

**TRANSPORT: HOW HAVE AFRICAN CITIES MANAGED THE SECTOR? WHAT  
ARE THE POSSIBLE OPTIONS?**

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## **INTRODUCTION**

According to the World Development Report (2000), a third of the world population lived in urban areas in 1975. By 2000, the population living in urban areas had increased to approximately fifty percent and it is estimated that by 2025, two thirds of the world population will be living in urban areas. Most of the rapid urbanisation changes are taking place in cities of the developing world particularly in Africa where urban population is growing at an unprecedented rate. The continent currently is experiencing an average growth rate of 4.5% per annum. For example, urbanisation growth rates for Kenya, Tanzania and Zimbabwe in the eighties, were 7.7%, 6.6% and 5.9% respectively. This growth in population is a result of a combination of both natural growth and rural urban migration. Urban areas are perceived to offer a better quality of life and to provide employment opportunities. This may not be the case as a significant proportion of urban residents live in informal settlements with limited facilities and considerable distances from potential sources of employment.

In view of the above backdrop, the importance of transport to the economies of cities of Africa cannot be overemphasised. Transport is central to development. A good transport system is required to support the livelihood activities of the growing urban population. Workers need to reach their work places on time and in comfort. Goods vital for the economic well being of these countries have to be transported and distributed quickly. A significant proportion of industrial and manufacturing industries in the developing world are located in the major urban centres. For example, in Zimbabwe, ninety percent of all the industrial and manufacturing industries in the country are located in the seven largest urban centres. It is therefore evident that urban transport is closely linked to the national economy and hence constraints in the sector are likely to have extensive repercussions on the performance of the national economy.

Thus, transport plays an important and pervasive role in allowing industrialists, manufacturers and consumers to effectively participate in the economic process. It improves peoples' mobility, which in turn confers the opportunity of high accessibility. Mobility is fundamental in breaking isolation and thus strengthens an individual's capital base.

Clearly, for the urban transport system to contribute to economic and social development, it has to be reliable, efficient, affordable and demand responsive. The crucial question being, how well are African cities managing the transport sector in order to enhance economic and social development? Before, one can start addressing how the transport sector has been managed, it is imperative to get an appreciation of what transport entails.

## WHAT IS TRANSPORT?

The answer to the above question may be obvious. However, a clearer understanding of what “transport” entails, helps in appreciating the feasible solutions in order to mitigate the urban transport problem. Transport is a “system” comprising two major components, namely, the vehicle commonly referred to as the “carrying unit” and the path which in transport terms is commonly referred to as “the way”. The latter component constitutes the transport infrastructure. Thus, the transport system comprises of an **infrastructure** component and a **service** component. For the efficient operation of the transport system, competent “managers” would be required. Some have argued that appropriate qualified staff is a vital third component of the transport system. Clearly, the fact that transport is comprised of various components, means that the transport problem has to be dealt with in a holistic manner.

## CURRENT MAJOR CHALLENGES

Within the context of increasing urbanisation in African cities, the agenda for urban development contains a number of challenges, which include inter alia:

- Poverty reduction
- Productivity enhancement
- Employment provision
- Infrastructure provision and
- Protection of the environment

All the five key challenges do have a bearing on transport. Poverty has generally been viewed as the deprivation of human needs that are not met and principally emanating from low income. This is a narrow definition as some empirical evidence (Dawson & Barwell 1993, Edmonds 1997) suggest that the level of access is also closely associated with factors that contribute to poverty. For instance, lack of access to resources, employment and markets would inevitably results in low productivity and low incomes and implicitly leads to poverty. Productivity enhancement can be constrained by the failure to provide the requisite infrastructure such as roads. This can come about as a result of an inability to create an enabling environment for the provision of infrastructure as well as the administrative capacity of local government. The environmental aspects of transport are well known and would include issues such as pollution, noise, and visual intrusion.

## HOW AFRICAN CITIES HAVE MANAGED THE SECTOR

Although it is difficult and rather unfair to state a common position on how African cities have managed the transport sector as no two cities are alike, there is however some consensus on a number of areas. These include:

- ***Lack of a policy framework:***

In many African countries, there is no national policy framework within which the urban transport sector can be addressed. Thus, decisions taken in respect of urban transport are more often a reaction to a crisis. A coherent policy framework is needed to avoid undertaking projects in an ad hoc manner. An area which has greatly suffered is in respect of road maintenance. There is no policy in terms of routine and periodic

maintenance and quite often roads are attended to when they are seriously damaged and the costs to restore them will be prohibitive.

A clear policy framework will:

- Enable planning and implementation of urban transport projects and programmes in a coordinated and integrated manner
- Provide a platform for a continuous development strategy of the urban transport sector and thus ensuring consistency of means and purpose
- Promote the achievement of national and local economic developmental goals and objectives.

- ***Inadequate Enforcement and Weak Management***

Although traffic levels in African cities are lower compared to cities in the developed world, traffic is increasing at a rapid rate (15%-20%). The smooth flow of traffic is compounded by the competition that exists for road space with vendors and street traders. Such practices have been observed in a number of north west African countries. Street traders occupy space designed for pedestrian and vehicular traffic. This effectively reduces the capacity of the road causing congestion and thus affecting traffic flow as well as compromising safety. Both the law enforcement agencies and city fathers may be reluctant to remove these people trying to make a living on the roads for political reasons.

- ***Inappropriate Institutional Setup and Human Resource Requirements***

The management of municipal service sectors including transport vary from one country to another. While in many countries, urban local authorities are now autonomous, there are some where service sectors are handled directly from Central Government. Such an arrangement is bureaucratic and delays crucial decisions that are supposed to be taken timeously.

Decentralisation of functions and decision making from central to local governments has been implemented in many countries in Africa. However, there are still some countries where the recruitment of urban local authority personnel is still being done through the Public Service Commission, a Central Government Department. As pointed out in the introductory section, appropriately qualified people are a vital part of the transport system and these have to be recruited within an environment free from bureaucracy. In addition, Technical staff turnover is very high as staff leave for greener pastures once they get the necessary experience and this affects the execution of projects.

In most cities, engineering aspects overshadow transport management. Transport departments are dominated by engineers. Consequently, non-availability of professional transport planners means that mobility issues tend to be perceived from an engineering perspective.

- ***Inappropriate funding Arrangements***

In some countries funds for capital and recurrent expenses for transport infrastructure are disbursed through Central Government. Licences, road levies and related taxes paid by road users are treated as general tax revenue and allocations made as part of the annual budgetary process. Clearly, vital infrastructure such as roads are therefore being managed as a social service and not as part of the market economy.

- ***Failure to Create an Enabling Environment for Public Transport***

The majority of residents in cities of the developing world rely on some form of public transport to travel to and from work. Until the beginning of the eighties, conventional buses were the dominant public transport mode used in most African cities. The buses were subsidised in order to keep the fares at an affordable level. However, conventional public transport has of late been greatly affected as a result of Economic Reform Programmes (ERP) which were introduced recently by many Governments in Africa. Economic Reform Programmes in essence were intended to create an environment, which encourages competition by providing entrepreneurs with the freedom necessary to respond to market opportunities and not being constrained by economic controls. The deregulated regime had no place for subsidies and in most cities, conventional buses have disappeared. Public transport is now being provided by private operators using smaller vehicles. Although, there has been a general improvement of service in terms of reduced waiting times, fares have in real terms increased and vehicles are often overcrowded. Public transport users, who invariably are the poor are finding it increasingly costly as they cannot afford to pay the high fares. Municipal governments are not doing much to reduce the plight of the poor.

From the way the transport sector has been managed, the corollary is that most cities are congested (notwithstanding a relatively low level of traffic), with a general deterioration in the state of environment, inadequate and deteriorating road infrastructure, high levels of accidents and inadequate public transport supply inter alia.

### **WHAT ARE THE POSSIBLE OPTIONS?**

Possible options and strategies are required to improve both the provision and maintenance of transport infrastructure as well as an improvement of transport services that use that infrastructure. In doing so, there is need to adopt options that support a better quality of life in a sustained manner (World Bank 1996). Clearly, such options include:

- the efficient use of resources by local authorities
- meeting the transport needs of the poor and ensuring that benefits from transport improvements are equitably distributed
- minimising the external and detrimental effects of transport

Possible practical options discussed in this paper will therefore endeavour to focus on how transport provision can be provided in a sustainable manner, that is, economic, social and

environmental sustainability. In managing the urban transport sector on a sustainable basis, there are a number of options that can be considered as discussed hereunder:

### (a) Construction of new roads

The construction of roads to meet increases in traffic is the most “tempting” solution to implement. However, this option has some shortcomings. Firstly, local authorities do not have adequate funds to construct all the roads required to accommodate growth in traffic. Secondly, any attempts to match the demand for road space with supply is untenable, as more traffic would be generated clogging the new road space provided and compounding the congestion and pollution problems. Adams (1981) succinctly puts it, “as one adds extra miles of new road to an existing network, traffic would increase at a much faster rate than the length of the road.” Therefore, any decision to provide urban road infrastructure commensurate with traffic levels in an environment where vehicle ownership is increasing can never succeed. One has however to admit that new road building may be imperative by way of widening some existing roads to improve traffic flow as well as finishing critical missing links such as ring roads and by passes.

### (b) Traffic Management

As already pointed out earlier, most of the congestion taking place in African cities emanates from an inefficient use of existing road infrastructure and hence the importance of Traffic Management. Traffic Management is concerned with the application of a range of traffic engineering and administrative techniques. As Gardner et al (1989) pointed out, Traffic Management measures can be applied to some selected streets/roads, part of a city or the whole urban area. The most important feature of traffic management is its emphasis on making optimum use of the existing infrastructure. Traffic management measures are therefore relatively cheap and capable of early implementation. Clearly, Traffic Management is a process of adapting the existing urban road infrastructure without the need to inject massive investment in order to meet transport objectives such as:

- Accessibility
- Efficiency
- Safety
- Equity
- Economy and
- Environment

Practical examples of Traffic Management Schemes that African cities can implement include:

- **Conversion from two way into one way street system**, which has the potential of significantly increasing the capacity of urban streets, reducing accidents as the number of conflict points will have been minimised, enhancing traffic flow at relatively high speeds.

- **According priority to certain traffic:** This include:
  - Public transport, which is an efficient user of road space with its capability to transport passengers en masse. The creation of bus lanes on appropriate sections in the network would improve bus turn around time and minimise delays by public transport users. Public transport priority measures would bring other additional benefits such as energy savings and altering modal split in favour of buses.
  - Pedestrians who in most cases are vulnerable and suffer from the effects of motorisation on congested and polluted network. Segregation measures such as pedestrianisation of selected streets and provision of zebra crossings and overhead pedestrian bridges can enhance safety by according priority to pedestrians and other socially disadvantaged people. Traffic management schemes designed to protect vulnerable groups who do not have access to a private car fulfills the equity objective.

As this paper is being presented under a theme which also covers private-public partnership, it is instructive to cite an example where the private and public sectors cooperated in implementing a traffic management scheme that was geared towards enhancement of the safety of pedestrians. In Harare, the local authority and OK Bazaar, one of the biggest retail chains in the country entered into an agreement for the latter to construct two overhead pedestrian crossings. In return OK Bazaars was given a piece of land to construct one of its shops.

**Traffic Restraint**– These are a form of traffic management and impose a restriction on vehicle use. Both physical and pricing restraint measures can be applied.

Physical restraint options include, parking controls and traffic calming measures such as speed humps. There is need to control on street parking of vehicles in order to widen the capacity of streets as well as enhancing traffic flow. This is achieved by limiting the number of on street parking bays and to ensure that there is strict enforcement. Such measures are cheap to implement. Encouraging the use of public transport can complement parking control measures as this would limit the number of vehicles reaching the Central Business District.

Speed humps are very effective in built up residential areas. They limit the speed of vehicles and in turn reduce accidents. These need to be erected on “black spot” streets. In selecting streets for treatment, care need to be taken that the problem is not exported elsewhere. It is possible that traffic may divert from streets with road humps to other streets in the same neighborhood and thus shifting the problem elsewhere. Cities that may intend to use this scheme are advised to implement the measure on a wide area basis.

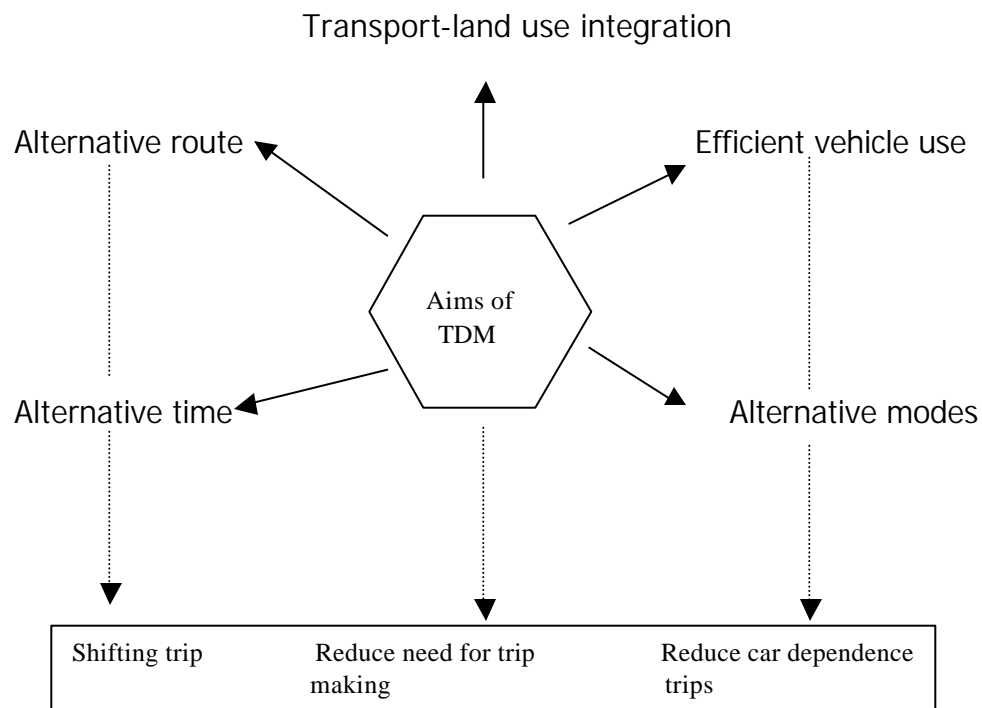
Pricing options are already being implemented by most cities in Africa through parking meter charges. Cities can therefore adjust and vary the charges to achieve their intended objectives. Another option is to go for cordon pricing but it is very difficult to

implement as the initial capital costs of setting up the scheme are high. Secondly, cordon pricing leads to delays and therefore defeats the purpose of enhancing traffic flow. Cordon pricing is appropriate in cities experiencing severe congestion and such levels of congestion may not have been reached by most African cities.

### (c) Travel Demand Management

Travel Demand Management (TDM) is not a new concept in traffic planning as it has been applied in many cities, particularly those of the developed world. In essence, TDM measures are concerned with the alteration of *travel behaviour* in order to enhance the efficient use of the existing road infrastructure and facilities. To this end TDM has similar objectives with Traffic Management. TDM measures can either be used in combination or in isolation. Figure 1 below succinctly summarises the main aims of TDM in terms of travel behaviour.

**Figure 1: Aims and Effects of TDM on Traffic Flow**



**Source:** Adapted from; Nakagami et al, Travel Demand Management in Japan, ITS 95

Travel Demand Management has a role to play in addressing the present and future traffic problems in the major cities in Africa. Traffic flow can be improved by shifting the trip in terms of the use of **alternative routes** and **alternative times**. The former can be achieved by encouraging motorists to choose alternative routes. Alternative times are achieved by shifting time bands through measures such as staggered working hours. It would be more effective to encourage the corporate world to promote these schemes

voluntarily rather than making them mandatory. It is instructive to point out that staggered working hours were implemented in Zimbabwe in 1988 without proper consultations made with stakeholders, principally the local authorities, industrialists and the general public to explain the advantages of this novel concept. In addition, all urban areas were required to implement the staggered working hours measure whereas smaller urban communities were not experiencing any traffic problems at all and thus creating problems where they didn't exist. Consequently the policy measure was not successful and had to be abandoned.

A **reduction on car dependence trips** is necessary in order to minimise congestion in urban areas. A car is an inefficient user of road space due to its limited capacity. Therefore making **efficient use of the vehicle** and using alternative modes with a larger capacity can reduce trips made by car. The former can be achieved by encouraging people to share their cars. A significant shift to public transport would meet the requirements of the latter. It is important to make public transport attractive by reducing its generalised costs if people have to abandon their cars in favour of public transport. One way of increasing the reliability of public transport is to implement bus lanes on heavily congested streets as earlier discussed.

The third area in terms of Travel Demand Management relates to **transport-land use integration**. Transport-land use integration is an important measure in reducing both transport costs and the need for travel. In a number of cities in Africa, segregation policies that were implemented in the colonial era resulted in residential areas being located far away from places of work. Local authorities need to implement land use planning policies that integrate residential and employment areas. A combination of two measures can achieve this integration. Firstly, industrial and commercial functions need to be decentralised so that they are in close proximity to residential areas. Consequently, the need to make trips to the traditional Central Business District and industrial areas is minimised and thus **reducing the need for trip making**. Secondly, the use of vacant space in between work places and the present residential areas has to be developed for residential purposes. Such a move would enable buses and other forms of public transport to pick passengers in both directions as opposed to the "unidirectional" trips in which buses pick passengers in one direction during peak periods. Therefore, transport-land use policies help in reducing transport costs for both the user (invariably the poor) as well as the operator.

Examples of lack of an integrated land use transport planning which resulted from segregation colonial policies can be seen in Zimbabwe and South Africa. In Zimbabwe, a dormitory town called Chitungwiza was developed some 25 kilometres from the capital. Both the time and cost (monetary) of travel between Harare and Chitungwiza are high. In South Africa, homelands developed by the apartheid regime are considerable distances from places of work and commuters spend the same time travelling as they spend at work.

#### **(d) Creating an Enabling Environment for Use of non-motorised transport**

There is a growing recognition worldwide on the failure of personal motorisation to improve the quality of life of the majority of people in urban areas. The importance and role of non-motorised transport in meeting the travel and transport needs of the urban poor is increasingly becoming acceptable but has not been recognised in most African cities. Non-

motorised means of transport, which essentially consist of walking, and cycling do not require massive urban infrastructure as required by motorised modes. They are also generally regarded as "benign" modes, which are friendly to the environment.

Non-motorised transport has for a long time been extensively used by the urban poor in developing countries. In Asia, cycling is a common means of transport among the urban poor. In India for instance, between 50 and 80 percent of trips in medium sized towns are by non-motorised transport (Herlie 1993). The cycle fleet in New Delhi increased from 650 000 to 950 000 between 1971 to 1980 (Maunder and Fouracre 1989). In China, the dominant mode of transport used is the bicycle. By the end of the eighties, the bicycle population in China had reached 220 million with ownership levels in urban centres averaging 460 bicycles per 1000 population (Cai Jun-Shi 1988). The situation in Africa widely contrasts that of South East Asia. Surveys carried out in five cities in Africa by TRL have shown that the bicycle is not widely used as only 6% to 15% of households have access to a bicycle representing ownership levels of approximately 20 cycles per 1000 population (Maunder and Fouracre 1989). This is also clearly evidenced by the modal split statistics (Table 1) for three cities in Africa contrasted by cities in the developed world.

### Percentage modal split of selected cities (1999)

City	Public Transport	Private Transport	Walking	Cycling
Nairobi	45	7	46	1
Dar es Salaam	44	6	46	3
Harare*	38	17	42	3
Delft	13	34	16	37
Copenhagen	25	30	15-20	20-30
Munster	10	37	22	32
Stockholm	35	30	20	10
Zurich	35	30	25	10
Amsterdam	20	30	25	25

\* 1996

**Source:** - VeloMondial Conference, Amsterdam, June 2000

- University of Zimbabwe/Transport Research Laboratory

- Rwebangira, T. Cycling in African Cities: Status and Prospects in Low Cost Mobility in African Cities, Proceedings of the Expert Group Meeting held in Delft, The Netherlands, 21-23 June 2000

It is quite evident from Table 1 that while walking has a significant share of the modal market in cities of Africa, cycling has an insignificant share of the market. Improvements can be realised by shifting from walking to cycling as the latter offers speed at least three times and effective ranges of movement nine times as great as walking (World Bank 1996). The promotion of non-motorised means of transport need to be combined with transportation-land use strategies in order to minimise the distances to be travelled.

Notwithstanding the environmental benefits as well as the potential benefits to the poor of non-motorised transport, why then has cycling got an insignificant share of the travel modal market? There are a number of factors, which possibly have contributed to the decrease in use of bicycles. Howe and Dennis(1993) cited declining trends in bicycle stocks for the last two decades in Ethiopia, Ghana, Kenya Malawi and Nigeria. United Nations Centre for Trade and Development(UNCTAD) statistics on bicycle imports of 28 sub-Saharan African countries shows that on aggregate, the real value of imports fell by around 60% between 1980 to 1982 and 1989 to 1991.

One of the biggest problems in Africa has been to promote the bicycle as a mode of transport for the poor. It is generally felt that the prices of bicycles are too high and outside the reach of the intended beneficiaries. A study in Ghana by Turner et al (1995), found out that even a second hand bicycle represents a large proportion of capital for a low-income household.

Another problem likely to constrain the use of bicycles is the environment that may be unfriendly to the user. A friendly environment for cycling is one where there is separate provision for facilities such as lanes, signal phasing and properly secured parking for bicycles. The non-availability of these facilities has created a general perception among potential users that cycling is risky and more prone to accidents than motorised transport.

The following are specific practical strategies that can be embarked on by cities in order to create an enabling environment for use of non-motorised transport by the urban poor:

- Creating awareness on the benefits of using non motorised transport
- Negotiating with relevant central government departments for the lowering and subsequent removal of duties on bicycles in order to reduce costs
- Liaising with private companies to institute loan schemes for employees to acquire bicycles
- Providing the requisite infrastructure such as cycle lanes to enable bicycle users to cycle in a safe environment

### **(e) Institutional Setup and Human Resource Requirements**

Cities need to be autonomous and this should be reflected in the institutional set up. The autonomy is required in both the recruitment of key personnel as well as having a leeway in raising funds for transport capital and recurrent expenses. Practical measures to address the institutional organisations and human resource requirements are:

- To allow local authorities to directly recruit their staff without interference from central government
- In view of the failure by local authorities to retain qualified staff, a practical measure would be to recruit the core staff only, and make sure that it is reasonably remunerated and then rely on the use of private contractors for the execution of civil and other works
- To allow local authorities to collect transport user charges where necessary and create a dedicated fund for transport sector management.

## **(f) Policy Framework**

The implementation of the above transport sector options would require a guiding policy framework. Urban Local Authorities need to develop their own transport sector policies which are consistent with the national transport policy in cases where these are in place. Such a policy need to articulate the objectives of urban transport in relation to economic growth, infrastructure maintenance provision of an affordable and efficient public transport system particularly for the urban poor, minimising transport resource costs by making more effective use of existing facilities and minimising the impact of transport on the environment. The options covered in this paper are consistent with these objectives.

### **Conclusion**

Cities in Africa are experiencing unprecedented growth. Such growth is placing a lot of pressure on services. Transport, which is central to development, is clearly one of such services that has to be provided in an expanding urban community. Thus, city administrators are faced with immense challenges in developing a sustainable transport system that is responsive to changing demands.

Urban Local authorities do not have the requisite financial resources to construct roads and at any rate, additional roads will attract more traffic compounding environmental problems. Traffic Management and Travel Demand Management techniques which essentially address traffic and travel behaviour are more appropriate in resolving traffic and transport problems in the fast growing urban areas.

Meeting the transport needs of the urban poor would require paying more attention to other modes of transport which hitherto have been ignored. Greater emphasis has to be placed on non-motorised means of transport by improving infrastructure for such modes.

Finally, the development of sustainable transport in African cities can only be accompanied by an environment that is conducive to development. A transparent and symbiotic partnership between central, local governments, private sector and civic societies has to exist. These stakeholders have to share the common goals of developing an economic, financial and environmentally sustainable transport system.

## **REFERENCES**

Adams, J. (1981) *Transport Planning: Vision and Practice*

Cai Jun-Shi (1988), *Public Transport in China* UITP Singapore Conference, City Transport in Asia, UITP.

Dawson, J & Barwell I (1993), *Roads are not enough: new perspectives on rural transport planning in developing countries*,

Edmonds G, (1997), *Wasted time : The price of poor access*, ILO

Gardner et al, (1989), *Traffic Management*, Transport Research Laboratory

Howe J; Dennis R, (1993), *The bicycle in Africa: Luxury or necessity*, Velocity Conference 6 - 10 September 1993, Nottingham, United Kingdom

Howe, J, (1997), *Transport for the poor or poor transport? A general review of rural transport policy in developing countries with emphasis on low-income areas*, ILO, Geneva.

The World Bank, (1996), *Sustainable transport: priorities for policy reform*

Nakagami, Y et al, (1995); *Transportation Demand Management Efforts in Japan*, 2<sup>nd</sup> World Congress on ITS

Maunder D A C, Fouracre P R, (1989), *Non-motorised travel in Third World Cities*, In Institute of British Geographers' Annual Conference on Managing Our Environment, Coventry, 3-6 January 1989.

World Bank, (1996), *Sustainable Transport: Priorities for policy reform*

World Development Report (2000), *Entering the 21<sup>st</sup> Century*

Turner J, Grieco M, Kwakye E A, (1995), *Subverting sustainability? Infrastructural and cultural barriers to cycle use in Accra*, 7th World Conference on Transport Research, Sydney, 1995