

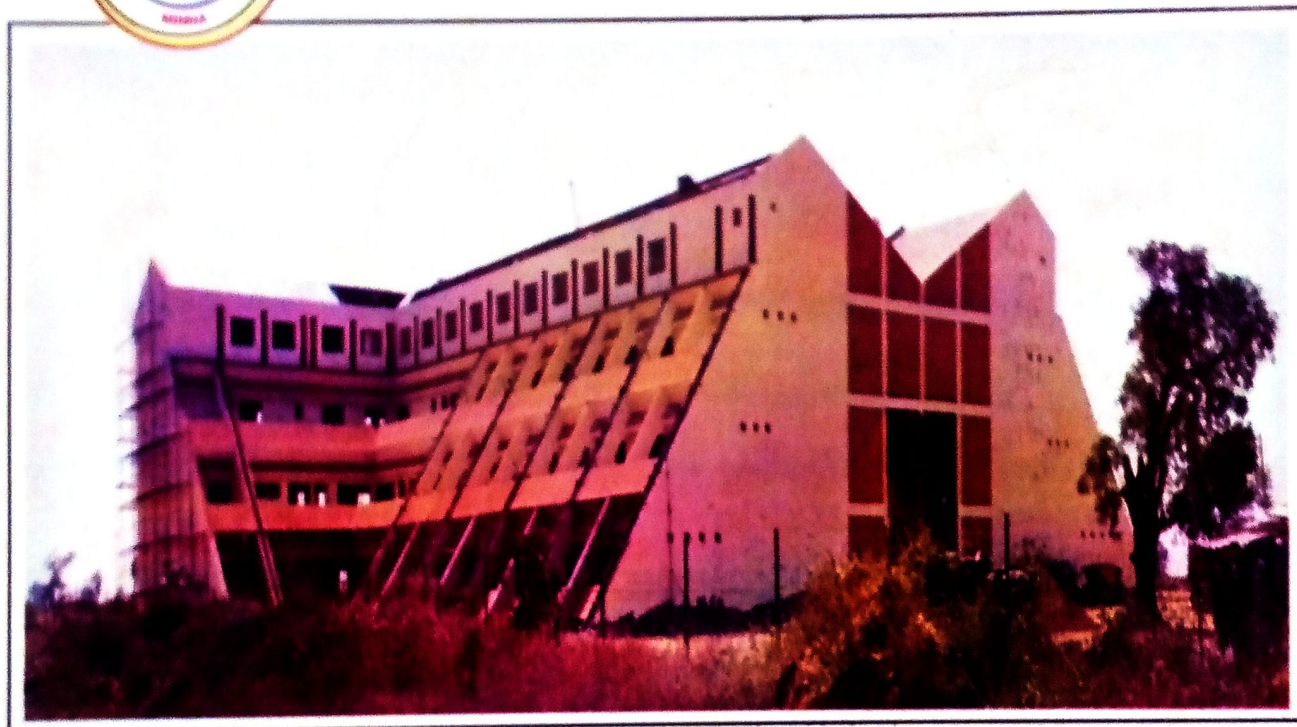


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## THE ROLE OF INFRASTRUCTURE IN ACHIEVING THE MILLENNIUM DEVELOPMENT GOALS (MDGs) IN DEVELOPING COUNTRIES

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### ABSTRACT

*Infrastructure has long been recognised as key element of enabling environment for economic growth. More recently, the development community has also emphasised that by promoting growth, reliable and affordable infrastructure can reduce poverty and contribute to the achievement of the Millennium development Goals (MDGs). It is against this background that this paper attempts an examination of the role that provision of infrastructure can play in poverty reduction so as to achieve Millennium Development Goals (MDGs) particularly in the developing countries. Consequently, the relationships between infrastructure, poverty and Millennium Development Goals (MDGs) are examined. The various ways in which infrastructure affects the level of poverty are also discussed. Finally, the paper then suggests the involvement of partnership in infrastructure delivery especially Public – Private Partnership (PPP) option in the management and financing of infrastructure in developing countries.*

**Keywords:** *development, growth, infrastructure, partnership, poverty.*

### 1.0 INTRODUCTION

Infrastructure facilities such as roads, water electricity, telecommunications, and safe disposal of wastes play a key role in achieving societal welfare as well as socio-economic and political growth of urban and rural areas. In particular, users demand infrastructure services have been found not only to contribute to direct consumption but also for raising productivity. For example, productivity could be increased by reducing the time and effort needed to secure safe water, to bring crops to market, or to commute to work (World Bank, 1994).

However, infrastructure deficiencies have adversely affected economic development and are particularly acute in urban centres where large concentrations of poor households live in slums and squatter settlements. Suffice to say that the poor often benefit most directly from good infrastructure services because the poor are concentrated in settlements subject to unsanitary conditions, hazardous emissions, and accident risks (World Bank, 1994, UN-HABITAT, 2001).

The World Bank (1990) has established the link between infrastructure and poverty. According to World Bank (1990) access to at least minimal infrastructure services is one of the essential criteria for defining welfare. Consequently, the poor has been identified as those who are unable to consume a basic quantity of clean water and who are subjected to unsanitary surroundings with extremely limited communications which are beyond their immediate settlement. As a result they have health problems and fewer employment opportunities. Similarly, the squatter communities surrounding most cities in developing countries typically lack formal infrastructure facilities, a condition arising from non – permanence of their tenure. It has been noted that at the periphery of urban areas of many developing countries where the poor are concentrated, the costs and availability of public transport become key factors in their ability to obtain employment.

Briceno – Garmendia et al (2004) noted that in recent time, the Development community has emphasised that by promoting growth, reliable and affordable infrastructure can reduce poverty and contribute to the Millennium Development Goals (MDGs). It is against this background that the paper attempts to examine the role of infrastructure in poverty reduction so as to achieve some of the goals of the Millennium Development Goals (MDGs).

This paper is divided into five sections. The introduction forms the first section and this is followed by the second section where the relationships between infrastructure, poverty and the Millennium Development Goals (MDGs) are examined. The third section discusses the various ways in which infrastructure affects the level of poverty. The fourth



section recommends partnerships in infrastructure delivery particularly in developing countries, while the fifth section forms the conclusion.

## 2.0 INFRASTRUCTURE, POVERTY AND THE MILLENNIUM DEVELOPMENT GOALS (MDGs)

Infrastructure is defined by Fox (1994) as those services derived from the set of public work traditionally supported by the public sector to enhance private sector production and allow household consumption. The World Bank (1994) stated that the composition of infrastructure include public utilities which consist of power, telecommunication, piped water supply, sanitation, sewage, solid waste collection and disposal and piped gas; public works which consist of roads and major dam and canal works or irrigation and drainage; and other transport, ports and water ways and airports. Perhaps, the most comprehensive analysis of infrastructure is that, given by Obateru (2003) when he distinguished between physical infrastructure comprising transportation facilities and public utilities and social infrastructure comprising social (community) facilities and services. The examples of public utilities include education, health, recreational and cultural facilities. The examples of social services include police and fire services.

Poverty in general is characterised by inadequacy of access to basic human needs (food and non - food) for the maintenance of socially acceptable minimum standards of living, in a giving society. Some of the basic determinants of well - being include adequate food, shelter, potable water, health care, education and employment (Aiyeleri, 2004). The review of existing literature shows that poverty can be classified as: primary, secondary, relative, absolute, urban and rural. Primary poverty has to do with the inability of income of an individual or household to cater for the basic needs required for physical efficiency, while secondary poverty is as a result of mismanagement of income that could have otherwise been sufficient to meet basic needs. Relative poverty is income based and is a state where the person's or household's provision of goods and services is lower than that of the other person in a particular society. Absolute poverty, on the other hand, is lack of some basic opportunities of material well-being and the failure to have certain minimum capabilities in absolute terms. Lastly, urban poverty relates to poverty in urban areas while rural poverty relates to poverty in the rural areas (Aiyeleri, 2004).

Millennium Development Goals (MDGs) are concrete targets endorsed by 189 countries at September, 2000 United Nations Millennium General Assembly in New York, aiming at cutting by half the proportion of people in extreme poverty world wide by 2015, provide education, improve health and preserve the environment. The summit's Millennium Declaration outlined a set of eight specific global goals and eighteen targets for combating poverty, hunger, diseases, illiteracy, environmental degradation and discrimination against women. The goals and targets were to be measured through thirty - two indicators (Briceno - Garmendia et al, 2004; FMHUD, 2006).

DFID (2002) noted that infrastructure services constitute a vital element of strategies or achieving the Millennium Development Goals (MGs) notably those that focused on urban poverty, water and the environment. Consequently, infrastructure is also accorded a key role in the Target strategy Paper on Halving World Poverty by 2015, which highlights its importance in promoting economic growth, reducing the vulnerability of the poor and underpinning opportunities for livelihood improvements. Significantly, the MDGs include an urban goal which is a reminder that the urban poor, and the role of the urban sector in eradicating poverty, should not be ignored. Therefore, in the light of rapid and continuing urbanisation in developing countries, it is clear that there must be increased attention to issues of urban poverty, the rural - urban continuum and rural - urban linkage (DFID, 2002)

## 3.0 THE EFFECTS OF INFRASTRUCTURE ON THE LEVEL OF POVERTY

Amis and Kumar (2000) cited by Fawehinmi (2003) noted that infrastructure helps individual to cope with different dimensions of poverty. Consequently, wherever people are deprived of basic infrastructure the result is impoverishment. It therefore, follows that cities with greatest number of poor people are those citizens that lack basic infrastructure. Similarly, Narayan (2000) cited by Fawehinmi (2003) noted that the level of



basic infrastructure particularly roads, transportation and water can be seen as defining characteristics of poverty. Development community works on the provision of local infrastructure service has revealed how investment can meet the needs of the poor directly. For example, an impact assessment of Development community work in informal urban settlements in India, which collated the views of the poor people themselves, shows a wide variety of benefits from infrastructure, including improved mobility, security and health (DFID, 2002).

One of the areas in which infrastructure affect poverty is employment. It can contribute to poverty reduction through the opportunities it creates for increasing the employment intensity of the economic growth. DFID (2002) noted that there were opportunities in construction and that more employment should result from service provision and maintenance. The example of Bangladesh Rural Roads Project was given which provided important employment for women in construction and maintenance as well as employment for small enterprises such as rickshaws and cycle repair workshops. Similarly, Fawehinmi (2003) noted that during the development of infrastructure several people get employed either directly or indirectly when labour-based methods are used. For example, Islam and Majeres (2001) cited by DFID (2002) noted that the review of experience with labour-based road construction of some developing countries showed that the labour-based option is about 10 to 30 percent cheaper than the capital-intensive equivalent, reducing foreign exchange requirement by 50 to 60 percent while creating between 3 to 5 times the amount of employment for the same investment. Consequently, the employed people were financially empowered to meet their basic needs.

Another important area is that infrastructure has the capacity to increase productivity as well as income thereby reducing the level of poverty. Fawehinmi (2003) noted that when infrastructure is provided, women and children do not have to waste time in search of water. Similarly, provision of infrastructure can reduce the operation costs of business in the community. This is because, if these business entities have to provide the services themselves, it has been observed that it may increase their total machinery and equipment budget by between 10 to 25 percent (World Bank, 1995). Infrastructure can enhance profit and expansion of business. For example, UN-HABITAT (2001) noted that in Sri Lanka, the introduction of telephone services in several small towns and villages increased their sales price by about 40 percent. It also has been observed that provision of infrastructure can increase the values of assets and properties in the neighbourhood. For example, Abramo (2002) cited by Fawehinmi (2003) noted that an increase of 28 percent on property values was due to provision of infrastructure and that in several cases, apart from location, the presence of infrastructure is a major determinant of property values between similar properties. The implication of this is that with an enhancement of property values, property owners receive greater returns on their investments, while the local governments also receive greater revenue via property taxes.

Infrastructure has the potential of increasing disposable income of individuals, thereby reducing the level of poverty. It has been observed that infrastructure affects the expenditure of individuals because they have to pay for the services provided by infrastructure and the higher the cost, the lesser their disposable income. For example, Clarice and Wallson (2002) cited by Fawehinmi (2003) noted that in Guatemala, those people not served by electricity pay more than 50 times for energy than those connected. Similarly, a survey of water vending in 16 cities in developing countries showed that the unit cost of water sold by vendors was in average 12 times higher than that of piped water (Clarice and Wallson, 2003, cited by Fawehinmi, 2003).

It also has been observed that infrastructure affects the health of the citizens. This is because with infrastructure in place and performing, there is a greater chance of healthier citizens. The most obvious case is the provision of improved water and sanitation. Several diseases are caused in the society by drinking and bathing water especially water – borne diseases like typhoid fever, cholera, dysentery, water-washed diseases like scabies and water related diseases such as schistosomiasis, guinea worm and so on (Fawehinmi, 2003). For example, Esrey et al (1990) cited by Fawehinmi (2003) noted that improved water and sanitation reduced diarrhoea by 22 percent, roundworm by 28



percent, guinea worm by 76 percent and schistosomiasis by 73 percent in some of the studies carried out in some developing countries. They also found out diarrhoea death rates were typically 60 percent less among children with adequate sanitation.

Similarly, Leipziger et al (2003) cited by Briceno - Garmendia (2004) noted that the differences in access to safe water in some 43 countries, explain about 25 percent of the difference in infant mortality between the poorest and richest quintiles, and 37 percent of the difference in child mortality. In other words, increasing the poorest quintile's level of access to piped water to that of the richest quintile would eliminate more than a quarter of the difference in infant mortality between the two groups and more than a third of the difference in child mortality. Also, the difference in access to sanitation between the poorest and richest quintiles accounts for 29 percent and 10 percent, respectively, of the difference in the prevalence of malnutrition.

#### 4.0 PARTNERSHIP IN INFRASTRUCTURE DELIVERY

The experience of the past decades confirms that solution to infrastructure problem is not merely to expand capacity by making new investments. The key to reforms in infrastructure policy is delivering infrastructure service to meet users' effective demand. However, infrastructure service delivery through orientation of the demand side needs institutions that have the capacity to effectively identify demands from all users groups and provide services that these users are willing and able to pay for. All these require a management capacity and level of investment, which is often beyond the reach of the governments in developing countries. Consequently, developing countries are now increasingly looking more to Public-Private Partnership (PPP) in management and financing of infrastructure.

Public-Private Partnership (PPP) refers to the defined arrangements (financial, technical, regulatory etc.) between the public sector and the private sector to achieve well-defined and shared objectives in a well-managed, cost effective, efficient and sustainable manner. The arrangements usually specify targets, responsibilities, priorities and feedback processes. Principally it involves the sharing of resources, knowledge and risks between the public and private sectors, so that both sectors, and the country at large can ultimately profit from synergy of efforts, enhanced knowledge and improved technology (NISER, 2005).

Schuttenblet and Lorntzen (1994) noted that public private partnerships are based on involving different actors or stakeholders, who may be divided into the following four groups:

1. The Public Sector, whose principal role should increasingly be to create competitive pressures for more effective and efficient service delivery and enable, facilitate, regulate and monitor partnership arrangements.
2. The Formal Private Sector which, because to its access to financial resources and its potential ability to operate more efficiently, can play a role in financing and providing certain infrastructure services and in construction, operations and maintenance.
3. The Informal Private Sector, which is actively involved in many aspects of services, particularly in low-income areas and whose potential role in partnerships should increasingly be recognized; and
4. The Community and its Representatives who have direct interest as service users, but who can also be involved in awareness-raising, advocacy, decision making and in actual provision of services, including operations and maintenance, and even in construction of facilities.

It has therefore been observed that private commercial enterprises, non-governmental and community based organisations can play important roles in partnership arrangements in the management of infrastructure in developing countries. Partnerships between these organisations and the government can reduce construction costs, increase cost recovery, sustainability and respond better to the need of users. The use of partnership has been a common practice in the provision of infrastructure services in most countries. However, the most common type of partnership arrangement in developing countries has been contracting out. With increasing greater responsibilities by the government a broader range of partnership options should be considered. These



include Build-Operate-Transfer (BOT) and its variants. BOT is a partnership between public and private sectors whereby the private firm is authorised to build, operate an asset or service which will be transferred to the public sector after a period of time. The BOT variants include BOO (Build – Own – Operate) in which there is no transfer back to the public sector, BOOT (Build – Own – Operate – Transfer), BROT (Build – Rent – Operate – Transfer), DBO (Develop – Build – Operate) and ROT (Refurbish – Operate – Transfer) (World Bank, 1994).

## 5.0 CONCLUSION

Infrastructure services constitute a vital element of strategies for achieving the Millennium Goals (MDGs) notably those that focused on urban poverty, water and the Environment (DFID, 2003). Consequently, an attempt has been made in this paper to establish the relationships between infrastructure, poverty and Millennium Development Goals (MDGs), to discuss the effect of infrastructure on the level of poverty, and finally to suggest the involvement of partnership in infrastructure delivery particularly Public – Private Partnership option. It is a considered opinion of the author that all these will go a long way in achieving the Millennium Development Goals (MDGs).

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