ABSTRACT

Improving access and mobility of people with disabilities is a necessary element of alleviating poverty in developing countries. This paper provides a selected overview of progress that has been made towards achieving improved access. It is based on an ongoing three-year research program on access needs and approaches in a selection of developing countries in Africa, Asia and Latin America. A generalized framework is suggested for describing the progress made across different countries. Many least developed countries are at the bottom of a continuum of activities, where issues of human rights and access to basic mobility are still paramount. Others, such as countries in Latin America, have made significant progress on access issues in major cities and are faced with challenges of expanding improvements to non-core areas and to less well-regulated modes. The framework is finally used to suggest some critical priorities for countries at various levels of development.

INTRODUCTION

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 slowly gaining acceptance. Some developing countries – particularly in Latin America and Asia – have applied this approach to transport, taking some significant first steps towards improving the mobility and access of people with disabilities.

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 among 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.

The paper identifies a generalized framework describing the continuum of approaches to access issues found in developing countries. The framework may be useful in identifying critical issues to be considered in specific countries, which are appropriate to the level of development around disability.

The observations on which this paper is based are drawn from a research program presently being undertaken for and funded by the United Kingdom's Department for International Development (DFID) to assess the access needs of people with various disabilities in developing countries. The research team has identified problems, practices and approaches in South Africa, India, Malawi, Mozambique and Mexico as case study countries, as well as best practices being implemented in Europe, Latin America, and Southern Africa. Finally this body of knowledge will be compiled into guidelines for reducing mobility barriers in urban areas and disseminated widely. Demonstration projects will be implemented shortly and monitored to evaluate the methodology.

The paper firstly describes general issues relating to disability, poverty and transport in developing countries. It then highlights major needs and gaps in access to transport, as identified through qualitative surveys. A brief overview is given of the range of current approaches to access to transport in a selection of developing countries. Based on this, the paper introduces the generalized framework for describing the progression of approaches towards access issues, and applies this by highlighting some critical issues that are emerging.

CONTEXT: DISABILITY IN THE DEVELOPING WORLD

Disability, poverty and mobility

Disability and poverty are closely linked in many developing countries. As an example, Figure 1 shows the percentage of people who are disabled per income category in South Africa. The incidence of disability is more than twice as high among the lowest income groups than among the others.

Poverty and disability reinforce each other. Figure 2 illustrates the cycle of exclusion and impoverishment that results. 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 (*1*). Ninety-five per cent of Mozambicans with disabilities are illiterate, as compared to 60 per cent in the overall population (*2)*. 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% (*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 (*1*).

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. This trend is mirrored by donor agencies such as the United Kingdom's DFID and Sweden's SIDA (*4*).

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 (*5*). The United Nations estimates that between 6 and 10% of people in developing countries are disabled (*6*). Recent World Bank estimates indicate that people with disabilities may account for as many as one in five of the world's poorest (*4*).

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.

MOBILITY AND ACCESS NEEDS

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 investigated specific mobility barriers faced by travelers with disabilities in South Africa, India, Malawi, and Mozambique (*TRL Limited, Unpublished Report PR/INT/248/02, 2002)*. Altogether 450 people were consulted using focus group discussions and key informant interviews.

Figure 3 shows the three main types of barriers identified, namely:

- Social barriers;
- Psychological barriers; and
- Structural barriers to accessibility

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 behavior 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.

CURRENT ACCESSIBILITY PRACTICE

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 countries of the developing world. 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 experience is thus starting to emerge in some parts of the developing world, which may be very instructive in the search for appropriate solutions in others.

Without attempting to cover the spectrum of approaches adopted in developed countries, this section will briefly highlight major trends in each of the following areas:

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

A comparative summary of programs initiated in some cities is given in Table 1.

Policy and legislation

All countries reviewed have some laws and regulations in place on accessible infrastructure and/or transport. For instance, the Persons with Disabilities (Equal Opportunities, Protection of Rights and full Participation) Act of 1995 protects the interests of disabled people in India. Under this Act are included 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 programs 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 dozen or more 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.

Elements of vehicle and infrastructure solutions that have been tried are discussed under the headings suggested by Stanbury and Hugo (*7*):

- General improvements to transport system: Actions to improve the usability of transport systems for current users (including non-disabled people).
- Better interfaces between passenger and system: Actions that make the system more usable for passengers hindered by a lack of information (including passengers with visual, hearing, or mental impairments).
- Major improvements: Improvements required to give access to severely physically disabled persons, including wheelchair users.
- Door-to-door services: Dedicated services for passengers who cannot use any mode of public transport alone.

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 curbs 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 guideways and warnings installed in train stations in Rio de Janeiro. Many of the larger cities of Asia have implemented extensive tactile guideways 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 bays 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 bad 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 jitney vehicles, the best opportunities for improving their accessibility to date have been in the form of government-lead programs to scrap and replace them with custom-designed new vehicles, as is the case in Mexico and planned for South Africa. This option is 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 even to 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 (*8*).

Training and awareness

Despite the fact that people with disabilities consistently identify driver attitudes and behavior as one of the most critical issues to be addressed, this aspect receives 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 sensitivity training for *micro* and taxi drivers.

GENERAL FRAMEWORK

When reviewing the progress made on accessibility a progression of approaches becomes evident. While some countries have made significant progress towards accommodating a range of needs on urban public transport, others are only starting out along this path. Figure 4 attempts to capture some of the main aspects of this progression. The pattern of development described by this framework applies imperfectly to any one country; yet, it could be helpful in describing the general trends observed.

In general, the level of response to access and mobility issues is closely related to the status of people with disabilities in a society. More mature transport responses are generally accompanied with greater public and political awareness of the issues affecting people with disabilities. This is indeed the result of a mutually reinforcing cycle (see Figure 2): greater awareness and political influence create greater pressure for transport improvements; and improved mobility creates greater visibility which in turn reinforces public awareness.

Three stages of responses are evident: a first stage where the focus is on basic rights and personal mobility; a second stage where some strategies and regulations start to be put into place; and a third stage where physical improvements to public transport are achieved.

First stage responses: 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 white canes), which is constrained both by poverty and by inadequate social service delivery. Many of the least developed countries fall within this tier – including Malawi, Mozambique, and India in the study sample.

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 mainstreamed into government programs.

Second stage responses: Environmental access and special programs

In the second stage of actions, more detailed regulations and strategies appear to address particular mobility problems. Sometimes regulations are in 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 later adopted.

Third stage responses: improvements to public transport

Significant improvements to the physical accessibility of public transport are typically achieved only 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. Countries in Latin America that find themselves generally in this stage of development include 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. While incorporating universal design features on formal systems may contribute towards stemming this tide, it is clear that this will not solve all mobility problems.

Steps that extend accessibility interventions to systems outside major cities, and to systems that are less well regulated, are where major needs currently lie. Addressing the access issues of privately operated jitneys or small buses – which are increasingly important as transport providers in many developing countries – therefore present significant challenges.

CONCLUSIONS

The general framework describes the basic progression that has been observed in countries in the developing world, 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 programs 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 societies have progressed beyond these to implement responses in the third stage.

This common progression of responses suggests some 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 on where in the framework a country finds itself. Some of the critical issues that have been raised by the study so far 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 amongst the most important immediate interventions needed.
- 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. Concessionary fare schemes should be applied with caution to suit local circumstances.
- 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 program development for transport that many developing countries may benefit most significantly from the sharing of international experience.

- 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 (and general quality of service problems) of jitneys or small buses is a major challenge. These modes carry significant numbers of passengers – in many African cities minibuses are the sole providers of public transport – and are thus of major importance to the mobility of disabled people. Solutions should address physical issues, as well as the regulatory and financial conditions which currently disincentivise drivers and owners to improve access.
- 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 would benefit the great majority of passengers without severe mobility impairments. The adoption of such measures would decrease the barriers to moving from second-stage to third-stage implementation of accessibility.

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LIST OF TABLES AND FIGURES

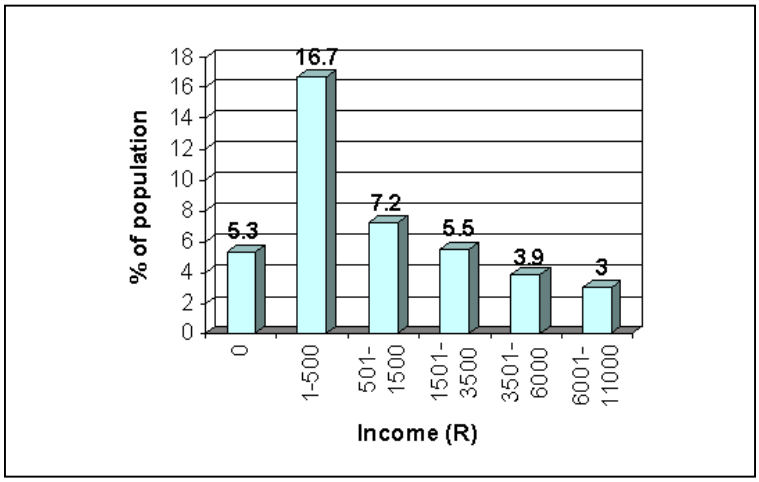

FIGURE 1: Percentage of South African population disabled, by income group

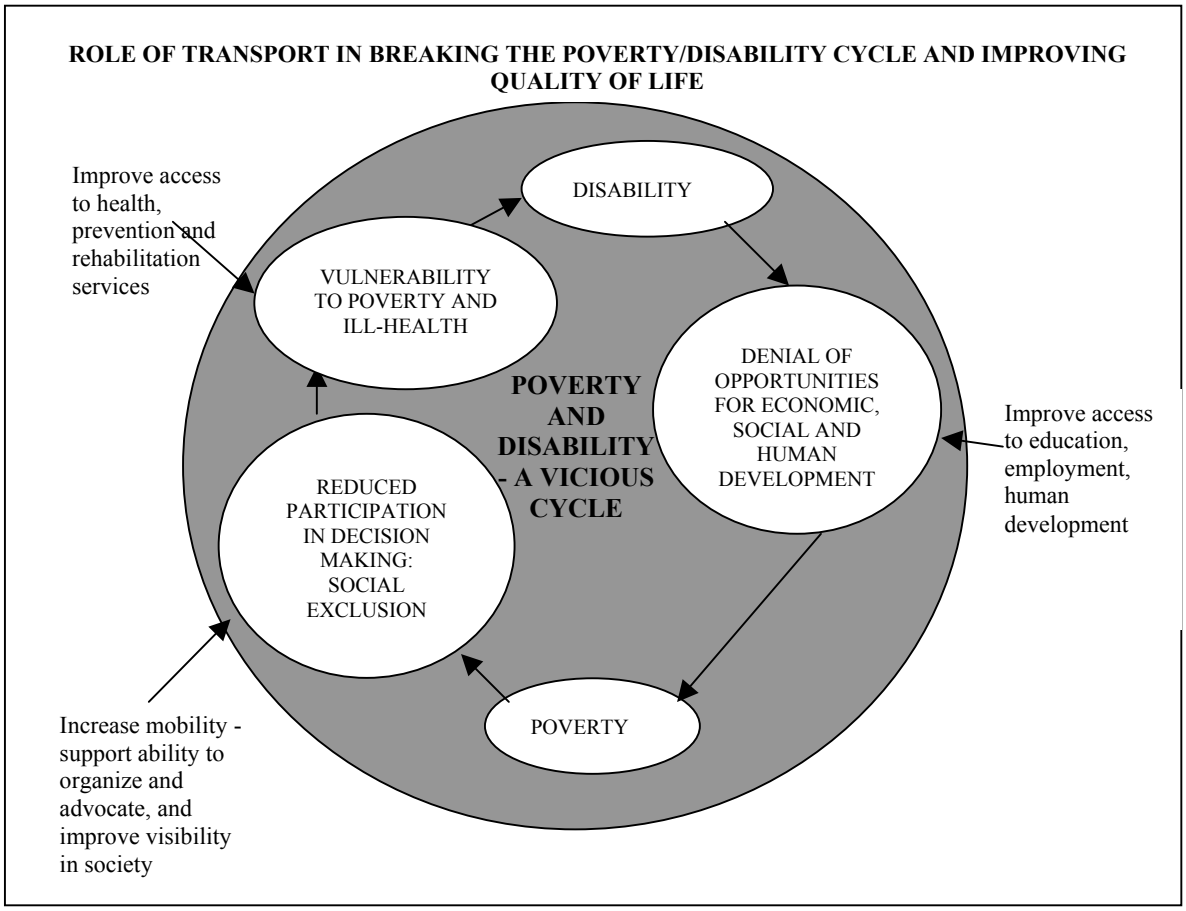

FIGURE 2: The disability-poverty cycle and the role of transport

(Adapted from (*4*))

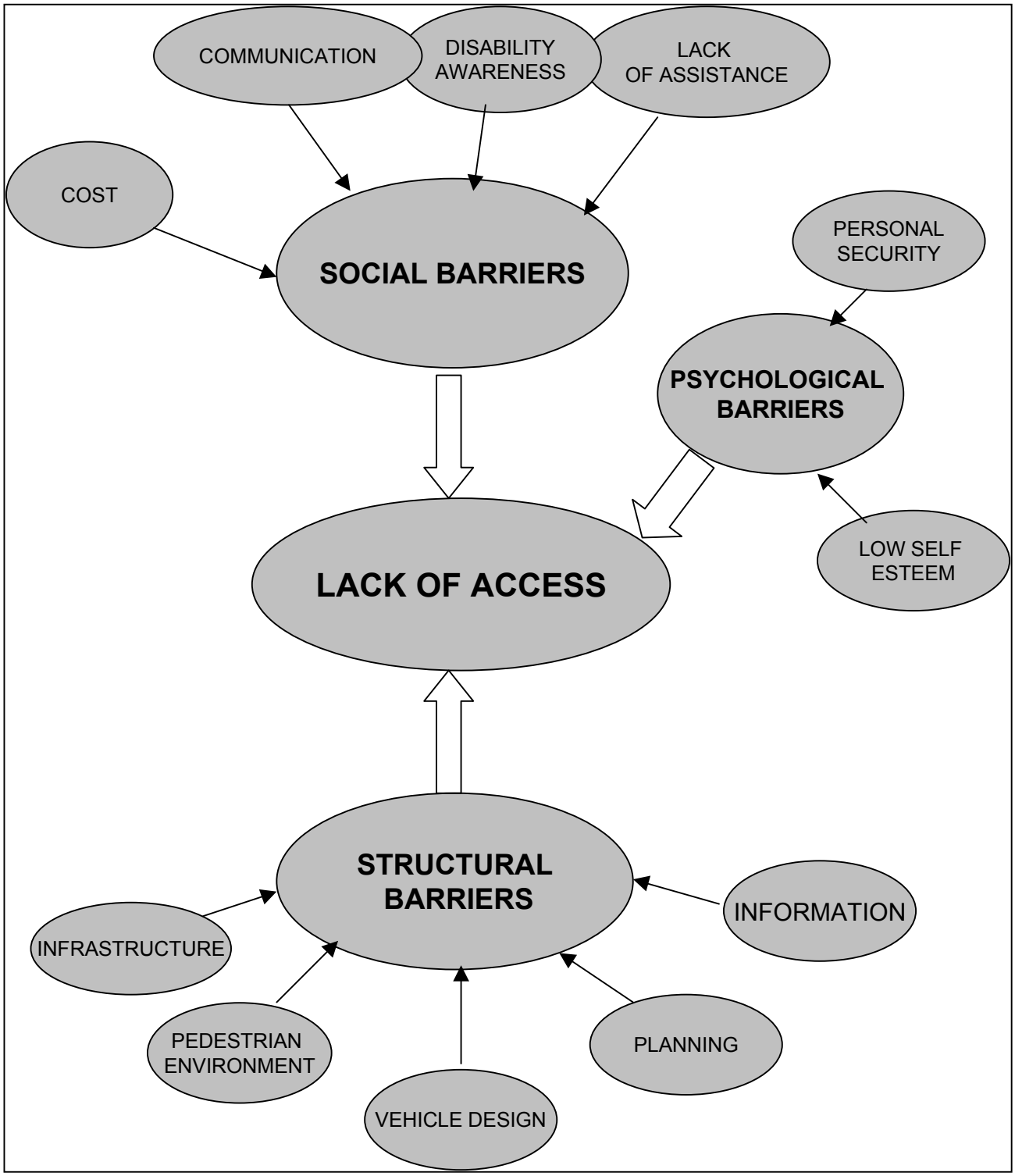

FIGURE 3: Barriers to accessibility identified in case study countries

TABLE 1: Access elements in a selection of cities studied

Access elements	Mexico City	Buenos Aires	São Paulo	Rio De Janeiro	Cape Town	Pune, India	Maputo
Some transport regulations	x	x	x	x	x	x	x
Curb ramp program	x	x	x	x	x	x	
Prioritise seats	x	x	x	x		x	x
Low floor buses		x			Planned		
Lift-equipped buses	x						
Access to small buses/ jitneys	Partial				Partial	Partial	Partial
Rail station/ subway access	x	x	x	x	Partial	Partial	
Door-to-door van services			x		x		

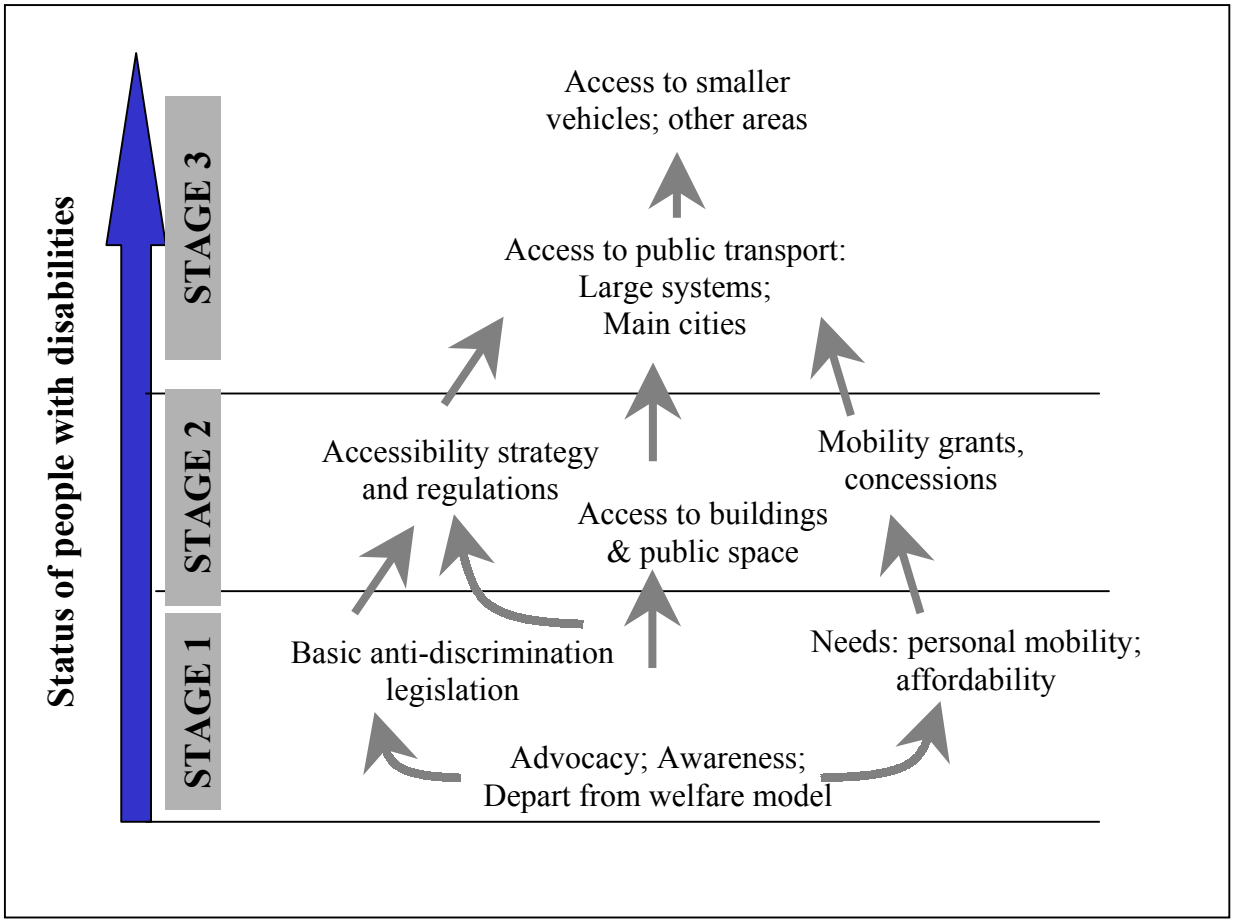

FIGURE 4: General framework of progress in accessibility provision