

**SOCIO-ECONOMIC FACTORS INFLUENCING IMPLEMENTATION OF ROAD
CONSTRUCITON PROJECTS BY SELECTED CONTRACTORS IN NYERI SOUTH
SUB-COUNTY, KENYA**

BY

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DECLARATION

This research project is my original work and has not been presented in any other university.

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DEDICATION

This work is dedicated to the most important people in my life. My grandmother, Liu Dongyi, who passed away in 2012, for her everlasting faith in me and her blessing from Heaven and my wife Qiu Xiaohong, my parents Li Xunhe and Sheng Xiuzi for their unyielding support and endless love while pursuing this course.

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May God bless you All.

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ABBREVIATIONS AND ACRONYMS

| | |
|---------------|---|
| COVEC | China Overseas Engineering Group Co., Ltd |
| ELITE | Elite Earth Movers Co., Ltd |
| PUT | Put Sarajevo General Engineering Co., Ltd |
| GoK | Government of Kenya |
| KeRRA | Kenya Rural Roads Authority |
| KeNHA | Kenya National Highways Authority |
| KURA | Kenya Urban Roads Authority |
| RACECA | Roads and Civil Engineering Contractors Association |

ABSTRACT

It is generally accepted by the public and government that road construction projects is vital for economic growth and poverty reduction since it plays a key role in enhancing competitiveness, facilitating trade and integrating countries to the rest of the world. The purpose of the study was to assess the influence of socio-economic factors on implementation of road construction projects by the selected contractors in Nyeri South Sub- County, Kenya. The study was guided by three research objectives: to assess how education level of the project personnel influences project implementation, to establish how financial status influence project implementation, to assess how community engagement influences project implementation. The study adopted a descriptive survey design. The sample comprised of 170 project personnel, key project implementers and community members. Study revealed that out that majority 119(72.1%) personnel were trained in on construction work. Pearson Moment Correlation Coefficient showed that there was a positive relationship (0.58) between project personnel education and implementation of road construction projects. Findings revealed that financial problems affected the implementation of road construction projects as indicated by key players of the project implementation Majority 100(60.6%) of the project personnel who got advance payment from their employer every month indicated that they got between Ksh. 1,000 and 3,000. Majority 160(96.9%) of project personnel revealed that they had excuses to give of poor performance to the employer when they were well paid. Pearson Moment Correlation Coefficient revealed that there was strong positive (0.75) relationship between financial status and implementation of road construction project. The study found out that the government policies had significant impact on the sustainability of development projects and the policies should be revised to ensure successful road construction projects by selected contractors. Pearson correlation of use of community engagement against implementation was negative with a value of -.182. The findings implied that community engagement did negatively influence the implementation of road construction projects. Based on the findings, it was concluded that the project personnel had acquired education on construction from Technical Training Institutes. The study concluded that majority 119(72.1%) of project personnel indicated that the construction companies train them on construction work. On the influence of level of financial status and implementation of road construction projects, the study concluded that road construction projects had financial problems. However, there was unavailability of materials. The study lastly concluded that the government had not given enough support to the contractors who were undertaking the road construction projects. Based on the findings, the study recommended that the policy makers to enhance the awareness of contractors' implementation strategies for successful delivery of road construction projects. Awareness of the community to involved in road construction projects for the success of the implementation and that government to support road construction projects both during implementation and beyond.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

In the United States of America, targeted efforts to improve conditions and significant reductions in highway fatalities resulted in a slight improvement in the road grade to a D in 2013. However, forty-two per cent of America's major urban highways remain congested, costing the economy an estimated \$ 101 billion in wasted time and fuel annually. While the conditions have improved in the near term, and federal, state, and local capital investments increased to \$ 91 billion annually, that level of investment is sufficient and still projected to result in a decline in conditions and performance in the long term. Currently, the Federal Highway Administration estimates that \$ 170 billion in capital investment could be needed on an annual basis to significantly improve conditions and performance (Thomas et al, 2013).

The Road and Highway Construction industry in China (Wang, 2013) has been growing rapidly, driven by China's urbanization, increases in automobile ownership and freight and passenger road transportation turnover volumes, and increasing government investment. In 2013, industry revenue is expected to amount to \$263.2 billion, up 12.1% from 2012. Over the past five years, revenue has been growing at an average annualized rate of 17.0%. The total length of road in China increased from 3.7 million kilometres in 2008 to an estimated 4.3 million kilometres in 2013. Meanwhile, the total length of highway in China rose from 60,300 kilometres to about 108,600 kilometres. In 2013, there are 46 industry enterprises operating 423 establishments and employing 739,696 workers with a payroll of \$14.1 billion. (Wang, 2013)

Decades of economic stagnation and declining living standards have turned Sub-Saharan Africa into the world's poorest region. In spite of an incipient recovery since the end of the 1990s, with per capita income growth rates outpacing those of rich countries for the first time in many years, leading observers in the development and policy community are advocating a 'big push' to help the region escape poverty and regain the lost ground vis-à-vis the rest of the developing world (Sachs *et al*, 2004), Collier (2006). These calls for action propose a variety of remedial policy agendas, but virtually all of them list infrastructure development among the top priorities.

An adequate supply of infrastructure services has long been viewed as a key ingredient for economic development, both in the academic literature (starting with the work of Aschauer 1989) as well as in the policy debate (World Bank 1994). Over the last two decades, academic research has devoted considerable effort to theoretical and empirical analyses of the contribution of infrastructure development to growth and productivity. More recently, increasing attention has been paid also to the impact of infrastructure on poverty and inequality (Estache, Foster and Wodon 2002, World Bank 2003, 2006). While the empirical literature on these two topics is far from unanimous, on the whole a consensus has emerged that, under the right conditions, infrastructure development can play a major role in promoting growth and equity – and, through both channels, helping reduce poverty.

In most dimensions of infrastructure performance, Sub-Saharan Africa ranks at the bottom of all developing regions, so the strategic emphasis on infrastructure is hardly surprising. And the literature suggests that some intrinsic features of Africa's economies may enhance the potential role of infrastructure for the region's economic development – in particular, the large number of Africa's landlocked countries, home to a major proportion (about 40 per cent) of the region's overall population, and the remoteness of most of the region's economies from global market centres. These geographic disadvantages result in high transport costs that hamper intra and inter-regional trade, as variously shown by Limao and Venables (2001), Elbadawi, Mengistae and Zeufack (2006), and Behar and Manners (2008).

Rural roads are an important sector in rural development, which deals in all aspects of development including agriculture, health, education, forestry, fisheries, small-scale industries, trade, commerce etc. that depends on good communication. A rural transportation network will give shape to the living environment of villagers; rather roads of rural transportation are the connectivity elements in our society. Rural road connectivity is not only the key component of Rural Development in Africa; it is also recognized as an effective poverty reduction measure. Improved accessibility to all quarters of a village and the external markets is an indispensable prerequisite for the provision of adequate living conditions in rural areas. The absence of roads in rural areas leads to stagnation of socio-economic conditions of the villagers.

Kenya has got the total road network of 61,945 km (World Bank, 2013). The length of the trunk network is more than adequate. Even if Kenya's road density indicators look relatively low by some standards, the trunk network provides basic regional and national connectivity, linking the capital to the coast, to international border crossings, and to provincial capitals in the interior. Kenya has established a sound system for funding road maintenance. The country has made great strides with institutional reforms. The country's road fund meets most of the good practice design criteria. Moreover, the fuel levy is set at a level (around \$0.12 per litre) adequate to fund the country's road maintenance requirements, and the associated revenues are indeed being fully captured by the sector.

Nevertheless, the country faces a huge rehabilitation backlog that must be addressed before the trunk network can be considered to be in a maintainable condition. As of 2006, levels of capital spending for the roads sector—at around 1 per cent of GDP—were low by regional standards and fell substantially short of what would be needed to clear the rehabilitation backlog in a reasonable period of time. There is a need for a one-time push on road sector investment to remedy this situation.

Nyeri South Sub-County has achieved great success in road construction as other areas in Kenya in the past. And people of this area have realized the importance of sustaining road construction projects to boost the economic growth. Hence, a lot of research has been carried out about social economic impact of implementation of road construction projects by several researchers. Most of research which have been done put a lot of emphasize on economic benefits of implementing road construction projects.

As to how selected contractors perform, researchers in the developed world have made significant step. However, research from sub-Saharan Africa to corroborate these findings has remained sparse. What exists is speculative and at best anecdotal.

1.2 Statement of the problem

A number of researches have been done on open innovation practices. For instance, Olawale and Sun (2010) admit that although causes of cost overruns share common characteristics in projects

worldwide, they are also affected by country-specific conditions. Jha and Devaya (2008) subscribe to this view and argue that the political, economic, legislative, social and cultural factors pertaining to different countries account for different levels of risk in international projects. The limited number of studies considering transport infrastructure in Asia, present investigations of projects carried out in one country. Therefore, it can be justifiably claimed that to an extent, their findings reflect country-specific conditions not necessarily prevailing in other Asian countries.

Construction projects represent a unique set of activities that must take place to produce a unique product. The success of a project is judged by meeting the criteria of cost, time, safety, resource allocation, and quality as determined by the owner. In light of these observations, there is a clear need for more extensive researches on socio economic factors influence infrastructural development project in Kenya. In order to fill this knowledge gap, this study sought to investigate the uniqueness of Nyeri South Sub-County and assessed how the socio-economic factors influencing road construction projects in this special area.

1.3 Purpose of the study

The purpose of this study was to investigate the influence of socio-economic factors on implementation of road construction projects by the selected contractors in Nyeri South Sub-County, Kenya.

1.4 Objectives of the study

The study was guided by the following objectives:

1. To assess how level of education of the personnel influences implementation of road construction projects by selected contractors in Nyeri South Sub-County.
2. To establish how financial status influences implementation of road construction projects by selected contractors in Nyeri South Sub-County.
3. To assess how community engagement influences implementation of road construction projects by selected contractors in Nyeri South Sub-County.

1.5 Research questions

The study sought to answer the following research questions:

1. How does level of education of the personnel influences implementation of road construction projects by selected contractors in Nyeri South Sub-County?
2. How does financial status influence implementation of road construction projects by selected contractors in Nyeri South Sub-County?
3. How does community engagement influence implementation of road construction projects by selected contractors in Nyeri South Sub-County?

1.6 Significance of the study

The finding of this study intended to benefit the road construction contractors in Nyeri South Sub-County when making decisions in the midst of competitive market. The finding would be helpful for decision making by policy makers and enhance the awareness of contractors' implementation strategies for successful delivery of road construction projects. The findings and recommendations of this study would be used by the researchers to inquire more on road construction projects in Kenya, as well as the academicians to understand more on socio-economic factors influencing implementation of road construction projects in Kenya.

1.7 Delimitation of the study

This study was based on the three contractors (China Overseas Engineering Group Co., Ltd, Put Sarajevo General Engineering Co., Ltd and Elite Earthmovers Co., Ltd) which were undertaking different road construction projects in Nyeri South District, Nyeri County, Kenya. Hence, the study was carried out in Nyeri South Sub-County, Kenya.

1.8 Limitations of the study

This study was limited within a specified time schedule and budget since the researcher is self-sponsored foreign student. Language barrier and cultural difference between the researcher and the respondents affected the accuracy of the information. Meanwhile, due to the high illiteracy level in the region and in the road construction industry, the researcher was handicapped to the questionnaires interpretations. Another important challenge the researcher encountered is the unwillingness to disclose information since the contractor and consulting company needs to keep

it as business privacy. To mitigate the above challenges, the researcher found a researcher assistant to assist him to interpret for the potential respondents. What's more is that the researcher had been working for road construction industry for many years in Kenya; he knows how to deal with those site agents of the contractors who were not so willing to disclose information concerning their respective projects.

1.9 Assumption of the study

The study assumed that respondents would be available. It was assumed that the three independent variables of the study remained in the course of the research period as this would influence the acceptability of the finds; secondly, that the sample chosen was adequate to help in drawing valid conclusions and lastly, that the respondents were honest in giving the required information. It was also assumed that the study would be successfully completed within the scheduled timeframe.

1.10 Definition of significant terms

Annual Budget Allocation: The fund used for road construction projects and this fund has been approved by the parliament and has been allocated to the relevant government agency to ensure that the contractors and consulting companies are paid according to the project progress.

Availability of materials: Refers to easily accessible to the essential road construction materials under the assistance from the community where contractors are based.

Bill of Quantities: It is a document which contains all work description and the quantity and price of the work in road construction projects.

Borrow Pit: The source of approved material required for the construction of embankments, or other portions of earthwork requirements.

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|------------------------------|--|
| Campsite Land Lease: | The contractor gets a piece of land from local community for campsite of the road construction project. It can either be free or charged. |
| Community Engagement: | Community members are participating in the road construction activity since they have great influence on the successful delivery of projects. The members are being considered on all kinds of events during road construction because every project must be located in a certain community. |
| Community Support: | Refers to the community support to the road construction project which implemented by the selected contractors. |
| Consulting Company: | A team of personnel which are mandated to monitor and inspect the road construction work undertaken by the contractor after they have won the tender from the employer of the road construction projects. |
| Contractors: | A person or company that has a contract to do road construction work for the employer. |
| Culture Difference: | The customs and beliefs, art, way of life and social organization of a particular group of personnel who are working for the road construction project may be different and this difference may influence the implementation of the projects. |
| Financial Power: | This means the financial capacity of a contractor and this capacity will ensure that the contractor afford essential plants and equipments for the road construction work and |

be able to run the project if the scheduled payment from the government has been delayed.

Implementation of Road

Construction Projects:

Means road construction projects are being implemented by all the players, like government agency, consulting company, contractor and local community members. All the players are getting involved in all kinds of construction activities.

Income of the Personnel:

The financial source the personnel of the road construction project get from their working and this financial source will enable them to feed their family members and pay for their children's school fees.

Level of Education:

This refers to the length of formal school education, amount of technical training given by relevant institutions, and also on-site training by contractors or consulting company.

Project Timeline:

It refers to the time which has been set in the agreement which signed between the contractor and the employer. It has been clearly stated that which date will be the last day to complete the road construction project.

Project Progress:

The process of getting nearer to achieving or completing road construction projects by the contractor.

Project Personnel:

It means all the staffs who are working for the road construction project; it includes the employees of the contractors and the staff of the consulting company.

| | |
|-----------------------------------|---|
| Provision of Labour: | Community supplies the contractor and consulting company with useful and relevant manpower ensure the implementation of the road construction project. |
| Road Construction Project: | These are the projects which are mandated to improve or open up a new road for a certain area to meet the needs of the local community. It is a very complicated process; it involved many stakeholders and key players. And the project will take a certain period. |
| Selected Contractors: | These are those contractors which have won the tender and have been given contract by the employer and are responsible to complete the road construction project within time and budget. |
| Socio-Economic Factors: | These are the factors which may influence the implementation of the road construction projects by selected contractors since the road construction projects are always been undertaken in a certain social and economic environment. |
| Specifications: | The standard specifications, supplemental specifications, special provisions, and all written or printed agreements and instructions pertaining to the method and manner of performing the work or to the quantities and qualities of the materials to be furnished under the contract. |

1.11 Organization of the study

This project was organized into three chapters. Chapter One consists of the background of the study, statement of the problem, purpose of the study, research objectives, research questions and significance of the study, limitations and basic assumptions. Chapter Two covers literature review which is also divided into various topics. The conceptual framework is provided at the

end of the chapter linking the independent and dependent variables of the study. Chapter Three constitutes the research methodology, which is divided into research design, target population, sample and sampling procedure, research instrument, data collection procedure and data analyses techniques. Chapter four provides the results of the data analysis, presentation and interpretations according to the four variables of the study. Chapter five provides a summary of the findings, discussions according to the four variables of the study, conclusions of the study, recommendations of the study and suggestions for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focused on sustainability of social economic factors affecting infrastructural project development. The socioeconomic factors discussed include; education capacity of the local community, acceptability of project by community, access to materials and machinery, financing of rural projects. This chapter also included theoretical, conceptual framework of the study and knowledge gap at the end.

2.2 Road construction in China

Many years of road building has given China an extensive highway network, particularly in the eastern region. Since 2000, China's expressway network, which is already the second largest in the world, has been growing at an average of 20 percent per year. (KPMG analysis,2010) China continue to focus on the expansion of its road system, highlighted by the programmes in China's 11th Five-Year Plan for an extension of the country's National Trunk Highway System (NTHS) from around 41,000 km in 2005 to 65,000 km in 2010. The high network (including expressways and class 1, class 2 and class 3 highways) is targeted to reach 3 million km by 2020, up from about 2 million km in 2008. (Ministry of Communication, China, 2009) On the demand side, there are a number of key drivers for new construction, including: Continued economic growth, particularly in terms of domestic consumption, which is driving freight transport levels; Increasing wealth, especially for the growing middle class, has led to rapidly increasing car ownership. In 2009, China became the world's largest car market with private vehicle ownership quadrupling since 2000(Reuters, 2009); Infrastructure investment, particularly in highways, is critical for the success of China's Go West' policy to develop central and western China. With regards to supply, China's highway plan is structured around the development of a 36-trunk highway network, which includes seven highways radiating from Beijing, nine north-to-south "7918" network will link cities which have a population of more than 200,000 and cover a total population of one billion across China. In addition, the 11th Five –Year Plan identifies roads around the capital, link roads to costal ports, and east-west highways as being by investment targets.

2.3 Road construction in India

The Indian economy is booming, with rates of Gross Domestic Product (GDP) growth exceeding 8% every year since 2003/2004. This ongoing growth is due to rapidly developing services and manufacturing sectors, increasing consumer demand (largely driven by increased spending by India's middle class) and government commitments to rejuvenate the agricultural sector and improve the economic conditions of India's rural population. Construction is the second largest economic activity in India after agriculture and has been growing rapidly. Major infrastructure development requires a substantial influx of investment capital. The policies of the Indian Government seek to encourage investments in domestic infrastructure from both local and foreign private capital. Study(A.K. Sharma,2013) on the state of infrastructure in India and compare it with other economies and work out its impact on overall economic development; identify the gap in existing and required road infrastructure facilities and their probable impact on productivity, in Indian context; study the state of private sector participation in road construction development in India; review the policy statements pertaining to sector under review and identify the underlying issues; and suggest a viable solution to the problem of efficient road network development in India.

2.4 Status of road construction in Africa

A road network providing adequate connectivity across national territory is typically one of the most costly items of infrastructure that any country requires. It is also the one that has typically weighed most heavily on the national budget with a strong character for public good that has traditionally limited the scope for cost recovery. An African Development Bank (2000) report suggest that relatively small number of international road transport corridors play a crucial role in maintaining the economies of the landlocked countries of Africa. On an immediate level, much attention has focused on the main international trade corridors that connect the landlocked countries of each sub-region to their respective ports. Some US\$200 billion worth of imports and exports per year move along these key corridors that in total amount to little more than 10,000 kilometers in length.

For Central Africa, regional transport is dominated by two road and rail corridors which link the port of Douala in Cameroon with Chad and the Central African Republic, serving the cotton and

oil exports of Chad and the logging exports of the CAR. For West Africa, there are several potential gateways (in Ghana, Benin, Cote d'Ivoire, Senegal, Guinea and Togo) serving the landlocked countries Burkino Faso, Mali and Niger. However, the closing of the international routes from Abidjan as a consequence of the crisis in Cote d'Ivoire has meant that most of the traffic now goes through ports in Togo, Benin, and Ghana, with Burkino Faso also becoming a transit country for Mali. Some 50 percent of the import traffic to Burkino Faso is now routed through Lome and 36 percent through Tema in Ghana.

In East Africa, 80 percent of the trade flows are still going to/from outside the region, despite the creation of the East African Community. Mombassa is the dominant port for the region, handling more than 13 million tons of freight per annum, serving not only Kenya and Uganda but also DRC, Burundi and Rwanda against the vastness of the subcontinent, the road network of Sub-Saharan Africa is sparse.

There is huge variation in primary road densities across countries. Most countries present primary network densities of between 100 to 300 kilometers per million of population (figure 2.4). However, there are important outliers. At one extreme, countries such as South Africa, Lesotho, and Namibia have around 50 kilometers of primary road per million of population. At the other extreme, countries like Uganda and Niger have more than a thousand kilometers of primary road per million of population.

The size of the rural network is difficult to state precisely because it contains many roads and paths which are unrecorded or unmeasured. Sub-Saharan Africa has about 940,000 kilometers of designated rural roads, whose replacement value is estimated at US\$48 billion. In addition, Africa has a vast network of undesignated rural roads, tracks, paths, and footbridges. It has been estimated that this may be one and a half or two times as extensive as the local government road network. Along this rural network is generated a third of the region's gross domestic product from agriculture and 40 percent of its export revenues.

World Bank (2006) report that roads expenditure in Sub-Saharan Africa is relatively high, averaging 1.8 percent of country's GDP. Based on the AICD Fiscal Costs Survey, it is possible

to estimate the percentage of national income allocated to the roads sector, when all budget and extra-budgetary channels (such as Road Funds) are taken into account. On average, the sample countries devote 1.8 percent of gross domestic product (GDP) to the roads sector. This is within the range of expenditure found in other countries around the world, although below the levels found in a number of fast growing countries that made intensive efforts to upgrade transport infrastructure.

Industrialized countries invest around 1 percent of GDP annually on their road systems. The US has been investing about 1 percent of GDP on roads over the last 25 years. Most European national governments invest no more than 2 percent of GDP on all transport infrastructures, though in some countries there is additional expenditure by regional and urban authorities from their own resources.

These are countries with already well-developed infrastructure and GDP growth rates of 2-3 percent. Developing countries which have had periods of rapid growth have invested 23 percent of GDP. For example, South Korea, India, Brazil, and the former Soviet Union all invested between 2 and 3 percent of their GDP in transport infrastructure during the eighties, while between 1964 and 1973 Japan invested between 3.5 and 3.8 percent.¹⁵ In more recent years, between 2000 and 2002, Malaysia, Korea, and Thailand were investing 1.7 percent to 1.9 percent of GDP and achieving GDP growth rates between 4 and 6 percent.

2.5 Construction sector in Kenya

The role of KeRRA is the development, rehabilitation, maintenance and management of rural roads in the country. This is properly stated in the Kenya Roads Act 2007 and will comprise the following functions and duties. Constructing, upgrading, rehabilitating and maintaining rural roads. It is mandated to control reserves for rural roads and access to roadside developments, and implementing road policies in relation to rural roads.

The Kenyan Construction industry involves work done on buildings and infrastructures and consists of two categories of players;

- a) Consultants: Consultants are professionals in the construction industry who are qualified at degree level and who are mandated to conceptualize and design building projects which would be executed by their counterparts, the contractors.
- b) Contractors: Contractors are practitioners who are authorized to execute projects conceptualized and designed by consultants and under their supervision. They are typically categorized as local or international, the local being further categorized as national or regional.

The construction sector is one of the key economic sectors and is the main force motivating the Kenya national economy. Upon the establishment of the Kenya Rural Road Authority, Kenya Urban Roads Authority (KURA) and Kenya National Highway Authority (KeNHA), and the assumption of their power over the road construction, the road construction sector has witnessed noticeable expansion and activities. This has resulted in the recovery of the construction contracting profession and subsidiary industries, encouraged the investment of Kenya expatriates in the local construction sector and contributed to the creation of jobs for thousands of Kenyans. Therefore, the construction sector has occupied a very important position relative to the rest of the economy, attracting investments and creating new jobs.

In Kenya, every road construction project goes in the following way: The contractor tender for the road construction project, meanwhile, there will be a consultant company tendering for inspection work as well, after the contractor and inspection team have been selected by the government agency, like KeRRA and KeNHA. Hence, the personnel of the road construction projects include the employees of the contractor and the consultant company.

In spite of the high importance of construction sector in Kenya, the industry suffers from a number of problems that affect time, cost and quality performances. Mahamid and Bruland (2012) concluded that all road construction projects implemented in the Kenya during 2004 - 2008 experienced cost overrun. Mahamid et al. (2011) conducted a study to investigate the time delay in road construction projects in the Kenya; they found that all projects suffer from time overrun and that 70% of the projects experienced delays between 10% and 30% of the contracted

duration. Therefore, attention should be paid to this important sector in order to identify its main challenges and control them.

Many studies have been conducted to identify the causes of delay in construction projects. Chan et al. (1997) indicated that the five principal causes of delays in Hong Kong construction projects are: poor site management and supervision, unforeseen ground conditions, low speed of decision making involving all project teams, client-initiated variations and necessary variations of works.

In a survey in Kenya, Mahamid (2011) indicated that the most severe factors affecting time delay in road construction projects from the owners' perspective are: poor communication between construction parties, poor resource management, delays in commencement, insufficient inspectors, and rework. Similarly, Al-Najjar (2008) concluded that the most important factors causing time overruns in building construction projects in Kenya as perceived by contractors were: delayed payment, lack of materials in the markets, shortage of construction materials at site, delays of material deliveries to site, cash shortages during construction, poor site management, poor economic conditions (currency, inflation rate, etc), shortage of equipment and tools on site, and owner delay in freeing the contractors payments for completed work.

Examining the factors that cause delay in construction projects in Malaysia, Alghbari et al. (2007) tested 31 variables. The main finding of the study was that financial factors are the most common cause of delays in construction projects in Malaysia. Coordination problems are considered the second most important factor causing delays, followed by materials problems.

Al-Momani (2000) investigated causes of delay in 130 public building projects constructed in Jordan during the period of 1990-1997. He concluded that the main causes of delay are related to designer or user changes, weather, site conditions, late deliveries, economic conditions and increases in quantities. Also in Malaysia, Sambasivan and Soon (2007) concluded that the ten most important causes of delays the construction industry were: contractor's improper planning, contractor's poor site management, inadequate contractor experience, inadequate client's finance and payments for completed work, problems with subcontractors, shortage in material, labour

shortages, equipment availability and failure, lack of communication between parties, and mistakes during the construction stage.

An interview survey of 450 randomly selected private residential project owners and developers by Koushki et al (2005) found that the main causes of delays in Kuwait were changing orders, owners' financial constraints and owners' lack of experience. Faridi and El-sayegh (2006) studied the delay in construction projects in UAE and concluded that 50% of the construction projects encounter delays and are not completed on time. The most significant causes of construction delays are approval of drawings, inadequate early planning and delays in the owners' decision-making process.

2.6 Personnel' education level and project implementation

Construction is a labour intensive as well as craft-based activity and the behaviour of people has an enormous influence upon the organization and performance of construction firms. Sustainable development of construction industry has to concentrate not only on sustainable building technologies and construction materials but also on respectful and considerate labour management strategies. Workforce has to be treated as the most valuable un-reproducible resource with vulnerable and hardly predictable behaviour.

In construction projects new experiences are typical scenarios that demand different skills, tactics or solutions. Identification of critical knowledge and ability to utilise it, is a challenge for any project organisation (Kasvi et al., 2003). Knowledge has been defined as information that has been used and become part of an individual's knowledge base, experience and behaviour (Teerajetgul and Charoenngam, 2006); that, it cannot have an ostensive definition, as it is more of an emergent property, an outcome of a rather complicated process (Kalling and Styre, 2003). Davenport and Prusak (1998) acknowledge the complexity of defining knowledge and opt to describe its key components as: experience, truth, judgement and rules of thumb. Probst et al. (2000, p. 34) define it as cognition and skills that individuals use to solve problems; taking Sense's (2007) definition, cognition implies how people make sense of their worlds, "... in one's own head" or "the psychological result of reasoning and learning ...". Hence, basing on Probst et al. (2000) and Sense's (2007) definition it is justifiable to presume, in the course of

organisations addressing challenges in construction projects, knowledge is created.

Education has been identified as one of the primary agents of transformation towards development. However, low level of literacy and education is one of the major challenges facing most of the underdeveloped countries. Active community involvement and participation has emerged as an effective mechanism in improving the sustainable level of education in many of these countries.

Education increases the capacity of people to realize their vision of society into operational realities, enabling them to become self-motivating agents of social change, serving the best interests of the community. Improved access to primary school education yields tangible benefits by developing the skills of the people, it expands livelihood opportunities and increase their earning potential and thus helps in tackling the poverty.

One of the major challenges facing most underdeveloped countries is the low level of literacy and education. In the year 2000, developing countries, mostly in South Asia and Sub-Sahara Africa-accounted for 94 per cent of the total 104 million out of school children (school –age children who were not getting the basic education), of which 57 per cent were girls (World Bank,2004). Government initiated programs in these countries have often been found not to be very successful in enhancing education level. Lack of resources and management deficiencies have been the major impediments for the governments in providing the community with adequate educational delivery, fully equipped school buildings, teachers and instructional materials.

As is the case in any business, people are a construction organization's greatest resource. Construction operations depend on the knowledge and skills of people planning and executing the work. The quality of this most important resource: people, is what distinguishes one team or company from another. Having talented management in place to guide and direct operations is crucial. Obviously, having an adequate number of skilled and unskilled workers to perform the work is a bare necessity. Finding and recruiting sufficient numbers of skilled, talented people is becoming increasing difficult. There are several factors contributing to this problem.

Construction is typically viewed as being one of the least desirable industries in which to work. Surveys among the nation's youth show construction at the bottom of the list of professions that they would enter. Construction by nature is dangerous, dirty, handiwork. Other industries or professions offer preferred work environments that are cleaner, safer, and generally more desirable. The pervasive growth of technology and the associated industries that have followed are attracting the youth away from traditional industries. Consequently, there is a severe shortage of bright, talented people willing to work in construction.

2.7 Financial status and project implementation

The company of the implementing contractor may not spend all necessary resources for the ongoing infrastructure development project since they cannot see any profit from implementation of the project. In this way, the project implementation will somehow be affected. Hence, there is a relationship between financial status and project implementation. One of the most common problems in construction contracting in Palestine is the policy of awarding the bid to the lowest bidder rather than the most accurate. The owners award the contracts to lowest bidders, but sometimes the lowest bidder is a less well qualified contractor with low capabilities and resources which leads to poor performance and causes delays in completion of the work. To overcome this problem, the owner may check for the resources and capabilities of the bidders before accepting a bid or awarding the contract, or contracts could be awarded to the bid closest to the client's estimate of the cost and not necessarily to the lowest bidder. This result is supported by Al-Najjar (2008) and Alghbari et al. (2007).

Construction works involve high daily expenses that can't be met by the contractors when progress payments by the owners are delayed. This affects the completion of works on time since many of the contracting firms in Kenya are small with very limited cash reserves. This result is supported by many of the investigated studies (Al-Najjar, 2008; Alghbari et al., 2007; Sambasivan and Soon, 2007, Koushki et al., 2005).

Time is money to owners, builders, and users of the constructed facility. From the owner's perspective there is lost revenue by not receiving return on investment, cash flow crunch, potential alienation and loss of clients/tenants, extended interest payments, and negative

marketing impacts. From the users' perspective, there are financial implications similar to owners. Delays in upgrading facilities translate into operating at below optimum efficiency resulting in higher user cost. Delays in constructing or rehabilitating infrastructure negatively affect businesses and the public at-large. Time implications from the constructor's perspective include liquidated damages (negative) and incentive/disincentive payments. Delays result in extended overhead costs and put a crunch on critical cash flow. Extending project durations limits the constructor's bonding capacity and ability to bid more work (opportunity cost). Inefficient time management results in higher labour and equipment costs. A reputation for late completions is bad for business, especially in negotiated work.

Many of the contracting firms in Nyeri South Sub-County are small with inadequate cash flow. Usually, they rent their equipment when required. When there are many construction projects, the equipment are in short supply and are poorly maintained. This leads to failure of the equipment causing projects to be delayed. This result was not pointed out by any of the investigated studies.

2.8 Community engagement and project implementation

Every project must be located in a certain community; hence, the support from the community which the projects have been implemented must have some impact on the success of the implementation. Without the community support, no contractor can achieve the goals and objectives of the organization in the course of project implementation. Availability of materials plays an important role in deciding the successful project implementation. The contractors in Nyeri South Sub-County have been greatly affected by the availability of materials. It is so hard for contractors to get aggregate and sub base materials from a nearby place in Nyeri South Sub-County. They normally get these kinds of materials from Nyaribo Quarry and Chaka Quarry. Besides the expensive lease payment, the contractors have to pay cess as well. Thus, by evoking a sense of ownership among community members the basic infrastructure was developed in an efficient manner.

Conventional construction materials have eventually become great contributors to pollute the environment. Availability of materials will fall considerably short of their demands despite

improved productivity and in it necessary to develop alternatives for them (Plesis, 2011). Thus, it shows the necessity of the adoption of sustainable materials in construction industry. Sustainable construction is the way that construction industry should move towards in achieving sustainable development which takes into account environmental, economic and social issues (Shafii, Ali, and Othnam, 2006). Moreover, sustainable construction helps to reduce strain on environment by the adoption of sustainable materials which is sustainable to nature.

This paper analyses the crucial aspects of community participation in road construction. Though community participation is not panacea for addressing all barriers, the Nyeri South Sub-County Road Construction Project Experiences involving community in road construction indicate that the active involvement of the community has facilitated in identifying community specific road construction issues and formulating effective strategies to address those barriers by mobilizing resources within the community.

2.9 Government Policy and Project Implementation

Scheirer (2005) advanced political support as a factor promoting project sustainability. Given the power and perseverance of institutional routines it is viewed as important to adapt projects to the policies and regulations of the relevant government bodies (Sarriot, 2004). Projects are implemented within a wider policy environment. Government policies can have significant impact on the sustainability of development programs or projects. The policy framework should be analyzed and taken into account during project design. Projects which comply with Partner or Government policies have much better prospects for sustainability as they are more likely to have high-level political and institutional support both during implementation and beyond.

According to the United Nations Economic and Social Council, Economic Commission for Africa (2005), appropriate regulatory frameworks and institutions at national level to oversee road construction projects are essential to operational national policies, protect property rights, and generate equitable returns on private investments through efficient tariff structures and levels, service standards and expansion targets.

2.10 Culture and Project Implementation

In a certain area, the contractor may encounter different people from different cultural background, and this cultural difference may influence the implementation of the road construction projects. This leads to estrangement between the parties and misunderstandings regarding the contract requirements. Thus, this result illustrates the importance of rising awareness among the contracting parties to ensure a culture of team work and to achieve their desires of a less adversarial working climate. This result is supported by several of the investigated studies (Mahamid, 2011; Alghbari et al., 2007; Sambasivan and Soon, 2007).

Diversity is increasing in many countries, and globalization is leading to a growing number of international projects. Cultural differences can either be a source of creativity and enlarged perspectives, or they can be source of difficulties and miscommunication. The literature on cultural differences is steadily increasing and now provides very helpful conceptual frameworks for understanding the different points of view encountered when managing cross cultural differences in projects. Managers of multi-cultural project teams can increase their effectiveness and their firm's competitiveness by making use of this literature. To achieve project goals and avoid potential risks, project managers should be culturally sensitive and promote creativity and motivation through flexible leadership. Project management can succeed in a cross-cultural environment through effective leadership, cross-cultural communication, mutual respect, and reconciliation. Without them, it is destined to fail. (Anbari, Khikhanova, Romanova, Ruggia, Umpleby, 2014)

2.11 Conceptual framework

The conceptual framework of the study is presented in figure 2.1

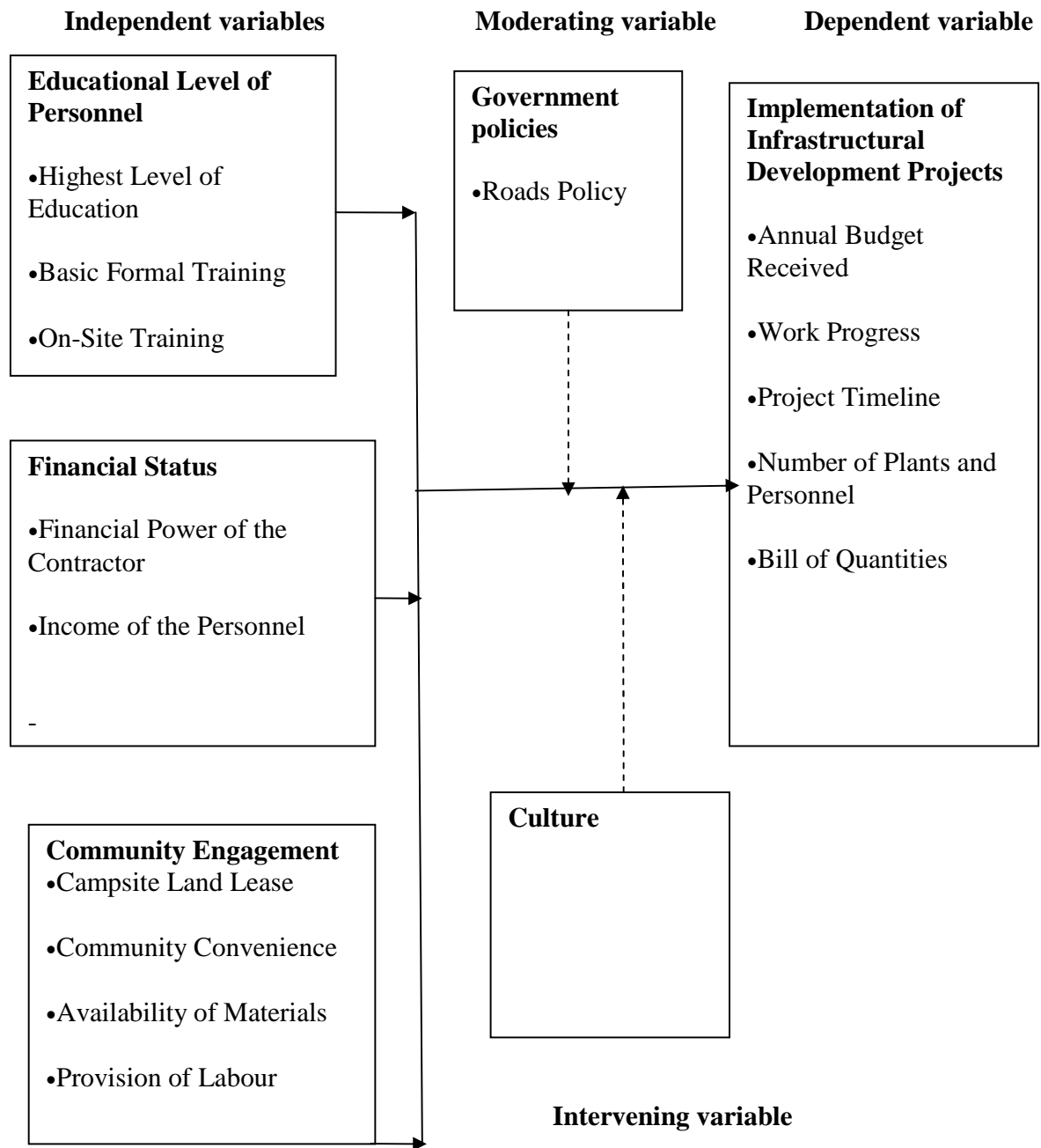


Figure 2.1. Conceptual Framework

The conceptual framework presented in figure above shows the diagrammatical representation of the interrelationship among variables of the study. The figure shows the factors that deem to influence the implementation of road construction projects. These presumed variables are the

Employees' level of education, financial status, and community engagement. These variables are the independent variables. There are also the moderating variables which is the government policy and intervening variables which is the culture.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology used in the research. The chapter presents the research design, target population, sample size and sampling techniques, data collection instruments, validity of the instruments, reliability of the instruments data collection procedures and data analysis techniques.

3.2 Research design

Ogula (1995) defines a research design as a plan structure and strategy of investigation conceived so to obtain answers to research questions. The design for this study was descriptive survey. Mugenda and Mugenda (1999), define survey as an attempt to collect data from members of the population in order to determine the current status of the population with respect to one or more variables. According to Orodho (2004), descriptive survey design is a technique in which detailed information concerning a social phenomenon is gathered by posing questions to respondents. Descriptive survey was preferred because the research intended to avail useful information on the status influencing the implementation of road construction projects by selected contractors in Nyeri South South Sub-County, Kenya. It is worth choosing because it is through it that most desired and most valid information could be obtained more easily. The researcher formulated the study objectives; designed data collection instrument, selected an appropriate sample size and collect data using questionnaires and an interview guide.

3.3 Target population

According to Mugenda and Mugenda (1999), the target population is the entire group a researcher is interested in or the group about which the researcher wishes in drawing conclusions. Mugenda and Mugenda (1999) further adds that a target population is any set of persons or objects that possess at least one common characteristic. The target population was a total of 338 personnel of the three contractors and three supervision teams who were engaged in road construction projects in Nyeri South Sub-County, Kenya. These three selected contractors are

Elite Earthmovers Co., Ltd, China Overseas Engineering Group Co., Ltd and Put Sarajevo Engineering Co., Ltd. The three supervision team includes Samu Consulting Company, Apec Consulting Company and a group of people from KeRRA. Among the 338 personnel, 299 personnel are from the three contractors, while the rest were from the supervision team. Apart from the above mentioned personnel of the road construction projects, the researcher had interviews with a regional manager of KeRRA, a resident engineer from Apec Consulting Company, a resident engineer from KeRRA, a chief from local community, a head teacher of a local primary school, a chairman of a local dispensary and a county representative and a site agent of a contractor. By undertaking the interview, the researcher got some more information which could not get from the questionnaires.

3.4 Sample size and sampling procedures

Sampling is the process by which a relatively small number of individual, object or event is selected and analysed in order to find out something about the entire population from which it was selected. A sample is a small proportion of targeted population selected using some systematic format. Due to the nature of the study, the researcher adapted Cochran (1963) formula to calculate the sample size of project employees' respondents.

The sample size of project employees at 5.4 % level of significance was obtained as presented here below:

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

Whereby n was the sample size

N was the target population (no of project personnel) =338

e was the level of significance = 0.054

$$n = \frac{338}{[1 + 338 * 0.054^2]} = 170 \text{ project personnel}$$

A sample size of 170 project personnel was obtained using Cochran formulae.

Stratified proportional sampling technique, was used to obtain a sample of project personnel from each of the three locations who were then selected through purposive sampling technique as presented in Table 3.1.

Table 3.1 Proportionate sampling of project personnel in Nyeri South Sub-County

| Location | No of Project Personnel | Sample size |
|-----------------|--------------------------------|--------------------|
| Munyange | 118 | 59 |
| Chinga | 82 | 41 |
| Nyamari | 138 | 70 |
| Total | 338 | 170 |

Table 3.2 Sampling frame of stakeholders

| Target group | Population size | Sample size |
|--|------------------------|--------------------|
| Regional manager of KeRRA a resident | 1 | 1 |
| Engineer - Apec Consulting Company | 1 | 1 |
| Resident engineer from KeRRA | 1 | 1 |
| Chief from local community | 1 | 1 |
| Head teacher of a local primary school | 1 | 1 |
| Chairman of a local dispensary | 1 | 1 |
| County representative | 1 | 1 |
| Site agent of a contractor | 1 | 1 |
| Total | 8 | 8 |

3.5 Data collection instruments

Data was collected using questionnaires because they allowed the researcher to reach a large sample within a limited time. Borg and Gall (1989) observed that questionnaires were used to obtain descriptive information from a larger sample. It also ensured objective replied due to its

confidentiality. The researcher used both open ended and structured questionnaire, open ended allowed respondent to respond in depth information using their own words, structured questionnaire as they were easy to complete and do not put off respondents. They also helped the researcher to compare responses given to different items and hence minimize subjectivity and makes possible to use quantitative analysis (Mugenda & Mugenda 2003). The standard questionnaires were administered by interviewers to the respondents. Questionnaires are commonly used to collect important information about a population (Mugenda & Mugenda 2003). Each item in the questionnaire was tailored to address a specific research question. Questionnaires collected data from the project personnel of the road construction projects while interview guide gathered information from the resident engineer, regional manager of KeRRA, site agent of contractor, chief of local area, county representative, head teacher of local primary school and chairman of local dispensary. Both the questionnaire and interview guide were divided into sections which provided information on demographic characteristics, level of education of project personnel, financial status, community engagement and cultural difference.

3.6 Instruments validity

According to Kombo and Tromp (2009), validity of a test is a measure of how well a test measures what it is supposed to measure. The pilot study helped in improving face validity and content of the instruments. The researcher used content validity. Content validity was used by the researcher to check whether the items in the questionnaire answer the research objectives. The questionnaires were given to the supervisors to critique it. The supervisors suggested the necessary areas to change in order to establish the content validity of the instrument. After the piloting the questions in the questionnaire were assessed and those found not to be clear were reframed for clarity. It was ensured that the structured questionnaire remained focused, accurate and consistent with the study objectives.

3.7 Instrument reliability

Reliability is a measure of the degree to which a research instrument yields consistent results after repeated trials; Nsubuga (2000). Reliability enhances the dependability, accuracy, clarity and adequacy of the instruments. To enhance reliability of the instruments, a pilot study was conducted among employees were not form part of the respondents in the main study. Test re-

test method was used to examine the reliability of the instruments. Similar questions was administered and repeated after one week. The responses was summarized and compared to the earlier ones. The relationship between the two tests in the pilot study was calculated using the Pearson product moment correlation coefficient. The instruments realised a Cronbach alpha of 0.75 hence the instruments were deemed the instruments reliable.

3.8 Pilot study

Pilot testing is a smaller version of a large study that is conducted to prepare for the study and provide a basis for the design (Orodho, 2004). It involves pre testing of the instruments to assess their validity and reliability. Pilot testing was conducted to a small group of project personnel to test the reliability of research instruments. The researcher carried out the study in Mt. Kenya Phase II – Lot I Road Project within Mahiga location of Nyeri South Sub-County to a sample of 17 respondents, approximately 10% of the total sample size. According to Mugenda and Mugenda (2003), a pilot size of between 1% and 10% is considered appropriate. Piloting helped the researcher in reviewing and adjusting the research instruments appropriately. The research instruments were reviewed and revised objectively with the help of peers and professional experts.

3.9 Data collection procedure

The researcher sought permission from the local administration of Nyeri South Sub-County to conduct the study in the area. After getting informed consent, the researcher recruited two research assistants to assist in data collection. The research assistants were trained on the research objectives and guided on techniques of administering the questionnaires and the interview guide. The questionnaires were administered to project personnel while interviews were conducted to key informants face to face.

3.10 Operationalization of variables

| Objective | Variable | Indicator(s) | Measurement | Level of Scale | Data Collection Method | Data Analysis Method |
|--|--|--|--|----------------|--|---|
| | Dependent Variable: Implementation of road construction projects by selected contractors | Annual Budget Allocation Project Timeline Work Progress Construction work done | Bill of Quantities Number of Plants and Personnel Payment received | Interval | Structured and Semi-structured Questionnaire and Interview Guide | Frequencies and percentages, correlations |
| To assess how education level of the project personnel influences project implementation | Independent Variable: Personnel Education Level | Basic Education Basic Formal Training On-Site Training | Years of Schooling Number of annual training course attended Number of trainings by contractors | Ordinal | Structured and Semi-structured Questionnaire and Interview Guide | Frequencies and percentages, correlations |
| To establish how financial status influence project implementation | Independent Variable: Financial Status | Financial Power of the contractors Income of the project personnel | Financial Resource Available Amount of the salary of the project personnel | Ordinal | Structured and Semi-structured Questionnaire and Interview Guide | Frequencies and percentages, correlations |
| To inquire how community engagement influence project implementation | Independent Variable: Community Engagement in the implementation of road construction projects | Community provide campsite for contractor Community convenience Provision of Labour Community assist contractors with essential construction materials | Lease Agreement between contractors and local community Number of employees from the community Quantity of materials supplied by local community | Ordinal | Structured and Semi-structured Questionnaire and Interview Guide | Frequencies and percentages, correlations |

This table gives the operational definition of variables used in this study. The table has provided the indicators and measurement for independent variables, namely, level of education of project personnel, financial status and project implementation, community engagement and project implementation. The indicator and measurement for dependent variable, namely, implementation

of road construction projects are also given. Both measurement scales and the data analysis method used are explained.

3.11 Data analysis techniques

Data analysis refers to systemic organization and synthesis of research data and testing of hypothesis in order to gain information pertinent to a given research question. The researcher scrutinized the returned questionnaires for completeness and consistent answers. This step entailed closed checking of the questionnaire items in order to identify the ones which had been left blank or incomplete and the legibility and any items wrongly responded to. Data was then coded to reduce the number of responses to classes and then classified according to the items in the questionnaire parts.

Descriptive statistics and content analysis was used to analyse the collected data. Closed questions was analysed using the Statistical Package for Social Science version 18.0 by first coding the responses for analysis of qualitative data. Raw data was then entered into SPSS computer software and analysed using descriptive and inferential statistics such as the percentages, means and correlations. This technique was preferred since it was efficient and gave straight formal analysis. Content analysis technique was applied to analyse qualitative data by identifying patterns and themes. After data analysis, the results were presented in tabulation. Data analysis was done by use of frequencies and percentages. To establish the influence of the independent variable on the dependent variable Pearson Moment Correlation Coefficient was used.

3.12 Ethical considerations

Five ethical issues were considered during the study which included voluntary participation, informed consent, confidentiality and anonymity, the potential for harm and communicating results. Before the commencement of the study, the researcher sought permission from the relevant authorities. A letter of introduction was sought from the university. The researcher explained to the respondents the purpose of the study before involving them. He also explained how the results of the study would be important to them. The researcher also assures the respondents that the information they provides was for the purpose of the study and their identity was to be treated with confidentiality.

With regard to voluntary participation, participants were not forced or pressured to participate in the study. For employees who were answering questions on behalf of the organizations they work for, the researcher had to seek consent from the company before employees participate in the study and had to highlight that no penalties were levied against any employee who refused to participate in the study.

To establish informed consent, participants were made fully aware of what they are being asked to do so that they understand what is required of them before participating in the survey. A cover letter from University of Nairobi was appended together with the survey questionnaire so as to inform respondents that this study is an official university activity.

To avoid any potential of harm (includes physical, psychological, emotional, social etc.), consent forms were made available together with the cover letter clear to indicate that individuals have agreed to participate.

To ensure confidentiality and anonymity of staff in the targeted organizations, the questionnaires were distributed within the respective departments or units and then have the employees returned them confidentially/anonymously. In this way, neither the researcher nor the firm could identify who participated.

When communicating results, information that has been included in the proposal were cited and referenced where appropriately to avoid plagiarism.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPREATION

4.1 Introduction

This study investigated the influence of socio-economic factors on implementation of road construction projects by the selected contractors in Nyeri South Sub-County, Kenya. The study specifically investigated how level of education of the personnel influences implementation of road construction projects by selected contractors, how financial status influences implementation of road construction projects by selected contractors and how community engagement influences implementation of road construction projects by selected contractors in Nyeri South Sub-County. This chapter presents the data analysis and interpretation of the findings. The chapter commences by presenting the questionnaire return rates, demographic information and the analysis of data based on the research objectives.

4.2 Questionnaire return rate

Questionnaire return is the proportion of the questionnaires returned after they have been issued to the respondents. Of the 170 project personnel sampled in the study, 165 project personnel responded and returned the questionnaire. This implied that 5 questionnaire were not included in the analysis. This was a return rate of 97 percent hence they were deemed adequate for data analysis. This is because 5 respondents did not return the questionnaires. The researcher realised that during the time for collection of the questionnaires, the respondents could not be traced.

4.3 Demographic information of project personnel

The demographic information of project personnel was based on gender, age, marital status, salary, religion, family size and profession level. The results of the analysis are presented in the following sections. The project personnel were asked to indicate their gender, results of their gender indicated that majority 140(84.8%) of them were male while 25(15.2%) of project personnel were female. This implies that there were more male than female in the road construction projects. Construction industry is considered as male dominated field since it involves hard work that requires a lot of energy and men are often regarded as energetic that their female counterparts. Hence most constructional industries will be male dominated.

Age of project personnel

The study also sought to establish the age distribution of the project personnel. The data is presented in table 4.1

Table 4.1 Age of project personnel

| Age | F | % |
|----------------|------------|--------------|
| Below 20 | 5 | 3.0 |
| 21-30 years | 50 | 30.3 |
| 31-40 years | 85 | 51.5 |
| 41-50 years | 13 | 7.9 |
| Above 50 years | 12 | 7.3 |
| Total | 165 | 100.0 |

Data shows that majority 85(51.5%) of project personnel were aged between 31 and 40 years, 50(30.3%) of project personnel between 21 and 30 years, 13(7.9%) of project personnel in the age bracket of 41 and 50 years while 12(7.3%) of project personnel were aged above 50 years. The fact that about over 82 percent of the respondents were aged between 21 and 40 years could be interpreted by the fact that these a middle age when people are considered to be strong enough to carry our hard work. The energy wanes down as one progress past 40 years towards 50 years. At 50 years, most people will not have the energy to perform manual labour hence their numbers are seen decreasing as shown in the table. Similarly, the data shows that there were very few respondents aged below 20 years. This is an age where most of people in this category are in schools and hence will not participate in construction work.

Marital status of the project personnel

The project personnel were also asked to indicate their marital status, they responded as Table 4.2

Table 4.2 Marital status of project personnel

| Marital status | F | % |
|-----------------------|------------|--------------|
| Married | 150 | 90.9 |
| Single | 10 | 6.1 |
| Divorced | 5 | 3.0 |
| Total | 165 | 100.0 |

Data indicates that majority 150(90.9%) of project personnel were married, 10(6.1%) of project personnel were single while 5(3.0%) of project personnel were divorced. The data shows that majority were married. This could be interpreted in line with the age where most of them were between 31 and 40 years. This is an age category that most people will be expected to have been married. These are people who have family responsibilities and will therefore seek for job such as in the construction industry to earn a living for their families. People fending for their families will be expected to work hard hence their working hard will have a positive implication to the implementation of the project.

Family size of the project personnel

Asked to indicate the size of the family that they had, they responded as tabulated in Table 4.3.

Table 4.3 Family size of the project personnel

| Family size | F | % |
|--------------------|------------|--------------|
| Less than 3 | 20 | 12.2 |
| Between 3-5 | 70 | 42.4 |
| More than 5 | 75 | 45.4 |
| Total | 165 | 100.0 |

Data shows that 20(12.1%) of project personnel had less than 3 family members, 70(42.4%) of project personnel had between 3 and 5 family members while 75(45.4%) of project personnel had more than five family members. The findings that most of the project personnel had more than 5 children implies that they have more responsibilities of taking of the families. These

people will therefore work to fend for the families hence working had has a positive implication on the project implementation. The results are also in line with their ages where as many are above 25 years, they have more children.

Employment status of the project personnel

The study also sought to establish to establish the employment status of the project personnel. Data revealed that majority 124 (75.2%) were on contract basis while 41(24.8%) of project personnel were casual labourers. The fact that majority were on contract is in line with the employment status. Most of the construction companies, especially those from outside Kenya are on contract and they end the construction work once the job assigned to is completed. The companies will also hire contract labour.

The study further sought to establish the duration of the project personnel in the road construction industry. Table 4.4 presents the data.

Table 4.4 Project personnel's to duration in the road construction industry

| Duration in the industry | F | % |
|---------------------------------|------------|--------------|
| Less than one year | 20 | 12.1 |
| Less than two years | 25 | 15.1 |
| More than two years | 120 | 72.8 |
| Total | 165 | 100.0 |

Majority 120(72.8%) of project personnel had been in the road construction industry for more than two years, 25(15.1%) of project personnel for less than two years while 20(12.1%) of project personnel for less than one year. This implies that the project personnel had been in the road construction industry for considerable number of years. The duration that employees are in an industry may have an impact of the implementation of the project. This is because they are endowed with experience that is necessary for effective implementation of projects. When the key players of the road construction projects were interviewed, they told the researcher more than half of the employees were working with them in other previous road construction projects. Hence, the stabilization of the project personnel has a very positive impact on the implementation

since they are so much aware of the working procedures and the way to cooperate with other working groups.

4.4 Level of Education and implementation of road construction projects

To establish the influence of level of Education to implementation of road construction projects, the researcher posed items to the project personnel, key players of project implementation and community members. The project personnel were asked to indicate their highest level of education. Kasvi et al., (2003) states that identification of critical knowledge and ability to utilise it is a challenge for any project organisation.

Level of education

The researcher also sought to establish the level of education of the respondents. Table 4.5 presents the highest level of education of project personnel.

Table 4.5 Highest level of education of the project personnel

| Highest level of education | F | % |
|-----------------------------------|------------|--------------|
| Never attended school | 7 | 4.2 |
| Primary School | 98 | 59.4 |
| Secondary School | 52 | 31.6 |
| University | 8 | 4.8 |
| Total | 165 | 100.0 |

Majority 98 (59.4%) of project personnel had primary education, 52(31.6%) of project personnel had secondary education, 8(4.8%) of project personnel had university education while 7(4.2%) of project personnel had never been in school. The data implies that most of the respondents had secondary education and below. This is in line with the nature of the work in the construction industry. This is a type of job that does not require high academic or professional qualifications since it is basically manual. Usually anybody can be taken up regardless of the level of education.

However, it is seen from the table that a number of the respondents had university education. This could be due to the fact that the industries at times require quantity surveyor, secretary and other small positions that require some form of proficiency hence would require a university

education. According to Probst et al. (2000) and Sense's (2007) education has been identified as one of the primary agents of transformation towards development. However, low level of literacy and education is one of the major challenges facing most of the underdeveloped countries. Active community involvement and participation has emerged as an effective mechanism in improving the sustainable level of education in many of these countries.

The researcher further sought to establish whether the project personnel had done any attachment before, whether they had been in attachment and whether they had been trained by the construction companies they worked for. The data is presented in table 4.6.

Table 4.6 Project personnel responses attachment and training

| Statement | Yes | | No | |
|--|-----|------|----|------|
| | f | % | Ye | No |
| Had you done any attachment | 120 | 72.7 | 45 | 27.3 |
| Have you been trained in construction work | 119 | 72.1 | 46 | 27.9 |

Data shows responses indicated that majority 120(72.7%) of project personnel had done attachment before they were employed while 45(27.3%) of project personnel had not done attachment before they were employed. Asked whether the construction companies train them on construction work, majority 119(72.1%) of project personnel indicated that the construction companies does train them on construction work while 46(27.9%) of project personnel indicated that the construction companies did not train them on construction work. The fact that majority of the project personnel had been trained could be attributed to the fact that the nature or work that they performed did require training since is practically skill-related for most of the positions in road construction projects. This implies that the workforce was treated as the most valuable un-reproducible resource. Asked to indicate the number of times they were trained the previous year majority 119(72.1%) of project personnel had been trained and only 24(14.5%) has been trained properly.

The researcher further sought to establish the adequacy of the number of annual trainings given to the project personnel. When the project personnel were asked to indicate the adequacy of the

number of annual trainings, majority 119(72.1%) of them regarded the trained as inadequate, 40(24.3%) indicated that it was enough while 6(3.6%) of project personnel indicated that the annual trainings given to them was more than enough. This indicates that in the construction projects training is quite necessary. The project personnel also feel that it is quite necessary to gain experience and theory to enable them work more effectively in the road construction. They also indicated that it is good to grasp the knowledge of their respective job and they can land a better job even after they have been dismissed from the contractors and the inspection team. The key players of project implementation were further asked to indicate how they trained your staffs. Findings indicated that the staff had on- job training and in- service training.

To establish whether the training on site was very important, whether proper training was very helpful for the construction productivity to the project personnel and whether training by the superior was helpful. Their responses are presented in Table 4.7

Table 4.7 Importance and usefulness of proper training

| Statement | Agree | | Disagree | |
|--|-------|------|----------|-----|
| | F | % | f | % |
| Training on site is very important | 160 | 96.9 | 5 | 3.1 |
| Proper training is helpful for construction productivity | 159 | 96.3 | 6 | 3.7 |
| Training by the superior is helpful | 157 | 95.1 | 8 | 4.9 |

Data indicated majority (96.9%) agreed that training on site was very important while majority (96.3%) indicated that proper training is helpful for construction productivity. Despite the response agreement on the importance of training for the construction personnel, majority had not been trained. This implies that they required training for effective productivity and hence effective implementation of the project. Findings shows that majority 157(95.1%) of project personnel rated the on the training taught by the superior being helpful, 8(4.9%) of project personnel indicated that it was not important. This agrees with Sense (2007), who indicated that training is one of the primary agents of transformation towards development and that training increases the capacity of people to realize their vision of society into operational realities, enabling them to become self-motivating agents of social change, serving the best interests of the community.

To in order to examine the influence of education on, the analyses were performed using the Pearson Moment Correlation Coefficient the data is presented in Table 4.8.

Table 4.8 Pearson Correlation of education and implementation of road construction projects

| | | Implementation | Education |
|---------------|----------------|----------------|-----------|
| Pearson | Education | 1.000 | 0.58 |
| Si 1 – tailed | Implementation | 0.58 | 1.000 |
| N | 165 | 165 | |

The data shows that there was a positive relationship (0.58) between student education and implementation of road construction projects. The results show the level of education of the project personnel did significantly influence the implementation of the projects. The findings could be attributed to the fact that level of education was a prerequisite for one to work at the construction industry. It further indicates implies that much of the work done was not manual which did require specific level of education.

The above findings are in line with Davenport and Prusak (1998) who found that education increases the capacity of people to realize their vision of society into operational realities, enabling them to become self-motivating agents of social change, serving the best interests of the community. Further, improved access to primary school education yields tangible benefits by developing the skills of the people, it expands livelihood opportunities and increase their earning potential and thus helps in tackling the poverty.

4.5 Financial Status and implementation of road construction projects

The study sought to establish the influence of financial status to the implementation of road construction projects. The project personnel were asked to indicate their job category. Table 4.9 tabulates the findings.

Table 4.9 Distribution of project personnel according to job category

| Job category | F | % |
|---------------------|------------|--------------|
| Secretary | 3 | 1.8 |
| Carpenter | 10 | 6.0 |
| Steel Fixer | 9 | 5.5 |
| Mechanic | 15 | 9.0 |
| Logistics Helper | 11 | 6.6 |
| Manager | 6 | 3.6 |
| Surveyor | 8 | 4.8 |
| Truck Driver | 45 | 27.3 |
| Plant Operator | 32 | 19.4 |
| Foreman | 10 | 6.0 |
| Inspector | 8 | 4.8 |
| Lab Attendant | 4 | 2.4 |
| Storekeeper | 4 | 2.4 |
| Total | 165 | 100.0 |

Table 4.15 shows that 3(1.8%) of project personnel were secretaries, 10(6.0%) of project personnel were carpenter, 9(5.5%) of project personnel were steel fixers, 15(9.0%) of were mechanic, 11(6.6%) of project personnel were logistics helpers. Findings further shows that 45(27.3%) of project personnel were truck drivers, 32(19.4%) of project personnel were plant operators, 10(6.0%) of project personnel were foremen while 8(4.8%) of project personnel were inspectors. The data shows that the project personnel were involved in jobs that are deemed not to earn them a lot of money. In an interview with the key players they were asked to indicate the most troublesome things in the implementation of road construction projects by selected contractors. Their responses revealed that financial problems affected the implementation of road construction projects. The key players further indicated that there was a problem of awarding the bid to the lowest bidder rather than the most accurate bidders. They further indicated that they

lacked enough financial capacity to purchase the essential equipments and plants for the road construction projects.

To establish the range of monthly salary of the project personnel, they were asked to indicate the same. Table 4.10 tabulates the findings

Table 4.10 Distribution of project personnel according to monthly salary

| Monthly salary (Kenya Shillings) | F | % |
|---|------------|--------------|
| Below 8000 | 12 | 7.2 |
| 8000-10000 | 20 | 12.1 |
| 10000-15000 | 56 | 33.9 |
| 15000-20000 | 38 | 23.0 |
| 20000-25000 | 25 | 15.2 |
| 25000-30000 | 8 | 4.8 |
| Above 30000 | 6 | 3.6 |
| Total | 165 | 100.0 |

Findings shows that 12(7.2%) of project personnel had a monthly salary of below 8,000, 20(12.1%) of project personnel had a monthly salary of between Ksh8000 and 10000, 56(33.9%) of project personnel had a monthly salary of between 10000 and 15000. Data further shows that 38(23.0%) of project personnel had a monthly salary of between 15,000 and 20,000, 25(15.2%) of project personnel had a monthly salary of between 20,000 and 25,000 while 25(15.2%) of project personnel had a monthly salary of between 25000 and 30000. The data shows that most of the project personnel earned below Ksh15, 0000. Taking into consideration that most of the personnel have families, they amount of salary they received may not be adequate to take care of their families. When a person's earning does not satisfy their needs, they tend not to work hard which may affect the project implementation.

The researcher further sought to establish whether the project personnel payment was delayed by their employers. Findings indicated that majority 120(72.7%) of project personnel indicated that

their employers often delayed their payment. The key implementers indicated that construction works involved high daily expenses that can't be met by the contractors which makes the progress payments by the owners being delayed. The key implementers further added that this affected the completion of works on time since the industries were small with very limited cash reserves.

Asked whether they got advance salary and other benefits such as being provided with airtime, they responded as indicated in Table 4.11.

Table 4.11 Response of provision of airtime and advance salary

| Statement | Yes | | No | |
|-------------------------------|-----|------|-----|------|
| | F | % | F | % |
| Are you provided with airtime | 19 | 11.5 | 146 | 88.5 |
| Do you get advance payment | 160 | 96.9 | 5 | 3.1 |

Table 4.11 shows that majority 146(88.5%) of project personnel were not given airtime allowance. This is because some foreman need airtime to call other employees during work and the rest of the employees may get airtime allowance only after they have presented good performance to the contractors. The contractor gives airtime to employees as incentive to boost the production in the field. Asked to indicate how much the project employees have been given the airtime, most of the 19 personnel indicated that the amount was below 1000. This is because the contractor will limited the amount of the airtime allowance since they know the amount would be enough for working communication. Findings also show that majority 160(96.9%) of project personnel got advance payment from their employer every month while 5(3.1%) of project personnel did not get advance payment from their employer every month. Majority 100(60.6%) of the project personnel who got advance payment from their employer every month indicated that they got between Ksh1, 000 and 3,000. This was confirmed in the interview that the contractor delayed their payment and that the contractor lacked enough cash flow and essential plants and personnel on site. The key implementers further indicated that delays in upgrading facilities translated into operating at below optimum efficiency resulting in higher user cost.

Findings from the key players of project implementation indicated that they had difficulty in getting the construction materials as there were many construction projects, which made the equipment in short supply and were poorly maintained. This leads to failure of the equipment causing projects to be delayed. They further indicated that they lacked enough financial capacity to pay their personnel in time. They further added that they did not have enough financial capacity to purchase the essential equipments and plants for the road construction projects. Findings further indicated that the key players lacked also enough financial capacity get loan from the bank when they scheduled payment has been delayed by the employer. It was also found out that apart from getting a loan from a bank, the key players had other means to get finance.

In order to examine the influence of financial status on the implementation of road construction projects, Pearson Moment Correlation Coefficient was used. In doing so the researcher correlated the variables related to financial status with the dependent variable (Implementation). The data is presented in Table 4.12.

Table 4.12 Correlations for financial status and implementation of road construction projects

| | | Implementation | Financial status |
|---------------|------------------|-----------------------|-------------------------|
| Pearson | Financial status | 1.000 | 0.75 |
| Si 1 - tailed | Implementation | 0.75 | 1.000 |
| N | 165 | 165 | |

The table shows that there was strong positive (0.75) relationship between financial status and implementation of road construction project. The results showed that the different levels of financial status of the respondents meant how much the implementation of road construction projects was.

According to Al-Najjar (2008) and Alghbari et al. (2007) one of the most common problems in construction contracting in Palestine is the policy of awarding the bid to the lowest bidder rather than the most accurate. The owners award the contracts to lowest bidders, but sometimes the

lowest bidder is a less well qualified contractor with low capabilities and resources which leads to poor performance and causes delays in completion of the work. Al-Najjar, (2008) found that construction works involve high daily expenses that can't be met by the contractors when progress payments by the owners are delayed. This affects the completion of works on time since many of the contracting firms in Kenya are small with very limited cash reserves.

4.6 Community engagement and implementation of road construction projects

To establish the influence of community engagement to the implementation of road construction projects, the researcher posed items to the project personnel, community members and key players of project implementation. Data is presented in the following section. Findings from the community members indicated that the community welcomed the road construction projects in the area. However, there was unavailability of materials. Data from the Key Players of Project Implementation indicated that without the community support, no contractor can achieve the goals and objectives of the organization in the course of project implementation. The study further found out that the community members had given the community land to the contractor for campsite. It was also indicated by the community members that the community benefited from leasing the community land to the contractor as they the contractors have to pay rent. The community members further indicated that they had some of their family member who had been employed by the contractor and the contractor shall employ only the people who were from the community .It was further found out that the community members gave information to contractor as concerning the construction material. Security was rated by the community being very important to ensure the successful delivery of the road construction projects. This data implies that without the community support, no contractor can achieve the goals and objectives of the organization in the course of project implementation.

Asked whether the implementation of the project was welcome, majority 159(90.9%) of project personnel indicated that they welcomed the implementation of the project in the community. This implies that community support helped to achieve the goals and objectives of the project implementation. Positive attitude towards project implementation has a relationship with the implementation.

To establish the relationship between community engagement and the implementation of construction project, the predictor variable (community engagement) was used. The variable was categorical by ‘yes’ and ‘no’ values. This variable was correlated with the criterion variable ‘implementation. The data is presented in Table 4.13.

Table 4.13 Correlations of community engagement and implementation

| | | Implementation | Community engagement |
|------------------------|----------------|-----------------------|-----------------------------|
| Pearson Correlation | Implementation | 1.000 | -.182 |
| | Engagement | -.182 | 1.000 |
| Sig. (1-tailed) | Implementation | . | .098 |
| | Engagement | .098 | . |
| N | Implementation | 165 | 165 |
| | Engagement | 165 | 165 |

Data shows that the Pearson correlation of use of community engagement against implementation was negative with a value of -.182. In relation to the values assigned, where 1 was assigned to ‘yes’ and 2 assigned to ‘no’ during data entry, the relationship was negative. The data shows that community engagement had a negative effect on project implementation. Plesis (2011) states that every project must be located in a certain community; hence, the support from the community which the projects have been implemented must have some impact on the success of the implementation. Without the community support, no contractor can achieve the goals and objectives of the organization in the course of project implementation.

According to the negative value, the researcher interpreted that the community members were suffering a lot as the project being smoothly implemented since the road construction projects were affecting the water supply to the community; the road construction projects were making a lot of noise for the community residents; the road construction projects were displacing some of the community members as well. Hence, the more smooth the road construction projects go on, the more negative impact will the community members get from the road construction projects.

CHAPTER FIVE
SUMMARY OF FINDINGS, DISCUSSIONS,
CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study, discusses the findings of the study and presents conclusions, recommendations and suggestions for further research.

5.2 Summary of findings of the study

The purpose of the study was to assess the influence of socio-economic factors on implementation of road construction projects by the selected contractors in Nyeri South Sub-County, Kenya. The study was guided by three research objectives. Research objective one sought to investigate how level of education of the personnel influences implementation of road construction projects by selected contractors, research objective two sought to establish how financial status influences implementation of road construction projects by selected contractors while research objective three sought to investigate how community engagement influences implementation of road construction projects by selected contractors in Nyeri South Sub-County. The study adopted a descriptive survey design. The sample comprised of 170 project personnel, key project implementers and community members.

5.3 Discussion of the study

5.3.1 Objective one: To assess how level of education of the personnel influences implementation of road construction projects by selected contractors in Nyeri South Sub-County.

Study found out that majority of the project personnel had acquired education on construction from Technical Training Institutes. Majority 120(72.7%) of project personnel had done attachment before they were employed. The study further found out that majority 119(72.1%) of project personnel indicated that the construction companies train them on construction work. Majority 119(72.1%) of project personnel had not been trained for the previous year. The findings further revealed that construction projects train project employees on site as majority 119(72.1%) of project personnel indicated that the annual trainings given to them was not enough.

Data further shows that majority 110(66.6%) of project personnel agreed that the training on site was very important to the project personnel which implied that training was one of the primary agents of transformation towards development and that training increases the capacity of people to realize their vision of society into operational realities. Majority 1119(72.1%) of project personnel strongly agreed that proper training was very helpful for the construction productivity. It was further found out that majority 115(69.6%) of project personnel rated the on the training taught by the superior being helpful. To in order to examine the influence of education on implementation of road projects Pearson Moment Correlation Coefficient showed that there was a positive relationship (0.58) between student education and implementation of road construction projects.

5.3.2 Objective two: To establish how financial status influences implementation of road construction projects by selected contractors in Nyeri South Sub-County.

Findings revealed that financial problems affected the implementation of road construction projects as indicated by key players of the project implementation. Findings further revealed that 80(48.6%) of project personnel never got bonus from their employer within an year. Majority 90(54.5%) of project personnel further indicated that they got between Ksh.1000 and 3000 bonus every time. Majority 120(72.7%) of project personnel indicated that their employers delayed their payment. It was also found out that payments delays affected the completion of works on time since the industries were small with very limited cash reserves. Majority 100(60.6%) of the project personnel who got advance payment from their employer every month indicated that they got between Ksh. 1,000 and 3,000.

The key implementers further revealed that delays in upgrading facilities translated into operating at below optimum efficiency resulting in higher user cost. The study also found out that that when project personnel were not satisfied with their salary from the employer, they were unwilling to focus on their work and also they would want to delay the work. Majority 160(96.9%) of project personnel revealed that they had excuses to give of poor performance to the employer when they were well paid. The key players of project implementation indicated that they lacked enough financial capacity to pay their personnel in time. They further added that they did not have enough financial capacity to purchase the essential equipments and plants for the

road construction projects. In examining the influence of financial status on the implementation of road construction projects, Pearson Moment Correlation Coefficient revealed that there was strong positive (0.75) relationship between financial status and implementation of road construction project.

5.3.3 Objective three: To assess how community engagement influences implementation of road construction projects by selected contractors in Nyeri South Sub-County.

Findings further found out that the community welcomed the road construction projects in the area. However, there was unavailability of materials. Data from the Key Players of Project Implementation revealed that without the community support, no contractor can achieve the goals and objectives of the organization in the course of project implementation. The study further found out that the community members had given the community land to the contractor for campsite. It was also indicated by the community members that the community benefited from leasing the community land to the contractor as they the contractors have to pay rent. The community members further revealed that they had some of their family member who had been employed by the contractor and the contractor shall employ only the people who were from the community. It was further found out that the community members gave information to contractor as concerning the construction material. Security was rated by the community being very important to ensure the successful delivery of the road construction projects. This data implies that without the community support, no contractor can achieve the goals and objectives of the organization in the course of project implementation. Majority 159(90.9%) of project personnel indicated that they welcomed the implementation of the project in the community. Pearson correlation of use of community engagement against implementation was negative with a value of -.182. The findings implied that community engagement did positively influence the implementation of road construction projects.

5.4 Conclusions of the study

Based on the findings on the influence of level of education on the implementation of road construction projects, it was concluded that the project personnel had acquired education on construction from Technical Training Institutes. The study concluded that majority 119(72.1%)

of project personnel indicated that the construction companies train them on construction work. The study further concluded that training on site was very important to the project personnel and that training was one of the primary agents of transformation towards development and that training increases the capacity of people to realize their vision of society into operational realities, enabling them to become self-motivating agents of social change, serving the best interests of the community.

From the findings on the influence of financial Status and implementation of road construction projects, the study concluded that road construction projects had financial problems. The projects lacked enough financial capacity to purchase the essential equipments and plants for the road construction projects. Findings further concluded that project personnel never got bonus from their employer within a year. The study further concluded that employers delayed payment and that payments delays affected the completion of works on time since the industries were small with very limited cash reserves. It was further concluded that project personnel did not get advance payment from their employer every month. The study further concluded that delays in upgrading facilities translated into operating at below optimum efficiency resulting in higher user cost and when project personnel were not satisfied with their salary from the employer, they were unwilling to focus on their work and also they would want to delay the work. The study further concluded that the Key Players of Project Implementation had difficulty in getting the construction materials as there were many construction projects, which made the equipment in short supply and were poorly maintained.

Based on the findings on the influence of community engagement and implementation of road construction projects, the study concluded that the community welcomed the road construction projects in the area. However, there was unavailability of materials. It was further concluded that no contractor could achieve the goals and objectives of the organization in the course of project implementation without community engagement. It was further concluded that there were family members of the community members who had been employed by the contractor. It was further concluded that without the community support, no contractor can achieve the goals and objectives of the organization in the course of project implementation.

The uniqueness of Nyeri South Sub-County for contractors to implement the road construction projects are: the higher cost of quarry rent, the long haulage to get essential construction materials. Hence, the selected contractors must find the possible solution to ensure the successful delivery of the road construction projects.

5.5 Recommendations of the study

Based on the findings, the following recommendations were made: The policy makers to enhance the awareness of contractors' implementation strategies for successful delivery of road construction projects; awareness of the community to involve in road construction projects for the success of the implementation; government to support road construction projects both during implementation and beyond.

5.6 Suggestions for further research

1. It is suggested that further research on the role of the government and development partners in delivering road construction projects in Kenya.
2. It is also suggested that further research to increase the understanding of the impact foreigners have on local community implementing road construction projects across the diverse communities in Kenya.
3. Lastly, another study can be done on strategies on coping financial crisis of the selected foreign contractors in road construction projects.

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APPENDICES

APPENDIX 1: LETTER OF TRANSMITTAL

Li Nianjun,
P.O Box 2298,
Nyeri
Date.....
Dear Respondent,

Ref: Participation in the Research

I am a post graduate student pursuing Masters Degree in Project Planning and Management at University of Nairobi and I am currently carrying out a research on social economic factors affecting implementation of road construction projects by selected contractors in Nyeri South Sub-County. You are kindly requested to take part in the study. In order to ensure utmost confidentiality do not write your name anywhere in this questionnaire. The findings of this study will be used only for research purposes.

Thank you for your co-operation.

Yours faithfully

Li Nianjun
L50/84063/2012

APPENDIX 2

LIST OF PEOPLE TO BE INTERVIEWED

- | | |
|-------------------------|---|
| 1. Eng. J.N. Githui | Resident Engineer- Kenya Rural Roads Authority- Kenya |
| 2. Eng. Peter Gichohi | Regional Manager – Kenya Rural Roads Authority-Kenya |
| 3. Eng. K.Mwtitari | Resident Engineer – Apec Consultant Company – Kenya |
| 4. Eng. Benjamin Chamia | Site Agent- Put Sarajevo Construction Company- Kenya. |
| 5. Mr. Joseph Njoroge | Head teacher of Munyange Primary School--Kenya |
| 6. Mr. Moses Ndirangu | Chairman of Munyange Dispensary Committee-Kenya |
| 7. Mr. Peter Mathenge | Chief of Mahiga Location-Kenya |
| 8. Hon. Paul Mungai | County Representative of Nyeri County-Kenya |

APPENDIX 3

QUESTIONNAIRE FOR PROJECT PERSONNEL

Please tick in the appropriate box and also fill in the blank spaces provided for those questions where elaborate answers are required. Please do not include your name on the questionnaire. Participation will be voluntary and information will be used for research only. Kindly spare your time to provide answers as honestly and objectively as possible.

Project Name:

Location:

Section A: Demographic Characteristics

1. What is your gender?

Male () Female ()

2. Please Indicate your age group

Below 20 () 21-30 years () 31-40 years ()
41-50 years () Above 50 years ()

3. What is your marital status?

Married () Single () Others (specify)

4. What is your family size?

Less than 3 () Between 3-5 () More than 5 ()

5. What is your employment status?

On contract () Casual Labour ()

6. What is your religion?

Christianity () Islam () Others(specify)

7. Please indicate the highest level of education you attained

Never attended school () Primary School ()

Secondary School () University ()

Others(specify)

8. How long have you worked in road construction industry?

Less than one year () Less than two years () More than two years ()

Section B: Level of Education

9. Which technical school have you ever gone to before you join the construction industry?

Kenya Institute of Highway & Building Technology ()

Nyeri Technical Training Institute ()

Mathenge Technical Training Institute ()

Others (specify)

10. Have you ever done any attachment before you were employed?

Yes () No ()

11.

(A) Do construction companies train you on construction work?

Yes () No ()

(B)If yes, how many times were you trained last year?

0 () 1 () 2 () 3 () 4 () More than 4 ()

12. How would you rate the number of annual trainings given to you?

Not enough () Enough () More than enough ()

13. Do you agree that training on site is very important to you?

Disagree () Agree () Strongly agree ()

14. Do you agree that proper training is very helpful for the construction productivity?

Disagree () Agree () Strongly agree ()

15. How do you rate your training taught by your superior?

No use () Helpful () Very Helpful ()

16. Do you have any language barrier with your superior?

Yes () No ()

Section C: Financial Status

17. What is your job category?

Secretary () Carpenter () Steel Fixer ()
Mechanic () Logistics Helper () Manager ()
Surveyor () Truck Driver () Plant Operator ()
Foreman () Inspector () Lab Attendant ()
Storekeeper () Others (specify)

18. What is your monthly salary (Kenya Shillings) range?

Below 8000 () 8000-10000 () 10000-15000 ()
15000-20000 () 20000-25000 () 25000-30000 ()
Above 30000 ()

19.

(A).How many times have got bonus from your employer within one year?

Never () 1 () 2 () 3 ()

(B).If yes, how much do you get every time?

Less than 1000 () 1000-3000 () 3000-5000 ()

20.

(A).Does your employer delay your payment?

Yes () No ()

(B).If yes, is it often?

Yes () No ()

21.

(A).Does your employer gives you airtime allowance?

Yes () No ()

(B).If yes, how much do they give to you?

Less than 100 () 100- 500 () 500-1000 () Above 1000 ()

22. (A).Do you get advance payment from your employer every month?

Yes () No ()

(B).If yes, how much do they give to you?

Less than 1000 () 1000-3000 () 3000-5000 () Above 5000 ()

23. Do you have money to send home every month?

Yes () No ()

24. How do you rate your monthly salary level?

Underpaid () Averagely Paid () Highly Paid ()

25. What will be your attitude towards work when you are not satisfied with your salary from the employer?

Unwilling to focus on your work ()

Want to get a better paid job from other companies ()

Will not try your best to work ()

Want to delay the work until which you are supposed to finish today ()

26. Do you have any excuse to give poor performance to your employer when you are well paid?

Yes () No ()

Section D: Community Engagement

27. Do you welcome the implementation of the project in your community?

Yes () No ()

28. What is your understanding about the benefits you are going to get from project implementation?

APPENDIX 4:

INTERVIEW GUIDE FOR KEY PLAYERS OF PROJECT IMPLEMENTATION

1. How many personnel do you have for this project?
2. What are the most troublesome things in the implementation of road construction projects by selected contractors?
3. What measures shall the contractors take when the scheduled payment from the government has been delayed?
4. In your opinion, does the government have given enough support to the contractors who are undertaking the road construction projects?
5. What changes are needed in government policies or regulations on ensuring road construction projects by selected contractors?
6. Which construction materials is difficult to get from a nearby borrow pit?
7. How will the contractor keep good relationship during road construction projects?
8. In your perspective, what are the challenges in the implementation of road construction projects by selected contractors?
9. What measures shall the contractors take when the scheduled payment from the government has been delayed?
10. Who are the direct beneficiaries or target groups of the project?
11. Shall the contractor keep good relationship during road construction projects?

12. How important is the community engagement to the road construction projects? Please give me some examples?
13. How do you train your staffs?
14. How often does the contractor delay your payment?
15. Does the contractor have enough cash flow and essential plants and personnel on site?
16. How do you think the cooperation between your team and the contractor?
17. In your perspective, what are the challenges in the implementation of road construction projects by selected contractors?
18. Which essential construction materials are difficult for you to get from a nearby place? Do you accept the materials which supplied by a local community member?
19. Is security very important to ensure the successful delivery of the road construction projects?
20. Does the contractor have good relationship with the local community?
21. What are the most likely changes after the road has been constructed?
22. In your opinion, were the trainings carried out relevant towards enhancing the working capacity of road construction projects?
23.
 - (A) .Do you have enough financial capacity to purchase the essential equipments and plants for the road construction projects?
 - (B).Do you have enough financial capacity to pay your personnel in time?

(C).If you do not have enough financial capacity to purchase the essential equipments and plants for the road construction projects, will you be able to get a loan form a certain bank?

(D).If you do not have enough financial capacity to pay your personnel in time, will you be able to get a loan form a certain bank?

(E).Will you get loan from the bank when your scheduled payment has been delayed by the employer?

(F).When you want to get a loan from the bank, will it take a long time? If yes, how long it will take?

(G).Apart from getting a loan from a bank, do you have any other means to get finance? If yes, please specify!

24. Do you have any special relevant officer to train your newly joined personnel?

25. Do you realize the importance to respect the culture difference in your road construction project?

26. How do you rate the cooperation between your personnel and inspection team from the consultant company?

APPENDIX 5

INTERVIEW GUIDE FOR COMMUNITY MEMBERS

1. Do you welcome the road construction projects in your area?
2. Who are the direct beneficiaries or target groups of the project?
3. In your opinion, does the government have given enough support to the contractors who are undertaking the road construction projects?
4. Have you ever given the community land to the contractor for campsite?
5. In what way are you going to benefit from leasing the community land to the contractor?
6. How important is the community engagement to the road construction projects? Please give me some examples?
7. Does the contractor have good relationship with the local community?
8. In your perspective, what are the challenges in the implementation of road construction projects by selected contractors?
9. What are the most likely changes after the road has been constructed?
10. What is the benefit does the contractor get from the local community?
11. Do you agree that the contractor shall get the essential construction materials from a community supplier?
12. What is your understanding about the benefits you are going to get from project implementation?

13. What are you going to do if you suffer from the noise of the construction machines and plants?
14. What are you going to do if your water supply has been affected by the construction work?
15. Do you have any family member who has been employed by the contractor?
16. Do you give any information to contractor as concerning the construction materials?
17. Do you think the contractor shall employ only the people who are from the community?
18. Is security very important to ensure the successful delivery of the road construction projects?
19. As a county representative/ local leader/ community member, how do you rate the satisfaction level towards the contractor's performance?