The Potential of Private Public Partnership in Financing Municipal Capital Projects in Developing Countries

by

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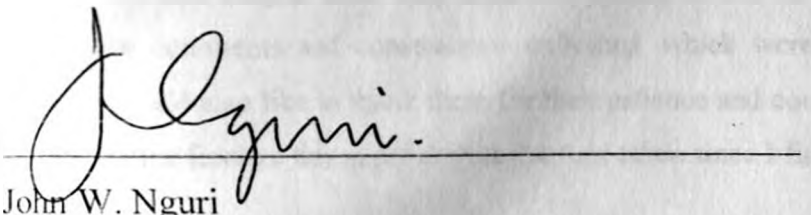
An Independent Study Paper submitted to the School of Business, University of Nairobi in partial fulfilment of the requirement for the Doctor of Philosophy Degree.

This research paper is my original work and has not been presented for a degree in any other university.



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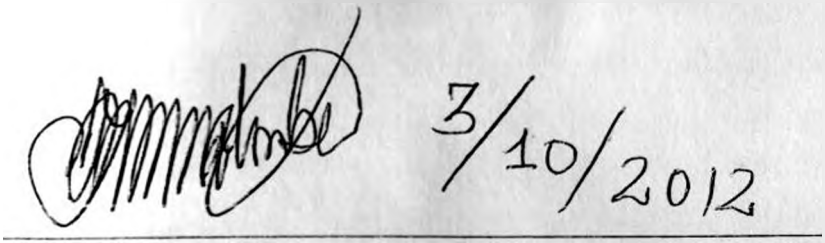

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ABSTRACT

The purpose of this paper is to undertake literature review to assess the effectiveness of public private partnership (PPP) finance on municipal capital projects in developing countries. The basis of this investigation is informed from the fact that urban development is the centre for attracting the required investments in the country. Furthermore the municipal councils' revenue base is not adequate to provide the required capital for the development of the infrastructure necessary to attract investments in these urban centres.

The paper draws on extensive literature reviews on the historical development of PPPs, and the underlying theories and models which are useful in this type of research. A comprehensive review of current literature covering all types of PPPs and municipal projects which have been financed using this type of finance, have been undertaken. Further the factors which need to be taken into account in a PPP type of financing have been analyzed.

The paper 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 are 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. The most critical factors include the legislation of appropriate laws and regulations, analysis of major risks and design of methods to mitigate the risks' and analysis of the positive and negative underlying factors which would need to be taken into account in PPP analysis.

In conclusion the paper notes that the PPP finance for municipal capital projects would be a major milestone towards service delivery and should be encouraged.

Table of Contents

List of Abbreviations

ADB	Asian Development Bank
BOO	Build Own Operate
BOOT	Build Own Operate Transfer
BOT	Build Operate Transfer
BT	Build Transfer
BTO	Build Transfer Operate
CFA	Confirmatory Factor Analysis
CHT	Cross Harbour Tunnel
DB	Design Build
DBFM	Design Build Finance Maintain
DBFO	Design Build Finance Operate
DBM	Design Build Maintain
DBO	Design Build Operate
DBOM	Design Build Operate Maintain
DMC	Developing Member Countries of ADB
EFA	Explanatory Factor Analysis
FBC	Fall Back Case
GDP	Gross Domestic Product
GOK	Government of Kenya
LA	Local Authority
LASDAP	Local Authority Service Delivery Action Plan
LG	Local Government
NPC	Net Present Cost
OBC	Observation Business Case
PFI	Private Finance Initiative
PPC	Public private Community
PPP	Public Private Partnership
PSC	Public Sector Comparator
vfm	Value for Money
ERS	The Economic Recovery Strategy for Wealth Creation and Employment

EBIT	Earnings Before Interest and Tax
DCF	Discounted Cash Flow
IRR	Internal Rate of Return
WACC	Weighted Average Cost of Capital

1 INTRODUCTION

1.1 Background

Infrastructure development is a fundamental catalyst of economic development. A country cannot attract investors if it does not have efficient transportation systems including roads, railways, etc. A country would not be able to attract investors if it does not have efficient communication systems including telephones and other communication systems. A country will not effectively develop if it does not have proper provision of electricity, water supply systems, and other infrastructures like sanitation, hospitals, schools and related services. Most countries development is centered within the major cities and municipalities. Therefore it is paramount that for a city or municipality to attract investment it must develop the infrastructure to attract investors and other related economic activities for economic development.

Lewis, 1998, in his article on the Impact of Infrastructure on Municipal Economic Development, notes that public infrastructure is widely believed by analysts to be an important stimulus to economic development, at least in those places where some potential already exists. This assertion is backed by other research work like that of Aschauer, 1989, and Munnell, 1990 where they have shown the importance of various kinds of public capital to U.S. national and state economic growth, respectively. Also Duffy-Deno and Eberts, 1991, examined the influence of public infrastructure at the municipal level in the U.S. and came up with the same conclusions regarding its positive impact. Results have largely been the same for other developed countries as Mera (1972), Snickars (1989), and Cutanda and Paricio (1993) demonstrate for places as diverse as Japan, Sweden, and Spain, respectively.

Therefore it is argued that the important issue regarding public capital is more institutional in nature and concerns the question of which level of government should provide (and, possibly, produce) public infrastructure so as to best encourage economic growth. According to Lewis, the potential benefits of decentralizing infrastructure decisions to the local level are well known, and most arguments in support of increased decentralization rest on assumed increases in allocative efficiency. That means, local governments, because of their proximity to local populations, are best placed to discern and respond to local demands for infrastructure services and thus augment welfare.

The allocative efficiency of decentralization has therefore made many countries in the world to devolve governance and infrastructure development to the local authorities (LAs) as a means of achieving higher levels of economic development. In Kenya the Economic Recovery Strategy for Wealth Creation and Employment (ERS) (GOK, 2003), emphasizes that business enterprises operate in localities for which local authorities are responsible for essential services. Hence the government's strategy to enhance resources at local levels as an enabling environment for increased economic development. The new Constitution promulgated on 27th August 2010 has assigned a central role in the development and delivery of infrastructure to county governments. Counties are mandated to plan, develop, manage and maintain a broad range of infrastructure within their jurisdictions.

According to the Asian Development Bank (ADB), (2003) report, most of the Central Governments of the developing member countries (DMCs) have devolved to local governments the responsibility for delivering basic public services and providing physical infrastructure, both of which required substantial financial resources. This meant that a local government would assume the responsibility for delivering services to the residents within a given geographical area taking into consideration the rapid urbanization which was taking place. This prompted the need for local governments to upgrade basic infrastructure in an attempt to meet increasing demands for public services.

1.2 Conceptual Perspectives

The Business Directory defines a municipal as an elected local government body having corporate status and limited self-governance rights, and serving a specific political unit such as a town or city. The term local government is usually used to bring out the graphic contrast between the local level system of government and the central or national level government. Equally in many cases the terms local government (LG) and local authorities (LAs) are used interchangeably. The central government could be a unitary government or a federated government. The normal practice has been that the local authorities exercises delegated mandate, often through a constitutional arrangements and or a legislated process.

The terminology applied to local government bodies vary from country to country. Some of the common names used include region, province, county, prefecture (as in Japan), municipality, shire (as UK), city, town. In Kenya the commonly used terms are city, municipality and towns. Under the new Constitution of Kenya, the terms county refer to the devolution units. In almost all jurisdictions local authorities provide basic community services to residents within their areas of jurisdictions.

Local governance is therefore an essential tool of development and service delivery to citizens. With most of the developing countries in the World decentralizing from a central system of service delivery to local government system of serving the residents, the LAs need to boost their finances so as to afford the tasks of developing infrastructure and other services. The DMCs, after the financial crisis of 1997/8, recognized the need for the local authorities to diversify sources of funds to finance these development projects (ADB, 2003). These funds were required to finance public services and developing key infrastructure including improvement of existing, often poorly maintained, infrastructure and to meet new demand for housing, education, water supply, sanitation, sewerage treatment and disposal, solid waste management, and public transport.

All these services which are cardinal to boost development and economic growth of the people require massive investments, much of which should be financed, co-financed, or guaranteed by local and/or municipal governments. According to the ADB, 2003 the Asian governments have made significant efforts to strengthen local government finance and diversify financing methods by reforming taxation and expenditure systems, reshaping intergovernmental transfers, accessing long-term credit markets, developing municipal credit markets, and recently privatizing key projects though Public Private Partnerships (PPPs).

A study on urban infrastructure in Indonesia New Town of Bumi Serpong Damai (Pangestu P E) noted that the governments have limited resources for financing infrastructure development. However cooperation and innovative approaches were needed that involved other development parties, especially from the private sector to undertake the development required for the new town. Therefore to overcome shortfalls in infrastructure investment, partnerships and synchronization of investments between public and private sectors were developed. In its findings the paper therefore noted that the participation and involvement of the private sector is invaluable for infrastructure provision and development, given the resource limitations of central and local governments.

Kyvelou et al, (2006), in their article have noted that while the PPP concept is just evolving in most of the developing countries, the system is now a major mode of financing municipal and LGs projects in UK and Europe generally. Arboleda et al, (2006), have also noted that PPP mode of financing is also gaining momentum in other parts of the world especially in the immerging markets, as is evident in the Americas, China (Cao, 2009), and it is also beginning to take root in some parts of Africa. The question is therefore, what are PPPs?

Caisse des Dépôts, (2003) defines a PPP as an arrangement between the public and private sectors, with clear agreement on shared objectives, for the delivery of public infrastructure and/or public services by the private sector that would otherwise have been provided through traditional public sector procurement. Ahadzi and Bowles, (2004), expands on this definition by noting that the basic PPP format is that the state or federal government departments are transformed from being owners and operators of infrastructures and public assets into the purchasers of services from the private sector, with the private sector becoming the long-term provider of services by taking the responsibility for the financing, feasibility study, design, construction, and the operation of the infrastructure and facilities.

The Canadian Council for Public Private Partnerships (CCPP) defined PPP as "a cooperative venture between the public and private sectors, built on the expertise of each partner, that best meets clearly defined public needs through the appropriate allocation of resources, risks and rewards" (CCPPP, 2001). The PPP arrangements are project specific and dependant on many factors such as public and private partners' skills, capabilities, limitations, projects' characteristics and also the environment in which the project is going to proceed. They can take different forms such as Build Operate Transfer (BOT), Build Own Operate Transfer (BOOT), Leasing, Joint Ventures or Operation and Management contracts.

Regardless of the names, all PPPs involve two or more actors, at least one from the public and another from the private sector, with each participant capable of bargaining on his own behalf. Secondly PPPs provide for a partnership establishing an enduring and stable relationship among actors, each bringing something of value to the partnership, sharing of risks and responsibilities for the outcomes or activities between parties involved, and a framework contract underpinning the partnership and providing the partners with some degree of certainty.

1.3 Problem Statement

Availability of infrastructure is a fundamental aspect for economic development of a municipal council. Due to the huge outlay for construction of such infrastructure, municipal authorities lack adequate financial resource to meet such costs. Such huge capital projects have been in the past financed through central government budgetary allocations, and loans from bilateral and multilateral development agencies. Overtime these sources have been diminishing due to budgetary constraints and lack of government guarantees due to risk of loan defaulting by the municipal councils. Most

recently use of infrastructure bonds PPPs have increasingly become the source for the financing of such infrastructure.

The PPP option can assist the MCs to mobilize adequate financial resources for funding their capital projects, given its potential for mobilizing private capital. MCs in developing countries have apparently not leveraged on this mode of financing infrastructural projects. This research therefore investigates how the MCs would do to mobilize PPP mode of financing for capital projects, the type of capital projects that would attract PPPs mode of financing, and the factors which MCs should take into consideration in evaluating various types of PPP finance.

The research questions which need to be addressed to deal with this apparent problem are:

a) What methods have Municipal Councils in developing countries used for financing capital projects?

b) What types of Public Private Partnership models are suitable for financing Municipal Councils capital projects?

c) What factors should be considered in evaluating the suitability of Public Private Partnership model in the financing of Municipal Councils capital projects?

1.4 Organisation of the Paper

This report has four chapters including this introduction which gives the background to the study, its conceptualization, and the problem statement which leads to the research questions. Chapter Two analyzes the general and theoretical literature exploring the historical origins and development of PPPs generally and specifically as mode of financing of Municipal projects. In addition the chapter reviews the theories and models which explains PPPs financing and the current emerging knowledge and theoretical development in PPP finance for municipal projects.

Chapter Three analyzes the empirical literature with a focus on the research questions by reviewing the current mode of finance available for the municipal projects in developing countries; the type of PPPs mode of finance for municipal capital projects; and the factors which need to be considered in PPP type of finance for municipal projects. The chapter concludes by analyzing the current research being undertaken in the area of PPP finance for municipal projects.

Chapter Four gives a conclusion with a listing of the major findings of this study. It also gives an analyzes of the areas requiring further study, and the conclusion drawn from this paper and way forward.

2 GENERAL AND THEORETICAL LITERATURE REVIEW

2.1 Introduction

This chapter outlines the historical evolution of PPP project financing, and in particular the mode of finance which have been used for financing municipal infrastructures. The chapter also explores the underlying theories and models explaining the rationale behind PPP mode of financing of capital projects, including various models for evaluation of PPP financing. Finally the chapter concludes by analysing the emergent knowledge or/and theoretical perspectives on development of PPP financing.

2.2 Origins and knowledge Development on PPPs Financing

Feldman, et al (2002) book traces the origin of PPP project financing in the United States of America (USA) to the development of science and technology during the 17th Century. According to the book it was not until early 18th Century when Benjamin Franklin formed the American Philosophical Society of Philadelphia in 1742 for the purpose of encouraging correspondence with colonialists in all areas of science, that the first tangible example of how public private sector interests could work together for the common well-being of the nation became evident. The combined society focused on making available advancements in agriculture and medicine to all individuals by sponsoring the first medical school in America which was also supported by the Pennsylvania House of Representatives.

This Philadelphia example caused chains of reactions starting with the inclusion of the national universities for the promotion of science, in the Constitution in 1787. Under Article I, Section 8 of the Constitution, the Congress was given the power to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries. This led to the Congress passing the first patent Act in 1790. These developments were followed by the request in 1791 by Alexander Hamilton, in his role as Secretary of the Treasury, for a more direct role of the government in support of the nation's manufacturing.

According to Feldman, the development in science and technology in the USA was a joint initiative between the public and private sectors. The public sector (Federal Government) funded

various institutes and research centres for the advancement of science. Notable examples are President Jefferson sponsoring of the Lewis and Clark expedition in 1803 to advance the geographic knowledge of the Nation. During the period between 1820s and 1830s the government directly funded the Franklin Institute in Philadelphia to investigate the causes and develop control mechanism for the cholera epidemic of 1822. In 1838 the Federal Government provided $30,000 to Samuel Morse to build the trial electric telegraph line between Baltimore, Maryland, and Washington, DC. Also in 1829 James Smithson gave $500,000 to the United States to found an institution in Washington, DC for the purpose of "increasing and diffusing knowledge among men" (Unesco, p. 12).

What started as promotion of science and technology through public private initiatives mainly on research and development moved to applied technology in infrastructure projects. Some of the earliest PPP modes of finance for infrastructure projects date back to the 19th century whereby the private toll roads, with the public sector providing support through land grants and subsidies were undertaken. This mode of financing advanced a lot such that by the mid-nineteenth century more than 10,000 miles of private toll roads were in operation (Meyer and Gomez-Ibañez, 1993).

Desiderio, (2008) has written on the France's experience of Public-Private cooperation in infrastructures. According to this article PPP type of financing in France has been in existence since the *Ancien Régime* which was the basis of France building its first public infrastructures,. During 16th and 17th centuries, public-private cooperation allowed the construction of canals and bridges like the Canal du Midi, in the south of France, which is considered as one of the first PPP financing in the early history of public private cooperation. In the 19th century France government collaborated with private sector for railway, metro, water, sanitation, and electricity infrastructures projects. In the 20th century other sectors within the economy like motorways, waste management plants were built under public-private contracts. Currently France is using PPPs to build even stadiums, museums, hospitals, prisons, and many other public buildings.

According to Desiderio the evolution of PPPs in France gave birth to "Concessions", under the operating form called "Affermage", which means the transfer (delegation) of a public service to a private company. Since 1955, France developed these innovative solutions to finance public facilities, with little public funds. This was the beginning of private sector involvement in all phases of infrastructure projects from designing to building, financing and operating for a

concessionary long time period, with the projects remaining under the control of the public sector and the private business being paid or compensated from the fees. Today most of the large capital projects (waterways, railways, bridges and tunnels, highways, power supply facilities, waste and water treatment plants, public transportation, hospitals, prisons, stadiums, and airport management) in France are primarily financed through what are known as "Contrats de Partenariat" (Partnership Contracts).

Deloitte Research, (2006) contends that the UK has been a modern instigator of this wave of private sector involvement, with the introduction of the Private Finance Initiative (PFI). PFIs have been used to develop and deliver all manner of infrastructure and services and now represent 10 to 13% of all UK investment in public infrastructure, with about 100 PFI projects initiated or completed per year. The evolution of PPPs in the UK in early 1990s was meant to answer the question on how the government can guarantee services to all citizens while minimizing costs and retaining incentives for high quality and on-time provision. Therefore in the wake of the conservative revolution of Margaret Thatcher, the government began to explore avenues of co-production of public services with the private sector. PFI, as it was called in the UK spread quickly across sectors and took various forms, depending on the exact role that each project assigned to the private and public sectors (Allard et al, 2008).

Kyvelou et al, (2006) in their article on urban development through PPPs in the Euro-Mediterranean region notes that UK which has been in the lead in the PPP finance, is now focusing on the management of urban space by creating institutions, which would function as instigators and coordinators between the private sector and the central or local authorities, within the frame of a PPP. The growth in use of PFIs in UK with its modern ways of application has inspired governments worldwide to adopt PPP arrangements.

Farrell Grant Sparks (FGS) et al, (1998) writing, one of the countries which benefitted from the UK experience of PPP type of financing is Ireland. The Government of Ireland contracted FGS to undertake a study on the best approach to PPPs. The purpose of the FGS report was to analyse the potential use of PPPs in Ireland and to develop criteria for and advise on the issues arising in implementing the PPP concept. A Central PPP Unit was established in the Department of Finance in January 1999, and one in the Department of the Environment and Local Government with responsibility for promoting PPPs within the local government sector. This was followed by

the inclusion of the PPPs as part of the country's development plans for the years 2000 to 2006. The National Development Plan in incorporating the PPPs, stated that the private sector can bring benefits in terms of management, financial and technical skills, risk sharing, and of increased efficiency through improved exploitation of private sector skills.

The experience of PPP type of project financing in Netherlands, is documented in the article by European Commission, (2004), which noted that PPPs have been in operation since 1999. According to the article the Netherlands Government has put in place a strong administrative framework for management of PPPs development. The article also notes that the European Union has so far recognized the need to promote public – private partnerships on official basis so as to ensure full coordination in urban development through PPP in the member countries. Therefore it has therefore developed an explicit legislative framework in 2004, followed by the issuing of the "Green Paper on PPPs and community law on public contracts and concessions".

Deloitte, (2006) did research on PPP type of financing in developing countries. The research found that contracting out was introduced in developing countries the mid-1980s during the first wave of governmental privatisation of state enterprises, under structural adjustment programs. Policies were adopted to address the perceived lack of managerial capacity in government, as well as the need to stop the continued dependence of state enterprises on state subsidies.

Deloitte research further found that in Africa, between 1990 and 2004, approximately 14% of public sector infrastructure was provided through a PPP mode of finance, common sectors being water, energy and transport. The PPP trend is global, accelerating and encompassing a broad range of infrastructure sectors. Applying PPPs in social infrastructure sectors has to some extent reduced the concentration of PPP projects at the central government level. Also the research found that increasingly there are many local authorities engaging in PPP arrangements to procure much needed local infrastructure.

2.3 Theories/Models informing on PPPs Financing

2.3.1 Underlying Theories of Public-Private Partnerships Private Partnerships

The underlying theories informing on the PPP modes of financing infrastructure in municipal councils would have a bearing to the development needs of the council, and therefore the need for the council to cooperate with the private sector to mobilize the required resources. The

second set of theories would address the investor profit motives and the associated risks in PPP mode of financing. This section therefore reviews some specific theories on the role of infrastructure in development and the investor costs and profit minimisation/maximisation theories.

2.3.1.1 Rostow's stages of economic development theory

Rostow (1960) work came up with five stages of development which the first is the traditional society whose structure is developed within limited production function based on the pre-Newtonian science and technology and as pre-Newtonian attitudes towards the physical world. The social structure is that family and clans played a dominant role. Political power was concentrated in a few aristocratic leaders and more than 75% of the working population was engaged in agriculture. In this stage agriculture would be the main source of income of the state and the rulers and the society was dissipated on construction of expensive churches and temples, on expensive funnels and weddings, and on the prosecution of wars.

The second stage which is the transitional error is the preconditions for take-off. New type of enterprise men come up in private economy and in government willing to mobilise savings and take risks in pursuit of profits or modernisation. Banks for mobilising capital increases, and investments especially in transport communication and production of raw materials increases. According to Rostow during this stage there are radical changes in none industrial sector. Firstly is the build-up in social overhead capital especially in transport to enlarge the market, to exploit natural resources productively and to allow the state to rule effectively. Secondly a technological revolution in agriculture to increase production to meet the needs of the rising general and urban population; and finally an expansion of capital imports financed by efficient production and marketing of natural resources for exports.

The take-off stage requirements according to Rostow is a substantive rise in the rate of productive investment from a low level of growth to sustained 10% growth or over. It involves the development of one or more substantial manufacturing sector with a high rate of growth. Finally the emergent of a political, social and institutional framework which inspires the growth to the modern sector. This then leads to the drive to maturity which is defined as the period when a society has effectively applied the range of modern technology to the bulk of its resources. The

working force becomes skilled and the economy is able to maintain a sustained growth of at least 10%

The final stage of development according to Rostow is the age of high mass consumption. At the stage the population is highly urbanised and the stage is characterised by national policies which enhances power and influence; more equitable distribution of national income; and the need to create new commercial centres and innovation.

Key factors in this theory are the involvement of the private sector by the state to progress through the stages of development. The second factor is the investment requirement in productive sectors including social sectors like transport, electricity, water and related infrastructure necessary to exploit natural resources for development.

2.3.1.2 The big push theory

This theory was developed by Professor Rosenstein-Rodan in 1961 and states that a big push or a large comprehensive programme is needed in the form of a high minimum amount of investment to overcome the obstacle to development in an underdeveloped economy and to launch it on the path to progress (Jhingan, 2000). In other words for an economy to progress bit by bit will not take it to the development path, rather a minimum amount of investment is a necessary condition to achieve this. The theory states that there is need to obtain external economies that arise from the simultaneous establishment of technically interdependent industries. Therefore indivisibilities and external economies flowing from a minimum quantum of investment are a perquisite for launching economic development successfully.

The three indivisibilities and external economies identified by Rosenstein-Rodan include the indivisibility in the production function, indivisibility in demand, and indivisibility in the supply of savings. Indivisibilities of inputs, outputs or processes leads to increasing returns, with social overheads being considered the most important instance of indivisibility and hence of external economies on the supply side. According to Rosenstein-Rodan, the social overhead capital comprising of basic industries like power, transport and communication are directly productive and have a long gestation period and that they cannot be imported. These social overheads are characterised by four factors, they are not irreversible in time, has a minimum durability, and has a long gestation period. Finally they have an irreducible minimum industry mix of different kinds of public utilities. Therefore these indivisibilities of supply of social overhead capital are

one of the principal obstacles to development in underdeveloped economies. To overcome this, a high initial investment in this capital is necessary in order to pave the way for quick yielding directly productive investments.

This theory therefore shows the importance of infrastructure to the development of the state or region. It also shows that there is need for external investment in these social capital to enable the state move to the development of the productive investments. The envisaged big push investment would have to come from private capital as the level of investment required would not be available from the public sector.

2.3.1.3 Transaction cost theory

This work was developed by Ayee, (2005) focusing on the process of contracting. The theory views the parties attempting to engage as contracting both in terms of the exchange and their execution. It states that, a contract should also take into account all the expenses made in order to reach an agreement, whether personal or social. Further it notes that contracting process can be very costly in that it includes not only the structuring, monitoring, bonding and residual loss costs of the principal-agent problem, but also includes the costs of negotiation.

The theory applied to PPPs notes that they can incur high transaction costs, especially where there is no culture of PPPs or little knowledge of the process. When there is government provision, production costs will largely determine the total social costs, and because they are internalised, transaction costs are likely to be low. It is evident that due to managerial inefficiency, large government infrastructure projects have often been way over the budget.

PPPs can lower production costs because of competitive pressures that eliminate managerial inefficiency. Economies of scale may mean that private sector firms have lower production costs. But private production can raise transaction costs because government has to negotiate with and monitor suppliers who have their own incentives.

2.3.1.4 The Markowitz Portfolio Theory

The Markowitz portfolio theory developed in 1952 relies on a number of assumptions regarding investor behaviour, that investors will always seek the second opinion. It postulates that investors when presented with a spectrum of alternatives, they will consider all expected rates of return over a specified holding period. Secondly investors will be interested to know the estimated risk

level of all securities contained within a portfolio. According to the theory investment decisions are solely based on these two variables, the levels of expected return and the expected risk.

Notably, for any given risk level, investors will always rather go for portfolios with higher expected returns than for those with lower returns. Alternatively, for any given expected return level, investors are likely to prefer portfolios with less risk than those with more risk. This is applicable in a PPP type of investments as the private investor will have to evaluate the investment against other available portfolios. Also the issues of uncertainty and investor returns will be major considerations.

2.3.2 Models for evaluation of PPP projects

2.3.2.1 Capital asset pricing model (CAPM)

CAPM is one of the economic models investors can use for deriving their expected rate of return for a portfolio, given the market or industry they have invested in. The model was first developed simultaneously by Sharpe (1963, 1964), and Treynor (1961), and then further developed by Mossin (1966), Lintner (1965, 1969), and Black (1972). It shows that the equilibrium rate of return on all risky assets are a function of their covariance with the market portfolio.

The CAPM assumes that investors are risk-averse who maximise the expected utility of their wealth. Secondly it assumes that investors are price takers and have homogeneous expectations about asset returns that have a joint normal distribution. Thirdly there exists a risk-free asset that investors may borrow or lend unlimited amounts at a risk-free rate. Fourthly, the quantities of assets are fixed and all assets are marketable and perfectly divisible. Fifthly, it assumes that asset markets are frictionless, and information is costless and simultaneously available to all investors. Finally it assumes that there are no market imperfections such as taxes, regulations, or restrictions on short selling.

CAPM is used to determine a theoretically appropriate required rate of return of an asset, if that asset is to be added to an already well-diversified portfolio, given that asset's non-diversifiable risk. The model takes into account the asset's sensitivity to non-diversifiable risk (also known as systemic risk or market risk), often represented by the quantity beta (β) in the financial industry, as well as the expected return of the market and the expected return of a theoretical risk-free asset. The required return function would be presented as follows:

$$R_j = i + \beta_j (R_m - i) + e_j$$

Where i is the risk-free rate which is also the intercept, and β_j is a measure of the responsiveness of the excess return for the project (over the risk-free rate, i) to the excess return on the market portfolio, $R_m - i$.

2.3.2.2 Discounted Cash flows (DCF)

DCF models use the net present value (NPV) and the internal rate of return (IRR) to evaluate the viability of a project. According to Luenberger, (1998), this is the traditional model which has been used for evaluation of PPP projects over the years. This model was first applied to Corporate Finance by Joel Dean in 1951. These techniques require the analyst to estimate the net cash flows (revenues minus expenditures) during the project's life. These cash flows are discounted using an interest rate known as the opportunity cost, which takes into account the cost of the different sources of funds (capital and debt) for the project. In DCF analysis, it is assumed that the discount rate is constant over time, though realistically this is not the case. This means that the dynamics of the project are not considered in the evaluation using DCF techniques.

Arboleda et al, (2006) has written comprehensively on the evaluation of PPP projects. The article notes that estimation of the discount rate is very important in the evaluation of infrastructure projects because each project is different and there may not be sufficient historical data to assess the level of risk of similar projects. It is therefore necessary to adapt traditional financial methodologies, such as the weighted average cost of capital (WACC) in order to determine the appropriate rate of return on the project.

The discount rate has two major components, a risk free rate, and a risk premium (Ross *et al.*, 2002). It is assumed that if the risk of undertaking the project is higher compared to a risk-free scenario, then the discount rate should reflect this additional risk in order to provide the expected return to the investor. Thus, there is a correlation between the level of risk on the project and the discount rate. Garvin and Cheah (2004) describe a procedure to determine the "risk premium" of the discount rate in infrastructure investment decisions. The methodology considers the ratio of the present value of the fixed costs and the present value of the assets (a proxy for the present value of the assets is the earnings before interest and taxes (EBIT)). Even though this procedure

is not as rigorous as the traditional financial methodologies, it provides a good estimate of the discount rate given the conditions of a project.

In employing DCF, investments are made if the NPV is greater than zero. However, the DCF methodologies do not take into account managerial flexibility (postpone, defer, or cancel the capital investments) because it assumes management's commitment to a certain "operating strategy" (Trigeorgis, 1996). The evaluation is done considering a specific scenario (fixed policy) that captures the expectations of the investor with the information available at the time of the decision-making process. Since the maintenance and operation of infrastructure systems (water, wastewater, toll roads) clearly necessitate decisions at future stages, the NPV methodology provides a limited estimation of the economic benefits of the project. Besides, DCF techniques do not capture the uncertainties associated with the operation and maintenance of infrastructure systems. These uncertainties are manifested mainly in the demand for services (revenues) and the condition of the existing infrastructure components (maintenance costs).

2.4 Emergent Knowledge and Theoretical Perspectives on PPPs Finance for Capital projects

2.4.1 UK Treasury's New Value for Money Assessment Model

The United Kingdom (UK) Treasury has developed a model for PFI procurement which includes both a qualitative and a quantitative assessment (HM Treasury, August 2004). The qualitative assessment is required to answer three key questions covering the viability, desirability and achievability of the project. Viability factor tries to answer the question - can the service requirements be stated in clear output based terms and can the effectiveness of service delivery be measured and monitored? Can operational flexibility be maintained over the lifetime of the contract at an acceptable cost? Desirability factor try to answer the questions - is PFI likely to involve better risk management, significant risk transfer and better incentives for delivery on time and to cost? Is PFI likely to involve greater innovation? Achievability factor try to answer the questions - is there evidence that the private sector is capable of delivering the required outcome? Is there likely to be sufficient market appetite for the project? Is there/will there be sufficient client-side capability to manage the procurement process and appraise on-going performance against agreed outputs?

The quantitative part of the model contained in an excel which can be downloaded at http://www.hm-treasury.gov.uk/documents/public_private_partnerships/key_documents/ppp_keydocs_vfm.cfm. The model provides a comparison between the discounted risk adjusted costs (i.e Net Present Costs (NPC)) of the Public Sector Comparator (PSC) and the PFI option, as estimated at observation business case (OBC) stage. The output from the vfm model is a comparison between the risk adjusted NPCs of the PSC and the PFI option, as estimated at OBC stage. The estimated NPC for the PFI option is derived within the model from the PSC costs, risk transfer, and PFI funding costs. The NPC is not based on a market sounding for the individual scheme in question.

The inputs to the model include the whole life costs of the PSC, including capital, lifecycle and operating costs. It also includes the whole life costs that would be borne by a PFI provider, including capital, lifecycle and operating costs. Further inputs include the interest rates, bank margins, that impact on the PFI company's funding costs, optimism bias, risk transfer (which is labeled post fall back case (FBC) optimism bias in the model), and transaction costs. The model derives estimates of the NPC of the PSC, the unitary payment under PFI and the NPC of the PFI option.

2.4.2 Real Options Analysis (ROA)

According to Luenberger, (1998) ROA is not new in the finance world although it is the latest methodology that has been used to value flexibility in capital investments. According to Ross et al. (2002), an option is a contract giving its owner the right to buy or sell an asset at a fixed price on or before a given date, which means that it is possible at time t+1, given new information collected in the time period between t and t+1, to make a better decision based on the current value of the asset at time t+1. For instance, if the future price of an important construction material in a project is uncertain, a contractor may pay a premium to a supplier in order to have the option of buying a given amount of materials at a price (exercise price) determined today (time t). Depending on the market condition at time t+1, the contractor will have the flexibility of deciding which price is the most convenient. If the market price is higher than the exercise price, the contractor will buy the materials at the exercise price, saving money compared to the current market price. If the market price is lower than the exercise price, the contractor will not use his option and will buy the materials at the market price. The original premium is not recovered in any case.

There are several methodologies to determine the price of an option, and the application of a given methodology depends upon the assumptions considered by the analyst. These assumptions refer to the market, the dynamics of the asset behavior, and individual preferences (Luenberger, 1998). Even though the methodologies may differ, the input data required to value the option are similar. The variables that determine the value of an option are value of the underlying asset (S), present value of the project's operating assets (exercise price) (X), required investment to acquire the option over the asset (time to expiration) (t), length of time the decision may be deferred (risk-free rate) (r f), time value of money, and volatility (σ) or project risk (volatility of the expected cash flows).

2.4.3 Deterioration models

Deterioration models have been used in the past to predict the deterioration process of pavements, bridges, and sewers based on Markov chain models. The Markov chain models uses two major attributes, the condition (state) of the infrastructure system, and the time period (stage) of the analysis. Deterioration models are developed based on the results of the condition assessment of the infrastructure system. In PPPs evaluation a major uncertainty in the analysis of the cash flows to be dealt with is deterioration process of the infrastructure systems, which primarily affects the costs of operation and capital investments.

The deterioration process is a function of the type of consumer, economic growth, quality of the materials and construction processes, age of the infrastructure, and maintenance routines. The model require as input data the probabilities of transitioning from state (condition) i to state (condition) j (i.e. $p\ ij$) from the current stage (t) to the next stage (t+1). These transition probabilities can be found based on non-linear optimization techniques by minimizing the sum of the absolute difference between the expected values from a regression model and the Markov chain model (Baik, 2003). Once a deterioration curve is determined, it is possible to apply probabilistic dynamic programming to estimate the capital investment costs required to maintain the operation of the infrastructure system.

3 EMPIRICAL LITERATURE REVIEW

3.1 Introduction

This chapter analyses various empirical studies with a view to deal with the questions this research is meant to answer identified in the problem statement. Subsection 3.2 deals establishes the methods currently used in developing countries for financing the Municipal Capital Projects. Subsection 3.3 establishes the types of PPP models suitable for financing MCs capital projects in developing countries. Subsection 3.4 establishes the factors which could be considered in evaluating the suitability of PPP model in the financing of MCs capital projects. Finally subsection 3.5 reviews the current empirical research focus towards development of PPP type of finance for MC capital projects.

3.2 Methods of Financing Municipal Capital Projects in Developing Countries

The assets of municipal authorities are many and diverse ranging from the provision of telecommunication and electricity services. Others include urban facilities, such as shopping centres, markets, places for entertainment and amusement, transport stations, education, health services, mosques and churches, public halls, sports facilities, parks, green belts, cemeteries, etc. Others include the provision of urban infrastructure, such as roads, water supply, drainage, sanitation, solid waste, electricity, telephones, and town gas. The assets also include public housing development and the maintenance of basic infrastructure to support the existence of various other urban components.

The ADB, 2003 report states that financing of local governments expenditures on infrastructure in the DMCs is from the internally generated revenues, central government transfers and externally raised loans. The report also notes that PPP mode of financing has been recent and not widespread in all the DNC economies. The internally generated funds consist of tax and nontax revenues, government transfers include grants and loans, and external funding includes both bank loans and bonds.

Over the years due to urban growth, demand for investment in water systems, wastewater collection and treatment, roads, and other infrastructural facilities, have multiplied. According to the ADB, currently the Asian cities cannot survive without accessing private domestic savings.

The private financing has been attracted to urban infrastructure in different ways including direct private investment in income-earning facilities with the most critical being the local credit market.

Two models of municipal credit markets which have been used in Asia (ADB, 2003), are bank lending, which financed municipal investment in Western Europe throughout most of the 20th century and is still the primary source of local credit financing there. The other is the municipal bonds, which have been the foundation of municipal borrowing in North America. The challenge however has been on building reliable local credit markets where they did not exist before. Large-scale use of municipal development funds (MDFs), began in Brazil 30 years ago. Several states in Brazil have subsequently instituted MDFs, with a record of success that is enviable, with very low rates of nonperforming municipal loans and successful completion of local investment projects. However despite all this, Brazil today is as far away as ever from having a functioning local credit market as municipal bond issues are prohibited.

In India the States' (Local government) deficits, mainly to meet the capital development budgets, are financed largely through loans from the Central Government, according to the ADB report. The other sources include Boards from the Reserve Bank of India, and loans from the financial institutions. Lately due to deteriorating state government finances due to imbalance between large expenditure requirements for capital projects development, there has been increased need to involve the private sector and financial institutions whereby special purpose vehicles (SPVs) for infrastructure development have been created in the states of Gujarat and Karnataka. In part the SPVs have been used to mitigate the low credit rating associated with the state governments.

Besides India, the Republic of Korea has also developed SPVs to provide creative debt conversion and credit pooling and infrastructure bonds to overcome restrictive regulations on bond financing and limited creditworthiness of local governments. In the Republic of Korea, several cities introduced Samurai bonds to finance local development, which provided a 13 billion yen for financing the construction of Daejeon Riverside Expressway. India has introduced the USA credit pooling method where a special state intermediary with a superior credit rating raises funds through bond issuance and on leads to local governments through purchasing their bonds, (ADB, 2003).

Other methods which have been used for financing municipal capital projects in the DMCs include equity contribution from the Central Government, power purchase agreements and lately the PPPs. Example of the PPPS is the build operate and transfer (BOT), which has enabled governments in Taipei, China and India to encourage private sector participation in local infrastructure projects.

India has also utilized BOT in its various forms of build-own-operate, build-operate-lease-transfer to finance infrastructure projects. These arrangements have been complemented by government support in the form of equity participation, concessions in land or water supply, dedicated revenue streams for loan repayments, and a transparent regulatory framework. At the same time many states in India have created SPVs to finance their urban infrastructure projects through private-public partnerships. SPVs are formed with seed capital from equity contributions from state governments or sponsors. The Noida-Delhi toll bridge project is an example of how an SPV was created to implement a project using build-own-operate-transfer.

Research by Baietti and Raymond, 2005), on the private sector participation (PSP) in developing-country infrastructure investment, found that the water sector accounted for 5.4 percent of the total investment from 1990 to 2002, which shows the relevance of PPPs in the development of new water systems and the operation and maintenance of existing systems. The research also found that in Africa there are other projects also implemented through PPPs finance ranging from toll roads in South Africa, Ports in Tanzania, South Africa and the a number of West African ports, railways in Kenya/Uganda and other parts of Africa, and also water and sanitation projects. The article however notes that there are no clear examples of municipal instigated projects in Africa.

According to available information, there have been some kinds of municipal PPP type of projects implemented in Kenya during the last ten years, mainly in the Nairobi City. The well known one is the street lighting project between the City of Nairobi and Adopt a Light Ltd. This project however has not been sustainable mainly because of lack of adequate legislations and laws to govern the PPP financing in the country. Recently the City of Nairobi floated a Municipal Board to finance infrastructure in the city. The success of the bond is yet to be known as it is in the initial stages.

3.3 Types of PPP Financing Suitable for Municipal Capital Projects

Research by Kyvelou, et al, (2005) shows that, one could distinguish between three types of partnerships for urban development. In the first model, the partners join their forces in an attempt to maximize their profit, whereas in the second, emphasis is given in finding additional pecuniary resources for the project's materialisation. The third model concerns the involvement in a PPP that leads to the exchange of "know-how" and working methods so as to achieve a new type of effective collaboration (Tsenkova, 2002). However, as noted by Kyvelou, et al, (2005), the model that will be adopted depends on the needs of each region, and the nature of the involved partners.

Palmer, (2009) has analysed various types of PPP type of financing models which are used for financing various infrastructure projects. The first one is the **Design-Build (DB)** model, as **Build-Transfer (BT).** Under this the municipal authority would contract a private partner to design and build a facility in accordance with the requirements set by the authority. After completing the facility, the municipal authority assumes responsibility for operating and maintaining the facility. The second model analysed in this article is **Design-Build-Maintain (DBM).** The model is similar to Design-Build except that the private sector also maintains the facility. The public sector retains responsibility for operations. Third model is **Design-Build-Operate (DBO)**, also referred to as **Build-Transfer-Operate (BTO).** Under this model the private sector designs, builds and operate a facility for a specified period of time, after which the facility is transferred to the public sector.

The fourth PPP type of financing model Palmer analysed is **Design-Build-Operate-Maintain (DBOM),** which combines the responsibilities of design-build procurements with the operations and maintenance of a facility for a specified period by a private sector partner. At the end of that period, the operation of the facility is transferred back to the public sector. This method of procurement is also referred to as **Build-Operate-Transfer (BOT).** Fifth is **Build-Own-Operate-Transfer (BOOT,** whereby the municipal authority grants a franchise to a private partner to finance to design, build, operate and own a facility for a specific period of time, after which the facility is transferred back to the public sector. Sixth is **Build-Own-Operate (BOO)** type of PPP finance where the public body grants the right to finance, design, build, operate and a project to a private entity. The private entity retains ownership of the project. Finally is the

model of **Design-Build-Finance-Operate/Maintain (DBFO, DBFM or DBFO/M).** Under this model, the private sector designs, builds, finances, operates and/or maintains a new facility under a long-term lease. At the end of the lease term, the facility is transferred to the public sector. In some countries, DBFO/M covers both BOO and BOOT.

Further Palmer, has argued that PPPs can also be used for existing services and facilities in addition to new ones under the **Service Contract**, whereby the public contracts with a private entity to provide services the government previously performed. This could also be done through a **Management Contract** where the private entity is responsible for all aspects of operations and maintenance of the facility under contract. **Leasing** is another method, where the government grants a private entity a leasehold interest in an asset. The private partner operates and maintains the asset in accordance with the terms of the lease. In a **Concession** the government grants a private entity the exclusive rights to provide operate and maintain an asset over a long period of time in accordance with performance requirements set forth by the government. The public sector retains ownership of the original asset, while the private operator retains ownership over any improvements made during the concession period. The final type of PPP used for existing public entities as analysed by Palmer is **Divestiture.** In this case the government transfers an asset, either in part or in full, to the private sector. Generally the government will include certain conditions with the sale of the asset to ensure that improvements are made and citizens continue to be served.

Allard et al, (2008), provides an analysis of the three main classifications of PPPS/PFIs that have emerged in UK over time, which include variants of design-build-finance-operate (BOO, BDO, and DCMF). The second type is where the private sector buys or leases an existing asset from the government renovates, modernizes and/or expands it and then operates the asset, and again the private sector has no obligation to transfer ownership back to the government. These normally include buy-build-operate (BBO), lLease-develop-operate (LDO), and wrap-around-addition (WAA)). Finally is the case where the private sector designs, builds and operates and then transfers the asset back to the government at some specified time, whereby the private sector could rent or lease the asset from the government after transfer. These include build-operate-transfer (BOT), build-own-operate-transfer (BOOT), build-rent-own-transfer (BROT), build-lease-operate-transfer (BLOT), and build-transfer-operate (BTO).

In Cheung and Chan, (2009) research they have concluded BOT is one of the most commonly used PPP type of financing. They note that the concept of BOT has been used since the late 1960s in Hong Kong, where in September 1969, the construction of the Cross Harbour Tunnel (CHT)m which was the first BOT type project in Hong Kong commenced (Mak and Mo, 2005). The CHT, which is a two-lane tunnel in each direction took 36 months to complete and was 11 months ahead of schedule. The CHT was an instant success when it came into operation in August 1972. Within three and a half years of operation the tunnel had collected enough tolls to pay back its construction cost. The tunnel is probably the most successful BOT project in Hong Kong, and is still one of the most important and profitable pieces of infrastructure (Mak and Mo, 2005).

3.4 Factors to be considered in evaluating PPPs Financing for Municipal Capital Projects

In the work of Jamali, et al, (2004), they conclude that while PPPs type of financing can provide a mechanism for exploiting the comparative advantages of public and private sectors in mutually supportive ways, there are several factors which need to be considered when contemplating a PPP mode of financing. Firstly, the government should maintain its involvement, whether in its capacity as partner or regulator. This is especially true where accountability is critical, cost-shifting presents problems, the timeframe is long, or societal normative choices are more important than costs (Spackman, 2002). Secondly, PPPs should not be expected to substitute for action nor responsibilities that properly rest elsewhere. In particular, the public sector should continue to set standards and monitor product safety, efficacy and quality and establish systems whereby citizens have adequate access to the products and services they need. In other words, PPPs do not imply "less government" but a different governmental role, and more skilled government participation (Scharle, 2002).

Pongsiri (2002) has emphasizes the need for establishment of a transparent and sound regulatory framework as a necessary condition for private sector participation in a PPP, a fact further emphasized by Baker (2003). Regulation provides assurance to the private partner that the regulatory system includes protection from expropriation, arbitration of commercial disputes, respect for contract agreements, and legitimate recovery of costs and profit proportional to the risks undertaken. A sound regulatory framework can also increase benefits to the government by

ensuring that essential partnerships operate efficiently and optimizing the resources available to them in line with broader policy objectives (Di Lodovico, 1998; Zouggari, 2003).

The Republic of Ireland has recognised the need to maintain active public sector role in a PPP type of financing policy in infrastructure development. The review of the policy document by the Department of the Environment, Heritage and Local Government (November, 2003) of Republic of Ireland shows that the government first developed very clear legislations to regulate the PPP operations in the country and particularly in local government financing before it set the motion of PPP type of finance. The European Union in 2004 recognized the need to promote public – private partnerships on official basis and has therefore came up with an explicit legislative framework, which was followed by the issuing of the "Green Paper on PPPs and community law on public contracts and concessions" (European Commission, 2004a) which includes a wide scale public consultation. In Austlaria various levels of regulations are also in place, overall for the Federal Government and for the state governments which must comply with the Federal Government regulations (Walker, 2002; WWG, 2001).

Research shows that development of PPP type of financing in Kenya is still at the lowest levels. Research by Kitolo, (2009), has found that there are only two pieces of legislation in Kenya that provide some foundation for PPP arrangements. The Privatization Act 2005 which defines privatization as a transaction that result in a transfer, other than a public entity of assets of a public entity including the shares in a state corporation, operational control of assets of a public entity, and operations previously performed by a public entity. The second is the Public Procurement & Disposal (PPDA) Act 2005 which defines public private partnership as an agreement between procuring entity and a private party under which the private party undertakes to perform a public function or provide a service on behalf of a procuring entity, and the private party receives a benefit for performing this function. The private party performs the function either by way of compensation from a public fund, charges or fees, or combination of compensation and charges. Section 64(4) of the PPD Act states that the Public Procurement Oversight Authority shall issue detailed guidelines for Concessioning or PPPs.

Samii *et al.* (2002) has detailed out the key formation requirements of effective PPPs, which includes resource dependency, whereby the partners recognize that what can be achieved together cannot be achieved alone. Secondly that there is commitment symmetry, meaning that

there are equal commitment from partners confirmed through the allocation of time and resources. That there is common goal symmetry, such that individual goals are an output or a subset of the overall program objectives. The parties have regular and intensive communication, through different channels/means. And finally there are alignment of cooperation learning capability with sharing of knowledge across organizational boundaries to alleviate problems of information asymmetry and ensure convergence in learning skills and speed; and converging working cultures with joint development of a set of working practices and procedures to level out differences in working style/culture.

On the other hand Kanter (1994) key requirements of effective PPPs include individual excellence, to ensure that both partners are strong and have something of value to contribute to the relationship; importance of the relationship cross-cutting major strategic objectives of partners so they want to make it work; interdependence as neither can accomplish alone what they both can together; common investment, (e.g. equity swaps or mutual board service) to demonstrate their respective stakes in the relationship and each other; partners share information required to make the relationship work, including their objectives/goals, technical data/knowledge of conflicts, trouble spots or changing situations; integration with developed linkages and shared ways of operation so they can work together smoothly; institutionalization of the relationship with formal status, with clear responsibilities and decision-making processes; and integrity of partners which provides honour and enhances mutual trust without abusing the information they gain, nor undermining each other.

Experience with PPPs suggests that there are several principles and guidelines worth applying during project preparation (Jamali, et al, 2004). A careful consideration and precise articulation of the purposes of the partnership, followed by a clear delineation of targets and goals should be undertaken. The next should be to timely and transparently map out all costs, revenues and profitability aspects of a PPP, and have a clear insight into the planning of projects parts, the risk profiles involved and the ways in which various partners are involved. Then develop clear boundaries to facilitate transparency and ensure that outputs and performance are measurable. Ensure that the PPP has specific reporting and record keeping requirements, and a strong central structure at the level of central administration, using private sector expertise to promote and guide policy implementation. The PPP further should have provisions for contract re-negotiation and for adjusting contractual terms particularly in countries where administrative capacity is

weak, and an appropriately designed legal framework. Finally it should provide for a process of consideration of environmental, safety, and health responsibilities, and control over and close monitoring of monopolistic situations.

Further as found out in a research undertaken in UK by Li, Akintoye, Edwards, and Hardcastle, (2005) to assess the perception of positive and negative factors influencing the attractiveness of PPP/PFI, it is important for each country/municipality to undertake such evaluation so as to determine the most influential positive and negative factors which would affect projects financed through PPPs. In this case various positive and negative factors were analysed using the factor analysis model which established the most influential positive and negative factors to be considered when evaluating a project procurements through PPP/PFI in the UK.

The other import factors which should be considered during the evaluation of a PPP type of project financing are the associated risks to ensure that they are taken into consideration in the design of the project. The success of PPP projects is based on a proper risk management between both the public and the private sector. Zou, et al (2008), came up with the financial risk, which is the risk of the PPP project failure to meet the financial obligation required to service the capital investment, as one of the major risks to be considered. According to this research a good example of financial risk is the construction of the Cross City Tunnel in Sydney which was considered to be most expensive tollway on a per km basis (NRMA, 2005). Though the tunnel was considered to be effective in reducing the travel time from up to 20 minutes to average of two minutes with a free-floating traffic in the tunnel (Cross City Tunnel, 2005), the original predictions of initial uptake of the tunnel were 35,000 vehicles per day and increasing to 90,000 by the end of the first year of operation was not met. Due to the high cost charged to motorists it was only utilized by 20,000 per day, one month after the opening as the toll cost was very high to the motorist caused by poor project design.

The second risk considered to be importat in a PPP type of project is public acceptance/rejection risk. This risk is also associated with the financial risk as ultimately when the public reject a project it will cause a financial disaster. According to Zou, et al, this was the case for the Cross City Tunnel in Sydney. In this project the Government had agreed to make certain changes, such as closing, changing number of lanes and traffic directions to some streets to guarantee minimum revenue to the private sector. This was done without consulting the residents. Hence when it was

introduced the city residents resisted and caused traffic confusion thus aggravating the situation which was expected to be solved by the tunnel.

The third type of risk is the government's political risks. In general, political risk can be described as a politically motivated action by a host government, which affects the stakeholder of a project and its net cash flows negatively. These political instabilities can result from a general decline of the economic conditions of the project hosting country. They can however be unfavorably directed to foreign investors or only against the single specific project company. According to MIGA (1985) and Sachs (2006) types of political risks include: currency transfer; expropriation, breach of contract, war and civil disturbance, legal, regulatory and bureaucratic risks, and non-governmental action risks

In the case for Sydney Airport Railway Link the state government put itself in a political risk for reasons which it could have avoided from the beginning. According to Zou, et al, there are no obvious reasons why the NSW Government needed to involve the private sector. The government itself was responsible for the designing, building and maintenance of the tunnel, tracks and signalling. The government was a major financier of the project by contributing $700 million to the project or more than 80% of the cost. The government took all the risks by being responsible for bailing out the corporation if it fails. Therefore under such circumstances the government would have been better off building the stations itself as well as running the line as a part of its own network.

The fourth type of risk is the construction risk, which refers to the case when the project could not be finished on time or could not reach the prospective quality standard. In such situation if adequate planning is done at the beginning, the project company would transfer the completion risk to the construction contractor by delivering the project with design and build method.

Finally another major PPP project risk is the corruption risk due to the siae and monwy involved in such projects. However in many projects this type of risk is not adequately analysed. In the case of Fu-De Highway Project in Hengshui City He Bei Province, China this risk was not identified as risks in the original risk identification processes. The corruption risk involved the cost for coordinating with local government which was far too much. The general manager of the project company spent two-thirds of his time each year dealing with building and maintaining

different relationships with government or functional departments and the expenditure on these public relationships was said to be shocking.

3.5 Current Empirical Research Focus

Value for money (vfm) is the core concept for PPP projects (NSW Department of Finance and Administration, 2005). As noted above under the emergent knowledge and theoretical framework HM Treasury in the UK has developed a very comprehensive model for the assessment of vfm. The "value for money" aspect of a project and the comparison between PPP projects and the conventional alternatives in procuring public assets are the essential elements of government decision-making on PPPs. Value for money, defined as the effective use of public funds on a capital project, can come from the private sector innovation and skills in asset design, construction techniques and operational practices, and also from transferring key risks in design, construction delays, cost overruns and finance and insurance to private sector entities (Grimsey and Lewis, 2002).

The Australian Department of Transport and Regional Services (2005) considers achieving long term value for money to be dependant on how well the private party manages the risks transferred to it and how the public sector manages the contract over its usually long duration. The emphasis on the risk transfer can be misleading as value for money requires equitable allocation of risk between the public and private sector partners. There may also be an inherent conflict between the public sector's need to demonstrate the value for money versus the private sector's need for robust revenue streams to support the financing arrangement.

Although PPPs have been successfully implemented in several municipalities in the United States (Water Partnership Council, 2005), there is need for more research on the applicability of this type of partnership in the supply of water, in developing countries. These concerns are associated with the type of contractual agreement between the private partner and the public entity, taking into consideration that water is a precious gift and is essential to all.

In Africa, as has been analyzed in the previous section has had minimal PPP finance type of projects for municipal councils. This is not withstanding the dire need for infrastructure development in the cities of Africa for them to meet the service delivery by the communities. While current research focus is not particularly on the PPP finance for municipal projects, there has been a lot of focus on improvement of municipal and local government finance not only to

meet the recurring expenditure in these LAs but also to meet the investment need in LAs projects. The ERS and the Vision 2030 in Kenya looks at the urban development as key to the achievement of the proposed development in Kenya (GOK, 2003)

4 CONCLUSION

4.1 Key Findings

There are varying types of municipal assets range from none wasting capital items like land, infrastructure such as roads, water supply, drainage, sanitation, solid waste, electricity, telephones, and town gas. Others include public housing development, urban facilities, such as shopping centres, markets, places for entertainment and amusement, transport stations, education. health services, mosques and churches, public halls, sports facilities, parks, green belts, and cemeteries. There are wasting assets like motor vehicles, furniture and fittings, computers and equipment, plant and machinery. and the maintenance of basic infrastructure to support the existence of various other urban components.

The management of municipal assets must be done so via the most effective and efficient property portfolio. Efficient asset management will enable an authority to assess the make-up of the best portfolio required to deliver the given services. Further it will minimise occupation costs, and maximise property efficiency, and maximise efficiency of service delivery. Additionally it will facilitate long term planning in the context of corporate objectives, develop corporate thinking, and develop valuable long term partnerships. Finally efficient property portifolio will free up resources for reinvestment, allocate resources effectively to areas of greatest need, and account to the public for the use of the assets.

Research shows that the municipal assets which have attracted PPP finance currently relate to infrastructure such as roads, water supply, drainage, sanitation, solid waste, electricity. telephones, and public housing development that themain types of PPP financiasl model are packaged in form of Design-Build (DB) or Build-Transfer (BT), Design-Build-Maintain (DBM), and Design-Build-Operate (DBO) or Build-Transfer-Operate (BTO). Others include Design-Build-Operate-Maintain (DBOM) or Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Build-Own-Operate (BOO), and Design-Build-Finance-Operate/Maintain (DBFO, DBFM or DBFO/M). So far based on the above PPP model finance, the most common PPP financing of municipal projects are the BOT, and the BOOT.

PPPs finance models can also be used through transactions like Service Contract, Management Contract, Lease, Concession, and Divestiture. The factors which need to be taken into account in PPP finance for municipal projects though not conclusive are that authority should maintain its involvement, whether in its capacity as partner or regulator, and PPPs should not be expected to substitute for action nor responsibilities that properly rest elsewhere. The country should have established a transparent and sound regulatory framework as a necessary precursor to private sector participation in a PPP. The partners who include the municipality (public) and the private investor should recognize that what can be achieved together cannot be achieved alone that there is commitment symmetry, common goal symmetry, and intensive and regular communication between the parties.

Another important condition for PPP type of financing is that both partners are strong and have something of value to contribute to the relationship and that there is a careful consideration and precise articulation of the purposes of the partnership. That positive and negative factors which would affect PPP project financing are analysed and well documented. Finally that PPP project financing risk are well analysed and taken into consideration in each of the project evaluation. Recently the "value for money" aspect of a project and the comparison between PPP projects and the conventional alternatives in procuring public assets have become essential elements of Municipal Authority's decision-making on PPPs type of financing.

4.2 Knowledge Gaps Identified

PPP financing for municipal projects has still to be embraced in most urban projects in the world. 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 world.

It is a well established fact that local government have become the centre for devolution in the world as has been confirmed by various studies like the ADB, 2003 for the DMCs and in Kenya and other African countries generally (ERS, 2003). The municipal authorities which are required to be the centre of development don't have adequate resources to finance the projects which are nucleus for development. While there are a lot of studies done on the PPP project finance in these countries very little of this is focusing on the financing of Municipal projects through PPP finance. This is an area which requires a lot of focus as researchers try to come with methods of improving LAs revenues.

A major hindrance to PPP financing of municipal projects is the risks involved especially the political risks in the developing countries. Adequate analysis of the risks in financing municipal projects through PPP finance need to be adequately studies and analysed. In addition various measures which would mitigate such risks like insurance, guarantees need to be adequately researched on. In particular models like the ROA need to be developed further to provide adequate basis for the private sector evaluation for the PPP projects in municipal councils.

4.3 Conclusion

The Municipal financial resources are currently constrained and as population continue to increase both from rural to urban migration and normal population growth, the facilities available will continue to be stretched more and more. The sources of revenue from the conventional sources like the rates, land rents and other taxes are not adequate to meet the infrastructure and utilities demands in these cities. Hence alternative financing of municipal projects outside the normal revenues have to be sourced.

PPP finance has been proved as a good alternative sources of capital, which would greatly reduce public borrowing and improve municipal credit rating. Other advantages include municipals' ability to accelerate the development of projects that would otherwise have to wait for scarce sovereign resources. The other advantage is the use of private sector capital, initiative, and know-how to reduce project construction costs and schedules and to improve operating efficiency. Others are the allocation of project risk and burden to the private sector that would otherwise have to be undertaken by the public sector including the involvement of private sponsors and experienced commercial lenders, providing an in-depth review and additional assurance of project feasibility, technology transfer, training of local personal, and development of national capital markets. With PPP type of finance the municipal authority in most of the cases will retain strategic control over the project, which is transferred back at the end of the contractual period, and he opportunity to establish a private benchmark to measure the efficiency of similar public sector projects and thereby offer opportunities for the enhancement of public management of infrastructure facilities.

To ensure that the private sector participation in financing of municipal projects is adequately regulated there is need for each country to legislate enabling laws including regulations to govern

the operations and ensure that each party is well secured. Legislation of proper laws and regulations will also assist in minimising associated risks like the political risk, financial risks, business risks and others which would enhance the premium demanded by the private sector.

Further research in developing countries on major risks which would influence PPP type of financing of municipal project. This will assist in crafting necessary legislative laws which would assist in promoting PPP financing of municipal projects. Secondly such research will facilitate the private investors in making quick and informed decisions as they evaluate the PPP projects. Thirdly such studies will assist the country generally in its credit rating by the rating agencies. Associated with these studies, it would also be important for the development of elaborate project evaluation systems like the ROA for assessment of projects proposed by the various municipal councils.

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