Africa, Transport and the Millennium Development Goals

Africa, Transport and the Millennium Development Goals: Achieving an Internationally Set Agenda

Edited by

Margaret Grieco, Muna Ndulo, Deborah Bryceson, Gina Porter and Talia McCray

CAMBRIDGE SCHOLARS PUBLISHING

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This book first published 2009

Cambridge Scholars Publishing

12 Back Chapman Street, Newcastle upon Tyne, NE6 2XX, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-4438-1300-1, ISBN (13): 978-1-4438-1300-6

This manuscript is dedicated to the women of Africa who lose their lives in childbirth in increasing numbers as a direct consequence of inadequate transport infrastructure and to the prospect of repairing this current process of damage.

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PREFACE

This volume is the product of an expert workshop held at Cornell University's Institute for African Development in May, 2007. The workshop brought together field leaders in the social dimensions of transport in Africa and harnessed their knowledge to the discussion of the Millennium Development Goals (MDGs) in the context of transport. Achieving the MDGs without paying proper attention to issues of transport and its interaction with the various social domains is problematic, and this is nowhere more visible than in the context of gender and transport. The volume pays attention to this important dimension as well as many other very important dimensions such as the role of transport (or lack of transport) in the organization of educational provision, of health, of poverty and of employment/unemployment. This alignment of transport in Africa with the MDGs proves to be a fertile ground for research inquiry, inquiry which has important messages for policy makers and consequences for policy.

Ravi Kanbur (Cornell University)

CHAPTER ONE
ROADMAPPING DEVELOPMENT AND POVERTY ALLEVIATION

Transport and the Millennium Development Goals in Africa[*]

Deborah Fahy Bryceson

1. Introduction

Transport is generally considered foundational to the development of the African continent. The lack of roads, specifically rural roads, is viewed as a major physical constraint perpetuating rural poverty, yet transport was excluded from the Millennium Development Goals (MDGs). This chapter argues that the original omission and many recent attempts since to include transport in the existing MDGs by inference or elaboration relate to misperceptions regarding the role of roads in rural areas and their potential impact on the poor. Using recent survey evidence from Africa, it is argued that unless special attention is focused on their access to service and transport modality, the poor are the least likely to achieve enhanced mobility through rural road expansion,.

Africa, more than any other continent, is known for its vast, sparsely populated rural areas, lack of transport infrastructure and rural poverty. The relative immobility of African rural dwellers and their poor access to social and productive services and markets is especially pronounced. The MDGs, initiated in 2000 to alleviate poverty, do not encompass targets to lessen the transport constraints on the poor. This paper discusses possible reasons for the omission and the transport considerations that have been tabled *ex post facto* linking transport with MDG achievement in light of recent rural and urban mobility survey findings.

[*]Thanks go to Annabel Bradbury, John Howe, Richard Kibombo, David Maunder and Tatenda Mbara for their involvement in the cited field studies and to Trevor Bradley for his data processing and comments on a draft of this paper.

2. Context: Setting the MDG Agenda

The launch of a set of highly focused internationally ratified poverty alleviation goals to mark the new millennium was an exercise in consensus building amongst international development agencies and signaled new partnership relations between these agencies and governments of developing countries. The previous two decades had witnessed an international financial institution-led sustained attack on the caliber of leadership and integrity of states in developing countries, particularly aimed at African states. As a consequence, western donor funding was increasingly channelled through non-governmental organizations in an effort to bolster the political power of civil society at the expense of the state.

By 2000 it was apparent that this strategy required rethinking. In many African countries, national governments had become worryingly under-resourced and disengaged from active involvement in donor-funded development strategies. Donors bemoaned the lack of "stakeholder ownership" on the part of recipient governments. To break the deadlock, some donors[1] have attempted to replace their project funding with central budgetary support to central governments subject to poverty reduction measures being implemented by national governments (IID and Associates 2006). This represents a significant policy reversal, endorsing the sovereignty of the state in developing countries and thus according recipient governments the scope to set their own development agendas. The developmental state is thereby being reinstated (Fritz and Menocal 2007).

But not all western donors have been eager to give budgetary support, and for those who do the approach raises a major issue regarding how donors can reconcile budget support to developing countries with accountability to their own tax-paying populations. The MDGs resolve this double bind by signposting indisputably "good" development goals, which northern taxpayers are likely to view as worthy causes, while at the same time building consensus with governments of southern developing countries. Health and education targets are, for humanitarian reasons, perceived as inherently good and justifying financial support.

By contrast, transport was entirely overlooked in the MDG goal setting exercise. Why? Clearly, limiting MDG efforts primarily to health and education facilitates coordination of implementation measures, precluding a proliferation of ministerial involvement. And if worthy causes are identified with "basic needs provisioning," then transport, which is so often

[1] Notably Swedish SIDA and British DfID.

equated with infrastructure, is not readily classifiable as a basic need. It is a means to an end rather than an end in itself.

Yet some goals, like those targeting gender equality, urban slums, the environment and global partnerships for development, were included in the MDG list while not being of a basic-needs character. Their presence is difficult to explain vis-à-vis developing countries' priorities, which have not generally been focused on the environment, gender or urban problems. Western development-focused lobby groups were undoubtedly instrumental in their inclusion, while it appears that those representing transport concerns were not exerting themselves in the international MGD arena (Hook 2006). A natural point of entry for them would have been the environmental MDG, but road transport interests are often defensive about energy issues. Furthermore, "development transport" advocacy, with its mixture of voices from the fields of engineering, economics, geography and urban and rural governance and planning, may not effectively or perhaps even coherently project themselves in agenda-setting development circles.

Western donor governments as well as high profile private bodies such as the Bill and Melinda Gates foundation have embarked on funding and implementation of the MDGs, concentrating their efforts in the fields of health and education. Almost half-way through the fifteen-year MDG targeted program, transport began being mooted as an important means of achieving the MDGs in Africa (Africa Union *et al*. 2005) and similarly in Asia (UNESCAP 2006).

The appearance of transport advocacy at this point was not accidental. Since the launch of the MDGs, the field of transport in developing countries had been increasingly marginalized from donor funding. While various on-going transport development programs proceeded, transport research had contracted, as exemplified by the decline in the development transport section of TRL (formerly Transport Research Laboratory) in the UK. TRL had a sustained track record of high quality research dating from the 1950s and still continues to operate in the development sector, albeit in a significantly reduced capacity compared to the pre-MDG period. High staff turnover in other nodes of development transport expertise, notably within the World Bank's transport department, posed a setback. Thus, experienced transport specialists were in short supply to argue the case for transport vis-à-vis the MDGs.

3. Derivative Transport: Linking Transport to the MDGs

The above contextual discussion of the formulation and implementation of the MDGs has suggested some reasons for the exclusion of trans-

port from the MDGs. Underlying these circumstances, a discourse blocking clear perception of transport development in sub-Saharan Africa vis-à-vis the poor prevailed. The mainstream concept of "transport" was largely divorced from the reality of poverty reduction. Now, as efforts are made to link transport to the MDGs, a "derivative transport" position arising from the prevailing discourse in the field of African development transport has been formulated rooted in what might best be called a mass motorized transport (MMT) perspective. It assumes that economic and political development rests on the ease and freedom of movement afforded by road infrastructure and motor vehicle expansion.

The convergence of this perspective with the imperative of the MDGs has resulted in a series of interlocking premises regarding the positive impact of transport on poor people's daily lives. In so doing, the rural transport alternatives literature of the past two decades, which offered a robust critique of the MMT's perspective vis-à-vis Africa, has been largely sidelined (Howe and Richards 1984, Barwell *et al*. 1985, Dawson and Barwell 1993, Barwell 1996, Grieco *et al*. 1996, Howe 1997, Porter 2001). The following section outlines the three basic assumptions that thwart an appreciation of transport or more accurately mobility's role in poverty alleviation. First, transport for the poor is equated with rural road transport. Second, rural roads are assumed to provide better access to health and education services. Third, it is assumed the experience of these improved services by the poor will alleviate their poverty.

Data from the DfID/TRL 2001 Sustainable Livelihoods and Mobility study (SLAM) and the DfID/TRL 2003-04 Social Benefits in Transport Planning study (SOCBEN) are cited to illustrate the argument. The SLAM study was a stratified survey of 720 households (360 in Uganda and 360 in Zimbabwe) comparing household members' mobility in four types of settlement in each country: primate city, peri-urban areas, secondary city, and rural village. Ninety households were interviewed per site and 30 per income group (high, medium and low) at each site regarding short-distance daily and medium-distance annual mobility as well as migration history (Bryceson, Maunder, Mbara, Kibombo, Davies and Howe 2003).

The SOCBEN study was focused on rural areas in Zambia, Ethiopia and Vietnam and involved interviews with individuals regarding household mobility and access in four different types of settlement, differentiated on the basis of connectivity of the location and presence/absence of road improvements (Bryceson, Davis, Ahmed and Bradbury 2005). The aim of the study was to analyse the social benefits and costs of varying qualities of rural road access. Two hundred and forty households were examined in each country, sixty per settlement/road type.

3.1 Transport for the Poor equated with Rural Roads

Transport is defined in the Oxford Concise dictionary as "conveyance or transportation from place to place." This definition, which so often serves as the essential point of departure for transport studies, is flawed for purposes of understanding mobility in developing countries. It imparts a sense of passive rather than active agency. The conceptualization is one of people, goods, commodities and services being conveyed from place to place, rather than people as mobile agents making decisions with regard to their personal movement and the conveying of goods and services in their purview. When this passivity is combined with modernization theory, inevitably technology becomes the catalyst of people's mobility. The foundations of this perspective are rooted in a technology-centrist belief that cars and mass car ownership not only bridge distance but offer individuals freedom of movement and choice—an ethos that first surfaced in the United States and became an integral part of the American way of life after World War II in association with rising car ownership. This perspective spread throughout the industrial world to become an almost ubiquitous marker of modernity. While emphasis on personal car ownership is no longer considered politically correct in view of world environmental concerns, it is nonetheless still assumed that Africa, with its vast expanses, critically requires the expansion of motorized transport. The corollary is that road building to facilitate motor vehicle traffic will provide people with the mobility and access that they require to raise their material living standards.

European colonial transport investment in Africa during the early part of the twentieth century concentrated on railway construction, whereas the post-colonial transport policies of African states focused on building roads (Howe 1975). Policymakers are primarily attuned to road development to the point that it seems natural to use roads as the shorthand reference for all transport modes, as illustrated in the Africa Union *et al.*'s (2005) statement on transport and the MDGs:

> Reference to rural roads should normally be taken to apply equally to riverine transport and jetties, for areas served more by water transport. References to trunk infrastructure, although expressed mainly in terms of 'highways,' should be taken normally to apply too to railways, mainline inland water transport, coastal and ocean shipping, and air transport. All modes of transport are highly relevant to the MDGs (Africa Union *et al*. 2005: 9) .

However, it is not enough to state that all transport modes are relevant to the MDGs, if the frame of reference remains restrictively roads. Modes of transport are immensely diverse, encompassing forms of purposeful movement ranging from foot journeys to air travel. Each has different infrastructural needs and decision-making agency and expended effort on the part of the mobile agent. Deploying a passive notion of transport and equating it with roads circumvents this complexity. By default, transport takes on a top-down provider rather than bottom-up agency perspective. Transport becomes synonymous with road infrastructure for the conveyance of people and goods by motorized vehicles, which is a conceptually askew and empirically biased assumption.

Table 1-1: Mode of Daily Short Distance Transport in Uganda and Zimbabwe by Income Group (% of total modes reported)

Transport Mode/	UGANDA				ZIMBABWE			
Income Group	Low	Med.	High	Aver.	Low	Med.	High	Aver.
Walking	74.4	65.3	50.0	63.2	80.5	62.1	45.6	62.3
Bicycle	9.1	10.1	7.6	8.9	1.2	1.1	0.9	1.1
Motor-cycle	1.2	1.6	3.2	2.0			0.1	
Private car	1.7	4.2	24.4	10.1	3.2	15.8	39.7	20.1
Kombi	12.4	15.8	12.2	13.5	13.3	17.0	11.0	13.6
Minibus	1.0	2.8	0.3	1.3	0.2	0.3	0.2	0.2
Bus	0.2			0.1	0.2	1.8	1.4	1.1
Staff bus			1.9	0.6	1.4	1.2	0.5	1.0
Taxi							0.1	
Lorry					0.2			0.2
Animal cart						0.8	0.5	0.3
Other	0.1	0.4	0.5	\0.3				

Source: Bryceson et al. 2003, p. 26 (SLAM 2001 data)

Table 1-2: Trips* by Mode of Transport and Settlement Type/Road Status (% of total modes reported)

		ETHIOPIA				ZAMBIA				
Settlement Type	Road Status	Walking	Bus	Animal-aided	Other	Walking	Bicycle	Bus	Animal-aided	Motor car
Well - connected	Road-Improved	87.6	9.4	3.0	0.0	88.5	8.3	2.3	0.0	0.8
	Not Improved	93.1	2.4	4.5	0.0	89.5	7.9	2.0	0.0	0.4
Remote	Road-Improved	93.0	1.6	4.6	0.8	73.8	25.5	0.0	0.6	0.0
	Not Improved	94.6	0.5	4.9	0.0	86.4	8.8	2.0	1.2	1.6
Overall		92.1	3.5	4.3	0.2	85.5	11.4	1.7	0.5	0.8

*A 'trip' is defined as purposeful travel both inside and outside the village by any mode of transport for social and economic purposes, excluding domestic travel for firewood and water. Numerous studies have already documented the time spent and distances covered for firewood and water collection, especially in Sub-Saharan Africa (e.g. Bryceson and Howe, Porter 2001). This accounts for a large proportion of household mobility but it is rarely influenced by the presence of roads or motorized transport given that its location tends to off-road where the raw material is still readily available for collection.

Source: SOCBEN 2005, p. 31 (2003-04data).

The African poor of the twenty-first century do not have the modal means at their disposal to utilize roads. Only a small minority of the Afri-

can population, those from the wealthy or possibly middle-income brackets, own cars, and the preponderant majority of them live in urban rather than rural areas (McCall 1985, Bryceson and Howe 1993, Barwell 1996, Porter 2001). (See Table 1-1 above). The vast majority of daily trips beyond the confines of one's house in both rural and urban Africa are walking trips, even in well-connected settlements which have good road access, as evidenced in the DfID/TRL 2003-04 Social Benefits in Transport Planning study (SOCBEN) of rural locations in Ethiopia and Zambia.

Roads for Accessing Improved Health and Education Services

Recent efforts to link transport to the MDGs have stressed the role of roads in facilitating the rural poor's access to health and education. Citing recent mobility survey data, this section probes the nature of the rural population's access to social services in relation to the presence and quality of roads.

Findings from the SOCBEN 2003 study show that school trips comprise a large percentage of household members' daily trips away from the house in Zambia (15 percent) and especially in Ethiopia (21 percent). Settlements were distinguished by degree of connectedness and state of road as listed in Table 1-3.

Table 1-3: Average per capita Monthly Trip Distance Travelled by Rural Settlement Type

	ETHIOPIA			ZAMBIA		
Settlement & road type*	Total trip distance (km)	Education % of total	Health % of total	Total trip distance (km)	Education % of total	Health % of total
A	47.1	13.4	1.0	70.8	11.3	1.2
B	65.8	30.2	1.7	40.4	23.9	3.2
C	55.9	19.8	1.1	60.4	10.8	2.0
D	72.7	23.5	2.0	39.5	22.0	1.0
Overall	59.7	21.4	1.4	53.4	15.3	1.8

Source: Bryceson et al. 2005 (SOCBEN 2003 data)
* Settlement and road type
A – in well-connected region with improved road
B – in well-connected region with unimproved road
C – in remote region with improved road
D – in remote region with unimproved road

Settlement types B and D, representing locations with poor roads in well-connected and remote areas respectively, register not only higher per capita monthly distances travelled but also larger percentages of those totals devoted to a school destination (Bryceson *et al.* 2005). This may suggest that the student population attends school regardless of connectivity and quality of the roads. In both countries school-directed travel distance in the 'D' settlements in remote regions with poor roads was almost twice that of the 'A' settlements in well-connected settlements with improved roads. Children are the least likely of the rural population to have access to motorized transport for road travel to and from their schools. Their involvement in long daily walking treks to school is well known but largely taken for granted. Parents rarely prioritize better transport to schools *per se* when discussing rural household transport constraints.

However, they do worry about school journeys with respect to child safety, mirroring concerns of parents in developed countries. Daughters who have reached puberty generate particular anxiety. School journeys are seen as unsupervised time when a daughter might be vulnerable to sexual encounters. In some regions of Ethiopia, parents' worry is more extreme. Pubescent girls face the possibility of being kidnapped and taken as brides to other areas (Amharic: *tällafa*). Parents counter this by restricting the movement of girls outside the village (Bryceson *et al.* 2005). In other areas, girls are expected to take on an increasing share of domestic labor tasks in the household as they mature. In Zimbabwe, teachers reported that school dropout rates for girls reaching puberty had to do with parents viewing the hours that their daughters spent commuting between home and school as interference with their household chores and meal preparation duties (Bryceson *et al*. 2003).

On the supply side, roads can influence teacher availability and the quality of education generally because well-qualified teachers are more willing to work at rural schools with good road access (Holm-Hadulla 2005). In the SOCBEN study the Ethiopian 'A' settlement was a highly attractive location situated on a newly constructed main highway where it was relatively easy to recruit educated staff from afar to work in the village's health, educational and agricultural services (Bryceson *et al.* 2005). Paradoxically, the population of this settlement was less mobile in monthly per capita distance travelled than elsewhere because their main road location had attracted the establishment of social and productive services, precluding the local population from having to walk long distances beyond the village to access basic services (compare settlements 'A' and 'D' in Table 1-3).

In the SOCBEN rural focus group discussions, transport to health clinics was most frequently cited as the major mobility constraint faced by villagers. This however does not infer that it is a commonly experienced problem. Quite the contrary, household mobility profiles indicate that family members' trips to health facilities are on average relatively rare (Table 1-3). Only between one and three percent of average per capita distance travelled is devoted to health-service trips. Rather, the emphasis placed on transport constraints to health facilities reflects the importance placed on good access to health facilities when people are critically ill. Failure to get timely medical attention can be a matter of life or death for the patient. Clearly, road building designed to maximize emergency health care access throughout rural Africa would be prohibitively expensive and raises the question of how medical emergencies can best be dealt with in remote areas. In East Africa the Flying Doctors helicopter ambulance services have historically been considered successful but expensive to operate. Donkey, bicycle or motorcycle ambulances with trailers can be managed by villagers themselves (Heyen-Perschon 2005). With rising mobile phone usage, emergency ambulance services of a low or high tech nature can be more effectively coordinated.

Road maintenance is another key factor relating to a road's utility for service accessibility. Roads need regular, often costly, maintenance, especially those in tropical and savannah climates where intense sun and heavy rainfall are highly damaging. The heavy clay or alternatively sandy soils of Africa compound the maintenance problem. In many parts of Africa, after three to five years roads can become pot-holed to the point of seriously impeding motorized traffic or become temporarily impassable every year during the rainy season. Such roads can impair the supply of medicines to dispensaries and the timely delivery of fertilizer and agricultural marketing services for farmers. Lack of road maintenance on just a small segment of a road, a single culvert or bridge can undermine the utility of the entire road network for rural dwellers in remote areas.

4.1 Improved Service Access and Poverty Alleviation

Wherever roads are built, the poor are the least likely to use and benefit from the road because the transport utility of a road, i.e. its facility to make travel faster, cheaper, more reliable and/or safer, is modal-dependent; those without ownership of wheeled motorized transport or money to travel on buses are likely to derive minimal benefit from their proximity to a road.

The rural poor are the least mobile in terms of daily kilometers traveled and speed in rural Uganda and Zimbabwe (Bryceson *et al.* 2003).

Table 1-4 shows that they are generally four times less mobile than the rural high-income population by distance traveled and likelihood of availing themselves of fare-paid travel. The vast majority of their trips are by foot (Bryceson *et al*. 2003).

Table 1-4: Average Total Daily Travel Distance, Speed of Rural Dwellers and Mode of Transport in Uganda & Zimbabwe

	UGANDA				ZIMBABWE			
Income Group	Low	Medium	High	Average	Low	Medium	High	Average
Travel Distance (km)	4.8	11.2	18.3	12.5	5.0	13.5	20.3	13.0
Fare-paid travel %	3.9	8.9	17.5	10.1	0.9	6.4	2.7	3.3
HH car possession	0.0	0.0	6.7	2.2	0.0	3.3	16.7	6.7
HH bicycle possession	50.0	70.0	83.3	67.8	16.7	20.0	66.7	34.4
Transport Mode (% of total)								
Walking	90.4	84.8	70.0	81.7	98.3	92.3	87.7	92.6
Bicycle	5.4	7.7	7.2	6.8				
Motorcycle	2.4	3.4	3.4	3.1				
Private Car	0.0	1.0	8.4	3.1			7.5	2.3
Kombi (share taxi)	1.8	2.0	10.3	4.7	1.7	3.1	0.9	2.0
Bus		0.3	0.6	0.3		1.5	1.9	1.1
Animal cart						3.1	1.9	1.1
Other		0.7		0.2	0.9			0.9

Source: Bryceson *et al*. 2003, pp. 24, 26 and 28 (SLAM 2001 data)

Despite African urban dwellers' better access to motorized transport, car ownership is very restricted compared with other parts of the urban world.[2] In 2001, at the time of the SLAM survey, Harare had exceptionally high car ownership amongst its high and middle-income population, which has now eroded in the face of the country's economic and political crisis. Table 1-5 reveals a marked contrast between transport modal usage in Kampala and Harare.

[2] Except in South Africa.

Table 1-5: Average Total Daily Travel Distance, Fare-paid Travel and Mode of Transport utilized in Kampala, Uganda & Harare, Zimbabwe

	KAMPALA, UGANDA				HARARE, ZIMBABWE			
Income Group	Low	Medium	High	Average	Low	Medium	High	Average
Travel Distance (km)	7.2	12.1	18.3	12.5	8.8	21.6	34.2	21.5
Fare-paid travel %	3.9	8.9	17.5	10.1	0.9	6.4	2.7	3.3
HH car possession	0	6.7	40.0	15.6	13.3	70.0	90.0	57.8
HH bicycle possession	33.3	30.0	30.0	31.1	33.4	56.7	76.7	55.6
Transport Mode (% of total)								
Walking	59.9	42.9	20.3	41.0	70.8	13.8	11.9	31.2
Bicycle	14.5	10.7	1.6	8.9	1.2	1.4	3.5	2.2
Motorcycle	1.3	2.1	2.6	2.0			0.5	0.2
Private Car	3.3	7.9	59.4	23.5	5.0	44.8	75.6	44.4
Kombi (share taxi)	16.4	25.7	7.3	16.5	20.5	34.5	7.0	19.1
Bus	0.7	0.0	5.7	1.9		0.7		0.2
Other com-mercial vehicle			0.5	0.2	1.9	3.4	0.5	0.2
Other		0.7	1.6	0.8				

Source: Bryceson *et al*. 2003, pp. 24, 26 and 28 (SLAM 2001 data)

Hook (2006) argues that, within the urban context, perceiving roads *per se* as poverty alleviating is highly misguided. Roads, in the first instance, serve car owners who represent the richest stratum in the urban society. Table 1-6 shows weekday adult modal trip choice and distance in a Tanzanian middle-income neighborhood of Dar es Salaam, revealing that only six percent of all trips were by car. Motor transport in the form of bus journeys became significant in journeys of five or more kilometers. Below that threshold the vast majority of trips were by foot. Travel costs indicate that motorized transport overwhelmingly dominates transport costs (Table 1-6). The majority of direct car costs are borne by the city's highest earners, amounting to approximately 10 percent of the population. Nonetheless, urban mobility studies indicate that the urban poor expend

the highest percentage of their incomes[3] and time in city travel because of their heavy reliance on walking and buses (Hook 2006).[4] This predicament is exacerbated as the international price for oil rises, causing a drastic reduction in the poor's dependence on bus transport due to bus fare hikes (Bryceson and Mbara 2003).

Table 1-6: Weekday Adult Trip Distance and Modal Choice in Temeke, Dar es Salaam (% of total trips)

Mode	Distance (km)				Total
	0 - 2	2 - 5	5 - 8	> 8	
Walk	23	20	4	0	47
Cycle	0	2	1	0	3
Public bus	2	6	8	27	43
Car	0	1	1	4	6
Total	25	29	14	31	100

Source: De Langen and Tembele 2000, collated by Bryceson and Howe 2000, p.61.

African rural dwellers' marginality from motorized transport usage is generally equated with lack of roads rather than lack of access to motor vehicles. Table 1-8 sheds light on how the latter impedes mobility in Africa relative to other rural parts of the developing world through a comparison of rural settlements with different states of road repair and regional road densities in Ethiopia and Vietnam. Ethiopian average monthly per capita travel distances are roughly 60 per cent lower than in Vietnam. In both countries the poor are the most disadvantaged with respect to their travel distances.

[3] Primarily on bus journeys.

[4] For long distances, the poorest people in Africa's large cities usually ration themselves to a limited number of bus fares per month and otherwise walk.

Table 1-7: Total Travel Cost Matrix for Temeke, Dar es Salaam (% of total)

Mode	Distance (km)				Total
	0 - 2	2 - 5	5 - 8	> 8	
Walk	0	0	0	0	1
Cycle	0	0	0	0	1
Public bus	0	3	7	36	47
Car	0	4	7	40	51
Total	0	7	15	77	100

Source: De Langen and Tembele 2000 , collated by Bryceson and Howe 2000, p.66

There is far more differentiation of distance and speed between income groups within Vietnamese settlements as opposed to Ethiopia, where speed and distances traveled are relatively uniform among income groups. This relates to marked differences in levels of motor vehicle ownership in the two countries (Table 1-9). The Vietnamese higher income groups are availed more access to motorized transport, notably via motorbikes. By contrast, the high, medium and low-income groups of Ethiopia generally do not own motor vehicles. Many stated they had access to buses, but this was more a geographic rather than economic reality. Vietnamese rural dwellers had a mobility advantage in all modes of transport except pack animals.

Table 1-8: Monthly Distances travelled per Capita in Vietnam and Ethiopia by Settlement/Road Type and Expenditure Group (km)

Expenditure Group/	VIETNAM					ETHIOPIA				
Settlement & Road Type*	A	B	C	D	Aver-age	A	B	C	D	Aver-age
Low	45.6	34.7	48.2	30.7	39.9	21.0	33.9	23.3	31.6	27.2
Medium	83.3	45.4	72.3	30.3	53.5	26.6	28.7	30.7	31.9	29.5
High	92.5	47.8	106.1	46.7	70.1	27.6	35.2	29.5	46.6	36.0
Overall	81.0	42.3	57.4	33.1	50.5	23.7	32.9	28.0	36.4	29.9

Source: Bryceson *et al*. 2005, p.52 (SOCBEN 2003-04 data)

* Settlement and road type
A – in well-connected region with improved road
B – in well-connected region with unimproved road
C – in remote region with improved road
D – in remote region with unimproved road

Table 1-9: Household Ownership/Access to Modal Means of Transport (% of households)

	Motorcycle	Bus Access	Pack Animal	Bicycle
Vietnam	25	78	32	55
Ethiopia	0	49*	59	0
Zambia	0	15	10	38

Source: Bryceson *et al*. 2005, p.52 (SOCBEN 2003-04 data).
*This figure is high as a result of virtually all households in the road-improved settlements stating that they had access to buses, whereas their bus utilization (Table 1-2) data suggests otherwise given that bus travel was prohibitively expensive for most.

5. Overcoming Tunnel Vision

Efforts now being made to rectify the transport oversight in the original MDGs promulgated in 2000 are commendable (African Union/UNECA 2005, Holm-Hadulla 2005). Nonetheless, statements stressing the importance and linkages of transport to MDG realization are unlikely to give a sense of direction for improving transport on lines conducive to poverty alleviation unless they are based on the reality of actual mobility patterns in rural and urban Africa (Sachs 2005). A far broader analytical framework than what structures the current discourse on African transport is needed, one that takes into account the interactive effects of mobility and accessibility.

5.1 Interactive Mobility and Accessibility Approach

When poverty reduction is the ultimate objective, the starting point should be the decision-making parameters of the mobile agent who needs or intends to move from point A to point B rather than the road network *per se*. The mobile agent's immediate considerations are: 1) time versus money expenditure, 2) road utility contingent on modal availability, and 3) accessibility versus mobility.

Generally a poor person without money to expend on transport will inevitably utilize more time moving from point A to point B than a wealthy person with disposable cash. Second, a poor person's decision-making is contingent on road *and* modal transport availability. Living immediately adjacent to a good, passable road is of little utility to personal mobility without a motor vehicle or money to pay a bus fare. This applies to the majority of African rural dwellers, but particularly the poor. Finally, there is a web of public and private investment decision-making involving trade-offs between mobility as opposed to accessibility. From the perspective of the poor, the presence of a school or health dispensary easily accessible within the village is preferable to the same facility ten kilometers down a tarmac road. Thus, given the poor's restricted access to motorized transport, nearby service accessibility is more likely to be preferred over road availability by the poor.

Figure 1-1 depicts the multi-dimensional nature of individuals' mobility decision-making within the wider context of public and private infrastructural investment, showing how individuals' spatial movement arises from the integration of mobility (modality) and accessibility considerations. Mobility is determined by individuals' time/money trade-off within the context of, on the one hand, the proximity of services based on the location of public and private building investment and, on the other, the "mobility enablers" of public transport infrastructure and private modal means. Any attempt at poverty reduction through public transport investment must first take on board the decision-making perspective of the poor with respect to mobility *and* accessibility.

Addressing income-differentiated modal transport usage is key to helping the rural poor access road networks in Africa. However, in extremely remote rural areas, such as those found in many parts of Ethiopia, it is not so much the lack of roads as the lack of services anywhere in the vicinity of settlements that is the most pressing hurdle. It is useful to think of four stylised contexts based on the dichotomy between good and bad regional connectivity and road conditions, which resembles the settlement/road type categorization of the SOCBEN study previously cited.

Indisputably people living in areas of good service accessibility and good roads have the most enviable position, whereas those with bad accessibility and roads suffer the most. This is illustrated with SOCBEN survey data in Table 1-2. Average trip distance in Ethiopia is lowest in the 'A' locations and highest in the 'D' locations precisely because the D locations have the worst connectivity and service availability. It is interesting to

Figure 1-1: Spatial Decision-making of Mobile Agent

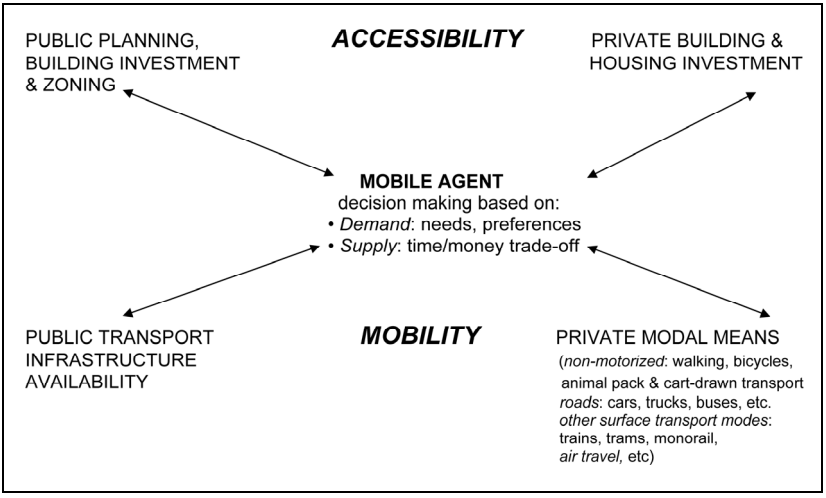

Table 1-10: Road and Service Accessibility Contexts

Mobility/Service Accessibility	'Good' Roads	'Bad' Roads
'Good' accessibility	A -Most beneficial	B - Road-deficient
'Bad' accessibility	C - Service-deficient	D -Least beneficial

Table 1-11: Average Rural Trip Distances travelled in Ethiopia and Vietnam (km)

Settlement Type	Road Status	ETHIOPIA	VIETNAM
Well connected	Improved	7.3	3.3
	Not Improved	9.1	2.2
Remote	Improved	8.5	4.7
	Not Improved	13.8	4.0
Overall		9.7	3.6

Source: Bryceson *et al.* 2005, p. 35 (SOCBEN 2003-04 data)

speculate what is worse: not having good roads or not having proximate social services. In Ethiopia, average trip distances in 'B' and 'C' locations are almost identical.

Interestingly, in Vietnam, where services are far more extensive and motorized and wheeled transport is prevalent, a different pattern arises. Trip distances are far shorter and the lowest trip distance occurs in the 'B' location where roads are relatively unimproved and deter motorised transport. Longest travel distances are found in the 'C' location where the roads are good but the road density and service availability are relatively deficient.

Thus, long trip distances are not necessarily a positive sign of high mobility. They may represent forced circumstances. People seek to minimize their trip distances *especially* when they are not availed motorized transport. On the other hand, when they are not availed proximate social services they travel longer distances out of necessity. They are more mobile, but in a negative rather than a positive sense.

5.2 Rethinking the Relationship between Transport and the MDGs

Transport is multi-modal and multi-purposeful—each person devises his or her own mobility pattern. A mobility and accessibility approach that takes full cognizance of the significance of transport modality for the poor can provide a more robust basis for evaluation of transport's relationship to each of the MDG goals. Goal 1—*the eradication of extreme poverty and hunge*r—could be facilitated by improved rural transport to support agricultural marketing and input supply, but too often in the past this has been used as the main rationale for rural road building, when in fact rural mobility surveys suggest that travel for these purposes constitutes a relatively small part of the time budget of rural households (Bryceson and Howe 1993, Bryceson *et al*. 2005). In any case, as Africa's smallholder agricultural production declines, this is becoming less significant (Bryceson 2002). Smallholder subsistence farming remains the vital source of food for most rural households, but non-motorized transport to facilitate the long distances traveled between home and field, rather than road transport, is at issue with regard to farmers' subsistence (Bryceson and Howe 1993).

Goals 2 through 6 relate to a range of *health and education objectives to alleviate poverty*. The linkage between MDGs so far has been made primarily with respect to claims that transport investment provides the poor with better access to health and education services. As argued here,