



Graduate School of Development Studies

**FINANCING INFRASTRUCTURE DEVELOPMENT:  
THE DILEMMA OF DEVELOPING COUNTRIES**

A Research Paper presented by:

***ISHMAEL NANA OGYEFO***

**(GHANA)**

in partial fulfillment of the requirements for obtaining the degree of  
MASTERS OF ARTS IN DEVELOPMENT STUDIES

Specialization:

**[LOCAL AND REGIONAL DEVELOPMENT]  
(LRD)**

Members of the examining committee:

Supervisor: Dr. NICHOLAS AWORTWI

Second Reader: PROF. BERT HELMSING

The Hague, The Netherlands  
November, 2009

***Disclaimer:***

This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

Research papers are not made available for circulation outside of the Institute.

***Inquiries:***

Postal address:           Institute of Social Studies  
                                  P.O. Box 29776  
                                  2502 LT The Hague  
                                  The Netherlands

Location:                 Kortenaerkade 12  
                                  2518 AX The Hague  
                                  The Netherlands

Telephone:               +31 70 426 0460

Fax:                       +31 70 426 0799

# **Dedication**

This research paper is dedicated to my dear Wife, Sarah Appiah

## Acknowledgement

My coming to the Netherlands for Masters Degree may not have been possible without the support and prayer of many people both in the Netherlands and back home in Ghana. I wish to give my utmost gratitude to Almighty Allah for his blessing and guidance during my entire stay in the Netherlands.

I wish to thank Dr. Nicholas Awortwi, my Supervisor, and Prof. A.H.J (Bert) Helmsing, my Second Reader mostly sincerely for their support, advice and very constructive comments and suggestions. But for their guidance and direction the completion of this paper would have been extremely difficult.

I owe Nuffic a lot of gratitude for offering me the scholarship package to enable me undertake this study and subsequently making my life in the Netherlands very comfortable.

I am greatly indebted to my lecturers, Prof: Bert Helmsing, the Convenor for the 2008/2009 LRD batch, Dr. Joao Guimaraes, Dr. Nicholas Awortwi, Dr. Erhard Berner, Dr. Peter Knorringa and Dr.Georgina Gomez for the knowledge I have acquired in this institute. I have indeed benefited from the programme.

My profound appreciation also go Cisca Vorselman, the Programme Administrator and my course mates for their cooperation and support for the short but memorable period we have been together.

I am equally grateful to my Ghanaian colleagues 2007/2008, 2008/2009 and the 2009/2010 groups for the encouragement and joyous moment we shared together in the Hague particularly Mr. Emmanuel Baisie, Mr. Amos Poku, Mr. Philip Banahene Thompson, Mrs Abigail Tetteh Ayongo and Jerome Awortwi Abban (PHD Student, ISS).

The following individuals back home in Ghana also deserve praise for the various roles they played in making my study very successful Mr. Michael Kobina Essandoh, Mr. Musah Dankwah, and the entire Ogyefo family.

# Contents

Dedication	iii
Acknowledgement	iv
Contents	v
List of Tables	vii
List of Figures	vii
List of Maps	<b>Error! Bookmark not defined.</b>
List of Acronyms	viii
Abstract	ix
Relevance to Development Studies	x
Keywords	x
<b>Chapter 1 Challenges in Infrastructural Financing</b>	<b>11</b>
1.1 Introduction	11
1.2 The problem Statement	14
1.3 Justification and Relevance of the study	17
1.4 Research Objective	19
1.5 Research Questions	19
1.6 Methodology	19
1.7 Limitations of the Research	20
1.8 Organization of the Research	21
<b>Chapter 2 Infrastructure Facilities and Services Provision</b>	<b>22</b>
2.1 Introduction	22
2.2 Infrastructure facilities	22
2.2.1 Definition and types	22
2.2.2 Classification of Infrastructure	24
2.3 Institutional Arrangements for the Provision of Infrastructure	25
2.3.1 Public provision of Infrastructure Facilities	25
2.3.2 Private Provision of Infrastructure Facilities	27
2.3.3 PPPs in the Provision of Infrastructure	28
2.4 Importance of Infrastructure	28
2.4.1 Impact of Infrastructure on Local Economic Development	30
2.5 Financing of infrastructure	31
2.5.1 Responsibilities of Actors in Financing Infrastructure	31
The government	31
Private sector Institutions	32
Donors	32
Multi-lateral financial Institutions	32
Users	32

2.5.2 Cost Recovery	33
2.6 Conclusion	34
<b>Chapter 3 Infrastructure Financing Arrangement in Developing Countries</b>	<b>36</b>
3.1 Introduction	36
3.2 Conventional Approach to Financing Infrastructure	36
3.2.1 Central Government	36
3.2.2 Local Government	38
3.2.3 Official Development Assistance	41
3.3 Conclusion	46
<b>Chapter 4 Financing Infrastructure through the Market</b>	<b>47</b>
4.1 Introduction	47
4.2 Private Finance	47
4.2.1 Private operators	48
Cost Recovery in Private Financed Infrastructure	51
4.3 Public-Private Partnership	52
4.4 Risks in Infrastructure Financing	58
4.5 Regulations	60
4.6 Conclusion	61
<b>Chapter 5 Summary of Major Findings and Policy lessons</b>	<b>63</b>
5.1 Introduction	63
5.2 Summary of Major Findings	63
5.2.1 Options for Provision Infrastructure Facilities	63
5.2.2 Actors infrastructure Financing and their roles	64
5.2.3 Infrastructure Financing Arrangement	64
5.2.4 Recovery Cost on Infrastructure Investment	66
5.2.5 Risks encounter by Actors in infrastructure Financing	67
5.3 Policy Lessons	67
References	69

## List of Tables

Table 1: Expected Annual Investment Needs of Infrastructure from 2005/2010	16
Table 2: Types of infrastructure facilities (Economic and Social)	23
Table 3: Distribution of Ghana's Road Sector Funding Sources in US\$m	44
Table 4: Industry composition of FDI commitments in Infrastructure of LDCs (1996-2006)	49

## List of Figures

Figure 1 How Infrastructure Contribute to Development	29
Figure 2 Sectoral breakdown of investment in Infrastructure Projects with Private sector Participation (PSP), 1990-2001	48
Box 1 BOT of Mandaluyong City market Complex	54
Box 2 BOO of Hub Power Plant, Pakistan	55

## List of Acronyms

ADB	Asian Development Bank
AfDB	African Development Bank
BLT	Build-Lease-Transfer
BOO	Build-Operate-Transfer
BOOT	Build-Operate-Own-Transfer
BOT	Build-Operate-Transfer
CESP	Companhia Energetia de Soa Paulo
CG	Central Government
CREE	Commission de Regulation de l'Eau et de l'Energie
DBFO	Design-Build-Finance-Operate
DBO	Design-Build-Operate
DBSA	Development Bank of Southern Africa
DTMC	Durban Transition Metropolitan Council
DWR	Durban Water Recycling
FDI	Foreign Direct Investment
GETfund	Ghana Education Trust Fund
GDP	Gross Domestic Product
GNI	Gross National Income
HIPC	Heavily Indebted Poor Countries
HUDCO	Housing and Urban Development Corporation
ICT	Information, Communication and Technology
IDA	International Development Agency
IFC	International Finance Corporation
IMF	International Monetary Fund
LDC	Least Developed Countries
LG	Local Government
MDGs	Millennium Development Goals
MFD	Macro Funders and Development Incorporated
NPV	Net Present Value
ODA	Official Development Assistance
OECD	Organization for Economic Community Development
O&M	Operation and Maintenance
PPPs	Public-Private Partnerships
PURC	Public Utility Regulatory Commission
SSA	Sub-Saharan Africa
UCLG	United Cities for Local Government
UN	United Nations
UNCDF	United Nations Capital Development Fund



## **Abstract**

This study explores different infrastructure financing arrangement being adopted by developing countries. A number of cases and reports from developing countries were reviewed to ascertain the success or otherwise of such mechanisms. It was found that infrastructure financing involves multiple actors who play varied roles ranging from policy formulation, resource mobilization, risk management and regulation.

The study also identified that infrastructure are financed through two main mechanisms: public finance and, through the markets. The public finance has been conventional approach adopted by many countries in early years of their development. The rationale for the public dominance was to improve infrastructural facilities in order to accelerate development. It was found that the government secures resources from different sources such as generation taxation loans and grants from donors. It came up that Developing countries are unable to raise enough revenue from taxes due to their small economies whilst not much is also generated from the loans and official development assistance. In spite of this it still forms the bulk of funds for infrastructure investments contributing about 70% of total infrastructure investment in developing countries. It was ascertained however that infrastructure provision is beyond the capacity of one actor. Therefore other actors like the private sector need to get on board

The private sector has the capacity to contribute effectively to infrastructure financing in developing countries. It has the funding, managerial acumen and technological innovation which are not fully tapped. Besides the private other institutional investor are also making the resources available but this is not fully tapped in many developing countries due to their underdevelopment.

It therefore recommends that countries attach importance to them as they have the potential to contribute meaning fully to infrastructure investment in developing countries

## **Relevance to Development Studies**

This study contributes to wide array of information on infrastructure particularly its importance to socio-economic development of developing countries. It also contributes to the debate of financing of facilities and services which is engaging the world's attention now than before in the wake of the current financial crisis.

## **Keywords**

Infrastructure; financing; cost recovery; risks and risk mitigation; public sector; private sector; Public-Private Partnership and regulation

# Chapter 1      Challenges in Infrastructural Financing

## 1.1 Introduction

Financing infrastructural facilities has been quite a challenging task for many countries particularly those from the developing world. This is attributed to limitedness of the public finance, difficulty in securing adequate private finance, failure to achieve full cost recovery, and ineffective regulatory mechanisms.

Infrastructure facilities for several decades were mainly financed through the public budget with government being the main actor. There were varied reasons for the public dominance which are ‘economic and political importance, a belief that problems with supply of technology required a highly activist response by the government; a faith that governments could succeed where markets appeared to have failed’ (World Bank 1994: 24-25). In view of these, many countries developed, developing and emerging economies invested massively in infrastructure facilities and services such as transport, energy, water, information, communication and technology (ICT), health, education, housing and a host of others. As the major actor, governments were financing these facilities through various sources: general taxation; borrowing (both domestic and foreign); and donor support in the case of developing countries which come in the form of grants, loans or technical assistance. However such funds to many analysts have been inadequate in meeting the infrastructural needs of countries from the developing world. The reasons for this development are not farfetched. It is believed that developing countries’ have small economies and therefore are unable to raise enough taxes to finance the facilities. Organization for Economic Community Development (OECD) estimates that developing countries spend only 3% of their gross domestic product (GDP) annually are spent on new infrastructure investments and operation and maintenance which is less than the projected 7% target (Pessoa 2008: 312). This shortfall has led to poor quality and inefficiencies in the provision of services (Awortwi 2002: 78, Pessoa 2008: 311).

Consequently, there have been significant changes since the mid eighties in the way infrastructure services are financed. Emphasis has shifted from wholly public finance to the current system where several actors are involved. The role of the public sector is changing from actively involved in financing, ownership and management of projects to being a regulator and guarantor (Trujillo et al. 1997: 1). The government is expected to create the enabling environment by putting in place the necessary legal and effective policies to protect the interest of all stakeholders, with the provision and financing left to other actors such as the private sector, financial institutions, donors and communities to handle. Since their participation, the private sector have penetrated in all sectors and invested huge amounts of money in various countries' economies through loans acquired from commercial financial institutions or equity shares. For instance 'between 1990 and 2001 the private sector invested about \$755billion in almost 2,500 infrastructure projects in developing countries' (Haris 2003: 1, Kessides 2004: 10). In the Sub-Saharan Africa (SSA) private sector investment had increased significantly. Annual private investment surged '\$5.859billion in 2005 after declining from \$5.9billion in 2003 to \$3.99billion in 2004' (Jerome 2008: 7).

Besides the private sector, the role of other actors such as donors, communities and financial institutions cannot be gross over. Official development assistance (ODA) forms an important component of public revenue in developing countries. This is because most of them, due to their small markets, are unable to raise enough revenue from general taxation to finance their programmes. Therefore countries attract concessional and non-concessional funds from both multilateral and bilateral sources to finance infrastructure projects. The United Nations (UN) International conference on financing for development held in Monterrey, Mexico in 2002 recognized that 'ODA is a major funding source for developing countries to support development including public infrastructure provision and therefore affirmed that developed countries commit the 0.7 percent target set of their Gross National Product as ODA for developing countries' (UN 2002: 9).

In spite of the increase in participation of other actors developing countries have been unable to meet their infrastructure target thus calling for exploring other ways of financing in order to overcome the challenge. Among these are public-private partnerships (PPPs) arrangements, funds from the capital market, insurance fund and infrastructure development fund, just to mention but a few. Different PPP arrangements have been introduced by countries ranging from management contract, lease, Greenfields (Build-Operate-Own (BOO), Build-operate Transfer (BOT), concessions and privatization are attempts to tap private resources to supplement the efforts of the government. There are a number of reasons why countries are opting for PPPs. It does not only make it possible for private sector resources to be utilized but also affords government the opportunity to share risks with the other actors. Actors in infrastructure investment encounter a lot of risks such as market risks, financial risks regulatory and many more. Several approaches including insurance cover and guarantees are adopted by the actors in order to mitigate the impact of these risks. Apart from the PPPs where numerous success cases can be cited the others are hardly considered because of their underdevelopment in most developing countries.

It is significant to note that financing infrastructure also involves cost recovery measures. Since infrastructure reforms begun in the mid-eighties, user charges have been introduced not only in economic infrastructure but also in social as well. These are all efforts to recover cost on investment made. But Swaroop (1996: 146) claims that 'full cost recovery is more of an exception than a rule'. This is because it is not all infrastructure projects that full cost can be recovered and therefore many of them continue to be funded from the public budget particularly public and merit goods where incentives for the private sector to invest in are limited due to their non-rivalry and the importance society attaches to them.

In view of involvement of multiple actors in infrastructure financing it is very crucial to put in place effective mechanisms to regulate their activities. There are different ways regulations are handled by countries. Whilst in some countries regulation is vested in the policy maker, in others an independent

body is set up to regulate the activities in the industry. Among such independent bodies are the Public Utility Regulatory Commission (PURC) for electricity and water in Ghana, Kenya's Water Services Regulatory Board (WSRB), Commission de Regulation de l'Eau et de l'Energie (CREE) in Mali just to mention but a few. Credible regulation according to (Kessides 2004: 17) is very crucial as it goes a long way of attracting long term private capital needed to secure an adequate and reliable supply of infrastructure service. This he said has been very challenging for most developing countries in designing effective regulatory mechanisms.

## **1.2 The problem Statement**

Developing countries lagged behind their developed counterparts in infrastructure development. This is because certain unfavourable conditions such as inadequate resources, non-adherence to good maintenance practices and lack of institutional and regulatory frameworks impede their efforts at improving their facilities. The government, due to economic, social, political and technological reasons, has assumed dominant role in provision and financing of infrastructure facilities. The performance of the state in this area is described by many as disappointing as its activities have resulted in huge infrastructure gap in developing countries. The government has been unable to attract the much needed resources from its funding sources to provide the necessary facilities to meet the ever increasing demand. For instance infrastructure competes with other obligations of the government which are all financed from the public budget. A survey conducted by the World Bank on 109 countries revealed that 84 of them are facing shortfall in financing ranging between \$270billion and \$700billion (Zoellick 2009)<sup>1</sup>.

Due to the public sector's failure, there was huge expectation that the private sector will salvage the situation but the hopes of development analysts

---

<sup>1</sup> World Bank President  
<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22121476~pagePK:34370~piPK:42770~theSitePK:4607,00.html>

were dashed as its performance has not been too encouraging even though some gains have been realized. The local private sector in many developing countries is grappling with lot of challenges. For example they face difficulty accessing long term credit, lacked capacity to manage large investments and the absence of legal and institutional frameworks affect their activities. The situation is even worse in the SSA countries. The sub region is unable to attract the much needed Foreign Direct Investment (FDI) to fill the gap thus compounding their predicament. As argued by Sheppard et al. (2006: 1) SSA countries have limited access to private investment in infrastructure particularly in project finance. These are mainly due to 'low creditworthiness of most African countries, limits of local financial markets, and potential risks associated with infrastructure projects' (ibid). Donor support is much lower than expected thus the call for 'substantial increase in ODA for infrastructure to address the financing challenge' (Bayliss 2009:5).

The condition at the local level is to say the least more precarious than at the national. Local governments in developing countries have been assigned wide range of responsibilities yet not enough resources have been allocated to them to perform those functions effectively. Local governments are said to be 'facing two key challenges: how to meet increasing demand for new and upgraded infrastructure on the one hand and how to pay for the needed infrastructure on the other' (UCLG 2007: 34). Overcoming these challenges has become difficult for them. This is because their current sources of funds: central government transfers and local generated funds are woefully inadequate to address these problems.

Kessides sums the problem facing Infrastructure development in developing and transition economies in three main factors: a). Chronic underinvestment; b). under pricing; and c). extraordinarily low operating and financial performance (2004). It is estimated that the 'total infrastructure investments needs in developing countries is between US\$500-US\$600 per year equivalent of 5-6% of their GDP. Yet only 40% of this amount is actually being spent' (World Bank 2006: 4). The table below shows that the annual investment needs of infrastructure both new investment and operations and

maintenance from 2005-2010 as a percentage of GDP according to income levels. From the table low income countries required higher investments between 7.5-9.0% than their counterparts in the upper middle-income brackets. This because their infrastructure level is much lower and therefore need to spend more if they are to catch up with the rest of the world.

**Table 1: Expected Annual Investment Needs of Infrastructure from 2005/2010**

Country by Income Group	Total Investment Needs	Actual Spent
Low Income	7.5-9.0%	4%
Lower Middle-Income	5.5-7%	2.9%
Upper Middle-Income	3%	2.6%

Source: Briceno-Garmendia et al. 2004: 26

In the case of Africa, an amount of US\$5-12billion a year is needed to meet its millennium development goals for infrastructure (Jerome 2008:17-18). However the continent could attract only US\$2.6billion between 1990-2004 (Leigland and Betterfield 2006: 1).

The financing gap is quite evident and considering public sector's limited financial resources, the challenges facing the private sector in accessing long term credit coupled with reduction in donor inflows, developing countries need to explore other approaches in financing if it has to meet the infrastructure investments needs. PPP is considered one of the viable options of overcoming the challenge. But the World Bank (2006: 11) cautions that 'PPPs are by no means a panacea and that they require strong institutional capacities to be able to be effectively implemented'. (Breceno-Germendia et al. 2004: 27) also notes that an increase in private sector participation in infrastructure requires an adequate regulatory framework including competent regulatory agencies. However in many countries such regulatory bodies exist in name. They are constraint legally to sanction operators when they flout the laws, too much political control and lacked the resources to operate efficiently.

Now developing countries are in dilemma as to how government can meet its social obligation to the citizens by providing them with adequate public infrastructure in the wake of its dwindling financial resources; tap private sector resources which expect higher returns on investment, yet the citizens demand quality services at low tariffs; pursue the privatization



programme as a condition for loans from bilateral donors and multilateral institutions in the mist of stiff opposition by the citizens against sale of such public assets; address the problem of affordability of public facilities and that of charging economic rates, and regulate the activities of all the actors in view of its capacity constraints.

With these dilemmas facing developing countries what environment has been created and incentives put in place to lure all the actors to commit more resources into infrastructure development, how and where do the actors secure their funding, how do they recover cost on investment, what risks face them for investing in infrastructure facilities and services and how do they mitigate those risks, what mechanisms have been put in place to regulate the activities of these actors. These are mysteries in infrastructure financing that this research seeks to unravel and find answers to.

### **1.3 Justification and Relevance of the study**

The importance of infrastructure to the growth and development of a country cannot be overestimated. Infrastructure according to (Kauffmann 2008: 2) is undeniably very crucial to attaining the Millennium Development Goals (MDGs). It can also 'leads to expansion of the use of the existing resources (labour, capital etc), attract additional resources to the area and making economies more productive' (Fox and Porca 2001: 104). In spite of its importance developing countries have been unable to meet its infrastructural needs to tap the full potentials these endowments offer and this is not only creating 'human cost but also cost of doing business' (Kauffmann 2008: 2). He notes further that infrastructure projects are usually 'capital intensive with high initial investment, long payback periods and disparate commercial rates of return across sectors'. These, make the private sector and commercial financial institutions sceptical about investing heavily in the sector.

Besides, there are emerging issues which continue to have a toll effect on developing Countries particularly at the local level. Critical among them are urbanization, decentralization, and globalization which are putting enormous pressures on infrastructure facilities at the local level. The world is increasingly becoming urbanized as urban population is growing. A UN report cited in

(UCLG 2007: 23) projected that about 5 billion people are expected to be urban dwellers in 2030 which will constitute 60% of the total world population. With regards to globalization it is said to have 'generated swift changes in the wealth of nations, which impacts national public finance and investments' (ibid: 25). It further states that cities compete for attracting FDI and this demands high urban infrastructure. Individuals and businesses therefore move to areas where they will have better opportunity to grow. There are some basic facilities such electricity, water, communication, roads and many others that are prerequisites to attract FDIs and must be given the due attention to them. Unfortunately these are lacking in many developing countries.

The current financial crisis is another factor that cannot escape recognition as far as infrastructure development is concerned. The crisis is believed to be affecting developing countries in several respects: It is likely to lead reductions in donor inflows, private capital flows, remittances from nationals and donations from charitable and philanthropic organizations all of which have the potential of impacting on the flow of resources to developing countries. Zoellick (2009) reports that private capital flows to the developing world will realize only one-third of the US\$1.2trillion reached in 2007 with remittances also expected to fall by at least 5%. As far these threats are real and pose a great danger to the overall development of developing countries, the challenges in infrastructure financing will continue to engage the attention of development experts and researchers to investigate and find possible solutions to them.

The choice of this topic therefore becomes relevant as it will contribute to the on-going debate on the right approach to financing infrastructure facilities and services in developing countries in the wake of the current global challenges. It will also add to the existing information on infrastructure financing which will become reference for other researchers.

## **1.4 Research Objective**

The main objectives of this research are:

- To identify different infrastructure financing modalities existing in developing countries
- To examine the challenges facing developing countries in financing their infrastructure facilities and the measures put in place to overcome them.

## **1.5 Research Questions**

- (1) What are the various options for financing infrastructure provision and how are they being financed in developing countries
- (2) Which actors are involved in infrastructure financing and what are their roles?
- (3) How do different actors structure their financing arrangements and how do they recover cost on investment?
- (4) What risks do the actors encounter for investing in infrastructure facilities and how they mitigate those risks?
- (5) What mechanisms have been put in place to regulate the activities of the actors

## **1.6 Methodology**

The research relied on secondary source of information in the form of country reports, policy documents, journals, electronic articles, books, internet information which were relevant to the research. The researcher reviewed a number of these documents and materials to understand the concepts of infrastructure in general, find out the various countries policies on infrastructure with respect to institutional arrangements for its provision, financing modalities the countries are adopting, cost recovery measures, and mechanisms put in place to regulate the activities in the industry.

The journals and the books provided information on dozens of cases on infrastructure financing being implemented in developing countries. This is

to ascertain information on which financing arrangement is working well and factors contributing their successes as against the ones that are failing.

The researcher also made good use of website information such as the World Bank private participation of infrastructure database which provided a very useful source of data on private sector investments on infrastructure.

The searchlight of the study is on developing countries. Developing countries quoted from (Roth 1987: 4) refers to countries that are at their early stages of their economic development and are depended on external sources for financial and other form of assistance. They are mostly from Africa, Asia and Latin America regions. There are however some countries from eastern block of Europe, which are also included in this classification. It must be noted that not are developing countries have the same economic status. Some are more advanced than others for that matter they are further categorized according to income levels. Using the 2008 gross national income (GNI), 'Low income economies are countries with per capita income of US\$975 or less (43 countries); Lower middle-income US\$976-US\$3,855 (55 countries) and Upper middle-income, US\$3,856-US\$11,905 (46 countries)<sup>2</sup>.

## **1.7 Limitations of the Research**

A research of this nature cannot be without challenges. The major limitation is the wide scope of the research paper. Generating data from a cross section of developing countries to represent a true reflections of what actually happens regarding their infrastructure financing was quite a daunting task.

The other limitation was the reliance of only secondary source of information. Even though there are lot of information on the topic, the inclusion of primary source would have added richness to the study. This

---

2

<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20420458~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html> accessed 29/10/2009

notwithstanding the researcher did the best of his ability to get the relevant information to make sure that quality of the research was not compromised in anyway.

## **1.8 Organization of the Research**

The paper consists of five chapters and organized as follows. Chapter one contains the challenges in infrastructure financing in developing countries. It also includes the statement of the problem, justification and relevance of the research, research objectives, and research questions, methodology and limitations of the research. Chapter two discusses infrastructure in general: its characteristics, types and importance to economic development and growth to the both the national economy and local economic development, financing and cost recovery. Details of Infrastructure financing are dealt with in chapter three and four. Whilst chapter three focuses on public finance, chapter four contains the contribution of private finance to infrastructure financing. Chapter five is on summary of major findings, policy lessons and recommendations to policy makers.

## **Chapter 2      Infrastructure Facilities and Services Provision**

### **2.1 Introduction**

Infrastructure has wide scope and is multi-disciplinary cutting across different disciplines and sectors. This makes it difficult to have a single definition. Authors have looked at it from different angles and perspectives depending on which field they belong. In this chapter infrastructure will be discussed by looking at its definition, types, characteristics, and importance to economic development and growth both to the national economy and local economic development. Issues on institutional arrangement for its provision, financing and cost recovery will also be considered.

### **2.2 Infrastructure facilities**

#### **2.2.1 Definition and types**

There is no one acceptable definition for infrastructure. While some authors consider it as the physical structures themselves others see it as the services provided by the physical facilities and even a third group of people who see it from both angles. (Fox and Porca 2001: 104) define ‘infrastructure as the services drawn from the set of public works that traditionally have been supported by the public sector...’ To them the primary interest to both consumers and businesses is services, not the facilities and therefore focusing on the service aspect gives some advantages. This belief is supported by Prud’Homme (2004: 4) who thinks that emphasis should be placed on what he termed the ‘end’ (service provision) but not on the ‘means’ (infrastructure endowment). However United States Council of State Planning Agencies quoted from (Moteff and Parfomark 2004: 5) defined Infrastructure as a ‘wide array of public facilities and equipment required to provide social services and support to the private sector economic activity’. Here infrastructure is seen as the physical facilities such as roads, bridges, airports, public buildings, schools, health facilities and many others but not the services. Development economists such as Paul Rosenstein-Rodan, Ragnar Nurkse, and Albert Hirschman also

considers infrastructure as social overhead capital which embodies many activities (Musisi 2007: 4, World Bank 1994: 2). In this paper infrastructure will be considered as the physical endowments that are used to provide the services.

In spite of the divergent opinion on the subject matter there are common grounds. That infrastructure is categorized into two types which are economic and social. World Bank (1994: 13) considers economic infrastructure as ‘the long-lived engineered structures, equipment, and facilities, and services they provide that are used in economic production and by households’. It further distinguished it into three main areas: ‘Public utilities, public works and other transport sectors. Social infrastructure on the other hand consists of ‘systems of networks and facilities supporting the people and the community they include health education, housing, recreation and leisure, legal system, culture and capital markets’ (Rickards and Bank 2008: 26). The benefits for social infrastructure to them are less tangible and therefore not easy to price or value in economic and financial terms. Table 2 below gives examples of the two types of infrastructure facilities and their sub-types.

**Table2. Types of infrastructure facilities (Economic and Social)**

<b>Economic Infrastructure</b>	<b>Social Infrastructure</b>
<p><b>Public Utilities</b></p> <p><b>Energy:</b> Electricity generation, transmission, and distribution; Natural Gas transmission and distribution; petroleum Pipelines, steam/ hot water production</p> <p><b>Communication:</b> Fixed or mobile local telephony, Domestic long-distance telephony and International long-distance telephony; Cable television networks, Internet</p> <p><b>Water Supply:</b> Drinking water, Sewerage, Solid waste collection</p> <p><b>Public Works</b></p> <p>Drainage systems, Irrigation dams</p> <p><b>Roads:</b> Feeder roads, Urban roads, Highways, Bicycle paths, Pedestrian walkways</p> <p><b>Other Transport Services</b></p>	<p><b>Education</b></p> <p><b>Physical buildings:</b> Classrooms, Administrative blocks School buses and vehicles, Laboratory equipments, Playing fields</p> <p><b>Health</b> Hospitals, Clinics Laboratory equipments Surgical equipments Ambulances</p> <p><b>Housing</b> Low cost Public housing</p>

Railways, Urban transport, Seaports, Canals, Bridges	<b>Others</b> Prisons, Courts, Museums
--	---

Source: Information compiled by the author from different sources.

It must be noted that these types are by no means exhaustive. There are many of the infrastructure facilities which fall in either group that might not have been captured.

### 2.2.2 Classification of Infrastructure

Infrastructure services can be classified into three ways: Public, private and merit goods. Public goods are goods which are considered as non-rival in the sense that the consumption by an individual is not in competition with consumption by someone, and non-excludable that is not possible to exclude some from their consumption because he or she did not pay for the service (World Bank 1994: 23). It is difficult to identify a public good in recent times since the private sector is involved in almost all goods previously under the responsibility of the public sector. What best qualified are rural roads and streetlight (UCLG 2007: 35, World Bank 1994: 115). This is because the consumption of these goods by an individual will not be in competition by another and most significantly difficult to exclude anybody from enjoying the facility. Such goods are provided by the government and financed through the public budget.

Private good on the other hand are ones that are both rival (consumption by one use reduces the supply available to other users) and excludable (a user can be prevented from consuming them' (World Bank 1994: 23). All the economic infrastructure facilities and greater number of social type mentioned above fall under this classification. 'In telecommunication (local services, long distance and value added), Power gas (thermal generation, distribution, gas production and transmission), transport (urban bus, urban rail and toll roads), water (urban piped network and non-piped), sanitation (piped sewerage and treatment and on-site disposal), and waste (collection)' (World



Bank 1994: 115). In these infrastructure facilities users can be identified and be excluded from enjoying the facility if failed to pay for its use.

Merit goods are normally in-between public and private goods. They are those goods which are determined on the basis of their importance to the wellbeing of the citizens and that such a service should not be allow to the individual choice or control but one determined by the society as a whole. Whilst private goods are mostly provided by the private sector the public good and merits are under the domain of the public sector and a private sector operator only invest in them if adequate incentives are provided for by the state.

However, the unique characteristics of infrastructure also influence the provision of the facilities. For instance infrastructure is capital intensive, has high sunk cost, its lumpy, immobile, and has long gestation period (Rickards and Bank 2008: 27-28). In view of these most private goods such urban water, rail transport and others have been provided by the government because the private is sceptical about recovering its investment. So in all, the institutional arrangement for the provision of infrastructure is driven by a lot of factors and involved multi-actors.

## **2.3 Institutional Arrangements for the Provision of Infrastructure**

### **2.3.1 Public provision of Infrastructure Facilities**

Infrastructure facilities until the 1980s have largely been provided by the public. The public dominance in infrastructure provision is due to political and economic reasons. Many developing countries took charge of infrastructure provision during their early stage of development. This is to meet the demand for infrastructure to accelerate their development. Korea increased public investment in infrastructure between 1960s and 1970s to meet the demands which was short as a result of the Korea war (Kim 2006: 9). Most Sub Saharan Africa countries realizing the infrastructure deficiency compared to their counterparts from the advanced world undertook massive development soon after independence with the aim of meeting their infrastructure needs.

In view of this the public had to play the leading role in achieving their objectives. (Roth 1987: 7-11) outlines five situations in which public provision of services may be important: a). where natural monopolies exist, b). increased production is associated with decreasing costs, c). existence of substantial externalities which are not reflected in the accounts of private supplies, d). difficulty to charge for a service or to exclude those who do not pay and e). Where merit goods are involved. It must be added that even though circumstances may justify strong public role in the provision of such services it also entails some disadvantages like inefficiency, poor quality of services and therefore proper mechanisms must be put in place to ensure that full benefits are derived by the general public.

Besides the economic motive for the public spearheading infrastructure development there is also political consideration (Awortwi and Helmsing 2008: 108, World Bank 1994: 19). In Sub-Saharan Africa according to (Awortwi and Helmsing 2008: 111) 'services such as sanitation and solid waste, primary health care, primary education, and drinking water have been provided by the government for political reasons'.

The emergence of decentralization has also witnessed changes in the public provision of infrastructure facilities. Significant responsibilities have been transferred to the sub-national bodies to handle. Local governments have now become key actors in the provision of infrastructure such as streetlights, sanitation, abattoirs, public toilets, town roads, and many more. The reason to transfer some responsibilities to local governments is based on the premise that 'they have the legal mandate to manage local development and municipal finances, therefore have comparative advantage in terms of knowledge of local situations, especially as far as marginal and poor people are concerned' (UNCDF 2005: 4)

However the public dominance of infrastructure provision has not yielded the much desired results in many developing countries. Almost all developing countries are witnessing short fall in infrastructure facilities especially those in SSA. This is because the public sector is seen as 'lacking the resources, management capacity and saddled with bureaucratic procedures

resulting in the provision of poor public services' (Pessoa 2008: 311). In view of this, institutional arrangements have changed since the 1980s where the government is no longer the sole provider of infrastructure but that other actors now play a critical role.

### **2.3.2 Private Provision of Infrastructure Facilities**

What constitutes a public good these days is determined by a country as it is hardly defined now than before. This is because the private sector has penetrated in all sectors even in services such as education, health, water, electricity which were previously provided by the government department. There is now no infrastructure service which the private sector is not involved. In cases where service is purely public good such as streetlights the private is involved in its construction. Private sector provision of infrastructure ranges from supply of facilities to full privatization where part or the whole of public asset is transferred to a private sector operator to own it for good. Private provision also results from a situation where the operator designs, constructs, finances and owns the project. There are a lot of benefits for involving the private sector in infrastructure provision. It leads to an increase in government revenue, utilization of their expertise, transfer of technology, creation of more jobs, efficiency in the operations of infrastructure facilities and expansion of facilities. For example in case of revenue Chang (1999: 15) reports that Cote d'Ivoire experienced increases in government revenue resulting from the savings made from losses which had characterised state-owned companies that were privatized.

On the other hand private sector involvement also has negative consequences. It leads to loss of jobs, high increase in tariffs, repatriation of profits in the case of foreign private involvement and others. The participation of private sector involvement particularly in the case of privatization has received a lot of condemnation from many countries with some instances resulting in demonstrations by the citizens. The Unions of Lesotho had to reject the privatization in the country because of the bad experience of Zambia and Malawi (ibid). As a result of the problems, many observers are of the belief that PPPs will offer a better approach in providing infrastructure.

### **2.3.3 PPPs in the Provision of Infrastructure**

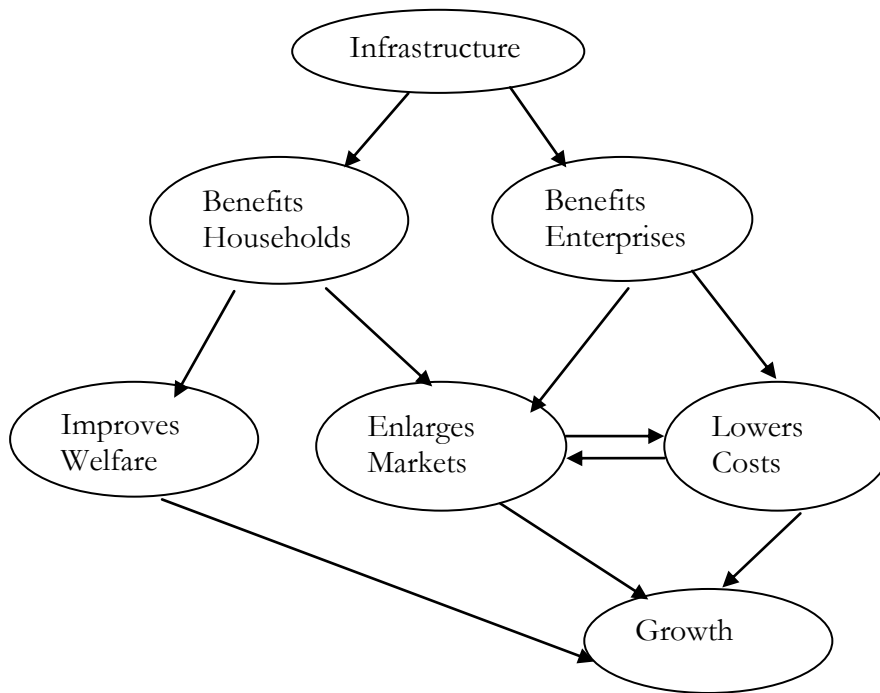
PPP refers to a sustained collaborative effort between the public sector and the private sector to achieve a common objective while both players pursue their own individual interests' (Pessoa 2008: 313). He notes that in 'PPP each partner shares in the design, contributes a fraction of the financial, managerial and technical resources needed to execute, and sometimes operate, the project in accordance with each partner's comparative advantage, and partially takes on the risks associated with the project and obtain the benefits, expected by each, which the project creates' (ibid). PPP has become one of the modalities by which public services and facilities are provided in this modern time. There are various forms of PPP arrangements ranging from service contract, management contract, lease, concession, green fields such as Build-Operate –Transfer (BOT), Build-Operate-Own-Transfer (BOOT), and Build-Operate-Own (BOO). These are also other ways of involving the private sector in the provision of public infrastructure. Generally private sector participation has played a major role in infrastructure development. For instance between 1990 and 2003 about 2750 projects were initiated through private participation in a number of developing countries world Bank 2006 cited in (Pessoa 2008: 318).

## **2.4 Importance of Infrastructure**

The importance of infrastructure to the economic growth cannot be underestimated. World Bank (1994: 14) described it as the 'wheels of economic activity'. This statement emphasise the importance of infrastructure to economic development of nations.

(Prud'Homme 2004: 15-17) describes how infrastructure impacts on growth. To him infrastructure affects development of both household and enterprises through three main mechanisms: first improve the welfare of households, second lowers the cost of inputs used by enterprises and third enlarge markets all of which contributes to the growth of the economy as depicted in the figure below.

**Figure 1 How Infrastructure Contribute to Development**



Source: Adopted from Prud'Homme, 2004: 16

Prud'Homme (2004) notes further that improved infrastructure facilities better the living conditions of households which results in impacting positively on their welfare. Kessides (1993: 18) observes that 'Infrastructure affects the personal welfare in three broad respects: first increase their real income, second raise their labour productivity and access to employment and thus capacity to earn more money and third affects real wealth'. For instance good drinking water and better health services helps citizens to stay healthy which goes a long way to raise their productivity, earn them more money and in the end better their living conditions. Infrastructure also impacts on enterprises. Prud'Homme (2004: 17) notes that 'infrastructure supply lowers the cost of some of the inputs used by enterprises. Lower inputs cost means lower total costs which in turn mean larger markets and further costs of reduction'. Kessides (1993: 2) also contends that infrastructure impacts on enterprises in two main ways: first they are intermediate inputs to production which raises the profitability of production thus permitting higher levels of output, income and employment, and second raise the productivity of other factors (labour

and other capital). She recognizes that ‘infrastructure in a given location may attract flows of additional resources crowding in private investment making it often refer to as unpaid factor of production’.

Infrastructure has impacts on the international trade of countries. For countries to reap the full benefits of globalization it must improve its infrastructure in the areas of communication, transport, storage technologies (World 1994: 17).

#### **2.4.1 Impact of Infrastructure on Local Economic Development**

Infrastructure does not only contribute to development at the national level but at the local level as well. Cities make up the economy and therefore development of cities and localities leads to overall development of a nation. In fact what differentiates rural areas from urban or poor neighbourhood from rich neighbourhood is the level of infrastructure development. Improvement of infrastructure such as energy (electricity), transport systems (roads, urban transport) and communication opens up rural communities’ linking them to markets and other urban areas. This enables farmers to have access to markets both domestic and international for their produce, which eventually enhances their living conditions.

A study conducted in three countries Thailand, India (Gujarat state) and People’s Republic of China (Shaanxi province) concludes that Improvements in transport and energy infrastructure have (a) significant effect on poverty at the household, village and community levels; (b) lead to increase in income of both the poor and non-poor; (c) open up opportunities for new forms of employment; improves access to health and education facilities; (d) improve access to common property resources by the poor and increase personal security, and (e) have positive impact on participation of the poor in social bonding, building social capital and social participation (Cook et al 2004: 240). In the Shaanxi province for instance the study revealed that improvement in road infrastructure impacted positively on the farmers by reducing the transaction time and costs of the farmers. This resulted in higher prices for their products and improved their negotiating position in marketing through access to information’ (ibid: 122).

## **2.5 Financing of infrastructure**

(Awortwi and Helmsing 2008: 113) defines financing as ‘sourcing and acquisition of funds, mode of acquisition and cost recovery measures’. Financing infrastructure has been a very daunting task for many developing countries. This is because developing countries have found it difficult to raise funds outside the conventional sources to undertake investments. These sources are normally through the public budget which is the general taxation, borrowing and support from official development assistance (ODA). Financing of infrastructure facilities involves a lot of processes ranging from development of legal and policy framework, planning, sourcing for resources and regulation. All these processes involves multiple actors which include government (central and local), private sector, financial institutions, donors (both multi-lateral and bi-lateral) and users

### **2.5.1 Responsibilities of Actors in Financing Infrastructure**

#### **The government**

In spite of the call for the active participation of the private sector, the government no doubt has an important role to play in infrastructure development. (Merna and Njiru 2002: 9) believes that most ‘developing countries lacked well developed legal and financial systems’ which to a large extent discourage the private operators from engaging in highly risky ventures such as infrastructure investments. It is therefore the responsibility of the government to create the necessary environment by formulating good legal and regulatory frameworks that direct and monitor the operations of actors. The role of the government is not limited to this alone but also involved in co-sponsoring of projects, contributing to equity capital and loan capital, issues guarantees and provide certain fiscal incentives such as tax emption, tax holidays and subsidies to the private sector. In some cases government provides land as an equity share in financing a project.

### ***Private sector Institutions***

The private sector nowadays plays a major role in infrastructure provision and financing. They are major financiers of infrastructure projects through loans from private financial institutions and commercial banks, undertook construction and operations of projects, provide guarantees or sureties for certain types of transactions, serve as insurers and are also purchasers of constructed projects.

### **Donors**

In many developing countries, donor support forms a major source of resources for financing infrastructure development. Donor assistance comes in various forms including providing concessionary and non-concessionary loans; support the loans provided by private lenders and supplies credit; raw materials for the operations of the projects. Countries such as United States of America, United Kingdom, Japan, France, Germany, Denmark, Italy, the Netherlands and China are support developing countries in many ways through the development agencies.

### **Multi-lateral financial Institutions**

The World Bank, International Monetary Fund (IMF), International Finance Corporation (IFC), Asian Development Bank (ADB) and African Development Bank (AfDB) are among the major players in financing infrastructure in the developing countries. They provide concessionary and non-concessionary loans and equity to governments and the private sector. They also co-finance with other multi-lateral agencies.

### **Users**

The role play by users' in infrastructure finance cannot be gross over. They pay taxes which form a major source of public revenue for infrastructure finance as well as pay fees and tariffs charged the facilities they utilize.



### 2.5.2 Cost Recovery

Financing is not about acquisition of funds alone but also cost recovery measures. Cost recovery is receiving attention now than before because it is felt that whatever investment made in the provision must be recovered. As the public sector financing is dwindling and if the private sector must be involved then users of services must be prepared to pay for the cost. 'Provision of infrastructure services are funded by tax payers through ordinary revenues from (current generation tax payer); earmarked (selected group of tax payers); and by public debt financing (future tax payers) or end-users through tariffs and fees' (World Bank 2006: 8) in the case of private financed projects. It must be mentioned that cost recovery on infrastructure facilities and services in developing countries dates back the colonial period. For instance the loan contracted by the colonial government to finance the water supply in Kampala, Uganda in 1930 was paid back through user charges and taxes. And by '1938 full cost of investment had been realized' (Hall and Lobina 2006: 7). Due to its repercussions the concept disappeared in many developing countries soon after gaining independence but resurfaced during the mid-eighties.

Cost recovery since the reforms in the infrastructure sector has been introduced in all countries as a way of mobilizing enough resources for investment. But there is a debate as to how much of the cost should the public bear. According to (Haris 2003: 31) unless tax revenues can provide sufficient levels of subsidies, revenue from user fees will have to rise through price increases. But to Mohan (2006) increasing user fees to economically efficient levels should be the first priority of any infrastructure financing strategy. Basing his argument on the benefit principle, Swaroop (1996: 132) is of the opinion that for fairness consumers ought to pay for the public goods they use especially where user charges can be introduced. Arguing further that it is not cost effective to impose extra tax and therefore public enterprises should be made to recover major part of their cost through charges on beneficiaries. He outlined how consumption related charges can be effectively levied. (a) 'infrastructure services must be produced efficiently that is cost of production must be kept low; (b) user charges should be flexible; (c) the equity features of the charging system should properly target the intended beneficiaries; and (d)

user charges should be designed to include operations, maintenance, depreciation and interest payments'. (Mhango 2000: 121) asserts that revenues must cover capital investment, and operation and maintenance (recurrent expenditure) as well as the costs to replace obsolete facilities. This has however been difficult to implement because of its attendant consequences. In some areas there has been fierce resistant to the introduction of user charges. One of the factors hindering efforts of service providers in charging realistic prices is 'political constraint' (World Bank 1994: 49). It notes further that low prices are popular among those who receive the service even if they are willing to pay. This has resulted in some countries failing in recovering full cost. The irrigation sector is a classical example where cost recovery has been unsuccessful not even to cover operations and maintenance. Evidence shows that 'cost recovery in only operation and maintenance in the sector ranges between as low 8% in India to about 80% in Mexico and Philippines' (Swaroop 1996: 139). There are however successful cases. Sodeci, a private company, which manages the water supply in Cote d'Ivoire, was able to recoup capital investment as well as operation and maintenance. In addition, the company honoured its taxes obligation to the government and paid dividends to its share holders (ibid).

## **2.6 Conclusion**

It is evident from the above discussion that there are different understandings of the meaning of infrastructure. Whilst some looked at it from the physical structure others see it from the angle of the services provided. Both perspectives make sense and can be adopted in any analysis.

It was also ascertained in the discussion that infrastructure plays a key role in an economic growth of a country both at the national level and local. For instance at the local level infrastructure helps open up rural communities which goes a long way to improve their living conditions.

Infrastructure financing was found to involve multiple actors playing valuable roles ranging from policy formulation, provision of resources and regulation. The next chapter discusses how these actors raise funds to finance

various infrastructure projects by reviewing a number of cases from developing countries.

## **Chapter 3 Infrastructure Financing Arrangement in Developing Countries**

### **3.1 Introduction**

Infrastructure financing arrangement can generally be grouped under three main forms: public finance, private finance and public-private partnerships. The next two chapters discuss in detail these financing arrangements. This chapter focuses on public finance. Among the issues to cover are the actors involved in public finance, how they secured their funds, and recover cost on investments.

### **3.2 Conventional Approach to Financing Infrastructure**

Public finance has been the conventional method of financing infrastructure services in both developed and developing countries. Many developing countries just after independence adopted this approach because it ‘was a worldwide development being practice in most developed countries; the high cost of infrastructure was disincentive for private sector involvement; the non-existence of capital market provided limited avenue for private sector to be considered by many countries’ (Merna and Njiru 2002: 1). In an effort to address the infrastructure shortfall, governments took absolute control of the provision of infrastructure and therefore assumed full responsibility of its finance. Lots of actors and funding mechanisms can be identified under this type of finance, which includes government, bilateral and multilateral institutions and institutional investors. The subsequent section discusses the activities of these actors.

#### **3.2.1 Central Government**

Central Government (CG) has dominated in infrastructure provision and financing for a long time. Even with the involvement of other actors it still plays the leading role in financing facilities and services. The main sources of funds available to the central government for infrastructure investments are general taxation, borrowing and grants from donors.

It raises taxes from various sources such as income tax, corporate tax; value added tax, excise duties, privatization proceeds, royalties and many more. The types of taxes levied on the citizens differ from country to country. Developed countries in view of their improved economies are able to raise enough revenue from general taxation for investments. This to (Merna and Njiru 2000: 18) has resulted in 'improved infrastructure services'. However the same cannot be said of developing countries which have low tax base. According to World Bank/IMF 2004 cited in (Hall and Lobina 2006: 21) tax revenue in low income countries as a share of GDP is about 14% compared with about 19% in lower-middle-income countries and 23% in upper-middle-income countries. The problem is attributed to the small economies, inefficiencies in the billing and collection, corruption and inability to broaden the tax network. All these have resulted in the difficulty to raise enough revenue from taxes to finance infrastructure. To them access to taxation capacity remains key to the sustainable financing of services even at rural level.

Borrowing is another major source of CG revenue to finance infrastructure facilities. All over the world governments both developed and developing secure loans from both domestic commercial financial institutions and foreign organizations to supplement tax revenue for investments. CG in most countries are able to access loans because to (World Bank 1994: 90) 'is the most creditworthy entity and therefore able to borrow at lowest rates'. But borrowing from the local commercial banks has been unreliable for a number of reasons such as lack of the capacity to provide long term loans and other risk factors. In China problems such as limitations on their ability to provide long term loans; risks associated with very large volume of loans; limitations on the ability of commercial banks to finely price risk, through interest rate variations; credit quotas on China's major state commercial banks which still have a bearing on their lending' (Kumar et al. 1997: 1-2).

Even though borrowing forms an important component of sources of public finance in developing countries, it has serious consequences on the performance of their economies. In the case of the domestic borrowing it is said to have the potential to crowd out the private sector thus stifle them of

the much needed capital for investment. The danger is that the private will not grow and thus affect the economy in the long run.

Another public finance option is earmarking, which (Chandavarker1994; 15) 'defines as the budgetary practice of assigning revenues from specific taxes or groups of taxes to specific government expenditure that may also be supplemented by revenue from other sources'. He further stated that earmarking of taxes and loans is an established and growing, fiscal technique for financing infrastructure projects and activities.

There are a number of advantages with regards to this technique. Prominent among them is the 'assurance of continuous funding' (Swaroop 1996: 136). This is because funds are raised for specific purposes and if spent accordingly it guarantees flow of resources for the execution of the project. In Ghana the road fund and the Ghana education trust fund (GETFUND) are critical examples of earmarking to improve infrastructure in the road and the education sectors respectively. According to data from the ministry of roads and highways the road fund for example contributed US\$582.67million out of the total US\$1413.45million representing 41.22% making it a major source of revenue for the road sector. A stock-taking of the GETfund interventions realized that the fund had financed about 577 different projects/services from 2001 to 2008. In all the fund had spent 537,920,000 Ghana cedis on educational projects between 2001-2007 towards the improvement of education throughout the country with 95% into infrastructure provision like lecture halls, auditorium, computer centres, administration blocks, student hostels, vehicles and sporting facilities. This is not always the case as governments diverts earmarked revenues to provide other needs (ibid)

### **3.2.2 Local Government**

The public finance of infrastructure does not rest on CG alone but also the local governments (LGs). LGs have been assigned the responsibility of providing certain infrastructure facilities and therefore need to source for funds to undertake them. This has made LG a very important actor in infrastructure financing. The major funding sources available to the LG include central government transfers, internally generated revenue and borrowing from

commercial financial institutions. The CG transfers form the bulk of sub-national governments' funds, which can be as high as 90%. For instance it is '81 percent in Uganda, 64 percent in Ghana, Malawi 60 percent, Tanzania 80 percent, and 90 percent in Ethiopia' (Awortwi and Helmsing 2008: 19).

The transfers has been designed to serve a number of purposes, which are (a)cover local fiscal imbalances, (b) meet national redistribution objectives and (c) encourage (Smoke 2001: 25) local expenditures on particular goods and services which exhibit positive externalities. The provision of secondary education for instance will serve not only the inhabitants of the area in which the school is sited but adjoining districts as well hence such a facility should be funded from support from the CG. But transfers are also associated with lot of problems which affect the planned activities of sub-national governments. 'It lack stability, transparency and predictability and are subject to sudden reductions' (UN-HABITAT 2005: 35). This is so because they are more depended on national revenues and considering the fact tax collection are inefficient and erratic in a number of developing countries particularly those in SSA any shortfall will affect the amount received by the sub-national governments.

In addition to the transfers, LGs also fund projects from their own internally generated revenue sources. They mobilize revenue from local taxes like property rates and levies such as, licences, fees, permits, dues and others. However local generated revenue constitutes a small amount of sub-national governments' total revenue. In Uganda the locally generated revenue is averagely 17.8% (Obwona et al. 2000: 170). In Ghana local revenue constituted only 14% of District Assemblies total revenue in 2006 (NDPC 2006:163). As to why this is the case, a study conducted in some sub-national governments in Uganda and Ghana attributed the problem to 'poor documentation of the revenue sources, working with outdated data, politics of the local politicians, collusion of tax collectors with taxpayers, poor remuneration for revenue collectors, embezzlement of funds and poor revenue collection methods' (Appiah et al. 2000: 11, Obwona et al. 2000: 181). This to Obwona et al. (2000: 181) has led to LGs over relying on central government transfers and donors.

In the final analysis because central government transfers are unpredictable sometimes services and infrastructure provision are severely affected resulting in huge gap

LGs just like central government can borrow to finance infrastructure facilities. This has been a big challenge for most sub-national governments. In some countries they are constrained by law to borrow as in the case of Latvia where LGs in 1997 were banned from contracting domestic loans, in Russia the central government ban Municipalities from contracting external debt whilst Indonesia government prohibited local governments from new borrowing both from domestic and foreign sources in an attempt to address the rippling effects of the 1997 financial crisis which left many local governments with debts' (Noel 2006: 6, UN-HABITAT 2005: 41). In others even though the law permits there are limits in which they can borrow. Ghana and Uganda are classical examples where ceiling have been put on local governments to borrow beyond that they need to seek authorization from the finance ministry in any borrowing beyond certain limits (Appiah et al. 2000, Obwona et al. 2000: 185). These restrictions are put in place to ensure that local governments are not saddled with huge indebtedness that might disturb the macroeconomic stability of the country.

Furthermore, Sub-national governments are unable to access loans because their creditworthiness is considered to be weak. They have low cost recovery rate and therefore banks are sceptical about their debt repayment and again most of the assets of local governments are in poor state hence difficulty in using them as collateral security. Moreover in most developing countries particularly in SSA the financial institutions and capital markets are weak and not well developed to extend loan facilities to local governments. This has resulted in countries setting up Municipal development banks and other financial institutions with state support to lend to local governments. Development Bank of Southern Africa (DBSA) in South Africa, India's Housing and Urban Development Corporation (HUDCO) and Home Finance Company in Ghana are few cases. HUDCO lend to both private and public



agencies as high as 80% of the total cost of the project with interest rate between 15% to 19% (Kundu 2004: 2)

Local government borrowing just like at the national level is bedevilled with lots of problems some of which have been enumerated above. In countries where borrowing has been streamlined and sub-national governments are allowed to contract loans without much restriction it has helped improved their infrastructure facilities. The United States of America offers a success case where the local government secure loans to invest in infrastructure (UCLG 2007: 45-46)

### **3.2.3 Official Development Assistance**

Official development assistance (ODA) have been one of the traditional ways of financing infrastructure in developing countries and funds provided form a major component of public funds since most of them are channel through government. The OECD countries have been the major donors of ODA to developing countries. However there are new emerging donors among the developing countries providing substantial support to those in the lower income groups. Among them are China and India. China is now more visible in SSA offering huge amount of funds to a lot of countries. ‘Chinese financial commitments to Africa infrastructural projects rose from US\$ 500million in early 2000 to US\$7billion in 2006’ (Foster et al 2008: 13). They further reports that the country’s investment covers wide range of sectors including electricity, transport, ICT, and water. The 1250mega watts Merowe Dam in Northern Sudan and the 2600-MW Mambilla project in Nigeria, according to them are a few of the projects China is financing in the energy sector and investing also about US\$ 4billion in the railway sector.

ODA comes in the form of concessionary and non-concessionary loans. They either fund the entire cost of the project or co-finance with the government and other bodies including multilateral institutions. Tax revenues are the main sources of funds for the bilateral donors. Even though ODA plays an important role in financing development in developing countries the share of infrastructure seems to have dwindled in recent times. In the case of SSA, ODA is reported to have dropped from 25% of the total ODA made

available to them to currently 10% (Estache 2005: 22). Stating again that advanced countries have failed to meet the 0.7% they are to commit out of their GDP to support developing countries development. The reasons for this development have been difficult to ascertain but is believe to be 'less allocation of amount made by the donor countries available in their budget to support infrastructure, shift of priority to social sectors' (ibid).

Apart from the support from the bilateral donors, multilateral development institutions such as the World Bank, International Monetary fund, Asia development Bank, Africa Development Bank and others have been key actors in developing countries' infrastructure development offering wide range of services including loans, grants and technical support to governments to initiate programmes and projects. Multilateral institutions finance projects of their clients out of contributions from member countries particularly the rich nations, returns on investments made, interest on loans, and other liquid assets they own. In addition to granting, loans multilateral institutions provide guarantees to the public sector as well as the private sector in accessing commercial loans. The bank for instance 'guaranteed the US\$150million Zhejiang project China and the US\$100million ten-year bond issue by the Philippines' National Power Corporation in this direction' (Ahluwalia 1997: 98)

Concessional loans are considered to be the cheapest source of funds available as they have low social cost in some cases interest rate free for IDA countries and also have long grace period (Estache 2005: 19-20). In view of this he is of the opinion that Africa countries should continue sourcing for those loans. However both concessional and non-concessional loans are associated with problems. Beneficiaries would have to fulfil some conditionalities such as introduction of cost recovery, increase in utility charges, downsizing the public sector work force, cut in expenditure, privatization of state own enterprises among others. Some of these measures bring about economic and political cost on the beneficiary countries. In the case of economic consequences it disturbs their macroeconomic stability a situation which dents the popularity of incumbent governments resulting in the loss of power in extreme cases. As (Chandavarkar 1994: 12) put it 'foreign finance is exceedingly complex and time consuming beyond the negotiating

capacities of the host government'. These unfavourable conditions make governments look elsewhere for the needed support and attracting foreign direct investment is one of the many options that they opt for in order to finance their infrastructure facilities.

Another facility provided by the bilateral and multilateral agencies is debt relief offered to poor countries. Previous mechanisms have not had significant impact on beneficiaries' countries resulting in the donor countries to come out with a comprehensive package christened Highly Indebted Poor Countries (HIPC). The impact of the HIPC has been mix. While some countries have utilized well and enhanced their social facilities such education, health, other social services and poverty reduction for others not much impact has been made. Uganda for instance received a total amount of US\$1003 in net present value (NPV) from the facility made up of US\$347 in NPV from the initial HIPC initiative and US\$650 in NPV from the enhanced facility (Nannyonjo 2001: 7). Ghana received over US\$ 3billion in debt write off and credit facility. The debt cancellation comprise IMF US 390million, ADB US\$461 and World Bank US\$ 2. 98billion. In addition, The country received IDA credit facility of US\$140 and US\$39million loan from the IMF (Guder 2008: 112-113)

In Ghana most of the infrastructure projects have been financed from conventional sources. The table below depicts the fund sources for the road sector in Ghana. The sector is been financed from three main sources earmarked funding (road fund), general taxation (consolidated fund) and donor funding. It can be identified that road fund which should been a supplementary to the general budget allocation rather provides the bulk of the funding. This confirms the assertion by many analysts that earmarked funding reduces government allocation from the generation taxation. Donor support in the road sector in Ghana is quite substantial.

**Table 3: Distribution of Ghana's Road Sector Funding Sources in US\$m**

Sources of Funds	Years					
	2002	2003	2004	2005	2006	2007
Road Fund	53.1	74.9	105.97	108.44	121.06	119.14
Consolidated Fund	28.8	30.9	41.0	73.3	92.7	39.9
Donor Fund	32.2	48.8	88.6	90.6	93.0	173.45
Total	111.27	154.68	235.67	272.41	306.84	332.58

Source: Ministry of Roads and Highways, Ghana<sup>3</sup>

Public finance is more dominant in economic infrastructure which has public and merit good character as well as social infrastructure such as rural water, education, health, sanitation, urban roads, feeder roads, and electricity. According to the World Bank 2004: 33) the government is the major provider as well as financier of education, health, water, and electricity services. For instance Indonesia government operates 150,000 primary schools and 10,000 junior secondary schools, India runs about 200,000 primary health facilities and 15000 secondary and tertiary facilities (ibid). The documents further estimates that 'health and education accounts for about a third of aggregate government spending'. The reasons for government's leading role in these two sectors are (a) 'due to market failures (the amount produced and consumed would be less than optimal from society's point of view if government does not intervene) and (b) to bridge the equity gap (ibid)'

*Cost Recovery of Public Financed Infrastructure*

The public sector has adopted mechanism to recover cost on public infrastructure investment. Among them include user charges and taxes. User

<sup>3</sup> <http://www.mrt.gov.gh/userfiles//road%20sector%20fund%20sources.pdf>  
accessed 8/11/2009

charges consist of fees; tolls; tariffs introduced by the government and paid by the direct beneficiaries of the project. Examples include water tariffs, academic facilities user fees, hospital fees, road tolls and many others. Taxes are also forms of cost recovery measures. The government may impose general tax or special tax (earmarked) and paid for by the citizens whether benefitting or not. In most cases the government provide public goods, merit goods and social infrastructure as a form of social obligation. Such infrastructure facilities are unattractive to the private sector and therefore would not invest in them. Since the government considers those facilities as essential to the wellbeing of its people it has to finance them. In such circumstances the government provides the facilities for free and recover the cost through taxation if loans were secured in financing. A critical example is the construction of feeder roads, prisons, primary public school and community water. There are other public projects the government recover cost through user fees. Among these are provision of urban water, railways, electricity, highways and public urban transport.

Cost recovery has been a difficult for the public sector due to political and socio-economic reasons. For fear of public condemnation and losing power most governments resort to populist by keeping user charges very low or refuse to make upwards adjustment to the taxes even though reality demands. Full cost recovery has not succeeded in many countries also because of the economic situation of the people. The poverty situation in some countries is so severe that consumers cannot afford high tariffs. An attempt to adjustment tariffs and review fees upwards have led to boycotts of the use of the facilities, civil unrests, demonstrations causing political defeats of some incumbents governments in a number of developing countries. Chang (1999: 22) reports that an increase in passenger fares by Kenya Railways Corporation reduced passenger traffic by 35%. Added to the problem is inefficiencies in the billing and collection systems and corruption on the part of revenue collectors. A lot of the revenues are therefore unaccounted for.

### **3.3 Conclusion**

The chapter has discussed how the actors involved in public finance mobilize resources to undertake investment. It came up that cost on investment is recover from service charges or through taxation. It was clear from the above discussion that even though public finance continues to play a significant role in financing infrastructure it has been inadequate in meeting target in many developing countries. The market has been sought by many countries to mobilize resources to complement public finance. The next chapter discusses in detail the role of private finance in infrastructure financing looking at the actors and how they secure funds for investments.

# Chapter 4 Financing Infrastructure through the Market

## 4.1 Introduction

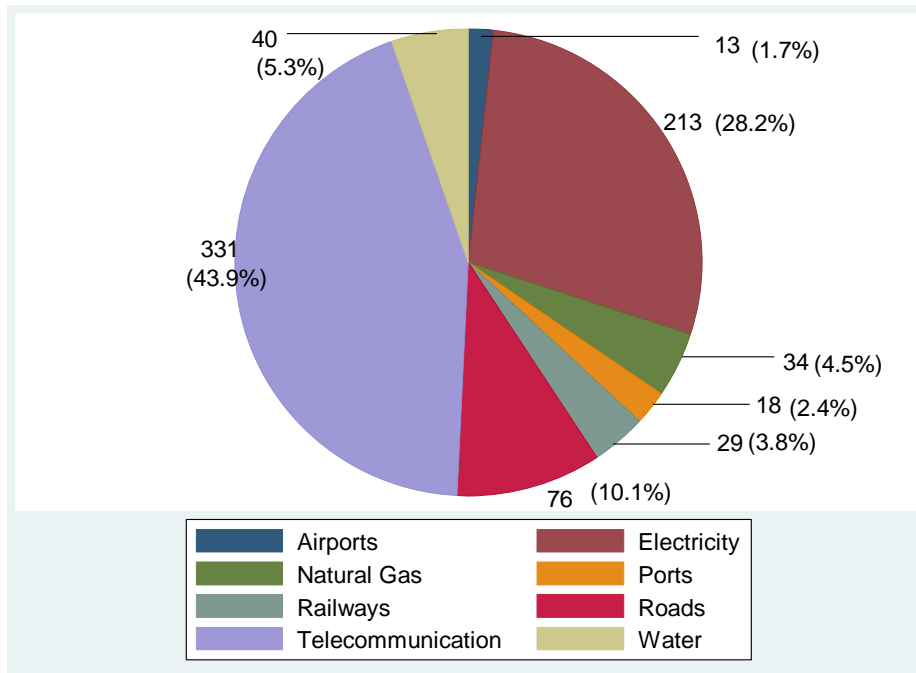
It is evident that infrastructure financing gap is so significant that it is impossible for the public sector to shoulder the burden alone. In view of the enormous resources and the expertise the private sector possesses it has become necessary that they are brought on board. This chapter discusses private finance, the actors involved, how they secure their funds and recoup investment. Also to be examined are PPP arrangements: different types and how they are financed; risks and its mitigation and finally relevance of regulation in infrastructure financing.

## 4.2 Private Finance

Countries, both developed and developing are turning to the private sector as a solution to their infrastructure financing gap. The private sector is reported to be contributing 20% of total resources for infrastructure investments (World Bank 2006: 4). Since the 90s developing countries private sector investment in infrastructure has increased significantly. It is estimated that between 1990 and 2001 annual investment projects with private participation averaged \$60billion (Haris 2003: 6). In all total investment for the same period in the developing countries was \$755billion in more than 2500 private infrastructure projects (ibid). There were however regional variations. The bulk of the investment according to him occurred in the 'Latin America and the Caribbean which recorded as high as \$361billion, followed by East Asia and the Pacific \$211billion with Sub-Sahara Africa and the Middle East and North Africa recording the lowest of \$23billion each'

The chart below depicts sectoral allocations of infrastructure investment with private sector participation. Telecommunication and electricity sectors attracted the bulk of private investment recording 44% and 28% respectively. In the case of the former the high increase resulted from the privatization of most state telecom companies.

**Figure 2 Sectoral breakdown of investment in Infrastructure Projects with Private sector Participation (PSP), 1990-2001**



Source: Haris 2003

#### 4.2.1 Private operators

Local businesses from developing countries are beginning to make their presence felt in infrastructure financing in their home countries. It is estimated that local investors financial commitments accounts for 44% of the total private sector investment between 1998- 2006 with 32% of it being local firms' commitment in their own countries (Schur et al. 2008: 2). But foreign investors from developed countries still dominate. East and Central Asia have the largest of FDI with 73% of private investors coming from advanced countries, in Latin America 56%, SSA 50% and East Asia and pacific 44% of private investor form advanced countries (ibid). Foreign private investors have played significant role in infrastructure finance in developing countries. According to UNCTAD global FDI committed to infrastructure increased 31 fold to



US\$780billion between 1990 and 2006. Out of this only US\$199billion went to developing countries even though it also recorded and 29 folds increase<sup>4</sup>.

**Table 4: Industry composition of FDI commitments in Infrastructure of LDCs (1996-2006)**

Infrastructure Industry	Value (\$millions)	% Share
All Infrastructure	13013	100.0
Telecommunication	6394	49.1
Energy	4569	35.1
Transport	2017	15.5
Water and sewage	32	0.2

Source: UNCTAD, World Investment Report 2008

The table above gives the composition of FDI investment in various sectors of the economy. It can be seen that most the FDI went to the telecommunication and energy sectors compared with the water and sewage. The situation confirms other studies which gives the credence that the sector is the most profitable and thus continues to attract private sector investment. In the case of the transport sector, whilst FDI targets toll roads, railways, the ports and airports, the local private investors are more dominant in the urban transport

The private sector fund projects single-handedly or in joint financing with state agency. Just like the provision of infrastructure there are various arrangements through which private infrastructure have been financed. They obtain their investment funds from various sources including investors own contributions, equity and borrowing from local and international financial institutions. Equity is an important component of private finance. This is because investors will have to raise sizable amount of the total cost of the project from own sources and partly from others areas. Investors generate the rest of the funding from banks. Debt financing therefore becomes another major funding source for the private sector. For the domestic investors local

---

<sup>4</sup><http://www.unctad.org/templates/webflyer.asp?docid=10501&intItemID=4697&lang=1> accessed 26/10/2009

commercial banks are the main source for the domestic financing. Commercial banks have played a key role in this direction offering a wide range of services to the private sector. They provide advice, facilitate financing of the projects through granting of loans, and some have equity shares in the projects. Interest rates charged on loans vary in respect of the type of infrastructure. In India HUDCO charges between 15% for public utility infrastructure as against 19% of private commercial projects (Kundu 2001).

Access to these resources for Infrastructure investment has been a major headache for local private investors in view of the difficulty in securing long term credit from the local commercial banks and also the capital markets in developing countries are under-developed to fill the gap. The problem can be attributed to the saving culture in most developing which are low and commercial banks are unable to mobilize enough resources from the public to offer long term loans required for infrastructure investment. In a situation where the banks are willing to give support the private investors lack the collateral security to enable them access the facility. In some cases the government borrowings also stifle the private sector of the resources for investment. These notwithstanding the local private investors are gradually showing great tenacity to occupy a space in infrastructure investments and with adequate support they may be the solution to the infrastructure deficiency that developing countries are grappling with.

Unlike the local private organizations which lacked the capacity to attract large loans, the foreign investors have had no such difficulty in sourcing for funds from International finance market. In some cases they are able to secure guarantees from their home governments and this tends to put them at an advantage position over their local counterparts in bidding for contracts.

Private finance offers a lot of benefits. It injects capital, bring about technology transfer and management know –how. The additional resources have improved infrastructure development significantly in most developing countries. In the case of the FDI it also brings in innovation and technology which local private investors tap to expand. Local firms learn new techniques from their foreign counterparts when they partner them. However the FDI has

a lot of challenges both to the developing countries and the investors themselves. To the beneficiary countries the repatriation of profits by the investors has negative impact on the local economy while the expectation of the investors may not be met. For instance in times of conflicts and political instability investors' may loss their investment if their assets are confiscated. In the case of citizens the obvious cost to them is payment of higher tariffs and loss of jobs making them sceptical about the presence of foreign direct investment.

### **Cost Recovery in Private Financed Infrastructure**

Private sector operators recover cost on their investment through user charges they are allowed to introduce on the facilities they have financed. They do not collect taxes from the citizens and are thus under no obligation to provide facilities for free. Whatever investment they make must be paid for by the users.

Invariably private goods such as telecommunication, urban transport, car parks, container terminals, toll roads are easier to introduce user charges to recover cost than public goods and merit goods. This is because in the private goods, beneficiaries can be identified and thus can be excluded from using the facilities if they are unwilling to pay. Therefore countries would have to target those facilities and package them for the private sector to handle if they want to succeed in the recovering cost on the investment. It must be mentioned that infrastructure investment is a risky venture and thus attract few investors. The only incentive to motivate more private operators to invest is an assurance that they will be able recoup investment made and the political will of the government in this direction is very crucial.

The level of private sector involvement in service provision has taken a new dimension in recent times. Emphasis is being place on partnerships than pure private. It is felt that more could be achieved in terms of pooling resources and risk sharing. What benefits can be derived from public-private partnerships in infrastructure financing?

### 4.3 Public-Private Partnership

PPP as discussed under institutional arrangements is also a mechanism for financing infrastructure development. The types include service contract, management contract, lease, concessions and green fields.

Service contract and management contract are the least of private sector involvement in infrastructure financing. This is because the private operator does not own the project and makes no commitment in the financing of the project. Even though the private operator pre-finances the project for example the construction of public buildings, all the moneys spent are reimbursed by the public agency which owns the project. Here the financing of the project is largely from the public budget either through general taxation, borrowing or donor support. Such projects are mostly public goods where user charges are difficult to introduce. Cost recovery for this approach is through general taxation and in some cases service charges such as construction of school buildings, feeder road, hospitals, waste collection and many more.

Lease involves a situation where a public facility is given to private operator for a fixed period of time. Under this arrangement the operator uses the assets of the facility to provide the service but not obligated to make major infrastructure investment other than replacement and repairs of assets entrusted in their care (Batley 1996: 734, Sinclair 1999: 590). Financing of infrastructural facilities in a lease arrangement is a shared responsibility between the public agency which owns the asset and the private operator. Whilst the public agency takes care of the new investment the private operator is responsible for maintenance on the assets. In the case of the public agency funding are from many sources; public budget, borrowing and donor support. On the part of the private operator financing of the maintenance and replacement of asset is mainly through revenue realized out of the fees charged from the operations of the assets. Also 'operator pay the public agency a rental fee intended to cover the public utility's capital cost in extending or upgrading the facilities' (ADB 2000: 51). Another feature of lease is that in the event of the 'termination of the contract, the government compensate the operator for the works it had financed that had not been fully amortized' (ibid)

Concession on the other hand is an arrangement by which a portion of public facility is contracted out to private operator who takes responsibility for its operation, maintenance and investment, retains ownership till contract period and thereafter transfers back to the public agency (Batley 1996: 734, Pessoa 2008: 317, Sinclair 1999: 590). Here the concessionaire is 'made responsible for financing specified fixed investment during the construction of the infrastructure' (Debande: 3). Source of funds for the financing of the project depends on the project company where it chooses to raise funds but mainly through equity and debt. Though the 'government do not directly borrow money for the sponsors, assurance of minimum revenues is given and also share in the project risks (ibid). The project company or service provider in this case is responsible for collecting user charges in the form of tolls or fees sufficient enough to pay off the debt' (Debande: 3, Sinclair 1999: 590).

Another key feature of concession is that the lender bear the technical, commercial, and political risks likely to affect the smooth operation of the project which may impact of cash flows (Debande: 3). With this if the project fails it affects the repayment of the loan by the concessionaire. The 30year concession for the operation, maintenance and improvement of the water and sanitation systems in La Paz, Viaoste toll Road in Sao Paulo and the 15 year concession of Arturo Merino Benitez International in Santiago, contract for the operation of water and electricity to Societe d'Energie et d'Eau du Gabon (SEEG), and Bucharest water and sewerage system to the Vinendi, a French firm (Pessoa 2008: 318, Vives 1999: 2-14) are a few examples of concessions in the developing world.

A green field is another type of PPP. It is type of PPP where new projects are built and operated by the private sector, which takes on the commercial risk. It has many forms including Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Build-Operate-Own (BOO), Design-Build-Operate (DBO), Design-Build-Finance-Operate (DBFO) and Build-Lease-Transfer (BLT) (ibid).

BOT is an arrangement in which 'the private party undertakes the financing and construction of a given infrastructure facility as well as its operation and maintenance for a specified period of time spanning more than

25 years' (Heymans and Schur 1999: 608). Funding for project under BOT comes from equity, loans or both to finance the construction and subsequent operation of the project. Repayment of the investment made come from revenue realized from the operation of the facility before the project is transferred to the public entity. An example is the Mandaluyong City's Market Place in the Philippines.

**Box 1 BOT of Mandaluyong City market Complex**

The city of Mandaluyong located in Manila Metro in the Philippines unable to secure funding for the construction of a market complex entered into BOT contract agreement with Macro Funders and Developers Incorporated (MFD), a consortium of eleven companies.

The project, which was finally awarded to the Consortium in August 1991, was completed at a cost of P600m (US\$24.6m). Funding was provided by the consortium through a loan secured by individual members. The City Government provided land as its share of the equity.

To recover cost on investment the consortium was given the project to operate for 40years, exempted from paying tax and collected revenues from the operations of the market. By the seventh year of its operations the investors had recovered cost on investment and paid 90% of the loans paid

Lessons learned from the arrangement:

Through the arrangement the city was able to construct the market without any money. In addition it is benefitting from extra revenue accruing from the project. It transferred some of the risks such as the construction risk, operation risk and commercial risks.

implementation of BOT

BOOT follows the same procedure as BOT except that in the former the private operator own the project till it is transferred. Project is financed through equity and loans. Investors recoup investment from revenues of the operations of the project. In this arrangement the investor bears significant risks including technical, operating, commercial and market risks. The public sector bears the regulatory and political risks. A critical example is the contract between Durban Water Recycling (DWR) and Durban Transition Metropolitan Council (DTMC).

The project was a 22 year concession agreement between DWR and DTMC former the former to design construct, operate, and maintain the treatment of domestic waste water for sale to industries which used water for their activities. The total cost of the project was estimated at R72, 285m which consist of R14, 805m equity and R57, 480m loan. The operation and technical risks were allocated to the concessionaire (Breytenbach and Manning 1999: 707-711).

BOO involves deeper participation of the private sector in infrastructure financing. Here the private operator does not transfer the project back to the public entity as in the case of BOT and BOOT but own it after its construction. The private operator obtains funding for financing the project from a number of sources including equity and loans. User charges are the main mode of recovering cost on investment of the investor. The box below presents an example of BOO. Even though the project was successfully completed the political interference affected its smooth operation.

**Box 2 BOO of Hub Power Plant, Pakistan**

Hub Power Plant is the first BOO type power project in Pakistan. It was initiated in the 1980s and developed in the 1990s. It involved the development of an oil-fired power plant comprising four turbine generator units of 4\* 323 capacities.

The project involved multiple actors including the government, private contractors, financial institutions, the World Bank and other bilateral and external institutions.

It was financed at the cost of over US\$1.7billion through equities and debt, made up of US\$371 equity and US\$1395 debt

Even though the project encountered a number of risks the most challenging was the political setback it suffered when the government cancelled the project's power purchase agreement which affected the operations of the project due to the long period it took for the dispute to be settled.

The dispute therefore put project sponsors on the alert especially under taking investment in political volatile countries which might have high political risks

Source: Ye, 2001 quoted from (Tiong and Anderson 2003: 236-240)

Divestiture is a situation where the private assume active participation of infrastructure financing. Here the private operator(s) and or individuals 'buy equity stake through asset sale, public offerings or mass privatization programme'(Aldaba 2008: 4,Pessoa 2008: 318). The sale of 51% shares of the Uganda Telecom, Vodafone's 70% acquisition of Ghana Telecom, sale of 90% Companhia Energetia de Sao Paulo's (CESP), Brazil assets to private companies and the transfer of 80% of the distribution assets of Empresa Electrica de Guatemala, Guatemala (Musisi 2007: 79, Vives 1999: 8-22) are a few of privatization examples. This type of private sector involvement according to (Pessoa 2008: 318) has high prospects to bring about efficiency gains. For example the privatization of telecommunication in Chile resulted in 155% in sales and total network in Venezuela expanded by 50% with coverage

in Uganda also increasing from 0.1% in 1996 to 56.1% as at 2005 (Musisi 2007: 79, World Bank 1994: 63). Pessoa (2008: 318) admitted however that divestiture 'requires a credible regulatory framework and careful preparation' for it to work. It must be mentioned also that it is one which has received public condemnation due to its rippling effects such as adjustment in tariffs, loss of jobs, repatriation of profits. In view of the public outcry most privatized companies had either been terminated or renationalized. Examples are the Cochabamba Water project in Bolivia and the renationalization of 84% of the Suez concession in Manila, Philippines (Hall and Lobina 2006: 9). Though some of these concerns are genuine to a large extent they are short term effects. In the long run some of the privatized firms expand to increase their work force in triple fold though some have also been a failure unable to meet the huge expectations.

PPP in infrastructure financing has a lot of benefits. It provides new sources of capital for public infrastructure such as private equity, pension funds and other private finance; enable cost of infrastructure investment to be spread over the project lifetime; availability of resources results in the completion of the project within the scheduled time and budget; leads to the transfer of risks to the private sector; bring about cost saving; and provide better customer service through the involvement of the private sector (Propitas Partners 2007: 5-6).

In spite of these benefits, PPP according to (World Bank 2006: 11) is not a panacea and that it requires government institutional capacities to be able to be effectively implemented. It therefore recommended that the best way to mobilize more private capital into infrastructure is to provide a sustainable and credible policy and regulatory framework governing investments in the provision of public services

#### Tapping the potential of the Bonds Market

Countries are beginning to realize the potential of the bond market to offer substantial amount of resources for infrastructure investment and finding ways to tap it. Infrastructure bonds are being issued in a number of countries in an attempt to mobilize domestic sources. (Fay and Morrison 2008: 63) reports that infrastructure bonds issued in emerging markets averaged US\$5bn



a year between 1996 and 2001. The bonds issued by Chile alone according to them are estimated at US\$1billion a year between 1996 and 2003. This indicates the growing recognition for infrastructure bonds by countries. Infrastructure bonds have a lot of advantages. It has 'long tenors, are denominated in local currency, carry fixed coupon rates and have limited recourse to sponsors' (ibid). But because of the underdevelopment of the capital markets in most developing countries the potential of this type of financing has not been fully tapped. It is therefore being suggested that countries should develop their capital markets as they stand to benefit from it substantially.

Even though these approaches have great potentials they require strong regulation and institutional framework to make it work effectively.

#### Pension Funds

Pension fund is another source of revenue for both the public and private sectors to finance infrastructure facilities. Pension fund is gaining attention in most developing countries as a way of mobilizing local funds for infrastructure investment. The opportunity has been created because the 'domestic institutional investors would like to diversify their portfolios away from sovereign exposure but have low risk investment profiles' (Fay and Morrison 2008: 63). And most of them have observed that infrastructure provides such potentials and hence the growth in interest of the sector. Chile is one country which is reported to be taking advantage to mobilize resources from the pension fund to finance infrastructure facilities (ibid).

Pension fund has a lot of benefits which include a) reduction in foreign exchange risks because the funds are from domestic sources and therefore generate local currency revenues, reduction in financing risks as it is able to provide long term tenor and political risks. In spite of the benefits most countries have not exploited pension fund to address their infrastructure financing gap for a number of reason. First the capital base of pension fund in a number of countries is small. This is because only a few of the workers join the pension scheme. Majority of the informal sector workers are outside the scheme. In the SSA for instance the low economies of countries has resulted in high unemployment in some cases above 50% and thus affecting the sustainability of pension schemes in those countries. In view of this low capital base pension managers are cautious investing in risky ventures such as infrastructure. Second the capital markets in a many of countries are not well

developed to direct some of these institutional investors on where and how to invest.

#### **4.4 Risks in Infrastructure Financing**

Risk is defined as the ‘uncertain possibility of something happening in the future’ (Hardcastle and Boothroyd 2003: 42). Explaining further they were of the view that ‘risks concerns potential problems that can result in increased cost or cause a delay’ in the execution of a project or programme. Infrastructure investment is a very risky venture because of its unique characteristics. Actors which want to invest in it weigh the consequences carefully.

There are various kinds of risks actors in infrastructure financing encounter. Among these are construction risks, operating risk, force majeure risk, market/revenue risk, payment risk, financial risks (interest rate risk foreign exchange risk), regulatory risk and political risk (Ahluwalia 1997: 90-92, Gremsey and Lewis 2004: 171-182, Hardcastle and Boothroyd 2003: 43-51, Sheppard 2003: 2).

Construction risk ‘refers to unexpected developments during the construction period that lead to time and cost overruns or shortfalls in performance parameters of the completed project’ (Ahluwalia 1997: 90). It can arise from errors in the design, poor quality of raw materials, construction defects, poor performance of the contractor, cost escalation and delays in the completion of the project. The contractor bears most part of this risk. Instruments that can be used to mitigate or eliminate this are turnkey contract with performance guarantee embedded in the contract, hiring of competent consulting firm to supervise the contractor, motivational packages for quality performance and early completion of work as well as penalties if the opposite occurs.

Operating risk results from managerial inefficiencies, high operating and maintenance costs. The private operator bears this type of risks. Operating risk can be mitigated by engaging competent and experienced contractors to handle operations of the project (ibid).

Force Majeure risk arises as a result of occurrences of natural disasters such as floods, earthquakes, riots and strikes. This risk is shared by government and the private operator. The best mechanism to mitigate this risk is to take insurance cover.

Market risk affects the volume of the sales of projects or services and the prices at which these sales occur (Sheppard 2003: 2). This happens as a result of a fall in demand of the project. Projects mostly affected are toll roads which record very low traffic at the early years of its operations. An example is the M1 Motorway which attracted only 50% of expected volume of traffic at the beginning of its operations (Estache and Strong 2000: 10). This risk is borne by the private operator. To mitigate the risk the operator according to Ahluwalia (1997: 91) is expected to undertake market survey to ascertain the viability of the project.

Financial risks. This type consists of Interest rate risk and exchange rate risk, Interest comes about as a result of changes that occur in the interest rate during the project life span. This is very crucial in developing countries where interest rates are unstable making cost of borrowing expensive. Private operator and lenders bear the risk. This can be mitigated by 'passing it on consumers and also through hedging instruments, (ibid). Foreign exchange risk on the other hand arises as a result of currency mismatch where local currency will have to be converted to pay a foreign loan. Borrowing from external sources entails cost, which results from having to convert local currency into foreign one (mostly in dollars) in order to service the debt. Foreign exchange is best handled by government. Measure to reduce the effects of this risk include, availability of foreign currency, partial credit guarantees from multilateral investment agencies.

Payment risk which results from the failure to pay the private operator for the services rendered in his or her contract. According to (Ahluwalia 1997: 92) 'it is not very important in projects in which the sponsor deals directly with a multitude of consumers, as in the case of a telephone, toll road or a port'. In this case there is issue of non-payment but to him the problem arises when the private operator for an example, an independent power producer deals a sole

buyer like the public sector distributor. When the buyer encounters financial difficulty it affects its payment commitment to distributor. The private operator bears the risk. It is best handle by allowing private operators to handle the distribution chain (ibid).

Regulatory risk concerns the regulation of operations of the activities in the market. It takes the form of changes in the regulations in the sector, ensuring standard compliance and licences issuance. Regulatory risks are handled by government by setting up independent regulatory bodies to oversee the activities in the industry.

Political risks are seen as those that relates to actions by the political authorities which affects the continuation of the project. It results from changes of government, political interference, labour resistance, strikes and many others. An example is the Hub power plant project in Pakistan discussed in chapter four. The government is deemed to be in a better position to bear political risks by issuing guarantees or relies on the partial credit guarantees and partial risks guarantees from multilateral agencies. For example in the West African Gas pipeline project involving Benin, Ghana, Nigeria and Togo the Ghana Government issued guarantee to the project companies and IDA also issued partial risk guarantee to cover the debt on project (Matsukawa and Habeck 2007: 14).

Risk in infrastructure financing is unavoidable which investors, project sponsors and the government will have to confront. Failure to address them will have serious consequences on the execution of the project.

## **4.5 Regulations**

The reforms that have taken place in the infrastructure sector has brought about changes in its ownership, operation and financing. Many actors are actively involved in various aspects of infrastructural facilities with competing interests. It is therefore appropriate to put in place mechanisms to protect the interests of all the actors and also bring sanity into the sector. (Pessoa 2008: 322) believes that the protection is necessary, more importantly to defend the customers' interest by ensuring that there is quality services to enable them

have value for their money without however neglecting that of the private parties to the contract. Regulation thus plays a crucial role in increasing investor confidence. As states by (Smith and Shin 1995: 52-53) 'government's ability to credibly commit to regulatory policies will provide investors with assurance of a return on their investment'. This to them is necessary for attracting initial investment while encouraging the efficient operation of that investment once it has been made.

Pessoa (2008: 322) proposes three qualities which are essential for regulators: competence; independence and legitimacy. However it is difficult for regulators to process all the three qualities. To Kessides (2004: 62) staffs of the regulatory bodies do not have sufficient technical skills which can make it difficult for infrastructure reforms to achieve their public interest objectives. Regulatory bodies in most developing countries face the problem of government interference thus compromising their independence. For instance, in the case of 'setting prices most infrastructure have political dimension, and governments face strong political pressure to use regulation to keep prices below the long-run costs of supply' (ibid).

To address these problems some advocates for the regulatory functions to be contracted out (Bayliss 2009: 25, Pessoa 2008:322). However not all functions according to (Pessoa 2008: 322) follows this trend especially the ones that border on disputes settlements which in most extreme cases end up at the International bodies.'

## **4.6 Conclusion**

As the conventional public sources of funds have been proven to be inadequate of financing infrastructure in developing countries, many of them are exploring other means of raising resources. It was ascertain in the discussion that the private sector has the resources which many countries are taking advantage of to improve their infrastructure development. It was revealed also that the private sector has made substantial gains investing in many sectors. It was found that PPPs has gained recognition in many developing countries as another approach of tapping private resources for infrastructure investment. Whilst some projects under this arrangements are

working well others have failed to achieve the project objectives thus calling for effective planning and effective institutions to enable them work better.

# **Chapter 5 Summary of Major Findings and Policy lessons**

## **5.1 Introduction**

The import of this study was to address the following issues: (a) identify various options for the provision of infrastructure in developing countries and how they are being financed, (b) actors and their roles in infrastructure financing, (c) how the actors structure their financing arrangements and how they recover cost on investment (d) the risks associated with infrastructure financing and mitigating measure and finally regulatory mechanism put in place. This chapter thus presents the summary of main findings discussed in the paper base on the issues raised above, draw some policy lessons and offer recommendations if need be. Finally areas for further research will be suggested for possible consideration in the future.

## **5.2 Summary of Major Findings**

### **5.2.1 Options for Provision Infrastructure Facilities**

The study reveals that institutional arrangements for the provision of infrastructure facilities has undergone significant changes over the past four decades moving from public dominance to the markets, which began in the mid-eighties and currently public-private partnership arrangements. It was ascertained that the initial public dominance in infrastructure provision in developing countries was to address their infrastructure short fall to accelerate their development as was the case in Korea discussed in chapter two. However, it came up that the public sector has not lived up to their responsibilities as they have not been able to address infrastructure deficits which characterised most developing after their independence. As a result of this attention was directed at the markets for possible solution.

The private sector to some extent has contributed immensely to the improvement of infrastructure facilities in developing countries investing in over 2500 projects since the 1990s as revealed by (Haris 2003: 4). The private sector participation was found to have taken a new dimension. The focus is

now on public-private partnership which is another mechanism for tapping private sector expertise, technology and resources.

### **5.2.2 Actors infrastructure Financing and their roles**

The study identified a number of actors involved in infrastructure financing.

These are the CG, LG, commercial banks, bilateral and multilateral institutions, the private sector and the users all of them play very important roles in the financing of infrastructure. It was ascertain that government not only limiting its role to policy formulation and regulator of infrastructure provision but continues to be a major financier particularly in lower income countries, which attracts less private finance. It was found in the study that the private sector is filling a niche in infrastructure financing. Not only is it involved in the construction through government contracts but also as a major financier in infrastructure facilities.

### **5.2.3 Infrastructure Financing Arrangement**

The study found that infrastructure facilities are financed through two main forms: public finance and through the market. The revenue sources for the public finance are general taxation, borrowing and grants. It came up that developing countries governments have been encountering difficulties in their attempts at sourcing these funds due to small economies and unfavourable conditions that hinders their efforts at widening revenue base to undertake meaning infrastructure expansion.

It was ascertained that ODA constitute a major source of finance of public resources as revealed during the Monterray, conference on financing development. Bilateral and multilateral institutions have been supportive by offering concessionary and non-concessional loans to developing countries thus boasting public revenue for development. What was revealing about concessionary loans is the low interest rate charges and also the long repayment duration. However in spite of these ODA was reported to be below par. Only few developed countries are reported to have met the 0.7% target they are to commit from their GDP to support developing countries. This is touting development efforts developing countries.



What study found as emerging is the level of assistance SSA countries are receiving from China. The country is now a major financier of infrastructure projects in SSA with its investment reaching about US\$7billion by the end of 2006 as reported by (Foster et al 2008: 13). This is breaking the dominant role of OECD in terms provision of ODA

The study further revealed that countries are seeking solace in the private sector to fill the investment gap created as a result of the inadequacy of public finance. It is the belief of many that private sector has the potential in terms of financial resources, managerial competencies and technological innovations to assist developing countries overcome its infrastructure investment deficiency. However results of their involvement have been mix. There are wide variations in terms of regional and sectoral distribution. Latin American and the Caribbean have been the largest beneficiaries receiving almost 48% of private sector investment which mainly results from the privatization of existing assets. On sectoral distribution lot of the investment went to the telecommunication and energy sectors as discussed in chapter four thus an indication that the private sector invest in areas where the opportunity to recoup investment is high.

In view of the public opposition to privatization many countries are finding new ways of involving the private sector in infrastructure investments. Since the late 1990s emphasis has shifted to PPPs as another an approach of tapping private sector resources and expertise. PPPs are belief by many analysts as a possible solution to the problems associated with both public and private finance. Different PPPs types were identified details are provided in chapters two and four. It has far-reaching benefits prominent among them are mechanism of raising equity from the private sector and sharing of risks.

In spite of the benefits PPPs according to (World Bank 2006: 11) ‘ is by no means a panacea to infrastructure deficiencies’. It is seen as more complex which need technical capacities from the public sector, strong institutions and regulatory mechanisms and commitment from all the parties to ensure its effective implementation. But such necessary qualities and instruments are lacking in most developing countries thus jeopardizing the success of PPPs in

these countries. Many projects initiated under the tenets of PPPs have failed as a result of non-existence of such instruments.

Apart from these arrangements the study also explored the potentials of other investment avenues especially the capital markets and the pension fund. It was ascertained that pension fund offers abundant of resources that can be tapped by actors. Unfortunately such a facility has not been exploited to the fullest with the exception of few countries in the Latin America region like Chile which have made some progress. The large informal workers many of whom are not enrolled in the scheme and the high unemployment rate in developing countries affects the capital base of pension funds limiting their ability to invest in infrastructure. In addition those which have the capacity are however sceptical about undertaking investment in risky venture like infrastructure. But there are some prospects only if due attention is given and adequate information is provided on the potential of these avenues to both private investors and institutions it can help salvage the funding problem of developing countries.

#### **5.2.4 Recovery Cost on Infrastructure Investment**

The study also revealed that infrastructure facilities are ultimately financed by tax payers (both current and future) and users of the facilities as investment made must be recouped. According to (Haris 2003: 13) ‘regardless of who owns the assets, in the end infrastructure services must be paid for either by users or tax payers’. There are no options he contends. Cost recovery measures have been introduced in all infrastructure facilities in the form of services charges paid by the users. In the event where the government does not want to pass the burden to the consumers, it subsidizes the use of the facility which are paid for current tax payers if financed through general taxation or through future tax payers if financed through government borrowing. But cost recovery it revealed in the study has been a contentious matter as it borders on affordability and charging economic rates. The level of poverty in some societies is so severe that full cost recovery has virtually been impossible. It has been a nightmare for most governments regarding the right approach to adopt

in recovering cost on investment which balances affordability and at the same time creating incentive for the private sector to invest in infrastructure.

### **5.2.5 Risks encounter by Actors in infrastructure Financing**

Every investment involves risks and infrastructure is no exception. It was found that actors in infrastructure financing face a lot of risks details of which is as discussed in chapter four. Different mitigation instruments were identified among which include guarantees, availability of foreign currency, performance guarantees and a host of others. These are ways to reduce the burden of the risks.

## **5.3 Policy Lessons**

It is evidenced from the discussion that developing countries face real challenges in their efforts at financing infrastructure facilities. Public finance is inadequate; ODA is not forthcoming as expected while private sector interest is dwindling in view of bad experiences from previous investments. This is against the backdrop that pressure on the existing infrastructure facilities is mounting due to growing urban population. The onus lies on policy makers to act expeditiously to devise effective strategies to overcome the burden.

Developing countries need to take their destiny into their own hands by looking internally for real solutions to the problems. For instance the fact that local private sector is making inroads is an indication that given the necessary they can contribute more substantial to infrastructure investment.

Institutional approach such as pension fund and the capital market offer developing countries the opportunities to raise substantial amount for infrastructure investment. They must make the conscious efforts to develop them to contribute meaningfully to infrastructure financing.

SSA should pay serious attention to China in view of the huge influence it is having on the sub region as far infrastructure investment is concerned. The country has the potential of assisting them address financing their difficulties.

Issues concerning infrastructure is broad. There are certainly many more areas that the study did not consider. For instance the impact of infrastructure on poverty reduction and the effects of corruption on infrastructure investment are areas the study did not attend to them. These might be interesting for further investigations.

## References

- ADB (2000) 'Developing Best Practices for Promoting Private Sector Investment in Infrastructure Water Supply'. Manila: Asian Development Bank.
- Ahluwalia, M.S. (1997) 'Financing Private Infrastructure: Lessons from India' in H.S. Kohli, A. Mody and M. Walton (eds), *Choices for efficient Private Provision of Infrastructure in East Asia*. pp. 85-104 Washington D.C World bank (accessed 25<sup>th</sup> October, 2009).
- Aldaba, R.M. (2008) *Public-Private infrastructure Investments in East Asia*. Paper presented at the conference 'Phillippine Institute for Development Studies NEAT Working Group Meeting on Investment '.
- Appiah, F., J.A. Ayee, J. Appeah, K. Baah-Wiredu, R. Martin, J. Steffensen et al. (2000) 'Fiscal Decentralization and Sub-National Government Finance in Relation to Infrastructure and Service provision in Ghana' (main report). Accra: The National Association of Local Authorities in Denmark (NALAD) and the Centre for Democracy and Development(CDD) Ghana.
- Awortwi, N. (2002) 'Managing Multiple Modalities of Delivering Basic Services in Ghana Cities', *African Development Review* XXVII(3&4): 76-105.
- Awortwi, N. and A.H.J.B. Helmsing (2008)'Unbundling Basic Services Provision: A Study of Sub- Saharan Africa with a Special Emphasis on Uganda and Ghana': in N. Awortwi and C. Kanyesigye (eds) *Aspects of social Development in Uganda* pp.105-141. Netherlands: Shaker Publishing
- Batley, R. (1996) 'Public-Private Relationships and Performance in Service Provision', *Urban Studies* 33(4-5): 723-751.
- Bayliss, K. (2009) 'Private Sector Participation in Africa Infrastructure: International Policy centre for Inclusive Growth'. International Policy Centre for Inclusive Working Paper No. 55. Brasillia: International Policy Centre for Inclusive
- Breceno-Germendia, C., A. Estache and N. Shafik (2004) 'Infrastructure Services in Developing Countries: Access, Quality, Costs and Policy Reform'.
- Breytenbach, K. and C. Manning (1999) 'Financing Municipal BOOTs in South Africa: the lenders' perspective', *Development Southern Africa* 16(4): 707-728.
- Celestino, A.B. (...) 'Public-Private Sector Partnership For Urban Infrastructure: The Build-Operate-Transfer Program of Mandaluyong City'.
- Chandavarkar, A. (1994) *Infrastructure Finance: Issues, Institutions and Policies* (accessed 7<sup>th</sup> August 2009).
- Chang, C.V. (1999) 'Commercial Infrastructure in Africa: Potentials and Challenges': Africa Development Bank Economic Research Paper No. 45
- Cook, C.C., T. Duncan, S. Jitsuchon, A.K. Sharma and W. Guoboa (2004) 'Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction' (Final report): Asia Development Bank.
- Debande, O (...) *Private Financing of infrastructure: An application to Public Transport Infrastructure*. Paper presented at the conference 'Sixth International conference on Competition and Ownership in Land Passenger Transport'.
- Estache, A. (2005) 'What do we know about Sub-Saharan Africa's Infrastructure and the Impact of its 1990's Reforms'. World Bank Working Paper
- Fay, M. and M. Morrison (2008) 'Infrastructure needs in Latin America and the Caribbean' In H. Davis(ed) *Infrastructure Finance: Trends and Techniques*. Pp 48-58. London: Euromoney Institutional Investor plc.
- Foster, V., W. Butterfield, C. Chen and N. Pushak (2008) 'Building Bridges: China's Growing Role as Infrastructure Financier for Sub-Saharan Africa'. Washington D.C: World Bank

- Fox, W.F. and S. Porca (2001) 'Investing in Rural Infrastructure', *International Regional Science Review* 24(1): 103-133.
- Grimsey, D. and M.K. Lewis (2002) 'Evaluating the risks of Public Private Partnerships for Infrastructure Projects', *International Journal of Projects* 20: 107-118.
- Guder, L.F. (2008) *The Administration of Debt Relief by the International Financial Institutions: A legal Reconstruction of the HIPC Initiative*. Springer (accessed 7<sup>th</sup> November, 2009)
- Hall, D. and E. Lobina (2006) 'Water as a Public Service': Public Services International. [www.world-psi.org](http://www.world-psi.org) accessed 28<sup>th</sup> October 2009
- Haris, C. (2003) 'Private Participation in infrastructure in Developing countries Trends, Impacts, and Policy Lessons'. World Working Paper. No. 5. Washington, D.C: World Bank.
- Hardcastle, C. and K. Boothroyd (2003) 'Risks overview in public-private partnerships' In A. Akintoye, M. Beck, C. Hardcastle (eds) *Public-Private Partnerships: Managing risks and opportunities*. pp 31-50. Oxford: Blackwell Publishing Company.
- Heymans, C. and M. Schur (1999) 'National and Provincial PPPs: Issues of supervision and accountability', *Development Southern Africa* 16(4): 607-622.
- Jerome, A. (2008) 'Private Sector Participation in infrastructure in Africa' [electronic version]: 1-21 (accessed 27/08/2009).
- Kauffmann, C. (2008) *Engaging the Private Sector in African Infrastructure*. Paper presented at the conference 'Expert Roundtable Investment in Transport Infrastructure'. (11 December) Retrieved 31<sup>st</sup> August 2009.
- Kessides, C. (1993) *The Contributions of infrastructure to Economic Development*. World Bank Publications. Accessed 6<sup>th</sup> April 2009
- Kessides, I.N. (2004) 'Reforming Infrastructure: Privatization, Regulation, and Competition'. Washington, DC: World Bank.
- Kim, B. (2006) 'Infrastructure Development for the Economic Development in Developing Countries: Lessons from Korea and Japan'. GSICS Working Paper Series No. 11. Kobe: Graduate School of International Cooperation Studies, Kobe University
- Kumar, A., R.D. Gray, M. Hoskote, S.V. Klaudy and J. Ruster (1997) 'Mobilizing Domestic Capital Markets for Infrastructure Financing: International Experience and Lessons for China'. Washington, D.C: The World Bank.
- Kundu, A. (2001) 'Urban Development, Infrastructure Financing and Emerging System of Governance in India: A perspective'.
- Kundu, A. (2004) 'Infrastructure Financing and emerging Pattern of Urbanisation: A Perspective'.
- Leigland, J. and W. Butterfield (2006) 'Reform, Private capital Needed to develop Infrastructure in Africa: Problems and prospects for private participation' [electronic version], *GRIDLINES*: 1-4 (accessed 31<sup>st</sup> August 2009).
- Matsukawa, T. and O. Habeck (2007) *Review of Risk Mitigation Instruments for Infrastructure Financing and Recent Trends and Development*. The World Bank.
- Merna, T. and C. Njiru (2002) *Financing Infrastructure Projects*. London: Thomas Telford publishing, Thomas telford Ltd. 8<sup>th</sup> August, 2009
- Mhango, G.D. (2000) Municipal Infrastructure Services: A Planning and Pricing Model for Capital Investment ' In M. Kibisa (ed) *Infrastructure Mandate for Change 1994-1999*, pp.105-140, South Africa: HSRC publishers.
- Mohan, C.K. (2006) 'Urban Infrastructure Financing' [electronic version] (accessed 15<sup>th</sup> May 2009).
- Moteff, J. and P. Parfomak (2004) 'Critical Infrastructure and Key Assets: Definition and Identification' [electronic version]:1-1, 2<sup>nd</sup> April 2009).  
<http://www.fas.org/sgp/crs/RL32631.pdf>

- Musisi, A.A. (2007) 'Underinvestment in Public Infrastructure Capital and Private Sector Output and Productivity in Uganda Implications for Economic Growth'. PhD thesis, Institute of Social Studies, The Hague.
- Nannyonjo, J. (2001) 'The HIPC Debt Relief Initiative, Uganda's Social Sector Reforms and Outcomes', Paper presented at the conference 'Wider Development Conference: Debt Relief'.
- NDPC (2008) 'Implementation of the Growth and Poverty Reduction Strategy (2006-2009): 2007 Annual Progress Report'. Accra: National Development Planning Commission.
- Noel, M. (2000) 'Building Sub-national Debt Markets in Developing and Transition Countries, A Framework for Analysis, Policy Reform and Assistance Strategy': World Bank.
- Obwona, M., J. Steffensen, S. Trollegaard, Y. Mwanga, F. Luwangwa, B. Twodo et al. (2000) 'Fiscal Decentralisation and Sub-National Government Finance in Relation to Infrastructure and Service Provision in Uganda': World Bank.
- Pessoa, A. (2008) 'Public-Private Partnerships in Developing countries: Are Infrastructure Responding to the new ODA Strategy?' *Journal of International development* 20: 311-325.
- Propitas Partners (2007) 'Investing in Infrastructure Funds': Propitas partners.
- Prud'Homme, R. (2004) 'Infrastructure and Development'. Paper presented at the conference Annual World Bank Conference on Development Economics, Washington D.C (3-5 May)
- Rickards, D. and M. Bank (2008) *Global Infrastructure-A Growth Story in 'Infrastructure Finance: Trends and Techniques* Euromoney Institutional Investor Plc.
- Roth, G. (1987) 'The Private Provision of Public Services in Developing Countries'.
- Schur, M., S.v. Klaudy, G. Dellacha, A. Sanghi and N. Pushak (2008) 'The Role of Developing Country Firms in Infrastructure: New Data Confirm the Emergence of a New Class of Investors' [electronic version], *GRIDLINES* 3: 1-4 (accessed 31<sup>st</sup> August 2009). www.ppiaf.org
- Sheppard, R. (2003) 'Capital Markets Financing for Developing-Country Infrastructure Projects' (Discussion Paper). New York: United Nations Department of Economic and Social Affairs.
- Sheppard, R., S.V. Klaudy and G. Kumar (2006) 'Financing Infrastructure in Africa *How the region can attract more project finance*' [electronic version], *GRIDLINES*: 1-4 (accessed 31<sup>st</sup> August 2009) www.ppiaf.org
- Sinclair, M.D. (1999) 'Regulation and facilitation of public-private partnerships: The MSP policy framework', *Development Southern Africa* 16(4): 585-606.
- Smith, W. and B. Shin (1995) 'Regulating Infrastructure: Perspectives on Decentralization'. Washington, D.C: The World Bank.
- Smoke, P. (2001) 'Fiscal Decentralization in Developing countries: A Review of Current Concepts and practice': United Nations Research Institute for Social Development.
- Swaroop, V. (1996) *The Public Finance Infrastructure: Issues and Options In Infrastructure Delivery: Private Initiative and Public Good*.
- Tiong, R. and J.A. Anderson (2003) 'Public-private partnership risk assessment and management process: the Asian dimension' In A. Akintoye, M. Beck, C. Hardcastle *Public-Private Partnerships, managing risks and opportunities*. pp. 225-243. Oxford: Blackwell Publishing Company
- Trujillo, J.A., R. Cohen, X. Freixas and R. Sheehy (1997) 'Infrastructure Financing with Unbundled Mechanisms' [electronic version]: 1-24.
- UCLG (2007) 'Background to the UCLG Policy Paper on Local Finance': United cities and Local Governments.

- UN (2002) 'Report of the International conference on Financing for Development'. No. A/CONF 198/ 11 Monterrey, Mexico: United Nations.
- UNCDF (2005) *Governance and Local Development. Lessons from UNCDF in Africa*. Paper presented at the conference 'Workshop on Local Governance and Poverty Alleviation'.
- UN-HABITAT (2005) 'Financing Urban Shelter: Global Report on Urban Settlement 2005. Nairobi: United Nations Human Settlements Programme. Earthscan publishers
- UNCTAD (2008) Boosting Infrastructure in Developing Countries: Foreign Investment helps- If planning is effective. Geneva: UNCTAD (Press Release) accessed 26<sup>th</sup> October 2009
- Vives, A. (1999) 'Infrastructure Finance Directory'. Washington, D.C.
- World Bank (1994) 'World Development Report 2004: Infrastructure For Development'. Washington, D.C: The World Bank. Publishers Oxford University Press
- World Bank (2004) 'World Development Report 2004: Making Services Work for the Poor'. Washington, D.C: World Bank.
- . World Bank (2006) *Private Participation in Infrastructure: Lessons learned*. Paper presented at the conference 'Enhancing the Investment Climate: The case for Infrastructure OECD Global Forum for international Investment'.
- Zoellick, R.B. (2009) 'Seizing Opportunity from Crises: Making Multilateralism Work': World Bank.