RIGHT TO WALK: MOVING PEOPLE AND NOT VEHICLES

Anjlee Agarwal, Debabrata Chakravarti and Nidhi Madan,
Samarthyam, National Centre for Accessible Environments, New Delhi, India
samarthyamindia@gmail.com

INTRODUCTION

Accessible pedestrian infrastructure promotes safe and independent mobility. In Delhi, 34% of the population engages in walk-only trips, while 44% of all trips use non-motorized transport. Another 33% use public transport. Yet, 40% of Delhi's roads have no sidewalks, and, those that do vary in accessibility, quality and continuity.

Traffic road crossings put at risk all pedestrians, particularly the elderly and disabled. Areas of difficulty include crossing busy two-way streets and high-speed roads; intersections, particularly with no central refuge; junctions, where vehicles can come from several directions; and, at light-controlled crossings, or where free right turns are permitted. Moreover, access to bus stops and buses is hampered due to mismatch height of stops and bus chassis. As a result, persons with reduced mobility and/or those with disabilities are further disabled by the pedestrian infrastructure, limiting access to education, employment and increasing dependency.

PURPOSE

Having ratified the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), the Government of India is committed to providing universal accessibility. However, no cohesive guidelines/codes of practice exist for governing authorities, engineers and local agencies to provide for diverse access needs in the pedestrian infrastructure. The National Urban Transport Policy 2006, also laid emphasis on "moving people and not vehicles"

APPROACH

Delhi saw a major overhaul of pedestrian infrastructure for the 2010 Commonwealth Games. Pavements were refurbished with piecemeal accessible features added, including tactile tiles and ramps; to little benefit, however, due to a lack of understanding during the implementation process. Tactile tiles were installed, running into obstacles like trees, signage and poles etc., exacerbating hazards for the visually impaired. Most of the ramps were blocked by bollards to restrict motorcycle movement, also restricting wheelchair users. Kerb heights vary, signage is inconsistent and hazards numerous.

To ensure an accessible trip chain (origin to destination) for those that are disabled, travelling with small children or carrying luggage, persons with temporary mobility problems and the elderly, Samarthyam co-authored the IRC 103, 2012 Guidelines for Pedestrian Facilities with Indian Roads Congress (IRC). The guidelines provide detailed design standards for aesthetic, comprehensive and consistent, inclusive design. These guidelines are used for compliance by all road owning agencies and urban local bodies in the country.

RESULTS

Subsequently, steps are being taken to ensure that development agencies and local bodies are sensitized about comprehensive accessibility requirements through these guidelines, simulation exercises, workshops and access audits. There is also a greater understanding for the need to

monitor the implementation process and sensitize designers, engineers and contractors as a result. IRC is revising several codes and manuals in light of the universal accessibility norms and setting standards for mandatory compliance with benefits practitioners, professionals and city officers.

CONCLUSION

The Guidelines for Pedestrian Facilities ensure that the term ‘pedestrian’ includes persons with diverse disabilities. The inclusion of design standards for pedestrian safety and accessibility enable last mile connectivity for everyone was further enforced by the upcoming Manual on Universal Accessibility. And also, further the goals of providing comprehensive Mobility & Accessibility, Safety & Amenity & Ecology in all pedestrian facilities.

INTRODUCTION

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FIGURE 1 Inadequate footpath width

BACKGROUND

Traffic road crossings put at risk all pedestrians, particularly the elderly and disabled. Areas of difficulty include crossing busy two-way streets and high-speed roads; intersections, particularly with no central refuge; junctions, where vehicles can come from several directions; and, at light-controlled crossings, or where free right turns are permitted. Moreover, access to bus stops and buses is hampered due to mismatch height of stops and bus chassis (Fig. 2). As a result, persons with reduced mobility and/or those with disabilities are further disabled by the pedestrian infrastructure, limiting access to education, employment and increasing dependency.

FIGURE 2 Higher bus stop platform and lower bus chassis

A comprehensive design approach, implementation, monitoring and consistent communication on universal accessibility in the street, road and pedestrian environment and access to and use of public transport infrastructure are essential for all users to optimize their level of independence and live life with dignity. The link between lack of access and exclusion is obvious. For example, the right to employment or accessing livelihood opportunities becomes meaningless in the absence of an accessible, safe and user-friendly walking environment and transit infrastructure.

Roads occupy approximately 20% of the total land area in a typical city. They are the most important and ubiquitous form of public space and core component of any city's transportation framework. The location, design and continuity of the road network determines how effectively people, goods, and materials move through the city. Thus, accessible transport services must be integrated with the city network.

High quality streets make a city truly livable, allowing people to travel between destinations, but are also destinations in themselves—place for people to meet, interact, do business, and socialize.

Improved accessibility allows for the greater use of non-motorized vehicles (NMV), reduces fatalities and promotes overall well-being. It will help prioritize walkability and NMV traffic over motorized traffic, a need that cannot be ignored for a safe and equitable commute. This will also facilitate better street design and facilities for people seeking better access, good connectivity and seamless journey.

The guiding principle of 'universal accessibility' is to create obstacle-free environments. It encompasses broad-spectrum ideas to create accessible streets, buildings and environment to the maximum extent possible. Accessibility here refers not only to persons with disabilities but to all possible users. It emphasizes inclusive environment in public spaces and infrastructure, accommodates the mobility needs of 'all individuals'.

Table 1. shows a wide range of persons who may or may not have "disability", however, require accessible design elements.

TABLE 1 Highlighting difficulties experienced by diverse user groups.

Special Characteristics Requiring Attention	User Groups							
	Children (up to 8 years old)	Pregnant Women	Elderly/Senior Citizen	Speech &Hearing Impaired Persons	Visual Impair-ments	Physically Injured Persons (upper and lower body)	Wheelchair Users	Cognitive/Intellectual Disability
Difficulty in Interpreting Information (Visual/Audio)								
Poor or Complete Degradation of Sight								
Poor or Complete Degradation of Hearing/Speech								
Prevalence of Poor Balance								
Prevalence of Poor Coordination and Orientation								
Poor or Inability in using Upper Extremities								
Poor or Inability in using Lower Extremities								
Limitations of Stamina								
Limitations of Strength								
Vertically and Horizontally Challenged (in terms of height or size)								
Require Physical Assistance/ Supervision								
Require Family-friendly Facilities								
Mobility aids/ Assisted Devices								

Source: Derived from- (Universal Design Guidelines (Commercial Buildings), September 2006)

COMPREHENSIVE APPROACH TO UNIVERSAL ACCESSIBILITY

Every day a vast majority of the population encounters barriers in public spaces and in public transport. Many travelers, particularly persons with reduced mobility and persons with disabilities often depend on a car for all their daily trips, due to the barriers they encounter in

public spaces and public transport. Persons with reduced mobility include senior citizens; families with young children; unescorted children; persons with temporary ailments, medical conditions and hidden diseases; pregnant women; persons carrying heavy luggage; those with communication problems, etc.

To comprehensively address universal access and suggest application of its principles and standards to promote walkability, non-motorized vehicle and public transport usage,three critical parts of a journey have been identified-

1. **Point of Origin or Destination** (home/ healthcare facility/ educational institution/ entertainment venue)
2. **Connecting Route to Transit Terminal** (street and footpath infrastructure/ NMV infrastructure used for the commute)
3. **Accessibility of the Transit Terminal** (to facilitate transportation through public transportation such as Bus Stops, BRT, Metro, Monorail, Railway Stations, Feeder and Paratransit Stops).

These together make up the critical elements of a complete trip chain for a seamless journey. **A complete trip chain** starts from the point of origin to the walk/ commute, cycle and/or wait for transport, boarding, travel and alighting followed by the walk/ commute to the final destination (Figure 3). Each trip chain must ensure pedestrian safety for all including persons with and without disabilities.

Any break in the trip chain results in lack of access and independent mobility. Inaccessible links require taking an indirect route, increasing travel times, fatigue, uncertainty and potential modal conflicts. The goal must be for people to have access to all vehicles and the full-service area, as well as the pedestrian environment (WHO, 2011). The complete trip chain must be universally accessible with a mandatory training, implementation, and maintenance and monitoring to ensure that it remains so in perpetuity.

Universally accessible design will help increase the number of people walking and the number of people using public transportation. To ensure this, pedestrian environment and all transit systems – buses, bus shelters, bus rapid transit (BRT), metro, rail terminuses and stations, etc. should be accessible.

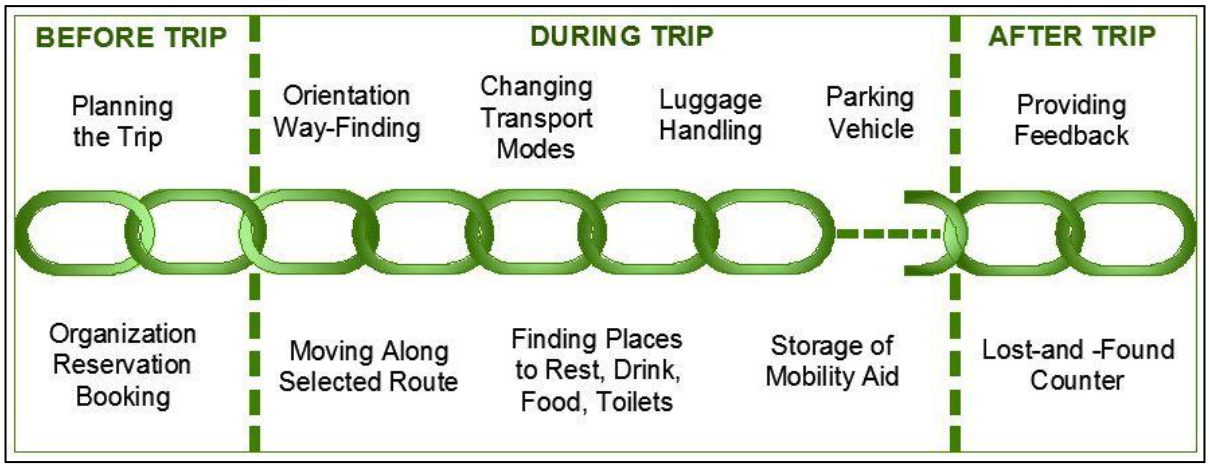

FIGURE 3 Trip chain

Source: (www.isemoa.eu, 2010)

By improving the accessibility of the entire travel journey, local and regional authorities can enable persons with reduced mobility to adopt a less car-dependent lifestyle and use sustainable modes (walking, cycling, and public transport) instead. Furthermore, local and regional authorities can also achieve fuel and energy savings and promote independent mobility, which will increase the quality of life and the attractiveness of the city or region for inhabitants and visitors.

Universally accessible infrastructure benefits everyone irrespective of age, gender and disability. Thus, improving the accessibility of door-to-door mobility-chains.

Need for Guidelines and Manual

These guidelines aim to fill the knowledge gap about universal access and act as a guide for practitioners, city officials and authorities to plan, design pedestrian environment and sustainable transportation.

- To understand universal access and suggest application of its principles and standards to promote walkability, non-motorized vehicle and public transport usage;
- To highlight physical and environmental barriers in the public realm and recommend universal accessibility standards; and
- To highlight benefits of universal accessibility and sustainable transportation, and to promote a greater sensitivity and innovation in universal design beyond minimum requirements.

Fig. 4. shows that at some point of the life cycle, trans-generation population will require an inclusive and accessible environment.

FIGURE 4 Who all require universal accessibility

The city officials and professionals must:

- Ensure safe and independent commute between place of origin and destination, including first and last mile connectivity;
- Provide convenient, quick access & exit and usage of all areas;
- Implement inclusive design and achieve social inclusion; and
- Increase energy-efficiency in transport by improving the trip chain of all citizens (including persons with reduced mobility and persons with disabilities).

Who benefits: Everyone, including:

- Persons with reduced mobility such as senior citizens; families with young children; unescorted children; persons with temporary ailments, medical conditions and hidden diseases; pregnant women; persons carrying heavy luggage and people with communication problems (including different linguistic and ethnic groups like migrants, tourists etc.). They are commonly referred to as transport disadvantage group.
- Persons with diverse disabilities

Application of the Manual

IRC: 103–2012. Guidelines for Pedestrian Facilities have highlighted design standards for pedestrian facilities and specifically mentions that *"Accessible design is the foundation and primary concern for all pedestrian design, hence all pedestrian facilities need to be planned, designed, operated and maintained so that it is usable by everyone, including those with disabilities or using mobility aids"*.

Aspects covered in IRC 103: 2012 Guidelines for Pedestrian Facilities are:

- Inclusive street infrastructure
- Inclusive grade separators
- Continuity and consistency
- Level change
- Maintenance
- Pedestrian crossings
- Pedestrian facilities-parking
- Pedestrian facilities at transit areas
- Bollards
- Lighting
- Ramps/stairs
- Elevators/lifts
- Washrooms/toilets
- School zone improvement etc.

IRC 103:2012 guidelines sets the tone for need for universal accessibility. Provision of comprehensive planning and design principles and detailed technical specifications on mindset of "people first" approach including promotion of NMV vehicles over Motorized one linked with gender safety and of otherwise able people should be more detailed. The current Universal Accessibility Manual makes it mandatory for the executing agencies, urban local bodies and concerned stake holders to plan, design, implement and maintain environment and infrastructure. It also provides practical guidance towards evaluating and improving accessibility through a comprehensive approach.

Projected Benefits

Physical Connectivity

Visual and physical continuity of footpaths makes navigation and orientation easier and saves time and energy. Choices in the accessible environment with coherent, direct, safe, and comfortable features attract pedestrians, cyclists and tri-cycle users. By providing a safe walking environment, the footpath will also provide opportunities for a healthy environment.Public transport within reach, integration with other modes and availability of accessible feeder modes too, is an important link in the travel journey/trip chain.

Social Inclusion

A safe walking environment particularly for women, children and persons with disabilities promotes social interaction in different public spaces that the walkways connect (Photo 2). Well designed and maintained pedestrian infrastructure benefit persons with diverse disabilities, including users of wheelchairs and tricycles, elderly, temporary ailments, carrying packages/luggage, hawkers etc. by providing a safe alternative to sharing the roadway with fast-moving traffic. Access and use of public transport allows all commuters the opportunity to explore more and experience better, the environment that surrounds them. It promotes enhanced opportunities to livelihood & employment, access to health, education and leisure for all.

Ecological

Pedestrianisation and increased use of public transportation encourages walking and require less road allocation for personalized vehicle traffic or parking spaces. Fewer vehicular use results in reduction of carbon emissions. Also, the continuity of footpath promotes the continuity of the other elements along the footpath such as planting strips, which can be used to link green spaces and plant street trees. Below is the list of added benefits with green spaces:

1. Tree planting zones with native street trees are essential for shade, lowering Heat Island Effect and giving comfort to pedestrians and vehicles on the road;
2. Street trees dampen noise, providing health and psychological benefits;
3. Act as Integrated Natural Drainage Systems;
4. Native plantation helps water conservation and soil resilience; and
5. Vegetation also helps to mitigate air pollution and improve environmental health.

CONCLUSION

Universal accessibility includes everyone in its ambit and is an indispensable investment. This emphasis on the user needs to be incorporated into the transport-planning environment. There are

a number of social, moral, legal and commercial advantages of improving accessibility in the public transport infrastructure.

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