# Making an Accessible City: Consideration of Universal Design Principles in City Planning

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## Who are Disables?

In the publication titled Building for Everyone: A Universal Design Approach, it is said that, "People are diverse thus their abilities are similarly diverse. Illness or disability (whether temporary or permanent) can affect characteristics of such persons like mobility, dexterity, reach, balance, strength, stamina, sight, hearing, speech, touch, knowledge, understanding, memory, or sense of direction. Further it says "People of diverse abilities should be able to use buildings and places comfortably and safely, as far as possible without special assistance. People should be able to find their way easily, understand how to use building facilities such as intercoms or lifts, and know what is a pedestrian facility, and know where they may encounter traffic". Elderly and disabled people encounter many problems, in using the facilities and their mobility. These vary according to the types of disability they have, in urban spaces and their social surroundings

Under Article 1 of the UN Convention on Persons with Disabilities, defines the disability as "persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others".

Under Section 18 of the Protection of Persons with Disabilities Act No. 28 of 1996, Sri Lanka a disabled person is defined as "person

with disability means any person who, as a result of any deficiency in his physical or mental capabilities, whether congenital or not, is unable by himself to ensure for himself, wholly or partly, the necessities of life"

According to the WHO reports, currently around 10% of the world's population, or roughly 650 million people, live with a disability. The census of population carried out by the Department of Census and Statistics (DCS) in 2011 records 8.7% of the total population as Persons with Disabilities and women with disabilities consisting of 57% of the disability population in Sri Lanka.

From the above definitions it is noted that they are "differently abled" in performing their activities but these different abilities are to certain extent act as barriers in fulfilling the necessities of life. Hence it is the responsibility of the society and the government to minimize the effect of such barriers as much as possible. Among, planning plays a key role. Planning cities, geographical regions should be able to address the needs of those people as highlighted above - find their way easily, understand how to use building facilities such as intercoms or lifts, and know what is a pedestrian facility, and know where they may encounter traffic.

## Concept of Universal Design and Universal Design Principles and Guidelines

Universal design is defined as "the design of products and environments to be usable by all people, to the greatest extent possible, without need for adaptation or specialized design." Universal design is a concept, approach, or goal to make products and the built environment universally usable by all people everywhere. It accommodates the specific needs of the elderly, people with obesity, those who are very tall or very short including children, pregnant

women, and people with various functional limitations, which tend to have been traditionally ignored. (The World Bank, 2008)
As cited by Harsritanto1 2018, Aslaksen (1997) explained the Universal design as; "Universal design (also called inclusive design or accessible design) refers to facility designs that accommodate the widest range of potential users, including people with mobility and visual disabilities and other special needs".

The Universal design is a concept that followed by a set of principles and guidelines to apply in the appropriate areas.

The seven Principles of Universal Design were developed in 1997 by a working group of architects, product designers, engineers and environmental design researchers, led by the late Ronald Mace in the North Carolina State University. The purpose of the Principles is to guide the design of environments, products and communications. According to the Center for Universal Design in NCSU, the Principles "may be applied to evaluate existing designs, guide the design process and educate both designers and consumers about the characteristics of more usable products and environments." (The World Bank, 2008).

**Table 01 Universal Design Principles and Guidelines**

| **NO**. | **PRINCIPLES** | **GUIDILENES** |
|---|---|---|
| 01 | **Equitable Use:** The design is useful and marketable to people with diverse abilities | • Provide the same means of use for all users: identical whenever possible; equivalent when not<br>• Avoid segregating or stigmatizing any users<br>• Make provisions for privacy, security, and safety equally available to all users<br>• Make the design appealing to all users |
| 02 | **Flexibility in Use:** The | • Provide choice in methods of use |

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| | design accommodates a wide range of individual preferences and abilities | • Accommodate right-or left-handed access and use<br>• Facilitate the user's accuracy and precision<br>• Provide adaptability to the user's pace |
| 03 | **Simple and Intuitive Use:** Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level | • Eliminate unnecessary complexity<br>• Be consistent with user expectations and intuition.<br>• Accommodate a wide range of literacy and language skills<br>• Arrange information consistent with its importance<br>• Provide effective prompting and feedback during and after task completion |
| 04 | **Perceptible Information:** The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities | • Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information<br>• Maximize "legibility" of essential information<br>• Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions)<br>• Provide compatibility with a variety of techniques or devices used by people with sensory limitations |
| 05 | **Tolerance for Error:** The design minimizes hazards and the adverse consequences of accidental or unintended actions | • Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded<br>• Provide warnings of hazards and errors<br>• Provide fail safe features<br>• Discourage unconscious action in tasks that require vigilance |
| 06 | **Low Physical Effort:** The design can be used | • Allow user to maintain a neutral body position |

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| | efficiently<br>and comfortably and with a minimum of fatigue | • Use reasonable operating forces<br>• Minimize repetitive actions<br>• Minimize sustained physical effort |
| 07 | **Size and Space for Approach and Use:** Appropriate<br>size and space is provided for<br>approach, reach, manipulation,<br>and use regardless of user's body<br>size, posture, or mobility | • Provide a clear line of sight to important elements for any seated or standing user<br>• Make reach to all components comfortable for any seated or standing user<br>• Accommodate variations in hand and grip size<br>• Provide adequate space for the use of assistive devices or personal assistance |

Source – Journal of Land Use, Mobility and Environment, Energy, Pollution and The Degradation of the Urban Environment, 2(2016).

## Consideration of Universal Design Principles in City Planning

As cited by Esfandfard (2018), (Ezzati & Shaghaghi, 2014; Rahnama & Heydari, 2013) emphasized that people with disabilities should not be discriminated and they have equal rights as with normal people. They are still required to work and live daily their lives. Further they said this can be a chore especially in a city which was built and designed for normal people. This comes in the forms of facilities which were not built according to standards that are disabled-friendly, hence limiting accessibilities by the disabled. (Esfandfard 2018).

As cited in Esfandfard (2018) (Davarinezhad & Rahnama, 2015) stated that "the urban environment should be able to provide more services to vulnerable groups of the population so that they are not forgotten or marginalized. Properly and suitably designed public spaces could contributes in ensuring equal opportunities to all layers of society and help to increase urban mobility. Thus, proper and suitable design should be a requirement in the provision of community facilities". Especially physical barriers would limit the mobility and use of facilities by the disabled people.

The areas that need to consider the application of universal design concept in city planning could be broadly categorize into two. Planning and building regulations related the individual buildings- most commonly public buildings and residential condominiums in the built environment could be considered as one area. Urban design and associated planning regulations related to the use and development of land in a city is the second area.

As per The World Bank (2008), the areas that need to focus the attention in relation to buildings are; An accessible route from the main entrance, connecting to the main working areas, other public or common areas and washrooms need to be available, Width of doors and traffic areas, placement, access and height of equipment, washrooms: common areas, private stalls, family units, rescue and emergency areas and exit: easily identified and clearly marked, parking spaces: close to corners or entrances to places of major public interest

In planning and designing urban areas, the attention should be focused to the following areas; Streets - at least one accessible route needs to be available for all pedestrians in continuous fashion throughout. All routes which join main avenues, secondary roads, bus stops and other access points for public transportation should be considered. Other key elements include: surfaces, evenness, width and longitudinal/transverse gradient: flat as possible while allowing, adequate drainage or outflow of water, pedestrian crossings: ramps should be smooth, free of obstacles, object, elements which encroach on pedestrian areas: posts, holes, open drains, sewers, vendors, etc., location and accessibility of street furniture: located along the same strip; outer edge of the pavement, visual and informative signage: clear and bright, availability of all-weather pavements and walkways, maintenance, condition of streets. (The World Bank ,2008).

**Disables and City Planning in Sri Lanka**

There are some measures taken to safeguard the disable people in Sri Lanka. For example, Government of Sri Lanka signed the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) on 30 March 2007 and ratified on 08 February 2016.

Besides there are some legislations that safeguard the disabled people in Sri Lanka. Protection of the Rights of Persons with Disabilities Act No. 28 of 1996 specifically address equality in recruitment for employment and admission to educational institutes and for physical accessibility to public places but no provisions to safeguard the rights of persons with disabilities. Therefore, a new draft Disability Rights Bill (2006) was prepared and approved by the Cabinet of Ministers in 2008. However, this was amended more than five times but never submitted to the parliament to be adopted as national law. Disability Rights Bill was redrafted again in 2016 and submitted to the Legal Draftsman Department. However still some weaknesses were noted. It is not in compliance with the Article 33 of the UNCRPD. The draft was heavily criticized by the disabled community due to the unavailability of a strong state coordination mechanism and an independent monitoring mechanism. Accessibility Regulation No 01 of 2006 specifies the minimum accessibility standards in Sri Lanka (Disability Organizations Joint Front, 2017)

Also, several initiatives were taken to make accessible environment for disabled people in planning. Development Plan Prepared for City of Colombo made some provisions for disabled person. In the Section 59 it is stated that. “The application for the approval to construct a public building, such as a Hospital, Theatre, Grand Stand, Assembly Hall, Departmental Stores or any other building that will be utilized by disabled persons, shall endeavor to take measures so that the entrance/exits; corridors, stairs, elevator equipment, lavatories and other facilities can be used easily by the above category of persons

and shall adhere to the provisions of Schedule II in order to give effect to section 23 (2) of the Protection of the Rights of Persons with Disabilities Act, No. 28 of 1996. (City of Colombo Development Plan, Compiled Edition, Urban Development Authority, 2018).

In the Schedule II of the Development Plan some standards were formulated in public buildings in relation to Entrance / Exit, Corridors etc., Stairs, Slope ways, Elevatory Equipment, Lavatories, Parking Area, Passageways on the Building Site. (City of Colombo Development Plan, Compiled Edition, Urban Development Authority, 2018).

Although some progress has been achieved in implementing these provisions, Sri Lanka needs to make a considerable progress in implementing the measures taken and further expansion on some provisions.

As per the Report prepared by the Disability Organizations Joint Front for UN Universal Periodic Review - Sri Lanka 2017, the poor progress made in this regard were recorded. It is said that "the accessibility standards were not implemented properly even by the government within the state institutions and state- run buildings". Further it is stated that "Although a ruling has been given by the Supreme Court 39 for the government to implement the regulations, none of the responsible government institutions have taken any action to fully implement it up to now".

Besides there are several observable issues in planning and development of cities in the context of making accessible to all.

- Except few roads in main cities and towns pedestrian ways of roads are not even and smooth. Potholes and cracked paving are so unsafe and dangerous it is difficult to walk for even people with normal conditions. Hence these make for uneven

walking surface and poses risk of tripping for pedestrians, especially for people with disabilities and the elderly.

- Pedestrian crossings at traffic lights are not equipped with alarm system at least in major urban areas.
- Absence of signs and directional maps and other way-finding elements of streetscape to help pedestrians to navigate their way easier
- Most of the signage were suitable to most people but they did not meet the needs of the blind due to lack of Braille script on the signage boards.
- Except the allocation of a special seat in the public transport, there are no further improvements made to improve the accessible transport. Lack of accessibility to railway stations, train compartments, bus stations and buses are noted as critical issues. There has been progress in reducing barriers in the transport environment particularly in high-income countries, slow progress is observed in many of the low and middle-income countries including Sri Lanka. have also adopted accessibility policies.
- In spite of all these physical aspects the attitude of the general public and service providing authorities and individuals must be changed drastically in favor of people with these special needs.
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Universal design helps to re-direct the planning in Sri Lanka and to change the mind set of professionals to make accessible cities as it provides many benefits. Hence, Universal design is important for planning for the following reasons as it consider all possible obstacles that may exist in buildings, transportation terminals, sidewalks, paths, roads and vehicles.

- It helps us avoid bad development and help us to deliver genuinely sustainable solutions for communities.
- It helps us to create better places - for all abilities and all age groups - equitable, inclusive, participative and accessible.
- It avoids the need for wasteful and inefficient retro-fitting of solutions, as these matters should be considered at the outset of the design process.
- It informs genuinely integrated strategies for land-use, transportation and urban design
- It creates greater efficiencies for public infrastructure investment and produces better economic development models.
- It widens the audience and market for well-considered development projects enhancing commercial viability.
- It helps provide an environment in which people can age and retain their independence,

(Source - Building for Everyone: A Universal Design Approach, Planning and Policy)

Though Planners and other professionals and the policy makers need to work hard and make a genuine commitment to realize the needs and aspirations of disables in the country, there is a room for very favorable hopes as stated by GALBRAITH1(2018), "Universal design can, and will, contribute to achieving sustainable and equitable outcomes for the built environment and transport in Sri Lanka".

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