

Session 2.2: Notes

Equality of Access to Transport Services

Contents

1. What is equality of access?
2. Gender and transport
3. Maternal healthcare
4. Emergency transport systems (ETS)
5. Transport for children and young people
6. Transport for disabled people and the elderly

Learning Objective

After completing this session, you will:

- Gain an appreciation of what equality of access means and why inequalities in access to transport services exist in Sub-Saharan Africa
- Better understand the differences in transport service provision between women and men
- Understand the importance of transport and mobility in women's access to maternal healthcare, and in reducing maternal mortality
- Have learnt more about emergency transport systems and rural ambulance services
- Recognise the travel and transport characteristics of children and young people, the disabled and elderly.

1. What is Equality of Access?

All persons, regardless of race, ethnicity, gender, age and disability, should have equal rights of access to food, shelter, health, education, and opportunities to earn an income.

The Millennium Development Goals (MDGs) are a set of targets devised by the United Nations, and agreed to by the world's governments at the Millennium Summit in 2000, with the overall objective of halving the proportion of extreme poverty by 2015.

Six out of eight of the MDGs are directly related to gender equality relating to accessing education, healthcare and reducing child mortality and HIV/AIDS and malaria:

Goal 1: Eradicate Poverty and Extreme Hunger

- Target 1A – Halve, between 1990 and 2015, the proportion of people whose income is less than \$1 per day
- Target 1B – Achieve full and productive employment and decent work for all, including women and young people
- Target 1C – Halve, between 1990 and 2015, the proportion of people who suffer from hunger

Goal 2: Universal Education

- Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling

Goal 3: Promote Gender Equality and Empower Women

- Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015

Goal 4: Reduce Child Mortality

- Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

Goal 5: Improve Maternal Health

- Reduce by three quarters the maternal mortality ratio
- Achieve universal access to reproductive health

Goal 6: Combat HIV/AIDS, Malaria and other Diseases

- Target 6A - Have halted by 2015 and begun to reverse the spread of HIV/AIDS
- Target 6B – Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it
- Target 6C – Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

Global poverty continues to decline, more children than ever are attending primary school, child deaths have dropped dramatically, access to safe drinking water has been greatly expanded, and targeted investments in fighting malaria, AIDS and tuberculosis have saved millions. The 2012 MDG report says that, for the first time since poverty trends began to be monitored, both the number of people living in extreme poverty and the poverty rates have fallen in every

developing region including sub-Saharan Africa, where rates are highest. The target of halving the proportion of people without access to improved sources of drinking water by 2010 has also been reached, with the proportion of people using improved water sources rising from 76 per cent in 1990 to 89 per cent in 2010. The report says that enrolment rates of primary school age children have increased markedly in sub-Saharan Africa, from 58 to 76 per cent between 1999 and 2010 (United Nations, 2012).

In 2012, member states at the Rio+20 Conference agreed to develop a set of Sustainable Development Goals (SDGs) which will build on the success of the MDGs. The International Forum for Rural Transport and Development (IFRTD) have written a discussion paper on *The Role of Transport in MDGs and Positioning the Sector in Support of the Post-2015 Development Agenda*, which indicates ways in which the transport sector can respond to some of the emerging post MDG issues (Njenga and Shute, 2012). Certainly, transport and accessibility will need to be an integral part of the post-2015 framework for development.

2. Gender and Transport

(Source: TRL, 2002)

Traditionally, the concept of gender equality in rural development points towards alleviating the transport burden of women who undertake the bulk of subsistence agriculture, domestic chores and marketing activities. Whilst this still holds true, emphasis has shifted towards creating awareness of this burden amongst men and women, and highlighting the transport inefficiencies of these tasks in terms of value of time and income generating capabilities.

The time and energy burden of transport for rural women is well documented. In addition to their major productive roles, women are almost exclusively responsible for household and child-rearing tasks, so they have numerous and diverse travel and transport needs. Women also suffer the physical and health burdens of headloading a large proportion of fuel, water and produce. Yet cultural traditions and male-control of household resources mean that women have even less access than men to the available means of non-motorised and motorised transport. The combination of 'multi-tasking' and poor service and vehicle access severely limits the time available for, and timing of other activities.

If cultural restrictions were relaxed, enabling women to readily use the same transport modes and services available to men, it would serve to increase both agricultural productivity (through a saving in transport time) and earning potential (through increased load capacity and reduced trip frequency). Yet, policy makers must ensure they reinforce these changes in attitude with the provision of Intermediate Means of Transport (IMT) and spare parts manufacturers, and micro-credit schemes for female IMT users.

Division of Labour and Transport Tasks

In most societies men and women have distinct economic and social roles and responsibilities, and consequently there are significant gender differences in travel and transport needs:

- The practised division of labour tends to assign heavy physical activities to men, and more burdensome and time-consuming activities to women.
- Women's participation in agriculture is principally concerned with subsistence crop production, whilst men undertake cash crop cultivation and animal husbandry.
- In rural areas, men frequently control income from agricultural production, so that women have limited control over financial resources.
- Women are frequently required to make more trips than men as they must combine their agricultural activities with domestic responsibilities (such as preparing meals for the household, collecting fuel and water, and child-care).
- Domestic activities are generally performed by women on a daily basis, and include:
 - Collection of water and firewood
 - Preparation and cooking of meals
 - Food processing and storage
 - Child rearing
 - Cleaning and washing
 - Household purchases and errands

These activities have a high economic and social value, yet this is not captured in conventional economic analysis, hence the importance of domestic work for the livelihoods of the household is grossly underestimated. Domestic activities are almost exclusively carried out by women, who perform 80% of the work involved, and therefore bear the brunt of corresponding transport tasks.

The Transport Burden of Women

The daily responsibilities accorded to rural women contain a heavy transport component and tend to be conducted using head or backloading. In Africa, 65% of the total transport effort and 65% of transport time is borne by women, who carry 3-5 times as much as men in a year. This extraordinary strain, in addition to that of reproductive and productive responsibilities has direct effects on women's health, and therefore ability to labour. Headloading itself causes damage to the spine, and the energy expended in regular portage causes fatigue and ill health. These health problems are compounded by the high cost of basic medical care, and are therefore neglected. Consequently, the life expectancy of rural women is significantly reduced, which has implications for the agricultural production potential of whole countries.

The marketing of agricultural produce will frequently involve much longer trips than those undertaken within the village for water and firewood collection. Women's more limited access to motorised transport places an added burden on them and can also result in significant post-harvest losses when part of their produce rots due to lack of transport. Access to such simple equipment as a wheel-barrow or bicycle may more than double the volume of produce that women can transport to market.

All the time and energy consumed in these domestic activities is further exacerbated by the equally onerous task of childcare, particularly when load carrying weights are increased when transporting water, firewood and unprocessed maize. Howe and Bryceson (1993) express some concern over the inefficiency of 'passenger traffic' on women's productivity. The presence of a child for example, is incidental and its weight goes unrecorded; hence women are undertaking load carrying with additional weight, which further increases their travel time and imposes health implications related to overloading, and risk of injury.

A strategy is clearly required to improve the transport capabilities of rural women with the implementation of appropriate interventions whose performance matches need, and whose cost is sensible in relation to income.

Engendering Transport and Non-Transport Interventions

Gender-analysis, monitoring and evaluation helps to identify the economic and social divisions of labour at the level of the household and community. Gender analysis recognises the cultural, economic and social factors constraining women's access to economic opportunities, and will help identify intervention strategies which are more likely to gain the support of male members of the household and the community.

There are major gender inequalities in access to IMTs, as most are owned and used by men. Most transport programmes and IMT initiatives are determined by men, designed for men, and men are the major beneficiaries. Men are also much more likely to adopt new intermediate forms of transport than women. Women are marginalised from the use of IMTs because of their lack of purchasing power relative to men, and because their acquisition of IMTs is circumscribed by notions of cultural impropriety. IMT programmes need to address this issue, by creating a 'critical mass' of women users that will justify the manufacture and sale of suitable IMT designs, and break the male-dominated cycle of IMT use.

The potential of non-transport interventions is often overlooked. Implementation of rural water projects and woodlot schemes which provide boreholes and regenerating wood supplies, located close to service users, serve to reduce the time and effort spent per household, per day on water and firewood collection. Similarly, the creation of enabling environments for small scale market enterprise in rural areas proliferates competitive pricing and sale of consumer goods, thus negating such frequent long distance trips to district or provincial markets.

In addition, the provision of affordable and appropriate technologies to undertake daily chores at the household level also conserve energy reserves and remove the need for extraneous travel. Energy efficient wood burning stoves and grinding mills are cases in point, whereby firewood collection and consumption is greatly reduced, and less energy is expended compared with manual grinding.

When considering both transport and non-transport technologies in an effort to reduce the burden of women, policy makers must first consult the end user to identify priority needs of women in each community, and examine thoroughly the time, energy and cost savings made from implementing such technologies.

Reflections on Men and Gender in Development

The resource constraints and requirements of men have until recently been missing from gender discourse. Gender concerns should recognise that men and women may be disadvantaged by social and economic structures and that both have the right to live free from poverty. Empowerment processes should enable women and men to be liberated from the confines of gender stereotyped roles.

Indeed, the 'demasculinising' effects of poverty and of economic and social change may be eroding men's traditional roles as providers. The impacts of development on the transport sector have changed the way in which men's duties are undertaken. Transport practitioners for example, promote the use of IMT's amongst rural women who undertake the majority of short distance, subsistence tasks; yet, the majority of longer distance journeys undertaken for marketing of agricultural produce, are carried out by men. Men also require IMT technology to transport heavy loads over long distances. Similarly, road maintenance projects are increasingly requiring labour to be provided by women, which significantly reduces employment opportunities for men, and results in a domestic role reversal. Traditional gender roles can become threatened under external influences, giving rise to hostility. Clearly, the decision making process, especially for prioritising transport related interventions, should incorporate sensitisation of men and women prior to investment.

Whilst gender equality should be encouraged in rural communities, there must first be a change of attitudes and behaviour between male and female members. In order to maximise their livelihood potential, they must recognise a compromise with regards to changing gender roles and divisions of labour. With this in mind, gender research and policy initiatives would benefit from:

- Investigating the changing roles, needs and identities of men over life courses
- Researching men's roles in families, the reproduction of gender inequities through work, and men's specific health vulnerabilities
- Tracking and monitoring changes in gender relationships over time, in different cultural contexts, and apply lessons to gender focused policies
- Developing positive role models for men and boys by influencing mass media images through NGO's, religious and youth groups.

Guidelines for Policy Makers

It is generally recognised that the lack of gender disaggregated information is a key constraint to the development of appropriate policies and practices at the macro level. Policy makers should provide for an enabling environment in which gender sensitive transport interventions can be implemented to optimise the production and income earning capabilities of men and women, whilst improving the livelihood outcomes and life chances of both. Transport policies should encourage community participation of men and women in decision making processes and prioritisation procedures to ensure that specific gender needs are properly accounted for:

- All agencies dealing with transport issues (government, non-government and donor) should collect and analyse gender disaggregated data in formulating plans and policies, and develop gender sensitive monitoring

and evaluation. Agencies should work collectively and avoid duplicating effort.

- Women's full economic and social contribution to each sector of the economy should be recognised and documented.
- Policy support for developing infrastructure and credit facilities for transport and non-transport interventions to be accessed by women, including IMT's should be provided.
- Policies should facilitate research into appropriate transport and non-transport technologies for use by women to reduce their need for travel and to alleviate the burden of load carrying. Research should investigate the benefit of ergonomics to this end.
- Policy makers should advocate participation by women in labour based road rehabilitation and maintenance programmes, and training of women to adopt supervisory roles.
- There is a need to involve women and women's perspectives in decision making processes concerning transport policies, IMT initiatives and non-transport technologies at national level, at decentralised regional level and within communities.
- There is a need to locate the individual actions and beliefs of men and women within a wider framework of social, economic and political change.

3. Maternal Healthcare

(Source: Babinard and Roberts, 2006)

In the context of maternal and child health referrals, transport also plays a key role when many cases of pregnancy-related complications or emergency health situations are referred from the local health centre or district hospital to the provincial level. As most of these complications cannot be adequately managed at lower levels due to inadequate equipment, supplies, drugs and inexperienced staff, transport ensures adequate and timely referral to district or provincial hospitals in case of obstetric emergencies (Murray and Pearson, 2006; Nordberg et al, 1996; Macintyre and Hotchkiss, 1999).

The effectiveness of maternal and child emergency interventions as well as of the referral process to move patients from one level of care to the next depends on the speed with which care is provided and on geographical accessibility to a facility where obstetric care is available.

In this context, poor roads and lack of transport are a key factor in delaying access to the appropriate level of care. The "three-delays" model of Thaddeus and Maine provides a framework for understanding the barriers to accessing emergency maternal health (Thaddeus and Maine, 1994):

1. A first delay occurs in the decision to seek care because the woman, with her family, does not recognize signs of a life-threatening emergency, thereby waiting too long before deciding to seek care;
2. A second delay occurs in reaching the facility once the decision has been made to seek care
3. A third delay occurs in obtaining the appropriate care once the woman has reached the health facility.

Empirical evidence from developing countries that quantifies the availability and access to transport for health reasons is scarce. However, research in this area shows that several factors explain how poor transport constitutes a major barrier for women and children to access adequate medical care, particularly emergency care, at a health facility. The primary mode of transportation for women in labour remains walking, and care-seeking practices often reflect the fear of delivery en route, the physical hardships of traveling in such a state, and cultural practices (Rose et al, 2001).

Transport related costs. Transport related costs can be a primary factor in deterring patients from obtaining treatment. Even when a vehicle can be obtained, costs can be prohibitive and not even related to distance (Shehu et al, 1997). Poor patients in developing countries often cannot afford to travel to a distant hospital if they have to pay all the charges associated with the trip. Studies carried out in Burkina Faso and northeast Brazil show that transport costs accounted for 28 percent and 25 percent, respectively, of the total patient costs of using hospital services (Ensor and Cooper, 2004). A study in Bangladesh suggested that transport was the second most expensive item for patients after medicines (Ensor and Cooper, 2004). In rural Sudan, a study showed that about half of the families cited transport costs as the reason for not taking their children with referral need to a hospital (Mohammed Al Fadil et al, 2003). Although not clearly documented, lack of financial resources to pay for patient travel to a hospital or clinic may also influence a health worker to decline referral (Nordberg, 1996). During an assessment of reproductive health services made in Lao in 2000, the cost of transportation to the district hospital was reported to range from the equivalent of US\$0.30–0.45 for less than 8 km to about US\$9.20 when the village was more than 70 kilometres away; in one province, Emergency transport to the provincial hospital was reported to cost up to US\$15. These costs are substantial in a country where 6 percent of the population living under \$1 a day. Not surprisingly, there was evidence that this cost of transport constituted a major concern in deciding referrals.

Prolonged travel time and distance. Location and poor transport often impose important opportunity costs in terms of time on both patients and relatives, particularly during peak periods of economic activity such as harvest time. Excessive time and distance can influence patients not to seek care at a health institution and can also be a contributing factor to why women choose to deliver at home rather than at a health facility (Chisembele, 2001; Bale et al, 2003). In Zambia, a recent review showed that although 96 percent of respondents would have preferred to deliver in a clinic, only 54 percent actually did so. A key contributing factor was long distance, with 50 percent of the women having to walk for two hours or more to reach a clinic and only 35 percent of those living more than two hours away delivering at a health institution compared with 71 percent of those living within two hours walking distance (Stekelenburg et al, 2004). Likewise, in Sierra Leone access to health facilities is greatly limited by long distances between communities and health facilities as well as long travel times; the time required to reach a hospital can range from a minimum of three hours if a vehicle is ready to depart to over twenty-four hours if the vehicle has already left for the day (Samai and Sengeh, 1997).

Limited access and unreliable transport. In addition to bearing a negative impact on service utilization, poor access and lack of reliable transport also explain why families delay seeking care in an emergency situation or arrive too late at health facilities for effective treatment. In Zambia, a study conducted between 1998 and 2000 showed that 76 percent of the women had to walk to the clinic to receive care and 50 percent had to walk for two hours or more. While 71 percent of those living within two hour walking distance delivered in a health institution, only 35 percent of those living further away did (Stekelenburg et al, 2004).

Lack of ambulances and shortage of other means of transport in remote areas also delay the management of life-threatening complications, particularly on non-market days or during the rainy season (Shehu et al, 1997). In Tanzania, 63 percent of the women who died after reaching a hospital had travelled 10 kilometers or more for treatment (Biego, 1995). In India, a study found that half of the maternal deaths reported occurred before the women reached a treatment facility; most of them had traveled by bus, rickshaw or bullock cart and only 9 percent by ambulance (Pendse, 1999). The impact on child mortality is also significant. In urban Guinea-Bissau, 20 of 125 acutely ill children died either on their way to the hospital or while waiting in the reception area of an outpatient clinic (Sodemann et al, 1997).

The problems of poor transport services can also be compounded by inefficiency in the road system, resulting in additional delays due to traffic congestion or to problems caused by inadequate direction signs.

Risk perception and choice. In addition to expectations of transport cost and delay, the perception or risk of low quality care and inefficient service at health facilities has been found to influence the initial decision of a woman or her family to seek care, and in determining whether or not transport should be sought to reach a health facility. Studies examining maternal mortality reported that a lack of confidence in the quality of care, lack of available medical options, lack of equipment and services, and a frequently abusive attitude of personnel were crucial factors in delaying or preventing decisions to seek care (Wilson et al, 1997; Barnes-Josiah et al, 1998; Stekelenburg et al, 1998). In Haiti, close to 70 percent of the maternal deaths were linked to a delayed decision to get medical care, whereas delays in transportation only appeared to be significant in about 17 percent of maternal deaths (Barnes-Josiah et al, 1998).

Cultural norms and practices. In some societies, cultural norms and practices can influence the recognition of complications and/or risk factors during pregnancy, birth, and post-partum periods, thereby inhibiting women from seeking health care outside the home, either for themselves or their children. Sociocultural factors such as the fear of being stigmatized, or complications that may be seen as the result of insubordination or infidelity to the husband have also been reported as factors that delay women in seeking care and may lead to consultations with traditional and spiritual healers before going to the hospital (Wilson et al, 1997). A woman may also need approval within her household in order to seek emergency care. A survey in a rural district in Mali investigated the levels of knowledge, attitudes, and practices related to maternal health care among women of reproductive age and corresponding household heads. The survey revealed that over 70 percent of women and household heads cited the

husband as the principal decision maker for decisions about whether or not to seek care in the face of a sign of potential danger during pregnancy (Smith et al, 2004).

Cultural practices and prevailing norms can also strongly influence the decision to use transport, thereby constraining the delivery of health care. In Malawi, where a bicycle ambulance was set up to improve emergency obstetric care, cultural beliefs deterred pregnant women from using bicycle ambulances (Lungu et al, 2001; Cham et al, 2005). In several cases, where bicycles or motorcycles were introduced to facilitate community visits by health visitors, midwives and other individuals providing care did not feel able to use such vehicles (Gauthier, 2005).

Inadequate neonatal transport services. Although evidence is scarce, it is estimated that shortage or lack of transport specialized in meeting the needs of newborn or premature children with a critical illness can significantly contribute to neonatal mortality. Newborn or premature children who are required to be quickly and safely transferred to a different health facility or specialised neonatal intensive care unit have particular needs while in transit. In most cases, however, developing countries lack well-functioning and suitably equipped vehicles and, when equipment is available, the transport team is often not adequately trained to be able to use it effectively. Specialized transport equipment for newborn that is not available includes proper-sized bags and masks, mobile incubators, monitors, equipment for temperature regulation, or transport ventilators (Kazemian et al, 2004).

4. Emergency Transport Systems (ETS)

Emergency transport systems comprise any type of transport service provided in an emergency. Examples provided in the presentation include:

- The Partnership for Reviving Routine Immunisation in Northern Nigeria, Maternal, Newborn and Child Health initiative (PRRINN-MNCH)
- Riders for Health
- Transaid bicycle ambulance project

Other case study examples of localised transport interventions in Africa include the following.

(Source: Jeff Turner, University of Leeds)

Safe motherhood transport plans – Malawi:

- 'A government-backed Safe Motherhood programme has established village committees on safe motherhood, organized transportation plans and provided training to traditional birth attendants so that they can recognize signs of obstructed labour and act efficiently to get a woman to a facility.
- Telephones and radios have been installed in some health centres to communicate with the referral hospital and request ambulance transport for women in distress.
- However, pervasive gender inequities sometimes prevent women's access to transportation and emergency obstetric care. Decisions about when and

where to seek care are usually made by an uncle (or, occasionally, by the husband); without their input, a woman would be unlikely to seek care on her own.'

Transport within Safe motherhood unions - Zegoua, Mali:

- The small Malian town of Zegoua - population 22,000 has achieved something remarkable. Since January 2002, there's not been one case of neonatal or maternal mortality in Zegoua or any other nearby village,
- The local health centre caters for nine villages, which are divided into 16 zones.
- The secret of the area's success in reducing neonatal and maternal mortality lies in the determination of its women to tackle these problems.
- They have organized themselves into teams for taking charge of their health care and use micro-credit to finance.
- In the event that severe problems develop during a pregnancy, the coordinator of each village team must ensure that the woman concerned is transferred to a clinic that is equipped to deal with such emergencies.'

Walkie-talkies, transport strategies and a 40% reduction in maternal mortality: RESCUER, a Ugandan case study:

- The project has three components: communications, transport and provision of quality health services.
- The communications system uses VHF radios installed in base stations and health units, in the referral hospital ambulance and the District Medical Officer's vehicle, while the birth attendants have walkie-talkies.
- The midwives and birth attendants got additional training and now there is better quality care.
- But transport has been the biggest problem as the ambulance sometimes breaks down

Using the existing fleet of vehicles and community involvement: the yellow flag initiative in some parts of Nigeria:

- An initiative in which uses a local truck drivers union to provide emergency transport for women. "If there is a woman in difficulty in a village what her family will do is plant a yellow flag on the main road.
- When you can see a yellow flag truckers know there is a woman in trouble and they can help by taking her.
- Reports suggest that the local truck drivers union were delighted to be able to help and maternal mortality was reduced quite significantly because of this initiative.

5. Transport for Children and Young People

(Source: Porter, 2012)

Transport specialists are only just beginning to recognise the significance of children and young people's mobility. The publication of the 2007 World Development Report, "Development and the next generation" (World Bank, 2006) set an important way-mark in the development community, though it disappointingly incorporated only limited, peripheral discussion of transport and mobility issues. Over half the population of many African countries consists of people under the age of 18. Improving mobility and physical access to health

and education facilities for both girl and boy children has massive implications for their subsequent lives and livelihood potential and is crucial to many of the Millennium Goals, notably universal primary education, promoting gender equality and women's empowerment, and reduced child mortality (Fay et al, 2005). It thus may play a critical role in helping to break inter-generational cycles of poverty.

There are likely to be important differences in rural young people's spatial mobility related to age, gender, family socio-economic status and parental status, disability, and to the broader socio-cultural and economic context and physical environment. Perceptual and cultural factors (for instance, attitudes to girls' mobility in Moslem societies, child rearing practices), in particular, may play a significant role. It is important to consider the mobility and transport needs of children and young people in the context of their lives within the family and household and in terms of potential life and livelihood trajectories. For instance, access to facilities and services may depend not only directly on transport (vehicles and roads) availability and cost allowing children to travel, but may also be strongly affected by family and household demands for children's work. Economic conditions, sometimes associated with or exacerbated by HIV/Aids, put enormous pressures on families and consequently on their children. Children of six years and above often make a major contribution to household production and survival strategies.

Studies of young people's daily mobility and transport in rural areas is sparse, though Malmberg Calvo (1994) made an important early contribution in her work on women's role in rural transport, which included data on children's transport tasks. Katz's research in rural Sudan (1991, 1993, 2004) records young children delivering messages and carrying food around the village, and subsequently how they may travel more frequently [but mostly walking], depending on birth-order position. Katz finds a great deal of spatial autonomy, with few sex or status related differences evident until late in childhood. Only when girls reach puberty do their spatial horizons contract. Robson (2004) similarly presented detailed time studies to show how children in rural Hausaland are highly mobile (again mostly as pedestrians), in part due to the need to act as trading intermediaries for secluded women.

Access to formal education: making the journey to school: In recent years, primary education has been given a substantial boost by the emphasis on 'free' universal primary education in the MDGs. Nonetheless, the opportunity costs of children's time spent at school and the parental contributions which commonly still have to be made, plus other factors such as poor school quality, or lack of access to credit, are observed to be continuing constraints. The significance of the time, effort and/or costs of transport incurred in getting to school, however, is rarely considered in any detail. Schools, like health centres, are usually built in central places: secondary schools, in particular, are likely to be located at a distance from most rural communities. In remoter rural areas even primary school enrolment and attendance may be affected by travel distance, since schools cannot usually be provided in every settlement. There have been surprisingly few studies directly concerned with travel to school in Africa, especially in the last decade. Some of the most detailed travel to school data comes from South Africa. The 2003 South Africa National Household Travel Survey found 76% of 'learners' walking to their educational destination and

almost 3 million out of the 16 million total (especially those located in more rural provinces) spend more than an hour a day walking to and from educational institutions (Department of Transport, 2003; also Mahapa, 2003). When parental contributions and household labour demands are coupled with a long journey to school, these are likely, acting together, to present a particularly strong deterrent to attendance (Porter et al, 2010). A programme incorporating a range of interventions may often be essential to improved participation. The importance of a multi-sectoral approach to development intervention is emphasised in a number of recent studies: see Gibson and Mace (2006) for a particularly instructive study linking boreholes and reduced water carrying with rising birth rates and child malnutrition.

Children who are able to attend school may still be disadvantaged in their school performance by transport constraints in the home environment: at the household level transport failures may require children to carry water, firewood etc as well as to perform other household tasks, both before and after classes. These duties, which tend to fall particularly heavily on girls, in accordance with local cultural norms, delay the time when children leave for school, may cause them to arrive late at school (resulting in punishment from their teachers) and leave them exhausted during lesson time. Transport issues along the route to school (poor roads; unreliable, costly or non-existent transport services etc.) may add further to their problems (Porter, 2011). The school transport situation is further complicated by the substantial expansion of private education in some countries, much of it supplied by the for-profit sector. Even poor rural families may choose not to send their children to the nearest state school, often because of perceived deficiencies in the quality of education provided.

The transport impacts on girls' education are of particular interest since girls' school enrolment rates are often considerably lower than boys' (with the exception of a few regions such as Lesotho and South Africa's Eastern Cape, where herding duties have traditionally been defined as boys' work). This can be related to a number of factors, including girls' heavy household duties, cultural perceptions regarding the (limited) value of girls' education, and perceived dangers for girls who have to travel a long distance to school or board away from home. Improved road access and transport availability can probably make a significant impact on girls' attendance at school in some contexts. The studies which are still usually cited on this point were made some years ago: in Morocco, notably, these show that opening of a paved road increased the probability of girls attending primary school by 40% (Khandker et al, 1994, Levy and Voyadzis, 1996). A review of children out of school (DFID, 2001) suggests that in Niger, where there are only 41 girls per 100 boys at school in rural areas (compared to 80:100 in town), distance of home from school is a key factor.

Transport and access to health services. Difficulties of physical access to health services may impact on young people in a number of ways. Transport and time costs from settlements without health services and limited mobility of mothers and health staff can contribute, for instance, to low immunisation rates (Booth et al, 2001; Bosu et al, 1997; Porter, 1997, 2002). This raises the likelihood of a wide range of diseases among children, including those associated with poor sanitation and water supplies. Since carrying water and garbage are often children's work, they are also potentially more exposed to specific health problems due to the heavy weights and noxious materials carried. The fatality

rate for young children who fall ill with cerebral malaria or meningitis is likely to be very high: a study in Malawi found that the majority of children presumed to be suffering from these two illnesses died whilst awaiting transport or within a few hours of delayed arrival at hospital (Cullinan and Pieterick, 1998). Distance and lack of emergency transport are likely to be critical factors in low and delayed hospital referrals of children from many remote rural areas as Bossyns et al (2006) show for Niger. Children in remoter areas are probably also more vulnerable to severe parasitic infections due to failure to access early treatment (Raso et al. 2005, drawing on their studies in western Cote d'Ivoire). Analysis of data relating weight-to-height of children to quality and accessibility of health services in Ghana led Lavy et al. (1996) to suggest that reducing distance to clinics could substantially improve child health in rural areas. However, other factors, notably cost, quality of service available and socio-cultural factors influencing patterns of treatment-seeking (Kamat, 2006), may be of even greater significance than distance to the health facility (see also Hampshire et al, 2011).

The implications of poor physical access may be particularly serious for teenage girls, who typically have less funds to pay transport fares and more time constraints than young men, and may also face restrictions on their mobility imposed by the local cultural context. The problems of physical access to reproductive health services may contribute to the high levels of teenage pregnancy observed in many rural areas and dangerous home abortions among young women. Costs of travel (where transport is available) and/or the travel time to a distant health centre for pre-natal and post-natal checks may reduce the likelihood of timely attention and treatment even in urban areas. Since the risks of childbirth complications are higher than average among first time and very young mothers, problems of travel to health centres can have particularly adverse implications for the health of young women and their babies (World Bank, 2006).

The potential for Intermediate Means of Transport and other interventions to improve young people's mobility and access to services:

Research on IMTs such as bicycles in Africa has focused principally on adult use. Current use of IMTs by children and their potential to improve children's mobility and access to services has received less attention. A case study of cycling among girls and boys in Accra (Grieco et al, 1995, 1996) illustrated the impact of diverse ethnic backgrounds on child access to transport, since unlike children from northern Ghana living in Accra, children from southern ethnic groups are not encouraged to cycle by their families. Among boys it is perceived as dangerous: the behaviour of 'rebellious, deviant school age males'. If girls dare to ride they are considered of 'questionable sexuality' (Grieco et al, 1995).

South Africa's Shova Kalula (Ride Easy) National Bicycle Programme, which commenced in 2001, is a particularly interesting government initiative not least because of its scale: it aims to provide one million low-cost bicycles (used and new) in rural and peri-urban areas to disadvantaged groups. The programme, which also provides training in riding and maintenance, is aimed at school children and farm workers. Although it has encountered a range of problems, including lack of spare parts, a shortage of locally available appropriate cycles (i.e. robust with load carrying capacity) and perceived abuse by parents purchasing cycles in their children's names, it offers an exciting opportunity to

improve physical access to school and other facilities. An early assessment of the first phase concluded that the project was helping school children to arrive at school in better time, but lacked adequate consideration of gender issues (Mahapa, 2003).

The potential for IMT's to improve children's access to services needs further investigation, particularly attitudes to cycling for girls across Africa and the extent to which this affects their school attendance and access to other facilities. If daughters are out of school because they are needed to help fill the domestic transport gap, broader IMT interventions aimed at the family might play a significant role, but we do not have sufficient evidence to support this suggestion. Other potential transport interventions, depending on local context, might include offering stipends to girls who have to travel a long distance to school (an approach piloted by the World Bank in Pakistan to encourage girls in to the classroom), and introducing a locally adapted version of the 'walking bus' as a safety initiative to counteract dangers of rape/harassment (rather than primarily as a means of reducing pollution and traffic congestion, improving health etc. as in Western contexts). Virtual mobility through use of mobile phones, internet and other Information and Communication Technologies (ICT), also has substantial potential to beneficially reduce the transport needs of all sectors of the population: mobile phone uptake has been remarkably rapid among young people, even in rural Africa, with reported impact in terms of reduced need to travel (Porter et al, 2012).

Transport interventions, whether to reduce traffic-related accidents among young people or to improve their mobility and access to services, need to involve them directly. In the UK the incorporation of young people's perceptions and views in road safety initiatives and transport planning is only just beginning and in sub-Saharan Africa is at an even more preliminary stage (Porter and Abane, 2008).

6. Transport for Disabled People and the Elderly

(Source: TRL, 2004)

Disability, Poverty and Mobility

Disability and poverty are closely linked in many developing countries. Typically, the incidence of disability is more than twice as high among lowest income groups than among the others.

Poverty and disability reinforce each other. Disability often leads to exclusion from education and employment opportunities, thereby causing economic hardship. In developing societies strong social and cultural attitudes persist in isolating and excluding people with disabilities from mainstream society. People with disabilities who are denied education are frequently unable to find employment, driving them deeper into poverty.

The consequences of this vicious cycle are evident in many developing countries. In India, nearly 50 per cent of people with disabilities have never been to school,

while only five per cent of children with disabilities regularly attend school. Ninety-five per cent of Mozambicans with disabilities are illiterate, as compared to 60 per cent in the overall population. Employment is very low: in India, for instance, the rate of employment of disabled people in the top 100 companies is only 0.4%, while the share of disabled women in employment is less than 0.3%.

The situation is compounded by the lack of access to mobility aids and rehabilitation services. In India it is estimated that only 5% of the estimated 10 million people who have difficulty moving about receive the wheelchairs, calipers (braces), and other devices, and the accompanying therapeutic services that they need.

Women with disabilities frequently suffer a double discrimination, both on the grounds of gender and of impairment. Women in developing societies often enjoy a lower status than men and boys, making them more prone to poverty and marginalization. In Malawi, for instance, female-headed households are amongst the poorest in the country. This situation is compounded for women with disabilities, as they have lower access to credit, education, and the possibility of marriage.

Poverty Reduction and Disability

The United Nations' *Standard Rules on the Equalization of Opportunities for Persons with Disabilities*, adopted in 1994, provides an international framework within which advocates and legislators can address disability issues. Lending institutions such as the Inter-American Development Bank (IDB) and the World Bank are making some progress towards inclusion of disability issues in their transport policies and projects.

One of the international development targets to which many of the developing world's governments have committed themselves is to reduce by one-half the proportion of people living in extreme poverty by 2015. The United Nations estimates that between 6 and 10% of people in developing countries are disabled.

World Bank estimates indicate that people with disabilities may account for as many as one in five of the world's poorest (DFID, 2000). These figures suggest that if the international targets on reducing poverty are to be reached, it is critical that specific measures be taken to reduce the societal discrimination and isolation which people with disabilities continue to face. Improving their mobility and physical access to education, employment, and social services necessarily needs to be a part of such a strategy.

Disability is a relatively new area of discourse in many developing countries. Figures on the incidence, typology, and mobility impacts of disability are therefore rarely available. The DFID-funded study undertaken by TRL (2004) investigated specific mobility barriers faced by travellers with disabilities in South Africa, India, Malawi, and Mozambique. Altogether 450 people were consulted using focus group discussions and key informant interviews.

The results showed remarkable similarities across countries, and also similarities to the issues raised in developed countries since needs analysis work started in

the 1960s. Some issues that are particular to the case study countries are worth highlighting:

- From a design point of view, small buses or jitneys (such as minibus-taxis in South Africa and *chapa 100's* in Mozambique) often provide easier access to ambulatory passengers than large buses, because of their lower floor height. However, this does not apply universally, as shown by the 21-seater *micros* in Mexico City which have a floor height comparable to that of large buses. The ubiquity of route coverage sometimes benefits passengers by shortening walking distances. However, the attitude and driving behaviour of drivers, as well as overcrowding, are major barriers to their use by people with disabilities
- Sidewalks that are unpaved, poorly maintained, or crowded by vendors are common across the cities studied, and limit pedestrian mobility. In India, the road surface prevents some wheelchair users from leaving their home for all but essential trips
- Geographical features such as sandy roads in Maputo (Mozambique) and steep slopes in Blantyre (Malawi) limit the mobility of people and place specific demands on the design and maintenance of wheelchairs
- Bus drivers in India for instance do not allow sufficient time for people to board and alight in comfort and safety and transport personnel in general are lacking in disability awareness and training to assist people into vehicles
- Heavy traffic often constrains people from making journeys by foot due to safety concerns
- Poor people in all countries have difficulty affording public transport, or gaining access to the wheelchairs and other mobility devices needed for personal mobility
- Metered taxis provide relatively good curb-to-curb mobility to the small fraction of people with disabilities who can afford them. However the large fleet of Volkswagen "bugs" operating as taxis in Mexico City excludes even wheelchair users who can transfer to a regular seat due to the absence of a front seat in the vehicles.

Transport for the Elderly

(Source: Porter, 2012)

Data on transport and mobility among older people is remarkably sparse. The following hypotheses requiring detailed examination are being addressed in the AFCAP HelpAge Tanzania study:

Lack of reliable low cost transport and restricted mobility may severely affect older people's access to clinics, pension points (where pensions are provided), paid work, livelihood opportunities, churches, participation in social networks, and other facilities and services important to their lives, with negative impacts on their health and well-being. Long walks to access a transport route or to services are likely to present a serious hurdle, particularly to less fit/disabled older people, and especially where the route crosses difficult terrain, and in the rains.

Where regular transport is available, low incomes and poverty may limit access: older people, especially women carers, often appear to be among the poorest, thus probably those least able to afford transport fares.

Older people may face numerous difficulties when they are able to access public transport. Some of these difficulties are probably similar to those reported by children (harassment, being cheated on fares by operators, having to stand up and keep balance in an unstable vehicle when all the seats are taken etc.) Older travellers may also face other difficulties around specific problems sometimes associated with old age such as urinary incontinence among women due to earlier obstetric problems (e.g. obstetric fistula and related conditions).

The mobility and access constraints experienced by older people may impact negatively on the educational, health and livelihood opportunities of children and young people in their care and thus reduce overall long-term potential for poverty eradication. For instance, mobility and access constraints are likely to impact strongly on older people's ability to earn income, with consequent impact on their ability to feed, clothe and educate children in their care. Access to livelihoods has been inadequately considered in an older people's context (they are often treated by government, academics and others as if they are outside the working population).

Older people may gain access to services not only directly but also indirectly through both adults and children in the community. The relationality between children and older people's lives has been considered in general terms (e.g. Whyte et al., 2004), but needs analysis in a mobility context (see Turner and Kwakye, 1996). Thus, impacts on older people of other household and community members' mobility need to be considered, especially regarding migration, which may affect indirect access to services via family helpers.

In some regions the demands of load carrying on women from childhood and onwards *appear* to impact severely on health and quality of life as they enter and experience old age (though we are unaware of any evidence base to support this hypothesis). The implications of Africa's transport gap and consequent dependence on pedestrian headloading (often designated a female activity), has received remarkably little attention. The particular plight of older women in accessing fuelwood, water and markets needs further investigation.

Road traffic accidents are a major cause of injury and death across Africa. Older people are likely to be at disproportionate risk because of age-related physical and cognitive changes.

Very old and infirm people, in particular, may face a lack of power and access to wider decision-making processes (similar to that experienced by children). Where this is the case, their views are less likely to be heard and their transport and mobility needs even less likely to be met than those of other groups. We can expect considerable diversity of experience amongst older people, according to age, gender, ethnicity, socio-economic status, family composition (dependants etc.), occupational history, infirmity/health, personal mobility status, density of service provision, etc. It is important to assess how this diversity impacts on transport usage, suppressed journeys, mobility and access to services and other elements important to older people's well-being.

Potential routes to improving mobility among older men and women are likely to vary from those open to younger people in their communities. Bicycles usage, for instance, may be impossible for older women who have never had time/opportunity to learn to cycle. Older people with disabilities are particularly disadvantaged, such that even mobile service provision to settlement centres may not serve them adequately: adapted wheelbarrows with invalid seats might assist in some contexts.

The potential for mobile phone use (expanding dramatically across Africa) to substitute virtual for physical mobility to the advantage of older people is considerable: current and potential uses among older people need investigation – research on this theme is taking place in the AFCAP HelpAge study in Tanzania.

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