



TRANSPORT NOTES

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ACCESSIBILITY OF URBAN TRANSPORT FOR PEOPLE WITH DISABILITIES AND LIMITED MOBILITY: LESSONS FROM EAST ASIA AND THE PACIFIC

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Accessibility of transport is not always a priority in transport planning and implementation. There can be barriers in the physical environment and delivery of services that render transport inaccessible. The principles of the UN Convention on the Rights of Persons with Disabilities (CPRD) brings new momentum to ensuring accessibility in the delivery of transport infrastructure and services.

The CRPD recognizes that obstacles and barriers to indoor and outdoor public facilities and buildings and the physical environment should be removed to ensure equal access by people with disabilities and all members of society. The CRPD has been ratified in over 100 countries, and as it moves forward, Governments and institutions such as the World Bank will need to implement its principles and binding obligations. Transport professionals need to understand and develop expertise in operationalizing access and mobility issues for people with disabilities and people with limited mobility in the design and implementation of projects.

This note summarizes the analysis done of the accessibility features of recent transport projects in the East Asia and Pacific (EAP) region. It seeks to highlight good practice in national laws, policies and project implementation to improve the welfare of transport users across projects. The overarching objective is to suggest how to improve the implementation of accessibility features in transport projects for people with disabilities and people with limited mobility.

DISABILITY AND MOBILITY IN DEVELOPING COUNTRIES

Almost everyone will face temporary or permanent disability at some point in life; there are also people with limited mobility

caused by a number of factors, such as disease or accidents.

Others who live to old age will likely experience increasing difficulties in

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functioning and many can experience disability.

The first World Report on Disability (2011) produced jointly by the WHO and the World Bank suggests that more than a billion people in the world today has some form of disability.

Improved access and mobility are important factors in reducing poverty and can facilitate the participation of people with disabilities in economic, social and political processes. Physical accessibility will also benefit people who are not disabled but have limited mobility, including elderly, children, and pregnant women.

Exclusion increases the costs associated with disability and people who are denied access to essential transport services tend to face greater challenges to stay out of the poverty cycle.

Too often inclusive transport is not fully considered in transport planning, design, construction and implementation in developing countries. Mobility and access requirements of people with disabilities should be considered by planning and designing barrier-free transport systems. This implies an understanding and identification of the circumstances that create barriers for people with disabilities (Meriläinen and Helaakoski, 2001).

“Enabling transport” for persons with reduced mobility should take place across all components of the travel chain—the pedestrian environment, building and public transport.

An accessible environment, while particularly relevant for people with disabilities also has benefits for a broader range of people. For example, curb cuts (ramps) assist parents pushing baby strollers; information in plain

language helps those with hearing impairment or non-native speakers of a language; and announcements of each stop on public transit may aid travelers unfamiliar with the route as well as those with visual impairments.

Governments often perceive accessibility to be a luxury that they cannot afford, and consider universal access unaffordable in the face of pressure to meet other priorities. This is regrettable; as we will illustrate below significant gains can be made even by just ensuring that good design principles that offer inclusion are properly observed when any infrastructure investments are being made. In most cases, following inclusive design principles requires attention and good design, not extra cost.

THE UN CONVENTION ON THE RIGHTS OF PEOPLE WITH DISABILITIES

The CRPD brings new momentum to reducing barriers in the transport environment. Entered into force in May 2008, the CRPD is an international benchmark and binding Human Right treaty. Governments must develop guidelines to make public facilities and services accessible (article 9 (2) (a)). The CRPD also serves as a tool for engaging country counterparts in inclusive development policies and projects, particularly for those countries that have signed or ratified the CRPD. Obligations of the CRPD include that members that have ratified it must progressively adapt their laws and regulations to the principles of the CRPD. Countries must submit their first report to the UN after two years from ratification, then every four years.

The CRPD applies to the urban and transport environment through its application of the following articles:

- ❑ *Accessibility*: Guiding principle of the CRPD (article 4) and relevant for all areas of implementation.
- ❑ *Physical environment*: Measures should be undertaken to eliminate obstacles and barriers to indoor and outdoor facilities, including schools, medical facilities and workplaces (article 9 (1) (a)).
- ❑ *Public facilities & buildings*: Governments should set an example in ensuring full participation in society for persons with disabilities by developing guidelines to make public facilities and services accessible (article 9 (2) (a)).



PRINCIPLES OF UNIVERSAL DESIGN

Inclusive development is a critical agenda at the World Bank. To the extent that the World Bank finances the construction of public infrastructure, it has the opportunity to encourage its clients to apply “Universal Design” (UD) and to do so using the most cost-effective methods for its application (World Bank 2008).

UD is the design of products and environments to be usable by all people to the greatest extent possible, without the need for adaptation or specialized design. UD seeks to enable persons with disabilities to live independently and participate fully in all aspects of life. In transportation, this is done by ensuring that persons with disabilities have equal access, with others, to transportation. To

achieve this, it is necessary to identify and eliminate obstacles and barriers to accessibility. While UD is often thought of in the context of urban transport, the principles also apply to rural roads, the aviation and maritime sectors.

Many countries have guidelines and standards for creating accessible transport systems. Guidelines and standards cover the different parts of transport systems such as the built environment, outdoor environment, different public transport systems and vehicles used, service and information.

Guidelines regarding outdoor environments often include measures for space and width for wheelchair users, appropriate non slippery firm surfaces, maximum gradients on ramps and curb stones, design of handrails, and visual and tactile markings for persons with impaired vision. In some countries appropriate designs for pedestrian crossings, including light poles and guiding technology for visually impaired persons, are included in standard street and road design documents.



Often, the principles of UD may not be applied because designing for persons with disabilities is not institutionalized. Other factors that hinder implementation can include:

- ❑ Lack of knowledge amongst professional staff about the existence of standards and their applicability;

- ❑ Lack of input from the community and from consultation with persons with disabilities on barriers to transport and priorities for access features;
- ❑ Where standards exist, they are not implemented or enforced consistently; and
- ❑ Lack of awareness on the importance of the issue and coordination among government agencies that may be responsible for different parts of UD elements for a fully accessible trip chain. It is often the case that officials at government agencies are not aware of how much impact a little attention to detail in implementation of public infrastructure can make in terms of the impact on the lives of people with limited mobility.

It is critical to adopt UD depending on the level of existing development and local circumstances. Likewise, interventions will also vary depending on the mode of transportation targeted. There could be an emphasis on developing UD of non-motorized mode of transport when such transport provides the greatest share of trips made. In other circumstances, UD features for buses should be emphasized due to their key role in providing the majority of trips to many passengers (World Bank 2008).

ACCESSIBILITY IN DESIGN STANDARDS

Many countries have made progress in reducing barriers in the transport environment, particularly in high income countries. Countries have implemented regulation and design guidelines which explicitly consider accessibility for people with disabilities. For some design aspects, an ISO standard has been developed; e.g. built environment, symbols and wheelchairs. Examples of accessibility design standards in the world include:

- ❑ UK: The Department of Transport's website provides guidance information on inclusive mobility (www.dft.gov.uk)
- ❑ UN: Design Manual for a Barrier Free Environment (<http://www.un.org>)
- ❑ Mexico: Technical manual on accessible standards for the urban, pedestrian and transport environment (In Spanish) (<http://www.seduvi.df.gob.mx/portal/imagenes/stories/pdf/articulo15/fraccionx/manual.pdf>)
- ❑ USA: ADA Accessibility Guidelines for Buildings and Facilities (ADAAG) (<http://www.access-board.gov>)
- ❑ China: Information on laws and regulations from China's Disabled Persons' Federation (<http://www.cdpf.org.cn/english/lawsdoc/lawsdoc.htm>)
- ❑ Hong Kong: The Transport Department provides a guide to public transport for people with disabilities (In Chinese and English) (http://www.td.gov.hk/mini_site/people_with_disabilities/2009/13-2.html)

There are common themes across all standards and in the absence of any existing national standards, the use of a standard from another country is recommended.

Accessibility in design standards is manifested in a number of different ways, many of which are imperceptible to the general public. For example in public transportation:

- ❑ **Pedestrian environment:** Curb cuts, Braille markers, traffic signals with sounds for the blind;
- ❑ **Designated Areas:** On buses and metros designated areas for wheelchair users, special seats for elderly and people with disabilities;
- ❑ **Improved Sizing:** Increased width and heights, improved signs and information, etc. ; and,
- ❑ **Audible and Tactile Features:** Tactile guide paths at metro stations, audible

guides at entrances and escalator, Braille at ticketing machines.



ACCESSIBILITY IN WORLD BANK FINANCED PROJECTS IN EAP

A total of 14 World Bank financed projects in EAP were reviewed during January-July 2011 with financial support from an ESSD Disability and Development grant secured by HDNSP to carry work under the general theme of 'Mainstreaming Disability'. The review included 12 projects in China and two in Vietnam (Lundebye et al, 2011). Of the projects started between May 1998 and May 2010: six were completed; five were under progress and three were just in the beginning of implementation and construction. All were substantial projects, with financing ranging from US\$43 to US\$ 113 million. The investments included road infrastructure, traffic management schemes, and improvements of public transport facilities. All projects except one included improved facilities for pedestrians in one way or another.

The review aimed to assess the accessibility features of transport projects in the East Asia and Pacific region in order to highlight best practice and to make recommendations for improving accessibility features in urban transport projects in the region and elsewhere.

Some of the key issues identified at each stage of the project cycle include the following:

- ❑ **Planning Stage:** Accessibility for people with disability was not a main focus in most of the projects. A key underlying reason appears to be a perception that properly implemented improvements of the pedestrian environment as part of the projects would also improve the situation for persons with disabilities or special needs. While that could often be the case, evidence shows that without adequate attention, new construction in rapidly growing East Asian cities usually does not result in a fully accessible environment. In the case of public transport, while the one project that was financing vehicles did explicitly discuss incorporating accessibility principles, project documents did not indicate a consistent level of attention to provisions for persons with disabilities.
- ❑ **Implementation Stage:** National or international universal access guidelines do not appear to have been applied consistently during implementation. A reason may be the lack of resources for carefully supervising contractors and the overall implementation of the accessibility features.

The review did show an evolution over time with regard to the projects considering universal design principles, with the more recent projects not only explicitly including these considerations in project documents, but also making excellent use of public consultations to enhance the effectiveness of the project.

LEGAL FRAMEWORKS FOR ACCESSIBILITY IN EAP

The study also included a review of the existing national legislation for ensuring the accessibility of people with disabilities. This revealed that there is diversity among countries in terms of status of legislation in

this area and in relation to transport accessibility in particular. For example, the legal provisions for persons with disabilities in Vietnam are currently being updated and a new Law for Persons with Disabilities (LPD) was passed in June 2010. The Ministry of Transport (MoT) is currently developing technical standards and guidelines to assist transport agencies and professionals in the implementation of the provisions of the law. The MoT has commissioned two local universities to help develop the standards and guidelines based on overseas experience.

China implemented in 1989 its first trial implementation of standards for the Design of Urban Roads and Buildings aimed at improving the access of people with disability. In December 1990, the Law of the People's Republic of China on the Protection of People with Disabilities was issued. It was further modified in 2008 to emphasize the need for construction of barrier-free facilities for people with disabilities.

National legislation has not been matched by adequately detailed regulatory frameworks at the provincial and local level. There are no nationwide administrative regulations in China for the barrier-free facilities yet. A review of practice across China – conducted as part of this study (Chen 2011), found that the incorporation of UD principles through the Ministry of Construction Standards for street design combined with political support from the disabled community in the country led to several examples of good practice. A number of provinces and cities like Beijing, Shanghai, Tianjin, Guangdong Province and the Liaoning Province have now started or enacted their own administrative regulations.

However, the lack of a consistent enforcement mechanism has produced a tragic lack of consistency in achieving overall inclusive

accessibility outcomes. In a country where there is infrastructure that is rapidly building like in China, there are important lessons and indications for good practice that emerge which are discussed in the next section.

LESSONS ON URBAN TRANSPORT PROJECTS IN EAP

The review of EAP projects shows that accessibility is not yet a systematic concern in the planning or implementation of urban transport infrastructure. On one hand, most of the projects included improvements in the sidewalks and pedestrian crossings that had the potential to significantly transform the accessibility landscape of the city. The improvements included a broad range of features such as removal of obstacles from the sidewalks, the creation of dropped cuts, ramps and tactile surface markings. An indirect impact on disability is linked with project improvements that help lower road traffic accidents such as the inclusion of prioritized non-motorized traffic. More could have been done in many of these projects to fully take advantage of these opportunities with consistent attention to accessibility outcomes during implementation.

Overall, the review has helped demonstrate that knowledge on issues of accessibility in transport among both clients and donors still needs to be enhanced. Too often the perception is that making urban transport accessible will be costly and not as important in light of the many other development priorities relevant for economic growth. However, as many examples of projects both in the Bank portfolio and outside it showed, there is no appreciable difference in cost between streetscapes that are fully accessible and those that are not – the difference is that of consistent attention and supervision. This is readily confirmed by the broader literature

(Roberts and Babinard 2004). In this context there may well be a role for specialized training on achieving accessibility outcomes for government officials as well as design and supervision consultants.

Additionally, the experience of China showed that even where a mechanism does not exist for regulating and enforcing accessible design principles, significant positive impacts can be made by at least ensuring that accessible design principles are incorporated into standards and guidelines (simple and relatively inexpensive to achieve); and by organizing the disabled community and empowering them to participate in the infrastructure development process. Good practice in Bank projects in the region has shown the benefits of putting the consultation with the community at the center of the infrastructure planning and implementation process (see box).

THE KEY ROLE OF PUBLIC CONSULTATIONS

A key lesson is that public consultations with people with disability during project preparation are essential to mainstream the accessibility features into the project preparation process and during implementation. There are some good practice examples of consultations that took place in the context of WB projects in Liaoning, Anhui, Kunming and Wuhan in China for example. Typically though, public consultations tend to be held only during the early stages of project preparation. We find that there are significant benefits from mainstreaming consultations into all stages of the project cycle. For example, in several cities participating in the World Bank financed Liaoning Medium Cities Infrastructure Project, the Federation for the People with Disabilities of the city coordinated closely with the project to bring people with disabilities to the streets to “field test” issues and ensure proper identification of accessibility considerations in the design process. This experience was most successful in the city of Jinzhou, where a decision was made to make such a consultation an annual event.

RESOURCES AND MOVING FORWARD ON ACCESSIBLE TRANSPORT

There are many resources already available on standards and features related to accessible transport. This knowledge can be used by technical staff to develop their technical expertise about design features for people with disabilities and for people with limited mobility. The review by Lundebye et al. also (2011) includes a series of checklists to ensure that accessibility is considered in designs. These cover: (i) the pedestrian environment; (ii) pedestrian crossings; (iii) pedestrian tunnels and bridges; (iv) bus stops; and, (v) buses. An excerpt from the bus check list is shown below. By applying such checklists during the design and approval stages of transport projects, one can ensure that accessibility needs are properly considered.

Are bus operating buses low floor or low entrance buses?	<input type="checkbox"/> floor	<input type="checkbox"/> entrance	<input type="checkbox"/> no
Do the buses have a kneeling function?		<input type="checkbox"/> yes	<input type="checkbox"/> no
Do the buses have ramps for wheelchairs to board?		<input type="checkbox"/> yes	<input type="checkbox"/> no
Are there special seats for persons with disabilities?		<input type="checkbox"/> yes	<input type="checkbox"/> no
Are there special places for persons using wheelchairs?		<input type="checkbox"/> yes	<input type="checkbox"/> no
Are there audible information inside the bus?		<input type="checkbox"/> yes	<input type="checkbox"/> no
Are there audible information outside the bus?		<input type="checkbox"/> yes	<input type="checkbox"/> no
Are there visual information inside the bus?		<input type="checkbox"/> yes	<input type="checkbox"/> no
Are there visual information outside the bus?		<input type="checkbox"/> yes	<input type="checkbox"/> no
Are the stop buttons possible to reach for a person using a wheelchair?			
Is the width inside the bus enough for a wheelchair?			

Finally, in order to create accessible transport environments there should be:

- A review of national design standards for different modes of transports;
- Awareness-raising among officials, planners and builders; and
- Involvement of representatives of people with disabilities in the planning and implementation process.

Donors like the World Bank should support and promote improved accessibility. This can be done by:

- Raising awareness of government counterparts and consultants to the importance of UD;
- Supporting the adoption of appropriate design standards and guidelines;
- Only clearing designs for bidding which have addressed UD principles; and
- Providing support through training and other awareness raising activities.

The key to achieving proper accessibility is through strong advocacy at the national and international level. Government oversight and interest is also important to produce quality public infrastructure and to provide the private sector with the appropriate incentives to use inclusive design principles when investing in privately financed public spaces such as shopping malls, offices and education facilities.

Box 1: China: Issues and Solutions

Issues Identified	Solutions
Curb Cuts: <ul style="list-style-type: none"> • not smooth; • the existing 2-cm raised edges obstruct wheelchairs and trip up pedestrians 	level curbs to the road surface and remove the ridges from curbs in the ongoing projects
Safety Island: <ul style="list-style-type: none"> • the raised edges obstruct wheelchairs • the islands are too narrow to accommodate wheelchairs 	remove the ridges from curb cuts and make the islands at least 1.5 meters wide where technically feasible
Sidewalk: <ul style="list-style-type: none"> • 50-cm wide sidewalk is too narrow and is sometimes blocked by vehicles, debris or other obstacles 	<ul style="list-style-type: none"> • consider widening the textured lane where the width of the sidewalk permits; • install different shaped tactile points to alert users of turns; • make the path as direct and obstacle-free as possible
Pedestrian Street-Crossing: <ul style="list-style-type: none"> • pedestrian signals don't have audio features to alert the visually impaired of the signal phase and time remains for crossing 	consider installing audio features and adjusting the phase
Damaged Sidewalk and Pavement: <ul style="list-style-type: none"> • some damaged sidewalks and pavements are not repaired in a timely manner, and thus become obstacle for pedestrians 	better coordination and expedite repairs

Source: Wang (2012)

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