D. (2015). *Assessment of result based monitoring and evaluation on performance of donor funded value chain projects in kenya*. Unpublished PhD Thesis, Juja: JKUAT.
- Management Sciences for Health, (2012). Global and Donor Financing. (MDS-3: *Managing Access to Medicines and Health Technologies*, Chapter 14). Retrieved from: <http://apps.who.int/medicinedocs/en/d/Js19590en/>
- Mbom, K. J. (n.d.). *An investigation into the partnership between donors and NGOs in African countries*. Oslo and Akershus: Oslo and Akershus University.
- McKenzie, S. (2004). *Social sustainability: towards some definitions*. Australia Magill: University of South Australia Magill.
- Mills, G. (2008). *Bricks, Mortar, Policy and Development: Aid and Building African Infrastructure*. Africa Beyond aid, Johannesburg: Brenthurst Foundation
- Montgomery, R., Schirmer Jr, H., & Hirsch, A. (2015). Improving Environmental Sustainability in Road Projects.
- Montgomery, R., Schirmer, Jr. H., & Hirsch, A. (2015). Improving Environmental Sustainability in Road Projects. *Environment and natural resources global practice discussion paper; no. 2*. World Bank, Washington, DC.: World Bank. Retrieved from: <https://openknowledge.worldbank.org/handle/10986/21563>

- Ndegwa, A. K. (2015). *Factors Influencing the Sustainability of KEMRI Hiv/Aids Grants Funded Projects in Kenya*. Unpublished PhD Thesis, Nairobi: United States International University-Africa.
- Ngacho, C. (2013a). *An Assessment of the Performance of Public Sector Construction Projects: An Empirical Study of Projects Funded Under Constituency Development Fund (CDF) in Western Province, Kenya*. Unpublished PhD thesis, Delhi: University of Delhi.
- Ngacho, C. (2013b). *An assessment of the performance of public sector construction projects: an empirical study of projects funded under constituency development fund (cdf) in western province, Kenya*. Unpublished PhD thesis, Delhi: University of Delhi.
- Niringiye, A., & Ayebale, C. (2012). Impact Evaluation of the Ubudehe Programme in Rwanda: An Examination of the Sustainability of the Ubudehe Programme. *Journal of Sustainable Development in Africa*, 14(3), 141–54.
- Nthenge, F. M. (2014). *Factors influencing sustainability of donor funded projects: a case of Wenje water projects in Tana River County, Kenya*. Unpublished PhD thesis, Nairobi: University of Nairobi.
- O'connell, S. A., & Soludo, C. C. (2001). Aid intensity in Africa. *World Development*, 29(9), 1527–1552.
- Odhiambo, F. (2013). Difference between Inputs, Activities, Outputs, Outcomes and Impact. Retrieved from <https://evaluateblog.wordpress.com/2013/06/10/difference-between-inputs-activities-outputs-outcomes-and-impact/>
- Ofori, D. F. (2013). Project Management Practices and Critical Success Factors—A Developing Country Perspective. *International Journal of Business and Management*, 8(21), p14.

Oino, P. G., Towett, G., Kirui, K. K., & Luvega, C. (2015). The dilemma in sustainability of community-based projects in Kenya. *Global journal of advanced research*, 2.

Ostrom, T. K. (2010). *Considering sustainability factors in the development project life-cycle: a framework for increasing successful adoption of improved stoves*. Unpublished MSc report, Michigan: Michigan Technological University.

Otim, G., & Alinaitwe, H. M. (2013). Factors affecting the Performance of Pavement Road Construction Projects in Uganda. *SB13*, Southern Africa Conference Central Bloemfontein, Free State: University of Technology.

Parsons, J., Gokey, C., & Thornton, M. (2013). *Indicators of inputs, activities, outputs, outcomes and impacts in security and justice programming*. Vera: Vera Institute of Justice.

pi\_handbook\_180808.pdf. (n.d.). Retrieved from [https://www.iom.int/jahia/webdav/shared/shared/mainsite/published\\_docs/brochures\\_and\\_info\\_sheets/pi\\_handbook\\_180808.pdf](https://www.iom.int/jahia/webdav/shared/shared/mainsite/published_docs/brochures_and_info_sheets/pi_handbook_180808.pdf)

Pinto, J. K., & Slevin, D. P. (1988). *Project success: definitions and measurement techniques*. Project Management Institute.

Pitagorsky, G. (2013). *Measuring In-progress Project Performance*. Retrieved from <http://www.projecttimes.com/george-pitagorsky/measuring-in-progress-project-performance.html>

Project Star. (2006). *Study Designs for Program Evaluation*. Retrieved from [http://webcacheforinstanceoogleusercontent.com/search?q=cache:ZrpRoTdB8GwJ:www.pacenterofexcellence.pitt.edu/documents/study\\_designs\\_for\\_evaluation.pdf+&cd=2&hl=en&ct=clnk](http://webcacheforinstanceoogleusercontent.com/search?q=cache:ZrpRoTdB8GwJ:www.pacenterofexcellence.pitt.edu/documents/study_designs_for_evaluation.pdf+&cd=2&hl=en&ct=clnk)

Riddell, R. C. (1999). The end of foreign aid to Africa? Concerns about donor policies. *African Affairs*, 98(392), 309–335.

- Santos, J. R. A. (1999). Cronbach's alpha: A tool for assessing the reliability of scales. *Journal of Extension*, 37(2), 1–5.
- Sharma, A. K., & Vohra, E. (2009). Critical evaluation of road infrastructure in India: a cross-country view. *Engineering, Construction and Architectural Management*, 16(1), 73–91.
- Shen, L.-Y., Li Hao, J., Tam, V. W.-Y., & Yao, H. (2007). A checklist for assessing sustainability performance of construction projects. *Journal of Civil Engineering and Management*, 13(4), 273–281.
- Silvius, A. G., & Schipper, R. (2010). A maturity model for integrating sustainability in projects and project management. In *24th World Congress of the International Project Management Association*. IPMA Istanbul.
- Skinner, J., Staiger, D., & Fisher, E. S. (2010). Looking back, moving forward. *New England Journal of Medicine*, 362(7), 569–574.
- Slevin, D. P., & Pinto, J. K. (1986). *The project implementation profile: new tool for project managers*.
- Tache, F. (2011). Developing an integrated monitoring and evaluation flow for sustainable investment projects. *Economia. Seria Management*, 14(2), 380–391.
- Takim, R., & Adnan, H. (2009). Analysis of effectiveness measures of construction project success in Malaysia. *Asian Social Science*, 4(7), 74.
- Takim, R., & Akintoye, A. (2002). Performance indicators for successful construction project performance. In *18th Annual ARCOM Conference* (Vol. 2, pp. 545–555).
- Tott, G. (2013). *Influence Of Donor Funded Projects On The Social-economic Welfare Of The Rural Communities: Case Of Cadsal In Elgeiyo Marakwet County, Kenya*. Unpublished PhD thesis, Nairobi: University of Nairobi.

- Tram Warrington and Law. (2011). *Environmental Impact Assessment / Environmental Management Plan*.
- Menon, S., Karl, J., & Wignaraja, K. (2009). *Handbook on Planning, Monitoring and Evaluating For Development Results*. New York: UNDP Evaluation Office
- UNODC. (2005). What is evaluation? Retrieved from <https://www.unodc.org/unodc/en/evaluation/what-is-evaluation1.html>
- Van de Walle, D. (2009). Impact evaluation of rural road projects. *Journal of Development Effectiveness*, 1(1), 15–36.
- Wanjiku, E. M. (2014). *Socio-economic benefits and environmental impacts of Thika Road superhighway*. Nairobi: Kenyatta University.
- Wawrzyniak, M. M. (2006). *Dependence Concepts*. MSc at Delft. Retrieved from: [ewi.tudelft.nl](http://ewi.tudelft.nl)
- Weisbrod, G., & Weisbrod, B. (1997). Measuring economic impacts of projects and programs. *Economic Development Research Group*, 10.
- Zewo, S. (2008). Outcome and impact assessment in international development.

## **APPENDICES**

### **Appendix I: Introduction Letter**

Dear participant,

I am Ali Ibrahim Hassan; a student at Jomo Kenyatta University of Agriculture and Technology pursuing Ph.D. in Project Management. I kindly request you to participate in this study as entitled above.

The research aims at the "Evaluation of the Performance of Donor Funded Road Construction Projects in Kenya". One of my research tools is a questionnaire which is intended to gather information that will enable the successful completion of the study. You have been identified as a significant player in this field, and your input in this research will be valuable.

Your kind response to the questions with honesty will be greatly appreciated. Kindly note that as a respondent, the information you will provide will be confidential, in addition this questionnaire will be used for academic purpose only. Feel free to express your most genuine opinion in each of the questions.

Thank you for your co-operation.

**Ali Ibrahim Hassan**

**Reg. No.: HD417-3414/2014**

## Appendix II: Questionnaire

### SECTION A: Project and Respondent Information

1. Type of project: KeNHA  KURA  KeRRA  Others
2. Your position on the project: Client  Consultant  Contractor  Others
3. Please indicate how long you have been involved in the construction of road projects?  
Below 3 years  3 – 6 years  over 6 years
4. Which of the following indicate the average number of road construction projects that you were involved?  
Up to 3 projects  4–6 projects  7 – 9 projects   
10 projects and above
5. Please indicate the overall value of construction projects that you have worked on in the last 10 years?  
Up to Ksh. 10 Million  Ksh. 10 Million to Ksh.15 Million   
Over Ksh. 15 Million
6. Project dates and cost estimate.

Contract start date:	Original contract sum:
Original completion date:	Approved variations:
Actual completion date:	Final project cost:

**SECTION B: Testing the efficiency of donor funded Construction Projects**

Based on your experience associated with the current as well as other donor funded construction projects you are kindly requested to indicate your level of agreement with each of the following efficiency measurement variables on 1 to 5point

*Likert scale (1=strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree and 5=strongly Agree).*

Efficiency Factor	Statement	Degree of agreement
<b>1.Time</b>	a) There was Timely delivery of resources	
	b) There was Harmonious relationship on site.	
	c) There exists a clear formulated plan.	
	d)There is no effect of weather and climatic conditions	
	e) At handover, there were no apparent defects	
	f) No delays were experienced in securing funds during project implementation.	
	g) The client’s decisions were timely and objective.	
	h) Design Complexity of projects (Type, size, nature and number of floors) has influenced the project time.	
<b>2.Cost</b>	a) The Equipment used was at pre-budgeted rates.	
	b) There was stable labour costs	
	c) There was no increase in materials cost.	
	d) Minimum variations cost was incurred to completion.	
	e) There is adverse effect on quality of the roads.	
	f) No financial claims at completion	
	g) Working capital was adequate.	

**In your own words is efficiency achieved in the construction of the donor Funded road Projects; Yes/No**

**If Yes Explain** -----  
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**SECTION C: Testing the effectiveness of donor funded Construction Projects**

Based on your experience associated with the current as well as other donor funded construction you are kindly requested to indicate your level of agreement with each of the following effectiveness measurement variables on 1 to 5point

*Likert scale (1=strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree and 5=strongly Agree).*

<b>Effectiveness Factors</b>	<b>Statement</b>	<b>Degree of agreement</b>
<b>1. User Fulfillment</b>	a) There was no serious dispute between the client and contractor due to non-adherence to the specifications.	
	b) Disputes were observed due to the frequent changes in the design of the current project.	
	c) Dispute resolution meetings were often held during project execution.	
	d) All stakeholders associated with the current project supervised the quality of the project in all its phases.	

	e) Information sharing and collaboration among project participants were adequate in the current project.	
	f) The community did not raise any social, political or cultural issues against construction of the current project.	
<b>2. Free from defects</b>	a) At the time of handover, the current project was free from apparent defects	
	b) The project contractors were often called back during the Defects Liability Period to repair defects.	
	c) The consultant was highly committed to ensuring construction work is done according to design specifications.	
	d) There were adequate designs, specifications and documentations for the use of contractor.	
	e) The client emphasized on completing the current project very fast without any reference to quality.	
	f) The client tended to purchase construction materials at cheaper rate which led to the dilution of other project objectives.	

	g) No variations in original design took place in the current project during construction phase.	
	h) The level of technological sophistication considered in the project was satisfactory.	
	i) The physical and ecological conditions surrounding the project were favorable to project execution.	
	j) The contractor used latest construction methods in the current project	
	k) The constructor adhered to the requisite Quality standards.	

In your own words is effectiveness achieved in the construction of the donor Funded road Projects; Yes/No

If Yes Explain -----  
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**SECTION D: Testing the Relevance of donor funded Construction Projects**

Based on your experience associated with the current as well as other donor funded construction you are kindly requested to indicate your level of agreement with each of the following relevance measurement variables on 1 to 5point

*Likert scale (1=strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree and 5=strongly Agree).*

<b>Relevance Factors</b>	<b>Statement</b>	<b>Degree of agreement</b>
<b>1. Objectives</b>	a) There is relevance between donor-funded projects and the overall development goals of the government	
	b) There was consistency between donor funded road projects and the government planned road projects	
	c) There was a road construction policy placed in the Kenyan vision 2030.	
	d) There was a relationship between the stakeholder needs and the project objectives.	
<b>2. Activities</b>	a) The contractor used latest construction methods for the project	
	b) Road works execution was done in accordance with environmental standards.	
	c) Continuous monitoring of actual expenditures and	

	project schedules and their comparison with the budget was done regularly.	
	d) Roads constructed as deviations served the expected purpose.	
	e) The right material was used for the construction work.	
<b>3. Output</b>	a) The technical knowledge of staff and their commitment contributes to the achievement of project success.	
	b) There was improvement in transport sector policy?	
	c) There is a relationship between donor-funded projects and development goals?	
	d) There are master plans to ensure relevance between donor-funded projects/programs and development goals?	

In your own words is relevance achieved in the construction of the donor Funded road Projects; Yes/No

If Yes Explain -----  
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**SECTION E: Testing the Sustainability of donor funded Construction Projects**

Based on your experience associated with the current as well as other donor funded construction you are kindly requested to indicate your level of agreement with each of the following sustainability measurement variables on 1 to 5point

*Likert scale (1=strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree and 5=strongly Agree).*

Sustainability Factor	Statement	Degree of agreement
<b>1. Social</b>	a) The selected technologies and maintenance tools are the most appropriate in terms of affordability and the level of service desired	
	b) The project was monitored to verify that all benchmarks of progress, were met? (The baseline survey is an important tool in determining benchmarks.)	
<b>2. Economic</b>	a) Participation processes included the empowerment of communities so that their opinions were considered throughout the project cycle	
	b) The communities took part in the evaluation design and the review of conclusions as a means of indicating whether they were satisfied with project benefits	
	c) There was evidence of flexibility in adapting to problems related to	

	sustainability during the course of implementation	
	d) The project was managed within the existing institutional structure to facilitate continuation of activities after it ended or was a special project organization created	
<b>3. Environmental</b>	Design documents spelt out sustainability as an objective to be attained?	

Do you think Sustainability of Donor funded Projects is clearly defined before and after the construction of road projects?

Yes / No

If Yes Explain -----  
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**SECTION F: Testing the Impact of donor funded Construction Projects**

Based on your experience associated with the current as well as other donor funded construction you are kindly requested to indicate your level of agreement with each of the following sustainability measurement variables on 1 to 5point

*Likert scale (1=strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree and 5=strongly Agree).*

Impact Factors	Statement	Degree of agreement
<b>1. Economic</b>	a) The project had an effect on the Macro-economic conditions (such as interest rates, inflation)	
	b). There was no any increase in the cost of raw materials during construction of this project.	
	c) Labour cost remained stable over the period of construction of the current project.	
<b>2. Environmental</b>	a) There were measures taken to encounter drainage issues that could arise	
	b) Removal of vegetation along the route had an effect on the surrounding environment	
	c) The wastes were taken care of according to the set environmental standards	
<b>3. Social</b>	a) Construction of roads improve security	
	b) The community did not raise any social, political or cultural issues against the construction of the project.	
	c) Proper medical facilities were available for people working on the project	

Donor Funded projects have a great impact both economically and socially.

Yes/No

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**SECTION G: Performance of donor funded Construction Projects**

Based on your experience associated with the current as well as other donor funded construction you are kindly requested to indicate your level of agreement with each of the following sustainability measurement variables on 1 to 5point

*Likert scale (1=strongly disagree, 2=Disagree, 3=Indifferent, 4=Agree and 5=strongly Agree).*

<b>Impact Factors</b>	<b>Statement</b>	<b>Degree of agreement</b>
<b>1. Client Attributes</b>	a) The client need was met (socially, economically and environmentally)	
	b). Client financial position was satisfactory	
<b>2. Project Attributes</b>	a) Project was completed on time	
	b) Project was completed within the scope	
	c) Project was Completed within the budget	
<b>3.Stakeholder Attributes</b>	a) Project met the required Government standards	
	b) The community expectations were met	
	c) The relation between the Government and the Donor was satisfactory	

Donor Funded projects have a great impact both economically and socially.

Yes/No

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