

Improving transport access and mobility for people with disabilities

DAC Maunder, CJ Venter, T Rickert and J Sentinella

INTRODUCTION

Encouraging greater access to transport, including public transport modes, can substantially transform the livelihoods of disabled people themselves and their immediate families. People with disabilities are specifically recognised as a vulnerable population, due to the double penalty of societal discrimination and physical exclusion which often traps them in poverty (DFID, 2000). Inaccessible transport can make it especially difficult for disabled people to find employment, to gain an education and access health care, as well as limit their social and recreational activities. In addition, poverty ensures that disabled people are least likely to be able to afford to live in areas with easy access to social services. Thus, when the need arises disabled people should be able to travel locally or within urban and suburban areas using public transport and other modes with ease. Sadly, however, in cities within developing and transition countries this is the exception rather than the rule.

Improved mobility is a crucial and necessary element in alleviating poverty throughout the developing world as it can allow people with disabilities to play an active role in society both economically and socially. Countries in the developed world have made significant progress in improving the accessibility of transport systems to people with disabilities, and adhere to standards that are generally uniform (albeit with local variations). Among developing countries the situation is much more diverse. Accommodation of the needs of people with disabilities is still largely seen as a welfare function of the state and of non-governmental welfare organizations. The human rights approach to disability, in terms of which every citizen has the right to be included in social and economic opportunities, is however, slowly gaining acceptance. In some developing and transition countries awareness is growing of the need to gradually remove barriers in the transport environment. The trend is strengthened when stakeholders realise that the same features that benefit people with physical, sensory and cognitive impairments also benefit other travelers. Slow progress is partly caused by funding constraints, but also by a lack of good practice and awareness which means that where features are included they are not always appropriate to the needs of travellers. For example, in some countries kerb ramps have been installed to provide easy access to footpaths, yet many are non-functional due to steep slopes, or barriers such as garbage bins or street vendors who set up stalls and sell vegetables and fruits on the pavements.

When reviewing the progress made on accessibility a general development path emerges. Countries tend to follow a progression from general awareness of disability issues, to addressing limited aspects of mobility, to fuller incorporation of access issues in public transport. This progression as is evident among transition and developing countries is similar in many respects to the process followed by North American and European countries over the last four decades, with the exception that rights-based approaches tend to feature increasingly early on in the process.

This paper is based on a three-year research programme undertaken in India, Malawi, Mozambique and South Africa by a consortium of researchers (funded by the UK Department for International Development (DFID) that will publish *Enhancing the mobility of disabled people: Guidelines for Practitioners* [Venter et al 2004]. The *Guidelines* are for improving access to transport and hence reducing mobility barriers of disabled people in developing and transition countries. Although basic problems faced by disabled travellers are similar world wide, access solutions cannot simply be transplanted from developed to developing countries as, clearly, priorities, resources, and operating conditions vary greatly. The research utilises principles of universal design to improve access to the pedestrian and public transport systems for all users.

DISABILITY, POVERTY AND MOBILITY

Disability and poverty are closely linked in many transitional and developing countries. As an example, in South Africa the incidence of disability is more than twice as high among the lowest income groups than amongst other groups. Poverty and disability reinforce each other. Figure 1 (adapted from DFID 2000) illustrates the cycle of exclusion and impoverishment. 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.

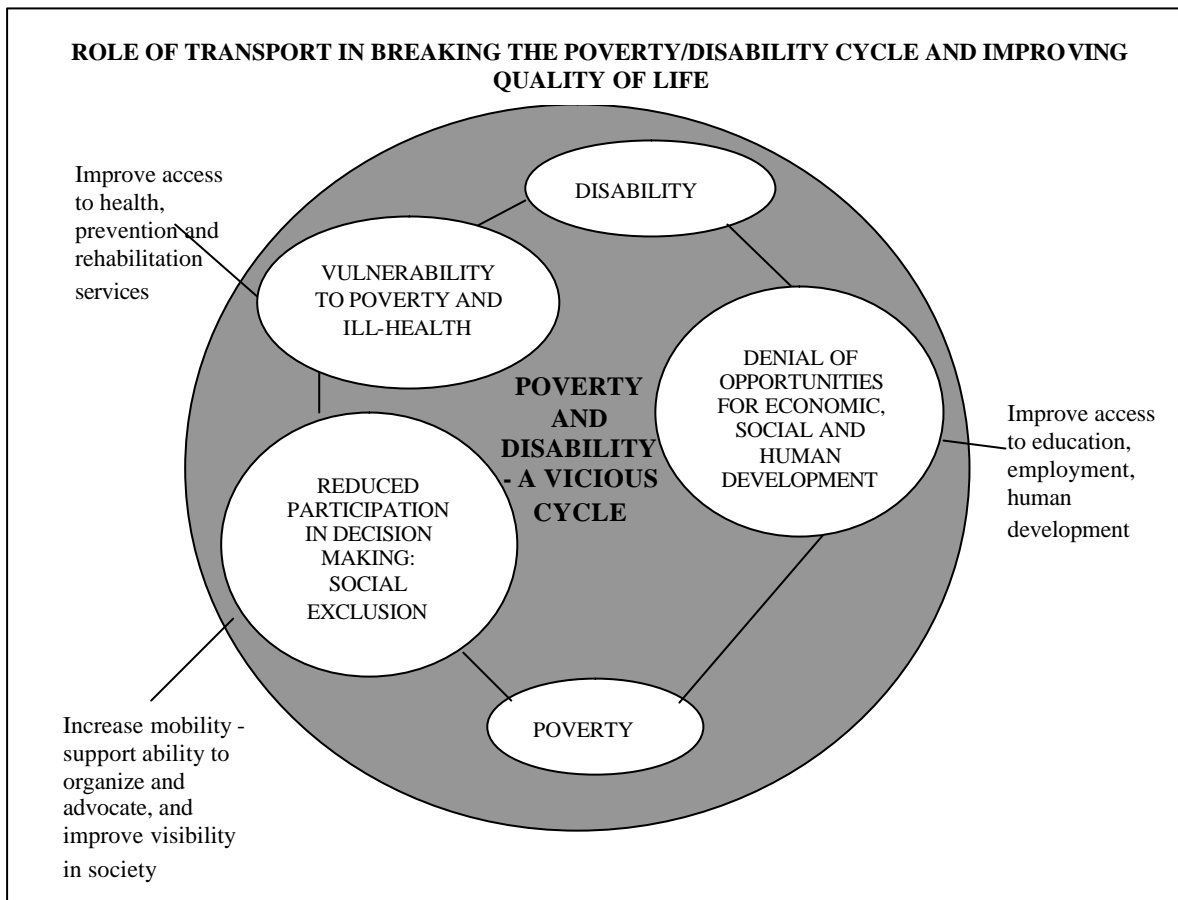


Figure 1 The disability-poverty cycle and the role of transport (adapted from DFID 2000)

The consequences of this cycle are evident in many developing countries. In India, for example, 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 (*Instituto Nacional de Estatística, 1997*). 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% (Mohit, 2000).

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 (Mobility India, 2002).

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 males, making them more prone to poverty and marginalization. In Malawi, for instance, female-headed households are amongst the poorest in the country. The situation is further compounded for women with disabilities, as they have lower access to credit, education, and marriage prospects.

MOBILITY AND ACCESS NEEDS

Disability is a relatively new area of discourse in many transition and developing countries. Figures on the incidence, typology, and mobility impacts of disability are therefore rarely available. During earlier phases of

the research, project teams in India, Malawi and Mozambique conducted focus groups and workshops to identify and try to understand the problems faced by disabled people and their companions when attempting to travel. Some of the salient findings were reported at CODATU X (Venter et al, 2002).

Problems were found to be similar in all three countries and comprised the following barriers:

- *Social barriers* (including high cost, lack of disability awareness, and communication difficulties);
- *Psychological barriers* (such as fear for personal safety); and
- *Structural barriers* (including infrastructure, operations and information barriers).

Most of these barriers are interrelated, and ultimately need to be addressed in an integrated manner. For instance, lack of amplified announcements of public transport information in a rail station may be compensated for somewhat by the presence of well-trained and pro-active staff, which also helps to reduce psychological barriers against travelling.

While the specific solutions to the above mentioned barriers vary from place to place and country to country, experience across the world has shown that good access practice has four essential elements in common (Figure 2). Spelling the acronym “**SARA**”, they are: **S**afety, **A**ccessibility, **R**eliability, and **A**ffordability. *Unsafe conditions* both deter vulnerable users, and contribute to further injury and disability. *Accessibility* requires that services be designed and operated with a wide range of physical, sensory and mental abilities in mind. *Reliability* of services and assistive devices has proven to be extremely important to vulnerable travellers. Access solutions need to be *affordable*, both to the user (who is often poor) and to the provider, to be sustainable in the long run.

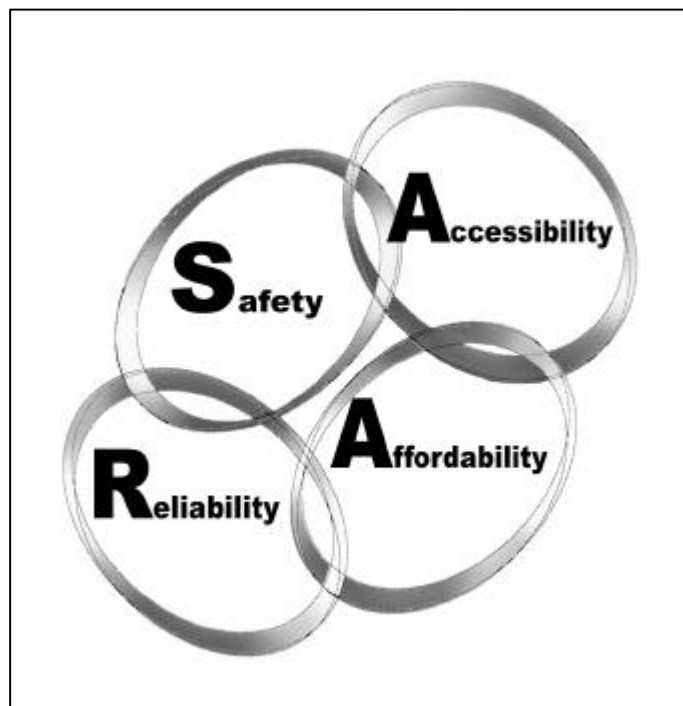


Figure 2 Basic principles of good access. SARA. The Top Four issues
(From *Help the Aged* 1998)

CURRENT INTERNATIONAL ACCESSIBILITY PRACTICES

The access barriers and needs identified by people with disabilities in the case study countries discussed above are remarkably similar to the needs and barriers previously identified and occasionally still present in the developed world. A large body of experience has been assembled in Europe and North America on how to address mobility barriers effectively. Given the similarities in character, if not in extent and detail, of the issues and problems experienced across the world, many of the approaches, good practice and standards adopted in the developed world may be applicable to transitional and developing countries. In fact, some countries of Latin America and middle/high-income Asia have started implementing accessibility improvements that are largely based on developed world standards. Home-grown expertise is thus starting to emerge in some parts of the world, which may be very instructive in the search for appropriate solutions in others.

During the Inception phase of the research project trends in the following accessibility practice areas were discussed in detail and summarized by *Venter et al* (2003):

- Policy and legislation
- Advocacy and planning
- Vehicle and infrastructure solutions
- Training and awareness

Policy and legislation

All countries reviewed have some laws and regulations in place on accessible infrastructure and/or transport. For instance, in India the Persons with Disabilities (Equal Opportunities, Protection of Rights and full Participation) Act of 1995 protect the interests of disabled people. Included under this Act are topics such as access to non-road transport, access to buses and provision of facilities at road crossings.

In some cases these laws are supported by more detailed regulatory frameworks, such as in Costa Rica and Argentina. The general tendency in regulations is to require access features on new vehicles but not to retrofit older vehicles. However, in many instances, legislation has not yet been followed up with detailed regulatory frameworks, leading to very little implementation on the ground.

Advocacy and planning

In probably all countries where progress has been made with disability issues, the process has been characterized by vigorous advocacy of disability groups themselves. In Latin America in particular, disability non-governmental organizations (NGOs) such as Mexico's *Libre Acceso* and Rio de Janeiro's Center for Independent Living fulfill both a watchdog role (actively campaigning for change), and a promotion role. NGOs and government agencies are involved in promulgating informal guidelines for access to buildings, sometimes extended to include transport recommendations. These guidelines appear to be an effective precursor to the adoption of more formal legislation and regulations governing design and vehicle specifications. In some cases, therefore, advocacy and planning of improvement programmes seem to be converging in the same organizations.

Change is also occurring within advocacy organizations. Since the introduction of the Persons with Disabilities Act (1995) in India, for instance, there has been a steady change in attitudes among advocates from a pity-based to a rights-based approach, with access seen as something that should be demanded and not requested.

In some places change appears to be driven more from the top down, with offices for disability affairs being established at the highest government level. Examples include the Office on the Status of Disabled Persons in South Africa's President's Office, the Ministry of Disability Affairs in Malawi (a Cabinet-level Ministry), and Mexico's Office for the Promotion and Social Integration of Persons with Disabilities. These offices appear to be effective at starting to create an awareness of disability issues in government, but by and large their ability to promulgate integrated policies (including accessible transport) and, more importantly, to source adequate funding for implementation, is not yet proven.

Vehicle and infrastructure solutions

A multitude of approaches have been adopted towards the improvement of vehicles and infrastructure. Some large cities in Latin America have taken significant first steps towards addressing access issues, as have some

Asian cities such as Tokyo, Seoul and Bangkok. First steps are often taken during the construction of large-scale urban mass transit systems. Best practice in universal design is found in express bus systems in Curitiba and Bogota, while subway systems in São Paulo, Buenos Aires, and other cities each have a number of fully accessible stations.

Mobility solutions in Africa and India are mostly limited to small-scale demonstration projects testing various accessible service options, ad hoc infrastructure features, or mobility aids provided by the private or welfare sectors.

General improvements to transport systems

Experience in Latin America has shown that improvements can be made to vehicle accessibility that would benefit the large majority of passengers with disabilities, as well as other users, by including a number of low-cost features on vehicles and stops. For example, many newer vehicles designed to replace the existing *micro* fleet in Mexico City feature wider steps, hand rails for boarding, prioritized seats behind the driver, and high contrast colors on steps. A telephone number for passenger complaints is also painted in large print on the vehicle to help make drivers more accountable for providing a passenger-friendly service.

Cities in Mozambique, Malawi and India have policies to reserve seats in vehicles and trains for passengers with disabilities, and to provide fare concessions of up to 100%. However these are often not implemented or enforced.

There seems to be widespread agreement that pedestrian infrastructure needs attention as one of the first steps towards improving overall mobility. Cities like Mexico City, Rio de Janeiro, and Pretoria have installed thousands of dropped kerbs to footways. This is in line with the World Bank's increasing focus on improving infrastructure for non-motorized transport modes.

Interface between passenger and system

Isolated attempts have been made to ensure that information is provided to passengers in an easily understood manner. Examples include tactile guide ways and warnings installed in train stations in Rio de Janeiro. Many of the larger cities of Asia have implemented extensive tactile guide ways on major streets. In general, however, misconceptions and a lack of knowledge on how to facilitate communication with visually and hearing impaired people are still major barriers. Some current practices in Southern Africa are promising as simple communication tools, such as the use of hand signals to indicate the desired destination to taxi drivers.

Major improvements

The range of major improvements employed in developing countries span from retrofitting old buses with wheelchair lifts located in a side-door, to state-of-the-art low-floor buses with kneeling features and ramps. Vehicle design standards tend to mirror those of North America and Europe, for instance in the lay-out and dimensions of wheelchair spaces inside buses.

Success varies: fifty lift-equipped buses operating on six routes in Mexico City appear to be successful, and similar solutions are being tested in South Africa on high-floor buses operating on poorly maintained roads. Counting against this kind of solution is its high cost and non-inclusive nature. More than a thousand low-floor buses were deployed in Buenos Aires with mixed success due to flaws in their design and operation.

With respect to the huge fleets of minibus vehicles, the best opportunities for improving their accessibility to date have been in the form of government led programmes to scrap and replace them with custom-designed new vehicles, as is the case in Mexico and planned for South Africa. This option is however likely to be outside the financial capacity of most developing countries. However, in many cases modest retrofits to vehicles and/or infrastructure, coupled with more fundamental changes in operating procedures, could make them accessible to all, including wheelchair users.

Door-to-door services

Flexibly routed door-to-door services have been implemented on a large scale in São Paulo (100 vehicles) and are being planned for Cape Town (15 vehicles). These services provide high levels of service quality, but at considerable cost and inadequate capacity (Venter and Mokonyama, 2001).

Training and awareness

Despite the fact that people with disabilities consistently identify driver attitudes and behaviour as one of the most critical issues to be addressed, this aspect tends to receive scant attention from authorities. An example of good practice is Mexico City's public information campaign to publicize the integrated system of accessible pedestrian and transport services, and to raise awareness amongst the general public. The Federal District also plans to contract out disability awareness training for *micro* and taxi drivers.

DEMONSTRATION PROJECTS

Following the consultations to highlight mobility barriers and the review of current accessibility practices the research team implemented a number of demonstration projects in India, Malawi and Mozambique to alleviate structural barriers. The projects were deliberately low cost and small scale and were implemented in a relatively short time frame due to time constraints of the project but all met the four elements of SARA. The projects were selected in consultation with stakeholders to represent a range of options and be appropriate to local constraints. The projects were implemented by local partners in Pune, India, Maputo, Mozambique and Blantyre, Malawi. Each demonstration project was evaluated to determine whether low cost solutions can improve ease of travel for all passengers and pedestrians (both disabled and non disabled). The findings have been incorporated into the *Guidelines for Practitioners* (Venter *et al*, 2004) and in a paper to be presented at *CodatuXI* in Bucharest in April 2004 (Venter *et al* 2004).

Practical access solutions

Bus shelters

Several low-cost improvements to the design of existing bus shelters in Pune rendered them more accessible and safer for all to use (Figures 3 and 4). Improvements included:

- widening entrances into the shelter to at least 1 metre;
- increasing the height of benches to a height of 600mm;
- providing large print route information signs in the shelter; and
- removing barriers in or near the shelter which hinder movement or could injure users.



Figure 3: Large print route information at bus stop



Figure 4: Upgraded bus stop, Pune

Passenger surveys demonstrated a higher usage of the bus shelters and higher levels of comfort after the changes were made. Interestingly, more females than males felt the bus stands had become more comfortable. The surveys highlighted the importance of driver training to ensure that passengers using bus shelters are given sufficient time to board the bus and increase passenger confidence in their usefulness.

In terms of information adequacy and clarity 50% found the information provided at bus stands after the demonstration project had been implemented to be “very clear” compared to just 4% before the project. The information boards were found particularly helpful to hearing impaired passengers who valued the independence it provided them.

Safer street crossings

Safety at street crossings is a major problem at both the Maputo (Mozambique) and Blantyre (Malawi) locations. People with disabilities often need more time to cross, which can lead to either long waiting times or conflicts when they do not have crossing priority. The two sites represent two levels of intervention, depending on the resources available:

- Installation of traffic signals giving pedestrians’ absolute priority. In Blantyre a push button-activated signal with a beeping sound was installed to maximise its use to vision impaired pedestrians.
- Where the high cost of signalisation cannot be justified in terms of pedestrian volumes, unsignalised crossings can be made safer by clear pavement markings (as was the case in Maputo) and warning signs to motorists.

In both cases, additional accessibility was provided by installing kerb ramps (dropped kerbs, see Figure 5) to enable wheelchair users and others with, for instance, goods carts to use the crossing. Follow-up observations confirmed that both treatments were effective in improving safety and accessibility at the crossings, despite the low road user discipline of motorists. In Maputo, the percentage of disabled and older pedestrians using the formal crossing rather than jaywalking increased dramatically from 13% to 73%. Additional measures to reduce vehicle speeds, such as appropriately used traffic calming, would benefit vulnerable pedestrians even more at such locations.



Figure 5: Kerb ramp at street crossing, Maputo

Accessible footways

Improving footpaths and pavements (sidewalks) should be an early priority for enhancing mobility, as walking is the major mode for many (especially poor and marginalized) people, and some of the more expensive interventions (such as improving buses) are meaningless unless people can get to and from the vehicle. Accordingly, footway improvements in Maputo and Blantyre included (Figure 6):

- paving heavily used footways with a durable material such as concrete;

- installing kerb ramps with a 1:12 maximum gradient at level changes to provide access to all users;
- installing tactile markings on the path at hazardous locations or along the length of the path as a guidance path (where high numbers of vision impaired pedestrians use it); and
- painting a pathway to delineate the space to be used by pedestrians, in order to limit encroachment by vendors.



Figure 6: Upgraded footway with tactile path, Blantyre

In both locales the improved footways were appreciated by both disabled and non-disabled pedestrians. In Blantyre, some vision impaired people highlighted the need to keep the pathway swept and clean to keep the tactile guideway functional. If a guidance path is used on a pavement it must be installed correctly to give clear, correct information to the user. Vision impaired people also need to be trained on the meaning and correct use of the surface.

Bus entry

In order to reduce the problems that people – and especially people with walking difficulties – have in boarding the high-floor buses operated in Maputo, small kerbside platforms were erected on both sides of the road at a major bus stop (Figure 7). If used correctly, the platforms more than halve the height to the first step of the bus. Although in the long run a far better solution is to replace the existing bus fleet with more accessible and user-friendly designed buses, this was not considered feasible within the scope of the project. Low-cost boarding platforms can be cost-effective as they serve many vehicles stopping at the same location.

Figure 7: Boarding platform, Maputo



Figure 8: Lower first step into bus, Pune



Introduction of the platforms was coupled with disability awareness training of bus drivers on the goals of the project and use of the platforms. Initial observations confirmed that they made boarding considerably easier and that passengers were willing to use them. About 20% of elderly and (ambulatory) disabled people chose to board the bus from the platform. The sample included virtually no wheelchair users as the existing bus fleet was not wheelchair accessible.

The solution did not however prove to be sustainable. Observations two months later showed the use of the platforms to be virtually nil – a situation driven by a number of factors. Bus drivers were prevented from consistently stopping close to the platforms, by the interference of informal taxis using the same stop in a very disorganised manner. Bus drivers stopped for a very short time, causing passengers to have to run to catch the bus, and thus being disadvantaged by waiting on the platform rather than beside it. Under these circumstances the combination of unregulated operation by competing vehicles, undisciplined driver behaviour, and undemanding passengers ultimately made this type of infrastructure-based solution inadequate and ineffective.

In contrast, incremental improvements made to vehicles in Pune, India, proved to be more successful. The upgrading of bus shelters in Pune coincided with the introduction of buses with more accessible designs. The research team working with the bus management suggested a number of simple low cost improvements that could be introduced and these included wider entrances, lower first steps, colour contrasted entry and exit steps, priority seats for disabled passengers, grabrails and stanchions throughout the bus and lights illuminating the entry steps at night (Figure 8). In addition, a bell and light were installed for passengers to be aware that the bus would be stopping at the next stop. The percentage of passengers who described boarding the bus as “difficult” or “very difficult” decreased from 65% to 20% following the introduction of these new buses.

Driver training

After introducing better bus designs, the bus management organised a disability awareness programme for its drivers and conductors. All staff underwent the training which was implemented with the help of various groups of disabled people who were able to identify for staff the problems and constraints encountered when travelling. Following the training the percentage of passengers interviewed who graded staff attitude as impolite or unhelpful decreased from about 60% to about 20%. Interestingly, staff were observed to be more helpful towards vision impaired than hearing impaired passengers. Conductors often forgot that hearing impaired passengers cannot hear if a bus name is shouted out or a bell is rung hence, the need for a light activated stop and possibly elementary sign language to be taught to conductors. Evidently public awareness of the different needs of passengers with different disabilities varies greatly. Clearly, training needs to reflect such requirements and to be undertaken with refresher courses periodically.

Demonstration Findings

The results show that low cost accessibility solutions can be effective and beneficial and not all solutions tried were self-sustaining. Hence there is a need to involve all local stakeholders to ensure that they “buy” into the projects. In India the time was opportune as disability issues were already receiving considerable media attention following a legal case. In addition, the new incoming General Manager of PMT (the City Bus Company) was previously the Disability Commissioner for Maharashtra State. These factors provided the catalyst for improvements to be tried and tested. In Maputo and Blantyre this was not the case but the local City Council representatives and transport officials were very receptive and keen to introduce improvements.

PROGRESSIVE FRAMEWORK

The framework describes the basic progression that has been observed in transition and developing countries with regard to the development of responses to access and mobility needs of passengers with disabilities. It groups responses into three stages:

- a basic rights and personal mobility stage,
- an environmental access and special programmes stage,
- a focus on accessible public transport services

Most of the least developed nations are dealing with problems and issues in the first and second stages, while a few transition and developing countries have progressed to implement responses in the third stage. Figure 9 (Venter *et al*, 2003) attempts to illustrate some of the main aspects of this three stage progression.

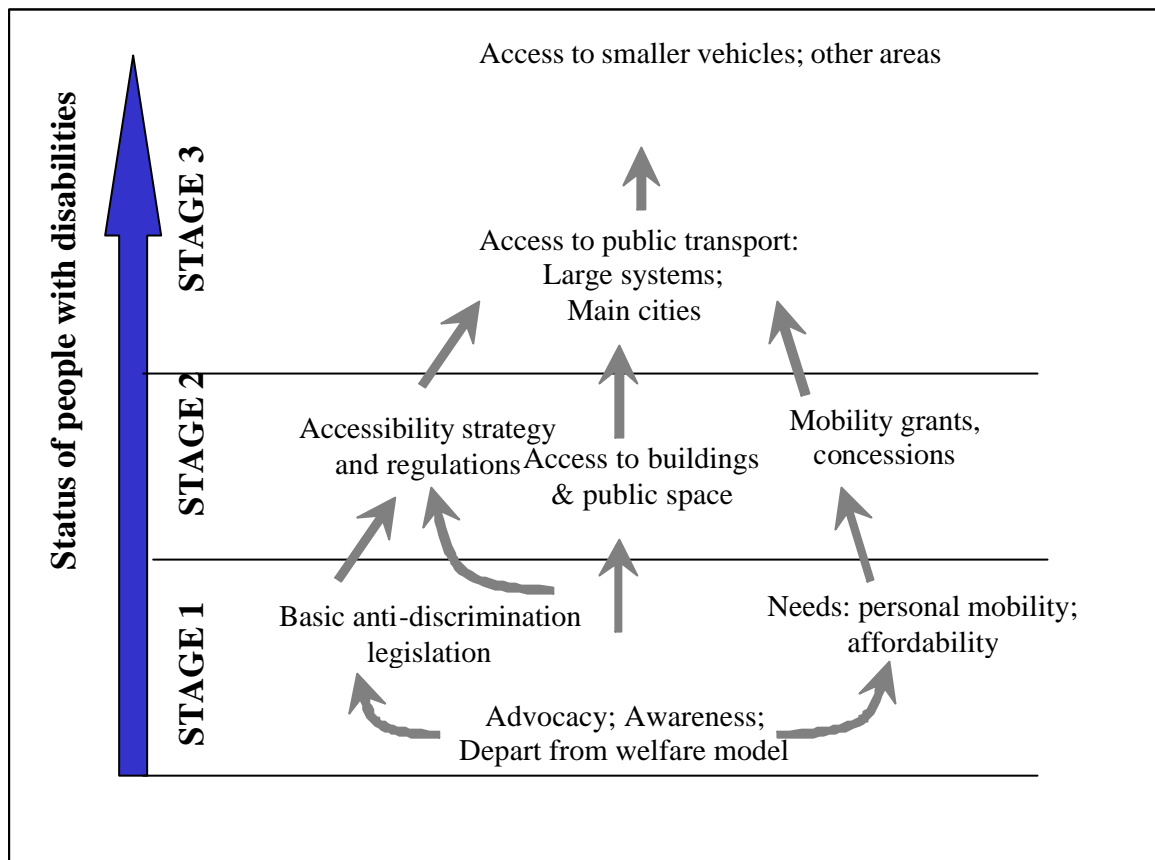


Figure 9: General framework of progress in accessibility provision

First stage: Basic rights and personal mobility

Among countries that have not given much attention to access and mobility issues, a major focus of activity is simply the promotion of disability advocacy and awareness in a general sense. For this to be successful from a transport point of view, advocacy needs to be coupled with a move away from the welfare model of disability towards a more inclusive social model – as advocated by the UN Standard Rules for various sectors. A process is in place to create a new UN Convention on the rights of disabled persons that should further promote this more inclusive model.

In the transport sector, one of the basic needs in societies finding themselves in this stage is access to personal mobility devices (such as wheelchairs and long canes), which is constrained both by poverty and by inadequate social service delivery. Many of the least developed countries fall within this stage – including Malawi, Mozambique and India.

On the positive side, some countries in the first stage of development are starting to take legislative action by enacting basic anti-discrimination legislation. These efforts are putting into place a legal framework on which further action can be leveraged. Given the severe shortage of resources and the competing objectives for development in these countries, rights-based disability legislation may be particularly important in ensuring that disability issues become incorporated into government programmes.

Second stage: Environmental access and special programs

In the second stage, more detailed regulations and strategies appear to address particular mobility problems. Sometimes regulations are a direct follow-up to anti-discrimination legislation; sometimes they precede them in a more *ad hoc* fashion. Regulatory attention is often paid first to the built environment: countries like South Africa, Brazil and Uruguay have adopted national accessibility standards for buildings and public space. However the degree to which these standards are actually followed is not always clear.

In some countries a growing awareness of disability issues leads to specific but limited responses in the transport sector. First steps are typically in the form of fare concessions and mobility grants to start addressing problems of affordability of transport. Responses in stage two tend to stop short of physical improvements to the public transport system. These trends mirror to some extent the introduction of concessionary schemes in Europe and North America to make bus travel more affordable, which preceded many of the access improvements to vehicles and infrastructure that were followed at a later stage.

Third stage: improvements to public transport

Significant improvements to the physical accessibility of public transport are typically only achieved once legislative and regulatory frameworks for equality of access are in place. At this point a sufficiently large number of people with disabilities are economically empowered and mobile enough to effectively advocate for accessibility. Most countries in Latin America find themselves in this stage including Brazil, Costa Rica, and Argentina.

Opportunities for taking first steps towards accessibility are often presented during upgrading or construction of large-scale mass transit systems in major cities. Governments tend to have more leverage and resources (often via lending agency support) to improve bus and rail systems that are either publicly owned, or privately owned but well regulated. However, traditional mass transit systems are losing market share in most countries

Steps that extend accessibility interventions in cities where systems are less well regulated, or where public transport services are provided by privately owned and operated fleets of para-transit vehicles such as jitneys or minibuses which are increasingly important as providers of public transport services present considerable and significant challenges.

CONCLUSIONS

The study which has been undertaken during the last 3 years on behalf of DFID will produce and publish *Guidelines* shortly which it is hoped will be of considerable use to practitioners when planning and implementing improved access and mobility for disabled people in transition and developing countries.

The Guidelines themselves are the product of a review of current accessibility practices in Europe, North America and the developing world. In addition, they are the output of the needs of diverse disability groups in India, Malawi and Mozambique and follow the implementation and assessment of low cost demonstration projects in the same countries.

The demonstration projects were evaluated to determine whether the measures introduced improved ease of travel and safety for passengers or pedestrians. At each of the demonstration sites there was no evidence of an increased tendency to travel – but this was never an objective of the project. Travel involves a whole chain – including walking to and from a public transport stop, boarding and alighting a vehicle, and in-vehicle travel – and incremental improvements should be seen as a necessary part of removing major barriers that will eventually enhance people's mobility. What is clearly evident is that **all** passengers gain from even minor improvements to the transport chain, not just disabled travellers, so that it is a “*win win*” situation.

The progressive framework describes the basic progression that has been observed in transition and developing countries, with regard to the development of responses to access and mobility needs of passengers with disabilities. It groups responses into three stages: a basic rights and personal mobility stage, an environmental access and special programmes stage, and lastly a focus on public transport stage. Most of the least developed nations are dealing with problems and issues in the first and second stages, while a few more developed and transitional societies have progressed beyond these to implement responses in the third stage.

This evolving common progression leads to a number of critical issues that may need to be considered by professionals and advocates for accessible transport. The issues that need to be addressed urgently in order to make progress depend in part at which stage in the progressive framework a country is situated. Some of the critical issues that have been raised by the study and are addressed in the *Guidelines* include:

- Advocacy by disability organizations plays a major role in putting access issues on the social agenda. In countries where very little progress has been made in accessibility, the strengthening of effective advocacy may be one of the most important interventions to make rapid progress.
- Issues of access to personal mobility devices, and affordability of public transport are still major challenges in many developing communities. It may be sensible to focus constrained government budgets on improving access to wheelchairs, canes and the like as a matter of priority
- In countries where anti-discrimination legislation has laid the foundation for moving forward towards greater inclusiveness of transport, there is a need to translate legal principles into concrete actions for implementation. It is at the level of strategy formulation and programme development for transport that many developing and transition countries may significantly benefit from the sharing of international experiences.
- As long as local circumstances are taken into account, there can be significant benefits to transferring technical standards and good practice across countries.
- Finding sustainable solutions to the accessibility problems of privately owned and operated minibuses is a major challenge. These modes carry significant numbers of passengers – in many African, Asian and Latin American cities minibuses are the sole providers of public transport – and are thus of major importance to the mobility of disabled people.
- A number of low-cost improvements can be made to vehicles, infrastructure, and driver practices to improve the accessibility of transport systems. As first steps, they can benefit the great majority of passengers without severe mobility impairments. The adoption of such measures can decrease the barriers to moving from second-stage to third-stage implementation of accessibility.

ACKNOWLEDGEMENTS

The preparation of this paper was supported by the Infrastructure and Urban Development Division of the Department for International Development (DFID), as part of their Knowledge and Research programme. The views expressed however, are the authors and not necessarily those of DFID. The efforts of the numerous project participants in the partner countries of India, Malawi and Mozambique are also acknowledged with considerable gratitude.

REFERENCES

- Department for International Development. *Disability, Poverty and Development*. UK, London. 2000
- Mobility India, Bangalore, India. <http://mobilityindia.org>. Accessed March 2002.
- Instituto Nacional de Estatística. *Censo Populacional: 1997*. Government of Mozambique 1998.
- Mohit, A. *Employment of Disabled Persons by NGOs in India: Study Paints Bleak Picture, Especially for Women*. www.disabilityworld.org. Issue 4: August-September 2000.
- Venter, C. and M. Mokonyama. *A comparison of two accessible transport service designs in South Africa*. Proceedings: 9th International Conference on Mobility and Transport for Elderly and Disabled People. Warsaw, 2001.
- Venter CJ, H Bogopane, T Rickert, J Camba, A Venkatesh, N Mulikita, D Maunder, and T Savill. *Improving accessibility for people with disabilities in urban areas*. Proceedings: CODATU X. Lome.2002
- Venter CJ, T Rickert and D Maunder *From basic rights to full access*. Paper presented at TRB Annual Conference, Washington, USA 2003
- Venter CJ, D Maunder, J Sentinella, A Venkatesh, K de Deus and D Munthali. *Practical solutions for transport access of urban residents with disabilities*. Paper to be presented at Codatu XI, Bucharest, April 2004
- Venter CJ, J Sentinella, T Rickert, D Maunder and A Venkatesh. *Enhancing the mobility of disabled people: Guidelines for practioners*. To be published by TRL in April 2004 and available at WWW.transport-links.org
- Help the Aged Council Report. “SARA the top four issues” Help the Aged. London 1998

