

**THE EFFECT OF FINANCING INFRASTRUCTURE
PROJECTS USING PUBLIC PRIVATE PARTNERSHIP ON
PHYSICAL INFRASTRUCTURE DEVELOPMENT IN
KENYA**

**BY
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DECLARATION

I declare that this project is my original work and has not been submitted for examination in any other university.

Signed Date.....

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This project has been submitted for examination with my approval as the university supervisor

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DEDICATION

I wish to dedicate this project to my mother, Beatrice, my brother Michael for their moral support and encouragement during the period of study.

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ABBREVIATIONS

ADB	Asian Development Bank
CMEA	Coordinating Ministry for Economic Affairs, Jakarta
DMCs	Developing Member Countries
ERS	Economic Recovery Strategy
GDP	Gross Domestic Product
IMF	International Monetary Fund
MTEF	Medium term expenditure Framework
PPP	Public Private Partnerships

ABSTRACT

Many emerging markets and most low-income countries require a major step increase in infrastructure investment to alleviate growth constraints, respond to urbanization pressures and meet their crucial goals for inclusive growth, development, and sustainability. This project therefore determined effect of financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya. To achieve this objective, the study used a descriptive survey and the population for this study included all the physical infrastructure projects conducted in Kenya. The estimated number of physical infrastructure projects carried out in Kenya for the last ten years is more than 15,000. The study conducted a cluster sampling of 60 infrastructure projects from the listed obtained from PPP unit and Medium term expenditure framework report, 2013. This was followed by a systematic selection of 30 infrastructure projects from each of the clustered list under public private partnership and the other physical infrastructure projects. The study used secondary data which was obtained from a number of sources namely: audited financial statements from The National Treasury, PPP unit and Medium term expenditure framework reports. Secondary data was reviewed for a period of ten years (2004-2013) depending on data availability and accessibility. The study used 40 points (forty quarters in a period of ten years). Data was analyzed with the help of a multiple regression model. Infrastructure projects was the independent variable which was measured using the value of each investment in PPPs, expressed as a percent of GDP and infrastructure development was the dependent variable which was measured using the number of projects expressed as a percentage of GDP. The results of the regression analysis showed that there was a direct relationship. 42% was explained by the variables under the study. This meant that the regression model used was a good predictor since the variables contributed 65% of the relationship between the independent and dependent variables in the regression model. The study therefore concluded that financing infrastructure projects under public private partnership is critical since infrastructural development highly contributes to aggregate economic performance because many policy decisions for example assessing the growth effects of fiscal interventions in the form of public investment changes, or to assess if public infrastructure investments can be self-financing is generally accepted, economic infrastructure 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 study therefore recommended that the government should Deepen Domestic Financial Market through Lengthening the Government yield curve and developing more liquid Government bond market. The study further recommends the need for developing a regulatory regime for securitization of instruments to enable participation of pension funds and insurance companies. The major limitation of the study was that the study limited itself to a sample of 60 projects only while the estimated number of physical infrastructure projects carried out in Kenya for the last ten years is more than 15,000.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The need for infrastructure investment around the globe is climbing. In emerging markets, population growth, increasing urbanization, and rising per capita incomes are driving the demand for new roads, power stations, schools, and water delivery systems. In the developed world, including the United States, significant reinvestment in aging infrastructures is becoming urgent. But this need for infrastructure investment comes in the wake of a financial crisis that has severely constrained public budgets in many countries. The result: a staggering gap of approximately \$1 trillion to \$1.5 trillion annually between demand and investment in infrastructure (World Bank and IMF, 2010).

Public-private partnerships (PPPs) will increasingly play a crucial role in bridging the gap. These partnerships in which the private sector builds, controls, and operates infrastructure projects subject to strict government oversight and regulation tap private sources of financing and expertise to deliver large infrastructure improvements. When managed effectively, PPPs not only provide much needed new sources of capital, but also bring significant discipline to project selection, construction, and operation (CMEA, 2011).

The need for significant infrastructure spending is mounting worldwide. According to a BCG analysis (which is partly based on an assessment by the Organization for Economic Co-operation and Development), the demand for investment in areas such as energy,

transportation, water, waste, and social infrastructure such as hospitals and schools is expected to hit an average of \$4 trillion annually between 2011 and 2030. Powerful forces are behind this surge in demand (Hasan and Dridi, 2010).

The key drivers in emerging markets are a growing population, urbanization, and rising per capita incomes. In the developed world, continued increases in travel and the flow of goods are straining aging transportation infrastructures, which are often poorly maintained and already in need of upgrades to meet heightened safety and quality requirements. At the same time, a push toward low-carbon economies and energy independence in developed markets is driving investments in renewable-power generation, grid infrastructure, and oil and gas exploration and transport (Baldwin and Trinkle, 2011).

1.1.1 Financing Infrastructure Projects using Public Private Partnerships

Financing of a PPP project consists principally of senior debt and equity (which may sometimes be in the form of junior shareholder loans). The financing structure may also include other forms of junior debt such as mezzanine debt, which ranks between senior debt and pure equity) and in some cases grant funding. Public Private Partnership projects should seek to achieve optimum (as opposed to maximum) risk transfer between the public and private sector. But the allocation of risks among the private sector parties is also crucial. Financial structuring of the project relies on a careful assessment of construction, operating and revenue risks and seeks to achieve optimum risk allocation between the private partners to the transaction. In practice, this means limiting risks to

senior lenders and allocating this to equity investors, subcontractors, guarantors and other parties through contractual arrangements of one kind or another (Thomsen, 2005).

As a general principle, the higher the gearing of a project, the more affordable it is likely to be to the public sector. This is because senior debt is less expensive than other forms of financing apart from grants. Other things being equal, project gearing (that is the level of debt senior lenders will provide relative to the level of equity) will be determined by the variability of a project's cash flow. The greater the degree of riskiness in the cash flows, the greater the cushion lenders will need in the forecast of available cash flow beyond what is needed for debt service (Hassan and Soumare, 2006). This is necessary to reassure lenders that the debt can be repaid even in a bad-case scenario. Lenders will specify their requirement in terms of forward-looking that is predicted annual debt service cover ratio (ADSCR) which is a specified minimum level. The value of required ADSCR will depend in large part on project risk, and therefore variability of cash flows (Esty, 2000)

1.1.2 Physical Infrastructure Development

The term physical infrastructure is used to refer to a very wide array of systems and infrastructure that makes it possible for goods, services and people to be transferred from one geographical place to another. This term is also used in reference to systems that facilitate provision of services. PPP projects promise of better project structure and design this is because they allows better screening of projects that ensures better choice of technology based on life-cycle costing and better service delivery, especially if performance based payment is considered. This leads to better chances of completion on time and within the budget since the risk can easily turn into government risks. Argues

that an administrative mechanism and special skills in the government are required to develop and implement PPP projects (Camacho, 2005).

A wide spectrum of PPP models has emerged. These models vary mainly by: ownership of capital assets, responsibility for investment, assumption of risks and Duration of contract. The PPP models can be classified into five broad categories in order of increased involvement and assumption of risks by the private sector. The five broad categories are: supply and management contracts, turnkey contracts, Lease, concessions and private Finance Initiative (PFI) and Private ownership (Pistor, Martin and Stanislaw, 2000).

1.1.3 Financing Infrastructure Projects Using Public Private Partnership and Physical Infrastructure Development

Financing infrastructure using Public Private Partnership projects is important for growth of an economy; financing of infrastructural projects provides a conducive atmosphere for growth and expansion of businesses as a result of improved efficiency and reduced due to improved transport and communication network. Infrastructural projects for instance social infrastructure such as schools and hospitals and economic infrastructure such as network utilities, energy, water, transport, and digital communications are the essential ingredients for the success of a modern economy and the focus of this paper (Leibenstein, 1996).

Conceptually, infrastructure projects affects aggregate output in two main ways directly, considering the sector contribution to GDP formation and as an additional input in the production process of other sectors and indirectly, raising total factor productivity by

reducing transaction and other costs and thus allowing a more efficient use of conventional productive inputs. Infrastructure can be considered as a complementary factor for economic growth (Robbins, Judge, Odendaal and Roodt, 2009).

Infrastructural development highly contributes to aggregate economic performance because many policy decisions for example assessing the growth effects of fiscal interventions in the form of public investment changes, or to assess if public infrastructure investments can be self-financing is generally accepted, economic infrastructure 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 (Thomsen, 2005). For example Road infrastructure opens up unconnected regions to trade and investment and improves access to goods, services and employment opportunities. This leads to sustainable growth and development of the economy which arises due to the multiplier effects of government spending on infrastructure in the economy leading to improved infrastructure (Robinson and Scott, 2009).

1.1.4 Public Private Partnership and Physical Infrastructure Development in Kenya

The Public Private partnership Unit (PPPU) is established under Section 8 of the Public Private Partnership (PPP) Act 2013 as a special purpose Unit within the National Treasury of the Government of Kenya (GOK). The PPP unit's focuses to serve as the secretariat and technical arm of the PPP committee, which is mandated with assessing and approving PPP projects in the country. Kenya's African Infrastructure Country Diagnostic (AICD) report estimates that, to address the country's infrastructure deficit

will require sustained expenditures of approximately \$4 billion per year (20% of GDP) over the next decade (Republic of Kenya, 2013).

To meet this objective, the Government of Kenya (GOK) has been looking at alternatives aimed at raising additional finance, adopting lower-cost technologies, while prioritizing infrastructure investments. In this context, the Government of Kenya (GOK) has made infrastructure development through Public Private Partnerships (PPPs) a priority as a mechanism that can help it address the major infrastructure gaps in the country. Lack of adequate infrastructure is one of the major constraints for growth and business in Kenya, by establishing PPP's, Government is able to fast track development goals through a joint effort Public private partnership unit at the National Treasury is mandated with ensuring that the PPP act, 2012 is adhered to (The National Treasury, 2013).

This includes establishing and mandating a database of PPP projects in Kenya, monitoring liabilities and Accounting/budgetary issues related to PPP projects. PPP ensures that public funds are freed for other projects and this leads to project books being debt free through off balance sheet transactions. The PPP act establishes a facilitation fund to cover viability gap fund, Government subsidies, contingent liabilities when they crystallize, project preparation funds, ensuring that the projects are attractive to the public sector (The National Treasury, 2013).

1.2 Research Problem

Many emerging markets and most low-income countries require a major step increase in infrastructure investment to alleviate growth constraints, respond to urbanization

pressures and meet their crucial goals for inclusive growth, development, and sustainability. There is a well-documented infrastructure deficit in many developing and developed countries, which is hampering growth prospects.⁵ Strategic infrastructure, from roads and ports to energy, needs to be built to fuel growth. An estimated 1.4 billion people still have no access to electricity, 0.9 billion are without access to safe drinking water and 2.6 billion without access to basic sanitation (Sullivan and Sheffrin, S.2003).

These deficits continue to pose substantial challenges in low-income countries, but there are also pervasive deficits in many middle-income countries. Developing countries need a step-increase in infrastructure build to accelerate economic growth and development. There is extensive evidence that infrastructure development can increase economic growth and reduce levels of inequality. As countries move away from primary economic industries to secondary and tertiary, infrastructure becomes more important (Merna and Njiru, 2002). The experience of developed countries highlights how a temporary boost in investment and infrastructure spending has been necessary to move to the next stage of economic growth.

Local government financing of essential services is fundamental to the economic development of a country given that the LGs facilitates democratic participation of citizens in the affairs of their government. For the LGs to attract investments necessary for economic growth they must be able to provide services. The financing of these services can be undertaken through local sources of revenue which would in most cases include the government transfers (Scottish Parliament, 2001). Other sources would be debt financing through loans or bonds; and/or through public private partnerships (PPPs).

A number of studies have been done locally and globally in relation to financing project under PPP and project development, a study was carried out by Parasite, Trigunarsyah and Too (2014), on the opportunity of Islamic project financing implementation for public infrastructure development in Indonesia found that the government policies and regulations on both infrastructure investment and Islamic financing support the implementation of Islamic project financing. Caspary (2009) investigated on the link between improving sustainability in the financing of large infrastructure projects and project performance, and the results of the study showed a positive correlation between project financing and infrastructure development. Ncube (2010) conducted a descriptive survey involving 200 infrastructural projects; a large panel data for 136 countries, the results of the study found financing of infrastructure has a positive correlation with economic development.

Nguiri (2009) found that municipal projects ranging from infrastructure (roads, telecommunication, power water undertaking etc); housing projects; hospitals; schools and other institutions of education can attract PPP finance. Other local studies: Nderitu (2013) and Kamau (2010), concludes that infrastructure projects have a positive impact on growth of the economy. From the above studies, it evident that little has been laid in relation to the impact of financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya. This study therefore attempts to answer the research question: what is the impact of financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya?

1.3 Objective of the Study

The objective of this study was to determine the effect of financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya.

1.4 Value of the Study

This study will be resourceful to the government and other policy makers in setting policies in order to regulate the service providers ensure that services provided reflect the adequate level and meet the desired standard or quality.

Government agencies, project sponsors, investors and other financial institutions will benefit from the findings of this study since it will shed more light on the impact of financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya.

Future researchers and academicians interested in this area of study or other related topics can use the findings of this study as a reference point. Besides, the study can be used as a basis for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section covers the theoretical framework of the study, it describes the determinants for financing infrastructure projects under public private partnership and the empirical studies that have been done in relation to this study and the summary of the literature review.

2.2 Theoretical Framework of the Study

This study will be gilded by three theories namely; agency theory, capital asset pricing model. The underlying theories have been explored to explain the issues which would be considered in evaluation of PPP financing of infrastructure projects, including various models for evaluation of PPP financing are analysed.

2.2.1 Agency Theory

This theory was postulated by Fama (1980), agency theory is commonly referred to as the principal-agent theory, the theory formalises assumptions about the distribution of property rights and information in the writing of contracts that define organisations. In particular, it focuses on the relationship between principals and agents who exercise authority on behalf of organisations (Fama and Jensen, 1983).

The theory argues that principals must solve two basic tasks in choosing and controlling their agents: first, they have to select the best agents, whether employees or contractors,

and create inducements for them to behave as desired. Second, they have to monitor the behaviour of their agents to ensure that they are performing as agreed (Baysinger, Kosnick and Turk, 1991). A problem arises when the parties' goals conflict or when it is difficult or expensive for the principal to verify what the agent is actually doing. Information asymmetry here introduces an adverse selection and a moral hazard problem (Baysinger, Kosnick and Turk, 1991).

In PPPs the principal-agency relationship exists as the public partner as the principal and the private party being the agent. If the relationship between the two parties is not well articulated, then the problems associated with the agency theory, like the information asymmetry would normally occur (Hillman and Dalziel, 2003). The quality of the participants and the relationships among them and how it is thought out at the beginning determines the success or failure of PPP (Bhagat and Black, 2002).

An example of the information asymmetry is the case of the two PPPs in the telecom sector in Lebanon in 1994. Conflict erupted in June 1999, when the State Audit Department openly accused the two cellular companies of systematic violations of the terms of their contracts. Finally the Lebanese government cancelled the two operators' BOT contracts in late 2001, three years before the anticipated termination date (Hermalin and Weisbach, 1998).

2.2.2 The Public Private Partnership Model

In theory, public-private partnerships are designed to overcome the persistent challenges that have faced traditionally delivered public works projects, by capitalizing on the

relational networks and social embeddedness of governments and firms participating in complex mega- projects. The emphasis in this paper is on concession style PPP models that bundle some combination of facility design, building, financing, operation and maintenance into a contract with a single concessionaire (Teicher, Alam and Gramberg, 2006).

In return, the concessionaire either collects all user fee revenue or is paid an annual fee over the life of a long-term contract lasting between 25 and 99 years. Provided that the facility is constructed on budget and operates as planned, the annual payment or user fee revenue collected by the concessionaire is sufficient to cover capital costs, maintenance and operational expenses, and a margin of profit (Siemiatycki, 2009).

This bundled approach to infrastructure project delivery is meant to deepen early and ongoing cooperation between the partners so that their interdependence is of an increasingly reciprocal nature (Smyth and Edkins, 2007). Accountability and performance is increased among the project partners by better linking financial reward with ongoing project performance, particularly when annual payments to the concessionaire are generated entirely through user fees (Flyvbjerg et al. 2007).

While PPPs have evolved and been adapted to suit their particular project context, each project continues to be delivered through a relatively similar set of underlying arrangements (Yescombe, 2007). As shown in Figure 3, PPPs are delivered through relationships between governments and many firms that act for both the public and private sector partners. As in the DBB model, the different parties involved in a PPP each have their own objectives and interests in participating in the partnership, some of which

are complementary and others that may be in conflict. Briefly outlining these interests highlights some of the similarities and differences between the traditional Design bid build and the concession style PPP approach (Teicher, Alam and Gramberg, 2006).

In the PPP model of project delivery the role of the public sponsor is shifted from a producer and provider of infrastructure to a purchaser of public services that meet a pre-specified set of output based performance standards. To this end, the PPP approach is for the public sponsor to develop a set of performance specifications and then invite private sector bidders to submit proposals that best meet the specifications at the lowest cost.

The winning bid is selected based on its potential to deliver the best value over the project's lifecycle rather than strictly the lowest construction cost. One feature of the PPP process is therefore that the public sponsor and its government partners have less control over the specific project design, construction methods, and finishes, provided that the best value proposal meets the performance specifications (Siemiatycki, 2010).

Over the course of the long-term operating period, an important objective for the government partner is to maintain some control over key project planning responsibilities such as the setting of service levels, quality and safety standards, user fee rates, and facility expansion plans. These are critical government responsibilities that contribute to protecting the public interest. At the same time, the political party in power can become vulnerable to public outcry in cases where control has been contractually transferred to the private sector partner, enabling unpopular decisions by the private sector partner (Thomsen, and Stephen, 2005).

2.2.3 Modern Portfolio Theory

Modern Portfolio Theory approaches investing by examining the entire market and the whole economy. The theory is an alternative to the older method of analyzing each investment's individual merits. When investors look at each investment's individual merits, they're analyzing one investment without worrying about the way different investments will perform relative to each other. On the other hand, MPT places a large emphasis on the correlation between investments (Findlay and Hamilton, 1979).

Correlation is the amount we can expect various investments and various asset classes to change in value compared with each other. Portfolio and investment theory suggest that investors should diversify their investment portfolio in order to reduce total risk at a given level of return. Markowitz (1952) developed a basic portfolio model that demonstrated how risk could be reduced within a portfolio by combining assets whose returns demonstrate less than perfect positive correlation.

The Markowitz theory exploited the low correlation between two assets and demonstrates that as long as the correlation between the two assets is low, the risk component of a portfolio would be less than the average of the risk of the individual assets. Portfolio risk could be reduced by spreading the amount of funds available for investments into a variety of opportunities, each in a different risk class. Institutional investors have over the years achieved portfolio diversification using property and equity as their prime investments (Reddy, 2001).

Property investments were seen as low risk, long term and illiquid assets (Reddy, 2001). Property plays a significant role in investment portfolios as it is considered a secure

income generating good capital growth investment. It is regarded as less volatile investment than shares, providing a reliable hedge against inflation and offering diversification benefits. However, it suffers a shortfall because of its illiquidity factor (Friedman, 1990).

The proponents of MPT argued Property's high relative management costs are increased by a globally-scattered portfolio where no scale efficiencies can be obtained; there are additional costs in monitoring the local managing agents. Gordon (1991), as a result, the tendency would be to concentrate holdings on a small number of markets (and on larger units) thus sacrificing potential diversification gains. Market access may be problematic; particularly where the market capitalization is small in relation to the size of fund there may simply be no appropriately sized buildings available. Liquidity problems make it difficult to implement and actively manage a portfolio strategy (Rosenberg, Reid and Lanstein, 1994).

Markets with low correlations to the global portfolio are often those with least research and most restrictive market practices. Information may be difficult and costly to obtain; it is rare that data will be of good quality and with a long time-series. Furthermore, there may be comparability problems caused by differences in ownership and legal structures, valuation methodologies and terminology. In individual asset selection, local factors may dominate, placing the overseas investor without a local partner at a relative disadvantage. Finally, the absence of regularly produced and accurate market capitalizations makes the construction of a benchmark world real estate performance index highly problematic.

These factors make the implementation of a formal international portfolio diversification strategy complex, but not infeasible (Ross, 1976).

2.3 Determinants of Physical Infrastructure Development

The determinants of physical infrastructure development are namely: government constraints, political environment, market conditions and macroeconomic policies, economic policies, technology and demography infrastructure (Glasser, and Brad, 2001).

2.3.1 Government Constraints

Government constraints affect physical infrastructure development of a country. If the government lacks adequate funds to finance physical infrastructure this might negatively affect the development of a country. The government is likely to consider affordable projects for purposes of development of a country this is because most physical infrastructure projects are executed by the government since it is charged with the responsibility of developing a country (Allen, 2003).

2.3.2 Political Environment

Political environment highly influences physical infrastructure development, ethnically divided countries require a larger number of physical infrastructure projects infrastructures projects or public goods and services. These are usually needed to respond to different individual preferences, which prevent the pooling of resources for common public projects (Alesina, William and Sergio, 2003). Hence, with a certain level of government accountability, various projects satisfy each group separately and reduce the

likelihood of conflicts over common resources or public goods and services. But the larger number of physical infrastructure projects typically puts added financial pressure on the public sector and require private financing (Williams and Carl, 1992).

2.3.3 Market Conditions

Most physical infrastructure projects generally have high upfront costs and often need time to generate revenues. This means that the commercial risk of such projects is quite high (Williams, 1992).

One would thus expect market conditions to affect the incentives of private firms to participate in any PPP in infrastructure projects. This implies that demand for the services to be provided and the size of the market are important determinants of the private sector participation in PPPs (Allen, 2003). Physical infrastructure projects services provided to a large number of consumers paying market prices would generally be more profitable and allow a faster recovery of sunk costs. Moreover, the level of income or purchasing power of potential customers is also important as it indicates their ability to pay market prices for the services (World Bank, 2002).

Most physical infrastructure projects in developing countries are financed with significant amounts of foreign capital through equities or loans. Thus, investors are not only affected by country risks but also by currency risks (Glasser and Brad, 2001). Debt repayments, as well as dividend payments, require foreign currencies while revenues and incomes usually accrue in local currency. As a result, unexpected devaluations can substantially alter the profitability of a project (Earhart and Timothy, 2004).

2.3.4 Economic Policies

Economic policies have a significant impact on physical infrastructure development (Smyth and Edkins, 2007). The macroeconomic environment must be fairly sound for any investment to prosper. Physical infrastructure investment highly depends on carrying out the infrastructure development with sound decision processes and under sound economic policies to avoid any form of uncertainties (Robbins, Judge, Odendaal and Roodt 2009).

2.3.5 Technology

Technology is another determinant of physical infrastructure. Countries that adopt modern technologies for example Information communication technology are able to develop their physical infrastructure development faster as compared to those countries that do not invest in modern technologies. With modern technologies, the firm is able to gain from increased efficiency and costs which leads to physical infrastructure development (Siemiatycki, 2010).

2.3.6 Demography Infrastructure

Demography Infrastructure is also a determinant of physical infrastructure projects. There is one dimension to the demography infrastructure connection that is worth exploring, and this is whether the availability of infrastructure might be an independent factor influencing demographic developments (Besley and Maitreesh, 2001). The availability of higher quality infrastructure influence migration decisions from rural to urban areas or from developing economies to developed countries. Countries for example China, have

actively sought to develop cities, with the expectation that the availability of jobs would induce rural to urban migration (Smyth and Edkins, 2007).

2.4 Empirical Studies

Studies have been done in relation to financing infrastructure projects using public private partnership on physical infrastructure development locally and internationally. A study was carried out by Rarasati, Trigunarsyah and Too (2014), on the opportunity of Islamic project financing implementation for public infrastructure development in Indonesia. A review was done to explore the applicability of Islamic financing in infrastructure development. Interviews were conducted as the first stage of Delphi method approach. This was then followed by reviewing Indonesia's government policies and regulations in infrastructure industry and Islamic financing, the study found that the government policies and regulations on both infrastructure investment and Islamic financing support the implementation of Islamic project financing.

Muttai (2014) in his study adopted the descriptive design method and a questionnaire administered to 14 respondents on a census basis. The study was also longitudinal and therefore it analyzed data from the financial statements of the Central Bank of Kenya over a five year period so as to determine the currency in circulation growth and eventually derive the Seigniorage income that could result from this issue. The study was conducted in Nairobi, Kenya primarily at the Central Bank of Kenya. The study was facilitated by use of both primary and secondary data which were collected, collated and analyzed statistically using mean, mode and range. The dependent variable for this study was financing of public projects and the independent variables were costs of issuing

currency, derived income from issue of currency and the recognition of this income. The intervening variables were state of the economy, political stability and adopted accounting policies. The research revealed that currency in circulation has been on an upward trend and the total costs associated to these currencies much lower than the face values ascribed. With the positive trajectory in circulation growth and the much lower investment costs for getting these products to circulation, the uptake of another revenue source seems to be in the offing.

Wibowo and Alfen (2013) conducted a study on the effect of financing PPP infrastructure projects on growth of the economy, a descriptive survey of was done on various categories of projects laying more focus on agricultural and road construction projects. A sample of 100 projects was used and data was analyzed using a regression model, the results of the analysis showed that there was a positive relationship between financing of PPP infrastructure and growth of the level of GDP.

Leley (2013) in his study assessed workers in ministry of public works, Ministry of Roads, Construction companies and independent project management companies. To establish a clear picture of the scenario, various research methods were employed in the study. Qualitative and quantitative methods of collecting data were used in the research. Descriptive and inferential statistics were used to summarize the data. Data analysis, presentation and interpretation were also done to ascertain the relevance of the objectives. The presentation was done in form of tables, figures and frequencies and the explanation of every table given was given as a conclusion after every analysis. All the factors influencing implementation of donor funded infrastructural projects were analyzed in a

separate table or figure. The main factors summarized include logistics, human factors, proliferation, and coordination and technology.

In his study, Kamau (2010) investigated on the link between Financing Infrastructure Projects on Economic Growth in Kenya, a descriptive study was used and a questionnaire was administered to 25 respondents on a census basis, both primary and secondary data sources were used, data was analyzed using descriptive statistics and a regression model the results of the data showed that there was a positive relationship between financing infrastructure and economic growth.

Ncube (2010) conducted a descriptive survey involving 200 infrastructural projects, a large panel data for 136 countries, the objective of the study was to establish the relationship between financing infrastructure projects and its impact on economic development, a comparative analysis was done on the projects in relation to the impact of projects on economic development. The results of the study found financing of infrastructure has a positive correlation with economic development.

Mwangi (2010) conducted a study to establish the effect of financing infrastructure projects on economic development a descriptive survey was carried out, the ministry of Lands was the target population where 15 respondents on a census, both secondary and primary data sources were used and data was analyzed using descriptive statistics where mean and standard deviation were used to show the correlation between the two variables. The results concluded that in Infrastructure Projects has a significant influence on economic development in Kenya.

In his study, Kamau (2010) investigated on the link between Financing Infrastructure Projects on Economic Growth in Kenya, a descriptive study was used and a questionnaire was administered to 25 respondents on a census basis, both primary and secondary data sources were used, data was analyzed using descriptive statistics and the results of the data showed that there was a positive relationship between financing infrastructure and economic growth.

Nguri (2009) found that municipal projects ranging from infrastructure (roads, telecommunication, power water undertaking etc); housing projects; hospitals; schools and other institutions of education can attract PPP finance. Various types of PPP finance for municipal projects were also identified with the most common once being BOT, BOOT, contracting and leasing including Concessioning. Further the paper found that there are certain critical factors which need to be fulfilled before a country/municipal authority embark on a PPP type of project finance.

Casparly (2009) investigated on the link between improving sustainability in the financing of large infrastructure projects and project performance. A comparative study was conducted to compare the stringency of different types of public financing institutions' safeguard mechanisms in the financing of large dams in developing countries. This was achieved by examining: the institutional strategies and policies in place in a set of key public financing institutions; and project-level case studies of dams financed by these institutions and the stringency with which existing policies are applied by the key financing institutions. A trend analysis was carried out and the results of the study showed a positive correlation between project financing and infrastructure development.

A study was carried out by Bruin and Flint-Hartle (1999) in New Zealand to examine what motivated investors to invest in property; he found that economic reasons motivating the property investment decision included expected return on investment, wealth accumulation through long-term capital gain/growth and attitude to risk. It was found that wealth accumulation and long-term capital gain was the most important consideration in the property investment decision. A total of 43 per cent of respondents ranked this as their first most important reason for engaging in rental investment. A further 17 per cent indicated it as their second most important reason.

2.5 Summary of the Literature Review

PPP financing for infrastructure projects is embraced by many countries especially the developing economies. While in UK and Europe generally they have come up with various regulatory laws and legislation, there is still a lot of work to be done in this area especially in the developing countries. It is a well established fact that infrastructure play a critical role in the development of a country studies like the Asian Development Bank, 2003 for the (Developing member countries) DMCs and in Kenya and other African countries generally (ERS, 2003).

It is evident that most developing countries lack adequate finances for infrastructural development. Although studies that have been done in relation to financing of infrastructure projects by Ncube (2010) and Nguri (2009), little focus have been laid on the impact of financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya. This study therefore finds it necessary to fill this

gap by determining the impact of financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research methodology that was used in conducting the research. The layout of this chapter consists of the research design, population, sampling procedures, data collection methods and data analysis.

3.2 Research Design

The study used a descriptive survey. According to Jupp (2006), a descriptive study is aimed at highlighting a characteristic behavior on one variable because of another variable. It is concerned with finding out the what, where and how of a phenomenon. This method will be appropriate because this study seeks to gain familiarity and insight into the impact of financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya.

3.3 Population of the Study

The population for this study included all the physical infrastructure projects conducted in Kenya (The National Treasury 2013). The estimated number of physical infrastructure projects carried out in Kenya for the last ten years is more than 15000.

3.4 Sampling

The researcher used a cluster sampling of 60 infrastructure projects from the listed obtained from PPP unit and Medium term expenditure framework report, 2013. This was

followed by a systematic selection of 30 infrastructure projects from each of the clustered list under public private partnership and the other physical infrastructure projects. Caution was taken to ensure that a proportional representation from each cluster was taken. The cluster sampling method was deemed to be helpful in minimizing the costs and time.

3.5 Data Collection Methods

The study used secondary data since the nature of the data to be collected was quantitative. Data collection is gathering empirical evidence in order to gain new insights about a situation and answer questions that prompt undertaking of a study (Kothari, 2005). Secondary data was obtained from a number of sources: audited financial statements from treasury, PPP unit and Medium term expenditure framework reports. The study reviewed secondary data for a period of ten years (2004-2013) depending on data availability and accessibility. This study used 40 points (forty quarters in a period of ten years). This period was considered sufficient for determining the level of physical infrastructure development in Kenya.

3.6 Data Analysis

Secondary data from the National Treasury reports and library was reviewed for completeness and consistency for purposes of analysis. McNeill and Chapman (2005) explains data must be cleaned, coded and properly analyzed in order to obtain a meaningful report. Data collected was sorted, cleaned and coded and then entered into Statistical Package for Social science for analysis. A multiple regression was used to

analyze the data. The study used four variables to establish the relationship between the variables. Physical Infrastructure development was measured using net assets of all the physical infrastructure projects this was the dependent variable. The independent variables were; cost of financing physical infrastructure projects using PPP was measured by the cost of financing physical infrastructure projects under PPP divided by the total costs of financing all infrastructure projects, return on investment was measured using the percentage increase in the value of the physical infrastructure projects divided by the total cost financing all the physical infrastructure projects. The other variable was number of physical infrastructure projects completed was obtained by dividing the number of completed physical infrastructure projects divided by the total number of all the physical infrastructure projects.

3.6.1 The Analytical Model

The study used a multiple regression model to achieve the objective of this study.

$$P_f = a + b_1X_1 + b_2X_2 + b_3X_3 + e$$

Where:

P_f = Physical Infrastructure development was measured using net assets of all the physical infrastructure projects.

X_1 = Cost of financing physical infrastructure projects using PPP was measured by the cost of financing physical infrastructure projects under PPP divided by the total costs of financing all infrastructure projects.

X_2 =Return on investment was measured using the percentage increase in the value of the physical infrastructure projects divided by the total cost financing all the physical infrastructure projects.

X_3 =Number of physical infrastructure projects completed was obtained by dividing the number of completed physical infrastructure projects divided by the total number of all the physical infrastructure projects.

b = Slope of the regression was used to measure the amount of the change in Y associated with a unit change in X physical infrastructure projects

a =Represents physical infrastructure development regardless of the number of financing infrastructure projects under public private partnership.

ϵ =Error term within a confidence interval of 5% will be used.

3.6.2 Diagnostic Tests

A t-statistic test was used to determine the significance of the independent variables on infrastructure projects under PPP. Correlation was used to explain the relationship between financing infrastructure projects using public private partnership and physical infrastructure development. Coefficient of determination was used in indicating how well the data would fit the statistical model. The tests were performed at 95% level of confidence.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter provides the results of the data analysis and findings. Published Secondary data was obtained from a number of sources: financial statements from The National Treasury, PPP unit and Medium Term Expenditure Framework reports from The National Treasury. The study reviewed secondary data for a period of ten years (2004-2013).

4.2 Response Rate

The study sought to collect data from PPP unit and Medium term expenditure framework reports involving all the physical infrastructure projects for a period of ten years laying more focus on energy, infrastructure and ICT projects. The researcher managed to collect the data for 30 physical infrastructure projects financed using PPP and the Government of Kenya.

4.3 Descriptive Statistics

The objective of this study was to determine the effect of financing infrastructure projects under public private partnership on the level of physical infrastructure development in Kenya. Descriptive statistics was used to determine the minimum, maximum, mean, median and the standard deviation. The figures below have been presented in the form of ratios, below are the results of the findings provided in the table 4.1:

Table 4.1 Descriptive Statistics

	Y	X1	X2	X3
Minimum	0.0021	1.79	.045	0.78
Maximum	0.046	1.9782	.092	0.82
Median	0.0034	.621	0.057	0.72
Mean	0.02405	.8841	0.0685	0.69
Standard Deviation	0.0161	0.4923	0.0391	0.345

Source: Research Findings

From the above findings in table 4.1 above, the Physical Infrastructure Development is shown. The maximum value of the cost of financing physical infrastructure projects is 1.9782 while the minimum value was found to be 1.79 while the average value for each investment is .8841 with a standard deviation of 0.4923.

The maximum value for Return on Investment growth is 0.92 while the average for all the physical infrastructure projects is 0.069 with a standard deviation of 0.0391. Similarly, the number of completed projects had a maximum value of 0.82 with a minimum value of 0.56 and the average number of completed projects was found to be 0.69 with a standard deviation of 0.345. The Physical Infrastructure Development was found to have an average of 0.02405 with a standard deviation of 0.0161.

4.4 Correlation Analysis

The study determined the effect of financing infrastructure projects using public private partnership on physical infrastructure development in Kenya by use of correlation

analysis to measure the strength between the variables in this study. Below are the results of the findings below:

Table 4.2 Correlation of the Study Variables

	Cost of Financing Infrastructure Projects	Return on Investment	Number of Completed Physical infrastructure Projects	Physical Infrastructure developments
Cost of Financing Infrastructure Projects	1			
Return on Investment	.526	1		
Number of Completed Physical infrastructure Projects	.564	-.469	1	
Physical Infrastructure developments	.634	.634	.545	1

Source: Research Findings

From the findings in the table 4.2 above, the Pearson’s r for the correlation between financing infrastructure projects using public private partnership on physical infrastructure development in Kenya shows a positive relationship between the variables. From the p-values generate above, it is clear that these values are above 0.5 and close to 1. The study therefore concludes that that there is a statistically significant correlation between the two variables at 0.01 level. This means that there is a positive relationship between the two variables.

4.5 Regression Analysis and Hypothesis Testing

This study tested the relationship between financing infrastructure projects using public private partnership on physical infrastructure development using a regression analysis.

Below are the results of the findings:

4.5.1 Model Summary

The model summary was used to determine the correlation between the variables (R) and then coefficient of determination (R^2) of the study variables in order to establish whether the model adopted was a suitable predictor in determining the relationship between the variables. Below are the results of the findings in table 4.3

Table 4.3: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.646 ^a	.417	.662	.920

a. Predictors: (Constant), Cost of Financing Infrastructure projects, Return on Investments projects, Return on Investment

Source: Research Findings

The results showed that 41.7% variation was explained by the variables under the study. This means that the regression model used is a good predictor. Similarly, the correlation between the variables was found to be $R=0.646$ which implies the variables contributed 65% on the relationship between the independent and the dependent variables. Below are the results of the findings:

4.5.2 Analysis of Variance

Analysis of variance was used to test the homogeneity of variances in order to establish the relationship between the variables. Below are the results of the findings provided in table 4.4 below:

Table 4.4: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	55.692	4	13.923	22.135	.024(a)
	Residual	22.027	35	0.629		
	Total	77.719	39			

Source: Research Findings

From the above findings, there is much difference between the two mean squares (13.923 and 0.629) resulting into a significance difference ($F=22.135$, $Sig.=0.024$). This means that H_0 must be rejected. This means that the regression model was statically significant in predicting the relationship between the financing infrastructure projects using public private partnership on physical infrastructure development in Kenya since the level of significance was less than 5%.

4.5.3 Tests of Coefficients

The researcher conducted the statistical significance of the relationship between the financing infrastructure projects using public private partnership on physical infrastructure development in Kenya. The results provide the statistical tests by determining whether the mean difference is significant at 5% level.

Table 4.5: Tests of Coefficients

Coefficients^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	2.550	4.549		-2.759	.010
	Cost of Financing Infrastructure projects	.144	.480	.044	.300	.036
	Return on Investments	.451	.349	.144	1.292	.004
	Number of Completed Projects	1.005	.425	.312	2.363	.026

a. Dependent Variable: physical infrastructure development
 Source: Research Findings

Below is the regression model that was obtained from the results of the analysis

$$\text{Physical Infrastructure Development} = 2.550 + .144X_1 + .451X_2 + 1.005X_3$$

The regression model in Table 4.3 explains 41.7 % of the variance in financing infrastructure projects under public private partnership on the level of physical infrastructure development in Kenya. In other words, all the variables in the model can only contribute 64.6% of level of explanation. This is statistically significant as it was confirmed in Table 4.4 by F-value of 22.135 that is significant at 95% confidence interval.

Hence, the hypothesis that financing infrastructure projects under public private partnership on the level of physical infrastructure in Kenya has no positive influence on physical infrastructure development is rejected while the alternate hypothesis that financing infrastructure projects under public private partnership has a positive influence on the level of physical infrastructure in Kenya is accepted. Therefore, from the above analysis, all the predictor variables were significant since their p-values were less than 5%.

4.6 Discussion of Research Findings

From the results of the correlation analysis, a positive relationship between financing infrastructure projects using public private partnership on physical infrastructure development in Kenya ($R=.646$) were found to exist. The study therefore concluded that there was a statistically significant correlation between the two variables at 0.01 level. These results are however unswerving with the findings of Ncube (2010) who conducted a descriptive survey involving 100 infrastructural projects, a large panel data for 136 countries, the objective of the study was to establish the relationship between financing infrastructure projects and its impact on economic development, a comparative analysis was done on the projects in relation to the impact of projects on economic development. The results of the study found that financing of infrastructure has a positive correlation with economic development.

On the same note, a study conducted by Mwangi (2010) to establish the effect of financing infrastructure projects on economic development a descriptive survey was carried out, was the target population where 15 respondents on a census, both secondary and primary data sources were used and data was analyzed using descriptive statistics where mean and standard deviation were used to show the correlation between the two variables. The results concluded that in Infrastructure Projects has a significant influence on economic development in Kenya.

The results of the regression model revealed that there was a direct relationship between (Physical infrastructure projects, cost of financing and return on investment) with the value of the project. This implied that one unit increase in these independent variables

resulted into a corresponding increase in the value of the projects. The coefficient of determination explains 42% variation between the variables. Similarly, the results further revealed that the variables contributed 65% on the relationship between financing infrastructure projects using public private partnership on physical infrastructure development in Kenya in the regression model. This meant that the regression model was appropriate in explaining the relationship between the independent and the dependent variables.

The above findings are supported by both global and local studies: Wibowo and Alfen (2013) conducted a study on the effect of financing PPP infrastructure projects on growth of the economy, a descriptive survey of was done on various categories of projects laying more focus on agricultural and road construction projects. A sample of 0 projects was used and data was analyzed using a regression model, the results of the analysis showed that there was a positive relationship between financing of PPP infrastructure projects and physical infrastructure development in Kenya.

In his study, Kamau (2010) investigated on the link between Financing Infrastructure Projects on Economic Growth in Kenya, a descriptive study was used and a questionnaire was administered to 25 respondents on a census basis, both primary and secondary data sources were used, data was analyzed using descriptive statistics and a regression model the results of the data showed that there was a positive relationship between financing infrastructure and economic growth.

The results of the tests of coefficients revealed that there was a direct relationship between financing infrastructure projects and physical infrastructure development.

According to the findings, 41.7 % of the variance in financing infrastructure projects under public private partnership on the level of physical infrastructure development in Kenya. The variables in the model can only contribute 64.6% of level of explanation. This is statistically significant as it was confirmed in Table 4.4 by F-value of 22.135 that is significant at 95% confidence interval. This is supported by Bruin and Flint-Hartle (1999) in New Zealand to examine what motivated investors to invest in property; he found that economic reasons motivating the property investment decision included expected return on investment, wealth accumulation through long-term capital gain/growth and attitude to risk. It was found that wealth accumulation and long-term capital gain was the most important consideration in the property investment decision. A total of 43 per cent of respondents ranked this as their first most important reason for engaging in rental investment. A further 17% indicated it as their second most important reason. This represents 60% respondents who confirmed that investors were motivated to invest in property due to economic reasons.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

To achieve the main objective of the study which was to determine the effect of financing infrastructure projects under public private partnerships on the level of physical infrastructure in Kenya, this section provides the summary of the findings, conclusion and suggestions for further research.

5.2 Summary of Findings

According to the findings, the researcher managed to collect data for 30 physical infrastructure projects financed using PPP and the government of Kenya. The results of the descriptive statistics revealed that the maximum value of the physical infrastructure projects to be 1.9782 while the minimum value was found to be 1.79 while the average value for each investment is .8841. It was also revealed that the cost of financing physical infrastructure had a maximum value of 0.82 with a minimum value of 0.56 and the average cost for the physical infrastructure projects studied was found to be 0.69 with a standard deviation of 0.345.

The return on investment from the infrastructural projects studied was found to have an average of 9.385. On the other hand, the value of infrastructure projects studied was found to be 0.0240 with a standard deviation of 0.0161 which was an indication that these projects contributed significantly to physical development.

The findings further discovered that the Pearson's r for the correlation between financing infrastructure projects using public private partnership on physical infrastructure development in Kenya showed a positive relationship between the variables. From the p -values generated above, it was clear that the values were above 0.5 and close to 1. The study therefore concluded that there was a statistically significant correlation between the two variables at 0.01 level. This meant that there is a positive relationship between the two variables.

The results of the regression analysis showed that 41.7% was explained by the variables under the study. This meant that the regression model used was a good predictor. The correlation between the variables was found to be $R=0.646$ which implied that there was a strong positive correlation between the independent and dependent variables.

With regard to the analysis of variance, there was much difference between the two mean squares (13.923 and 0.629) resulting into a significance difference ($F=22.135$, $Sig.=0.024$). This meant that H_0 must be rejected. This means that the regression model was statically significant in predicting the relationship between the financing infrastructure projects using public private partnership on physical infrastructure development in Kenya since the level of significance was less than 5%.

In relation to the tests of coefficients, the regression model revealed that there was a direct relationship between (Physical infrastructure projects, cost of financing and return on investment) with the value of the project. This implied that one unit increase in the independent variables resulted into a corresponding increase in the value of the projects. An inverse relationship between the growth of physical infrastructure projects and the

value of the project was also exhibited .From the analysis, all the predictor variables were significant apart from growth of physical projects whose p-value=0.071, this was above 5%.

5.3 Conclusion

From the results of the regression model, it was found that there was a direct relationship between (Physical infrastructure projects, cost of financing and return on investment) with the value of the project. This implied that one unit increase in the independent variables resulted into a corresponding increase in the value of the projects. The study therefore concludes that financing infrastructure projects under public private partnership is critical since infrastructural development highly contributes to aggregate economic performance because many policy decisions for example assessing the growth effects of fiscal interventions in the form of public investment changes, or to assess if public infrastructure investments can be self-financing is generally accepted, economic infrastructure 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.

Africa's heightened political stability, governance and transparency, and deeper regional and global integration are driving the infrastructure development in the region. The study further concludes that the growing pan-African focus through regional bodies like the New Partnership for Africa's Development (NEPAD) and regional trade bodies like COMESA are boosting transport corridors, specifically east-west and north-south

linkages that enabled commodity export, while also promoting regional integration and business opportunities.

From the findings, it was revealed that majority of the financed projects was infrastructure especially road construction. The study concludes that improved road, rail, telecommunications and utilities as well as a more efficient customs process will boost growth and development of the economy. There is a strong need for diversifying the available funding sources by developing domestic capital markets and boosting private sector participation through public-private partnerships (PPPs).

The study concludes that PPP is an essential tool for financing infrastructural projects especially when the government is faced with increasing financing pressure for both development and recurrent expenditure, which has heightened with the implementation of the devolved structure of governance. This has forced the government to turn to alternative sources of finances in executing its projects and to grow the economy.

The results of the descriptive statistics revealed that the maximum value of the physical infrastructure projects to be 1.9782 while the minimum value was found to be 1.79 while the average value for each investment is .8841. The study therefore concludes that PPPs could also be appropriately implemented for electricity, transportation, telecommunications, and water and sanitation, as well as for agriculture and oil and gas-related infrastructure, such as irrigation and oil pipelines.

5.4 Recommendations

First, until tenders are released and the regular performance evaluation can be passed on to the individual departments, it is important to have a central headquarters for the coordination of the PPP planning process between the city departments and private investors. The Study recommends that there should be a clearly defined supplier selection criteria and constraints for the projects to ensure that infrastructure projects are implemented successfully.

In most developing economies and emerging economies, independent advisory companies play an important role in bringing in expertise in PPPs and helping to strengthen the legitimacy of the process for subsequent administrations. Therefore, the government should create a conducive environment to ensure that these firms are largely involved in PPP infrastructural projects in order to deliver projects that add value to the economy.

When a partnership is expected to last for a long period, partnership termination conditions must be predetermined in such a way as to discourage the partners from engaging in opportunistic behavior at the expense of the other party. These will ensure that parties obey and respect the terms and conditions of engagement. This will ensure that parties are committed and execute and deliver infrastructural projects with the specified time and costs.

Mechanisms should be in place to retain the benefit of the knowledge acquired during the implementation of the projects. The Kenyan government is required to provide advice

through training sessions for the city employees responsible for the PPP process and execution.

The study recommends that the government should Deepen Domestic Financial Market through Lengthening the Government yield curve and developing more liquid Government bond market. The study further recommends the need for developing a regulatory regime for securitization of instruments to enable participation of pension funds and insurance companies.

5.5 Limitations of the Study

The study adopted a regression model between (Physical infrastructure projects, cost of financing, return on investment and growth of physical infrastructure projects) with the value of the project. The regression model used made assumptions about the variance structures of the various independent and dependent factors. Also, the study used correlation which used assumptions on the colinearity on how the inter-related variables covary.

The other limitation of this study was that it limited itself to a sample of 60 projects only while the estimated number of physical infrastructure projects carried out in Kenya for the last ten years is more than 15000. The findings, conclusions and recommendations made in this study cannot be used to make generalizations on all the physical infrastructure projects.

This study was conducted in the period between (2004-2013) and therefore it would be appropriate to conduct further studies in a period of 10 years since the findings and

conclusions in this study may not hold because of various factors that may affect the value of physical infrastructure projects or the mode of financing of projects using public private partnership.

The other challenge faced by the researcher was time and cost constraints. The researcher conducted this project within a very short period of time. Secondly, accessing the right data was not easy and computing the measurements in line with the variables under study took so much time. The process of putting the secondary data together, cleaning, sorting and coding took so much time notwithstanding the fact that the project had to be done and submitted within a very strict deadline.

The researcher used secondary information which may not necessarily reflect the needs and expectations of the researcher especially when the variables under study seek to establish an exact relationship between the variables. In such a case secondary data may not provide current information because it is based on past information which may not be a true reflection of the current needs of the study. Therefore, the results of such a study could be exposed to bias and assumptions and thus may not be accurate and reliable in decision making.

5.6 Suggestions for Further Research

The study recommends that future researchers interested in this area should conduct further studies on other sectors other than energy, infrastructure and ICT projects and determine the effect of financing infrastructure projects under public private partnership

on the level of physical infrastructure in Kenya. Then, findings can be compared and conclusions made based on concrete facts.

A comparative study should be conducted on the effect of financing physical infrastructure projects by the Government of Kenya on economic growth. This study will be instrumental in decision making especially when deciding on the projects to finance and the ones to partner with the private sector when financing.

A study can be conducted in future on the effect of financing infrastructure projects using public private partnership on growth of the economy. This study will be useful since it will provide greater insights on the significance of investing on infrastructure projects on the growth and development of a country. Findings and conclusions can be made based on key considerations on the best investment decisions to make.

Future researchers and academicians can conduct a similar study after a period of ten years and evaluate whether these results will still hold. This will be of great importance since it will act as an eye opener to the government and investors on the importance of investing in infrastructure projects and its effect on economic growth. Due to the dynamic nature of the business environment many factors could influence the extent of infrastructure development for example technology, regulations, policies and so forth. In so doing, the government and its stakeholders can make better decisions on infrastructure financing and propel the economy to greater heights.

Future researchers can also investigate on the effect of real estate and property development on the economic growth. This study will add value to the local and

international investors who seek to invest in property development in making important investment decisions that will contribute to development of a country.

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APPENDIX I: LIST OF INFRASTRUCTURE PROJECTS IN KENYA

Project Cost Yearly Breakdown (KES)	Start Date (Planned)	Funding Source	Implementing Agency	Duration
2,626,180,556	02/01/2007	019 - Saudi Fund for Development; 512 - Arab Bank for Economic Development in Africa (BADEA); 513 - Organization of Petroleum Exporting Countries (OPEC); Government of Kenya	109 - Ministry of Transport and Infrastructure; 133 - MOR - Kenya National Highway Authority	67 months 21 days
4,236,198,772	07/11/2007	512 - Arab Bank for Economic Development in Africa (BADEA); 513 - Organization of Petroleum Exporting Countries (OPEC); Government of Kenya	109 - Ministry of Transport and Infrastructure; 133 - MOR - Kenya National Highway Authority	102 months 0
2,596,573,505	29/02/2012	012 - Government of Spain	115 - Ministry of Energy and Petroleum; 115 - MOEandP - Kenya Electricity Generating Company Ltd (KENGEN)	57 months 29 days
19,486,813,190	01/09/2010	016 - Government of France; 506 - European Investment Bank; 510 - African Development Bank/ Fund; Government of Kenya	115 - Ministry of Energy and Petroleum; 115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	48 months 29 days
20,090,000,000	29/07/2013	012 - Government of Spain; Government of Kenya	115 - Ministry of Energy and Petroleum; 115 - MOEandP Transmission Company Limited (KETRACO)	30 months 27 days
902,000,000	06/09/2010	Government of Kenya	115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	26 months 25 days
9,109,000,000	01/07/2010	025 - Government of China; Government of Kenya	115 - Ministry of Energy and Petroleum; 115 - MOEandP Transmission Company Limited (KETRACO)	39 months 11 days
909,000,000	14/07/2009	505 - European Development Fund; 510 - African Development Bank/ Fund	106 - MOESandT - Chepkoilel University College	35 months 29 days
6,208,705,229	08/10/2007	510 - African Development Bank/ Fund; Government of Kenya	109 - Ministry of Transport and Infrastructure; 133 - MOR - Kenya National Highway Authority	84 months 25 days
4,640,000,000	20/09/2010	510 - African Development Bank/ Fund; Government of Kenya	115 - Ministry of Energy and - Kenya Electricity Transmission Company Limited (KETRACO)	51 months 11 days
4,000,000,000	01/10/2012	510 - African Development Bank/ Fund; Government of Kenya	115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	24 months 29 days
3,000,000,000	31/01/2013	Government of Kenya; 115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	23 months 30 days
2,006,000,000	01/08/2012	016 - Government of France; 506 - European Investment Bank; 510 - African Development Bank/ Fund;	115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	23 months 30 days

		Government of Kenya; 115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)		
950,000,000	01/08/2012	501 - International Development Association (IDA); Government of Kenya; 115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	26 months 30 days
840,000,000	01/08/2012	501 - International Development Association (IDA); Government of Kenya; 115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	26 months 30 days
1,895,094,559	02/07/2012	501 - International Development Association (IDA); Government of Kenya; 115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	115 - MOEandP - Kenya Electricity Transmission Company Limited (KETRACO)	27 months 29 days
5,772,164,545	01/08/2007	Government of Kenya	135 - MOR - Kenya Rural Roads Authority (KERA)	25 months 12 days
30,000,000	01/09/2009	014 - Government of Germany (KFW-GERMANY)	115 - Ministry of Energy and Petroleum; 115 - MOEandP - Kenya Electricity Generating Company Ltd (KENGEN)	48 months 0
2,798,526,873	16/09/2004	Government of Kenya	103 - Ministry of Devolution and Planning; 109 - Ministry of Transport and Infrastructure; 153 - MOT - Kenya Airports Authority; 154 - MOT - Kenya Civil Aviation Authority	99 months 15 days
1,049,472,915	02/03/2007	Government of Kenya	109 - Ministry of Transport and Infrastructure; 133 - MOR - Kenya National Highway Authority	31 months 0
1,885,694,928	05/03/2007	Government of Kenya	133 - MOR - Kenya Authority	20 months 20 days
1,803,695,791	25/02/2008	Government of Kenya	135 - MOR - Kenya Rural Roads Authority (KERA)	30 months 30 days
1,840,172,193	19/08/2007	Government of Kenya	135 - MOR - Kenya Rural Roads Authority (KERA)	25 months 1 day
302,980,545	04/03/2008	Government of Kenya	135 - MOR - Kenya Rural Roads Authority (KERA)	24 months 28 days
258,119,013,234	19/04/2008	Road Maintenance Levy Fund	133 - MOR - Kenya National Highway Authority	19 months 4 days
1,267,622,392	31/10/2009	Private Sector; Government of Kenya	109 - Ministry of Transport and Infrastructure; 118 - Ministry of Commerce Tourism and East African Affairs; Private Sector	26 months 0
12,124,151,100	08/02/2008	Road Maintenance Levy Fund	133 - MOR - Kenya Authority	12 months 26 days
9,441,732,008	02/03/2009	025 - Government of China; Government of Kenya	109 - Ministry of Transport and Infrastructure; 136 - MOR - Kenya Urban Roads Authority (KURA)	75 months 28 days

APPENDIX II: SECONDARY DATA

Sector	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
	Value of Physical Infrastructure	Value of Physical Infrastructure	Value of Physical Infrastructure	Value of Infrastructure	Value of Infrastructure	Value of Infrastructure	Value of Infrastructure	Value of Infrastructure	Value of Infrastructure
Infrastructure	185,241,000,000.00	550,442,000,000.00	548,709,000,000.00	3,246,360,000,000.00	772,300,000,000.00	57,854,000,000,000.00	726,570,000,000.00	5,600,000,000.00	8,890,000,000.00
Energy	5,425,000,000.00	514,935,000,000.00	518,433,000,000.00	27,991,000,000.00	694,500,000,000.00	543,000,000,500,000.00	876,000,000,000.00	7,600,000,000.00	6,790,000,000.00
ICT	46,787,000,000.00	479,428,000,000.00	488,157,000,000.00	52,258,000,000.00	878,900,000,000.00	1,028,146,001,000,000.00	1,025,430,000,000.00	9,600,000,000.00	4,690,000,000.00
Infrastructure	3,066,000,000.00	443,921,000,000.00	457,881,000,000.00	89,000,000,000.00	888,500,000,000.00	1,513,292,001,500,000.00	1,174,860,000,000.00	11,600,000,000.00	2,590,000,000.00
Energy	66,161,000,000.00	408,414,000,000.00	427,605,000,000.00	125,742,000,000.00	941,800,000,000.00	1,998,438,002,000,000.00	1,324,290,000,000.00	13,600,000,000.00	490,000,000.00
ICT	116,677,300,000.00	372,907,000,000.00	397,329,000,000.00	162,484,000,000.00	995,100,000,000.00	2,483,584,002,500,000.00	1,473,720,000,000.00	15,600,000,000.00	-1,610,000,000.00
Infrastructure	167,193,600,000.00	337,400,000,000.00	367,053,000,000.00	199,226,000,000.00	1,048,400,000,000.00	2,968,730,003,000,000.00	1,623,150,000,000.00	17,600,000,000.00	-3,710,000,000.00
Energy	217,709,900,000.00	301,893,000,000.00	336,777,000,000.00	235,968,000,000.00	1,101,700,000,000.00	3,453,876,003,500,000.00	1,772,580,000,000.00	19,600,000,000.00	-5,810,000,000.00
ICT	268,226,200,000.00	266,386,000,000.00	987,560,000,000.00	272,710,000,000.00	1,155,000,000,000.00	3,939,022,004,000,000.00	1,922,010,000,000.00	21,600,000,000.00	-7,910,000,000.00
Infrastructure	318,742,500,000.00	230,879,000,000.00	87,657,220,000,000.00	309,452,000,000.00	1,208,300,000,000.00	4,424,168,004,500,000.00	2,071,440,000,000.00	23,600,000,000.00	-10,010,000,000.00
Energy	369,258,800,000.00	195,372,000,000.00	174,326,880,000,000.00	346,194,000,000.00	1,261,600,000,000.00	4,909,314,005,000,000.00	2,220,870,000,000.00	25,600,000,000.00	-12,110,000,000.00
ICT	419,775,100,000.00	159,865,000,000.00	260,996,540,000,000.00	382,936,000,000.00	1,314,900,000,000.00	5,394,460,005,500,000.00	2,370,300,000,000.00	27,600,000,000.00	-14,210,000,000.00
Infrastructure	470,291,400,000.00	124,358,000,000.00	347,666,200,000,000.00	419,678,000,000.00	1,368,200,000,000.00	5,879,606,006,000,000.00	2,519,730,000,000.00	29,600,000,000.00	-16,310,000,000.00
Energy	520,807,700,000.00	88,851,000,000.00	434,335,860,000,000.00	456,420,000,000.00	1,421,500,000,000.00	6,364,752,006,500,000.00	2,669,160,000,000.00	31,600,000,000.00	-18,410,000,000.00
ICT	571,324,000,000.00	53,344,000,000.00	521,005,520,000,000.00	493,162,000,000.00	1,474,800,000,000.00	6,849,898,007,000,000.00	2,818,590,000,000.00	33,600,000,000.00	-20,510,000,000.00
Infrastructure	621,840,300,000.00	17,837,000,000.00	607,675,180,000,000.00	529,904,000,000.00	1,528,100,000,000.00	7,335,044,007,500,000.00	2,968,020,000,000.00	35,600,000,000.00	-22,610,000,000.00
Energy	672,356,600,000.00	17,670,000,000.00	694,344,840,000,000.00	566,646,000,000.00	1,581,400,000,000.00	7,820,190,008,000,000.00	3,117,450,000,000.00	37,600,000,000.00	-24,710,000,000.00
ICT	722,872,900,000.00	53,177,000,000.00	781,014,500,000,000.00	603,388,000,000.00	1,634,700,000,000.00	8,305,336,008,500,000.00	3,266,880,000,000.00	39,600,000,000.00	-26,810,000,000.00
Infrastructure	773,389,200,000.00	88,684,000,000.00	867,684,160,000,000.00	640,130,000,000.00	1,688,000,000,000.00	8,790,482,009,000,000.00	3,416,310,000,000.00	41,600,000,000.00	-28,910,000,000.00
Energy	823,905,500,000.00	124,191,000,000.00	954,353,820,000,000.00	676,872,000,000.00	1,741,300,000,000.00	9,275,628,009,500,000.00	3,565,740,000,000.00	43,600,000,000.00	-31,010,000,000.00
ICT	874,421,800,000.00	159,698,000,000.00	1,041,023,480,000,000.00	713,614,000,000.00	1,794,600,000,000.00	9,760,774,010,000,000.00	3,715,170,000,000.00	45,600,000,000.00	-33,110,000,000.00
Infrastructure	924,938,100,000.00	195,205,000,000.00	1,127,693,140,000,000.00	750,356,000,000.00	1,847,900,000,000.00	10,245,920,010,500,000.00	3,864,600,000,000.00	47,600,000,000.00	-35,210,000,000.00
Energy	975,454,400,000.00	230,712,000,000.00	1,214,362,800,000,000.00	787,098,000,000.00	1,901,200,000,000.00	10,731,066,011,000,000.00	4,014,030,000,000.00	49,600,000,000.00	-37,310,000,000.00
ICT	1,025,970,700,000.00	266,219,000,000.00	1,301,032,460,000,000.00	823,840,000,000.00	1,954,500,000,000.00	11,216,212,011,500,000.00	4,163,460,000,000.00	51,600,000,000.00	-39,410,000,000.00
Infrastructure	1,076,487,000,000.00	301,726,000,000.00	1,387,702,120,000,000.00	860,582,000,000.00	2,007,800,000,000.00	11,701,358,012,000,000.00	4,312,890,000,000.00	53,600,000,000.00	-41,510,000,000.00
Energy	1,127,003,300,000.00	337,233,000,000.00	1,474,371,780,000,000.00	897,324,000,000.00	2,061,100,000,000.00	12,186,504,012,500,000.00	4,462,320,000,000.00	55,600,000,000.00	-43,610,000,000.00
ICT	1,177,519,600,000.00	372,740,000,000.00	1,561,041,440,000,000.00	934,066,000,000.00	2,114,400,000,000.00	12,671,650,013,000,000.00	4,611,750,000,000.00	57,600,000,000.00	-45,710,000,000.00

Infrastructure	1,228,035,900,000.00	408,247,000,000.00	1,647,711,100,000,000.00	970,808,000,000.00	2,167,700,000,000.00	13,156,796,013,500,000.00	4,761,180,000,000.00	59,600,000,000.00	-47,810,000,000.00
Energy	1,278,552,200,000.00	443,754,000,000.00	1,734,380,760,000,000.00	1,007,550,000,000.00	2,221,000,000,000.00	13,641,942,014,000,000.00	4,910,610,000,000.00	61,600,000,000.00	-49,910,000,000.00
ICT	1,329,068,500,000.00	479,261,000,000.00	1,821,050,420,000,000.00	1,044,292,000,000.00	2,274,300,000,000.00	14,127,088,014,500,000.00	5,060,040,000,000.00	63,600,000,000.00	-52,010,000,000.00

Aggregated Amounts of Loans	Aggregated Figures of Assets
11,640,000,000	254,600,000,000
498,906,677	274,900,000,000
301,993,853	295,200,000,000
1,100,784,384	315,500,000,000
2,699,623,837	335,800,000,000
1,724,645,167	356,100,000,000
1,721,871,230	376,400,000,000
3,383,387,116	396,700,000,000
1,803,224,383	417,000,000,000
210,872,568	437,300,000,000
2,699,623,837	457,600,000,000
1,803,224,383	477,900,000,000
2,798,526,783	498,200,000,000
1,458,937,413	518,500,000,000
1,895,094,560	538,800,000,000
498,906,677	559,100,000,000
711,362,648	579,400,000,000
3,149,152,168	599,700,000,000
1,458,937,413	620,000,000,000
498,906,677	640,300,000,000
1,593,073,494	660,600,000,000
1,873,743,671	680,900,000,000
1,803,224,383	701,200,000,000
1,843,023,145	721,500,000,000
1,938,483,758	741,800,000,000
1,651,911,818	762,100,000,000
1,593,073,494	782,400,000,000
1,360,061,256	802,700,000,000
2,514,490,574	823,000,000,000
2,514,490,574	843,300,000,000

Source: The National Treasury (MTEF and e-ProMIS reports)