APPRAISAL OF ACCESSIBLE BUILT ENVIRONMENT IN ARCHITECTURAL EDUCATION INSTITUTES IN INDIA

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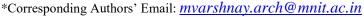
Abstract

India has ratified The Universal Declaration of Human Rights (UDHR, 1948) and the United Nations Convention on Rights of Persons with Disabilities (UNCRPD, 2006). It is committed to bringing people with disabilities to the mainstream, ensuring their human rights. India has taken many steps on legislative and executive fronts to address the needs of persons with disabilities post United Nations Convention on the Rights of Persons with Disabilities (UNCRPD). Article 24 of the UNCRPD provides for accessible, quality, and inclusive education to persons with disabilities as their right so that they can develop their full potential and talent to live independently and with dignity. Education for people with disabilities has been a challenge. The Rights of Persons with Disabilities Act 2016 in India, provides for an inclusive education and accessible built environment on educational campuses. Adopting inclusive approaches is imperative to achieve the 'education for all' goal, yet existing built environment fails to provide an inclusive and accessible built environment in India. Non- implementation of existing guidelines for accessible built infrastructure may be the cause behind this state. Architectural education institutes make a strong case to study, these institute as living labs, sensitize students about design solutions for the accessibility needs of all users in classrooms, laboratories, library, washrooms, canteen, hostels, parking facilities, etc. This paper investigates the status of accessibility in built environment in select institutes of architectural education in India by recording user response for provisions, level of service, satisfaction, etc. to appraise the on ground situation of architectural institutions. The outcome of research includes set of interventions for old and new architectural education institutions to make the built environment universally accessible.

Keywords: universal accessibility, disabilities, built environment, architectural education institutes.

Introduction

With its new education policy, India is marching ahead in the field of education. The new education policy of year 2020 (MOE, Government of India, 2020), lays the need for an accessible, equitable,

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quality, affordable, and accountable education system which includes people of all age groups, abilities, economic statuses, etc. This Policy considers the 2030 Agenda for Sustainable Development.

India ratified the UNCRPD in 2007 and is obliged to bring persons with disabilities to the mainstream by ensuring their human rights. India revised its legislative provisions, policies, codes, and guidelines to comply with the UNCRPD and other international protocols/instruments, such as the 2030 agenda of Sustainable Development Goals, Sendai Framework, Incheon Strategy for Asia Pacific Decade for PwDs, etc. Article 24 of the UNCRPD (UN, 2006), provide accessible, quality, inclusive education to persons with disabilities as their right to develop their full potential and talent to live independently and with dignity. Therefore, adopting inclusive approaches in education is imperative to achieve 'Education for all.'

As per the 2011 Census report in India, around 2.21% population suffers from different types of disabilities, and the literacy rate of the total PwD population is about 55% (male – 62%, female - 45%). Regarding higher education, only about 5% of Persons with disabilities are graduates and above. As per the report of "All India Survey on higher education (AISHE)," 2020-21, Ministry of Education, Government of India (MOE, Government of India, 2020-21) , the number of PWD students enrolled in higher education was 79,035, against a total enrolment of 41.3 million students in 2020-21, which is less than 0.2% of total enrolments in higher education. Regarding accessibility in the built environment, according to this survey 61% of the universities, 22% colleges and 46% standalone institutes in India have separate toilets for disabled females, 92% universities, 61% colleges and 55% stand alone institutes have ramps to class rooms and libraries. Handrails could be found in 55% universities, 21% colleges and 20% stand alone institutes. This data reflects the current status of inclusivity of persons with disabilities in higher education in India.

Literature Review.

An Overview of the Legislations and Policies: Constitutional Provisions in India

The Constitution of India, the supreme Law in the Country, came into force in the year 1950, and it applies uniformly to every legal citizen of India, whether they are healthy or disabled in any way physically or mentally. Six fundamental rights are extended to the citizens in India: The right to equality, the right to freedom, the right against exploitation, the right to freedom of religion, cultural and educational rights, and the right to constitutional remedies. Some constitutional provisions on accessibility in public spaces are-

Article 15 and 16 prohibits discrimination based on religion, race, caste, gender, place of birth or any of them. It permits all citizens to access shops, public restaurants, hotels, and places of public entertainment without discrimination.

Article 21 A (Right to Education) instituted by the Constitution (Eighty-sixth Amendment) Act, 2002 of the Constitution, provides for free and compulsory education among children.

The 73rd and 74th amendments, 1992 of the Indian Constitution make it a constitutional obligation to make provisions for safeguarding the interest of the weaker section of society, including the "handicapped and mentally retarded."

India enacted its first rights-based disability legislation, the Rights for Persons with Disabilities Act, 2016, (Punarbhava) which provides for the need of seamless accessibility between the various elements of the built environment to facilitate ease of movement for persons with disability. Among many other provisions this Act imposes responsibility on educational institutions for providing inclusive education with accessibility in their campus. To encourage people with disabilities in education, this provides for a 5% reservation across all Government owned/funded/aided institutions of higher education. According to this Act, the listed types of disabilities have been raised from 7 to 21. The next Census may probably reflect an increased percentage of the disabled population in India.

National Policy for Persons with Disabilities, 2021 Department of Empowerment of Persons with Disabilities (Divyangjan), Ministry of Social Justice and Empowerment, Government of India, envisions persons with disabilities as valuable human resources for the country and they deserve to get equal opportunities to lead productive, safe and dignified lives. This Policy reiterates the importance of education in improving life's prospects and the need for an accessible campus with accessible academic and supporting infrastructure in the educational institutions.

Accessible India Campaign (Sugamya Bharat Abhiyan):

This nationwide campaign was launched on the International Day of Persons with Disabilities on 3rd December 2015 by the Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment, Government of India (DEPwD, 2015). This campaign aims to make a barrier-free and conducive environment for people with disabilities within the country. The campaign intends to bring accessibility to Built Environment, Transportation, and Information & Communication Technology (ICT) ecosystem.

Research Methodology

An Assessment of Built Environment Accessibility in Architectural Education Institutes in India

The study involves an online survey and has two questionnaires (google form), sent to more than 100 stakeholders, from approximately 50 architectural education institutes across 20 states in India. These institutes are the representative samples approved by Council of Architecture, India, and a heterogeneous mix including old and new institutions, Government and privately owned, self finaced institutes etc.

Questionnaire -1 (Table-1) consists of preliminary questions like the location of the Institute, Terrain type, residential or non-residential campus, age, information on building/s such as the number of floors, built-up area, and the number of buildings in the campus, information about the presence of students and staff with disabilities, in the institute, types of disabilities, and existing accessibility conditions in the institute.

Table 1: Observation on the responses received from Questionnaire -1

SN0.	Question	Response received from stakeholders	Remarks /observations
1	Location of the Institute Urban/Rural	77.3% - Urban	Location of the institute impacts the size of land as per Government guidelines, in rural areas larger land sizes required to establish institutes. The spread of built environment on site will affect the mobility requirements in the campus
		22.7%- Rural	
2	Terrain of the place	84% -Flat	Terrain will affect the accessibility status, as hilly terrains pose greater difficulties for access as compared to flat terrains.
		16%- Hilly	

3	Type of institute/organisation (Funding status)	14.7%- Central Government Funded	Self-financed institutes have a different approach to design of campus/buildings than Govt. funded institutes.
		13.3%-State Govt. Funded	
		72%- Self Financed	
4	Administrative set up of Institute	50.7%- Stand alone institute	Stand alone institutes have different design approach than large campuses, which offer several academic programs in same campus, as there are repetitive block designs and greater shared facilities.
		49.3% -Part of a large campus	
5	Type of Institute's campus	42.7%- Residential	Residential campuses should address accessibility issues for users with different abilities in an integrated manner owing to different building typologies.
		57.3%- Non Residential	
6	Age of building/buildings	57.3%- 20 Years or Less	Bye laws and building codes have changed over the period, older buildings may not fulfil current building norms.
		42.7%- More Than 20 Years	
7	Total Number of floors in the Building/Buildings	42.7% - 1-3 Floors	Buildings more than 3-4 floors require lifts/elevators for vertical access, whereas lower heights may provide ramps for access to upper floors.
		48% - 4-6 Floors	
		< 10%- 7-10 Floors	

8	Do you have students/staff with any form of disability at your Institute	34.7%- Yes 65.3%- No	Presence of Persons with disabilities (PWD.s) on campus will help in better understanding of issues and solutions pertaining to their needs. Most of the institutes do not have presence of PWD's, which reflects present scenario of participation of disabled in higher education.
9	Type(s) of disabilities witnessed in your students/staff	9.3%-vision impairment 17.3%-hearing/speech impairment 6.7 %- cognitive 17.3%-wheelchair users 68%-no disability	Information on types of disabilities among staff and students will facilitate a better insight to understand the accessibility issues. 68% no disability, shows less number of persons with disability are enrolled in higher education.
10	How do you rate the accessibility conditions at your institute	25.3%-excellent 56%- fairly good 18.7%- poor	Existing accessibility conditions in institutes will help in understanding the present status of disability inclusion in physical environment of institutes.

Questionnaire 2: Accessibility audit for circulation and facilities areas in buildings-

This questionnaire consists of a survey on existing accessibility conditions in the participant's campus environment, especially the outdoor/indoor circulation and facilities areas. A total of 68 participants (stakeholders) responded to this questionnaire.

The questionnaire is an audit checklist that includes external and internal parts of the built environment and is based on Harmonized Guidelines & Space Standards for Barrier-Free Built Environment for Persons with Disability & Elderly Persons, 2016, by the Ministry of Urban Development, Government of India.

Fourteen parameters as listed in table -2 are considered critical for improving the accessibility of any educational campus, and each parameter consists of a set of questions, for example- Accessible parking - (i) Is there a visitor's parking lot available for persons with disabilities? (ii) Are adequate parking lots available for students and staff with disabilities? (iii) Is the maximum distance between this parking and the accessible building entrance within 50 m? (iv) Is the size of each accessible car parking bay 3.6 x 6.0 m? Fourteen parameters that have been considered in this questionnaire are

Table 2 Survey results according to the need of improvement in different accessibility parameters

S.No.	Accessibility Parameters	Number of Institutes requiring improvement in accessibility in parameter on priority basis (total no. of institutes-68)				
		Highest	**High**	**Moderate**	**low**	**Lowest**
A	**External environment**					
1	Parking	11	19	**24**	9	5
2	Alighting &drop off point	11	15	**25**	13	4
3	Accessible routes	14	18	**20**	11	5
B	**Internal environment**:					
4	Accessible entrance	**22**	15	18	9	4
5	Reception & Lobby	15	**21**	14	12	6
6	Stairs and Ramps	17	16	**18**	11	6
7	Handrail	16	16	**19**	12	5
8	Elevator / Lift	**18**	13	11	14	12

9	Corridors	16	**18**	13	15	6
10	Doors & doorways	12	17	**20**	14	5
11	Accessible toilets	**21**	19	8	11	9
12	Drinking water facility	**22**	17	12	8	9
13	Signage	**19**	17	7	14	11
14	Emergency evacuation	**22**	12	8	15	11
	Total	236	233	217	168	98

All responses to this questionnaire are recorded. The part two of the questionnaire required participants to assign rating to all parameters listed in table-2, according to the priority that particular parameter demanded for improvement in its accessibility, with scores ranging from Highest (parameters requiring improvements on highest priority), High, Moderate, Low, and lowest (parameters that may be improved after other priorities are attended).

Results and Discussion

The table number-2 shows the results of this survey, which shows parameters like accessible entrances, accessible lifts, accessible toilets, drinking water facilities, way finding signage, and emergency evacuation need to be improved on the highest priority. In many institutes, reception/lobby spaces, corridors need improvements on high priority. Parameters such as accessible parking spaces, alighting spaces, accessible routes, stairs, and ramps, handrails and doors/doorways required improvements on moderate priority in institutes. The survey results indicate that majority of the accessibility parameters require improvements on high to highest priority. Common issues related to all parameters requiring improvements are listed in Table-3

Table 3 Common issues/observations for all parameters of accessibility

S.No	Accessibility Parameters	Common issues/ observations
1	Parking	Number of accessible parking lots, size of each lot and distance from accessible entrance to follow guidelines.
2	Space For Alighting	Need of segregated alighting space and accessible pathway between alighting space and accessible entrance of building, non- availability of tactile markers
3	Accessible Routes	Presence of obstructions e.g.. level difference, undulating surface, manholes, gratings, slippery materials etc. on the pathways. Absence of tactile markers and kerb ramps.
4	Accessible Entrance	Provisions for wheelchair and visually impaired users to be integrated. Provision of both steps and ramps with handrails to be ensured. Threshold more than 12 mm to be avoided.
5	Reception and Lobby	Reception counters must have two levels and adequate circulation space around it. User friendly Information systems to be integrated.
6	Stairs and Ramps	Non availability of tactile warning signs on steps and landings, colour contrasting strips on the edge of steps, width and slope of ramps were the common issues
7	Handrail	Hand rails should be on lower and upper levels, and on both sides of stairs/ramps, shape, size and distance from near wall must be checked
8	Elevators / Lifts	Inadequate/non provision of lift for vertical circulation is a common issue, its location, design and controls need attention.
9	Corridors and Passages inside buildings	Width of corridors, types of floor finishes, colour contrast, illumination level and protruding obstructions are the common issues.
10	Doors and doorways	Door design ,hardware, threshold, space allowances around it were the common issues
11	Accessible toilets	Inadequate provision of accessible toilets/ numbers, design, space requirements, fixtures/fittings need to be as/guidelines
12	Drinking water facility	Design and specifications are the common issues and need improvements
13	Signage	Inadequate provisions of signage, maps, symbols, in terms of location, design, colour contrast was most prominent issue

14	Emergency evacuation and Refuge areas	Provisions of step free, safe accessible evacuation routes and refuge areas for persons with different abilities was lacking in most of the institutes.

Conclusions

After ratification UNCRPD 2007, Government of India has made all efforts to improve the situation of persons with disabilities across all sectors including education. There are state of art accessibility guidelines and standards in place (MoHUA , 2021), (UGC, 2022, June). In spite of all these efforts the existing situation in the majority of higher education institutes do not meet accessibility standards and require necessary improvements.

Recommendations

On the basis of the survey conducted of various Architectural Education Institutes as mentioned above in the Table number 1 to 3, the recommendations are suggested for improvement in the built environment accessibility of Architectural Education Institutes.

A significant number of campuses are more than 20 years old and the buildings have been added in different phases. The accessibility guidelines have also been revised over this period, these campuses therefore need to be upgraded according to current accessibility parameters and have to be retrofitted. There is a need to strictly enforce accessibility standards in all educational buildings similar to statutory fire protection requirements in the built environment. Institute Management should seek necessary accessibility clearance from the Local Municipal Bodies. There is a need of a comprehensive framework for self-assessment of these educational buildings/built environment and rating systems, so that stakeholders may assess their campus infrastructure for accessibility. The issues pertaining to climate, appropriate construction materials with techniques and timely maintenance of accessibility elements are critical to performance of any building/environment. The Rights of Persons with Disabilities (RPWD) Act, 2016, is a right based Act and it has empowered Persons with disabilities in many ways, there is a need to create awareness among the beneficiaries about their rights, awareness among the community and stakeholders about the laws and their duties towards the disabled in the society.

References

Department of Economic and Social Affairs Disability, United Nations. (2006). *Convention on the Rights of Persons with Disabilities.* https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/convention-on-the-rights-of-persons-with-disabilities-2.html

Department of Empowerment of Persons with Disabilities (DEPwD), Ministry of Social Justice and Empowerment, Government of India. (2021, December). *Draft National Policy for Persons with Disabilities.* https://disabilityaffairs.gov.in/upload/uploadfiles/files/Draft%20Copy%20New%20National%20Policy%20May%202022%20.pdf

Department of Empowerment of Persons with Disabilities (DEPwD), Ministry of Social Justice and Empowerment, Government of India. (2015, December,3).*Accessible India Campaign*. https://depwd.gov.in/accessible-india-campaign/

Ministry of Urban Development, Government of India. (2016). *Harmonized Guidelines & Space Standards for Barrier-Free Built Environment for Persons with Disability & Elderly Persons*. http://tcpo.gov.in/Harmonized-Guidelines

Ministry of Education (MOE), Government of India.(2020). *National education policy*. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

Ministry of Housing and Urban affairs (MoHUA), Government of India.(2021). *Harmonized guidelines & standards for universal accessibility in India.* https://niua.in/intranet/sites/default/files/2262.pdf

Ministry of education, Department of higher education, Government of India. (2020-21). *All India Survey on Higher Education (AISHE).* https://aishe.gov.in/

Punarbhava. (Accessed on 29-10-2020). National interactive web portal on disability. https://punarbhava.in

University Grants Commission (UGC), Ministry of Education, Government of India. (2022, June). *Accessibility Guidelines and Standards for Higher Education Institutions and Universities.* https://www.ugc.gov.in/pdfnews/8381868_Draft-Guidelines-UGC_20-Feb-2021.pdf