



“Reviewing Public Spaces Considering Accessibility For Specially Abled-A Case Study Of Bhubaneswar”

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Abstract-

Accessibility to public spaces remains a fundamental right for all individuals, yet it continues to be a significant challenge for persons with disabilities (PwDs), especially in urban India. This study critically reviews the accessibility of diverse public spaces in Bhubaneswar (BBSR), a rapidly growing smart city in Odisha, through the lens of universal design and inclusive planning. Focusing on physical, sensory, cognitive, and social accessibility, the research evaluates the current conditions of parks, transit hubs, government institutions, educational facilities, healthcare centers, marketplaces, and religious sites. Using both primary survey methods and secondary data sources, the study identifies infrastructural and design-level barriers that hinder the mobility, autonomy, and dignity of specially-abled individuals. By aligning observations with the Rights of Persons with Disabilities (RPWD) Act, 2016 and urban development norms, the research proposes strategic recommendations to enhance equitable access and foster a truly inclusive urban environment. The findings aim to inform policymakers, urban planners, and civic authorities towards actionable change in BBSR's public infrastructure landscape.

Keywords -

Accessibility, Inclusive Urban Design, Persons with Disabilities (PwDs), Bhubaneswar, Public Spaces, Universal Design, RPWD Act 2016, Barrier-Free Environment

1. Introduction -

1.1 General -

Public spaces are vital components of urban life, enabling social interaction, civic participation, and inclusive development. According to the Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, public spaces are defined as: "Areas that are accessible to all citizens, open for public use, and are intended for social, recreational, cultural, or economic activities. These spaces include streets, parks, plazas, and open spaces that can be used by people for various purposes like leisure, community events, or interaction, without any restrictions based on ownership or use."

As per the World Health Organization (WHO), the term "specially-abled people" (commonly referred to as people with disabilities) encompasses individuals who have long-term physical, mental, intellectual, or sensory impairments that, when interacting with various barriers, may hinder their full and effective participation in society on an equal basis with others. The WHO defines disability in the International Classification of Functioning, Disability, and Health (ICF) framework as:

Impairments: Problems in body function or structure (e.g., loss of vision, limb loss).

Activity limitations: Difficulties in performing tasks (e.g., walking, communicating, learning).

Participation restrictions: Problems engaging in life situations (e.g., work, education, social activities).

Creating an inclusive environment that removes barriers is essential to ensuring equal opportunities, accessibility, and dignity for all individuals. It is important to adopt a rights-based approach that emphasizes empowerment and inclusion, rather than viewing disability merely as a limitation. By fostering awareness, promoting universal design, and encouraging active participation, we can build a society where everyone is valued and no one is left behind. Inclusion is not just a policy—it's a shared responsibility.

However, persons with disabilities (PwDs) often face systemic challenges in accessing these environments due to physical, sensory, and infrastructural barriers. As per the 2011 Census, India is home to over 26.8 million PwDs, comprising 2.21% of the total population. In comparison, Odisha records a slightly higher disability rate at 2.96%, with 1,244,402 individuals identified as disabled. Within Odisha, Khurda district, which includes the state capital Bhubaneswar, reports 63,949 PwDs (2.84%), while Bhubaneswar (BBSR) alone accounts for 19,920 PwDs, or 2.25% of its population of 885,363.

1.2 Categories of Public Spaces As Per URDPFI Guidelines -

SI NO	CATEGORIES	SUB CATEGORIES
1	Recreational and Open Spaces	Parks,Playgrounds,Community parks,Sports field,City parks, Botanical gardens,Zoological parks,National parks,Reserved forest, Eco sensitive zones
2	Commercial Public Spaces	Plazas,Public markets,Shopping streets,Weekly bazaars,Hawker zones
3	Transportation-Related Public Spaces	Bus stands and terminals,Railway stations,Airports,Metro stations, Pedestrian pathways, skywalks, and underpasses
4	Institutional and Civic Spaces	Government offices and buildings,Cultural centers,Libraries,Museums Auditoriums
5	Heritage and Religious Spaces	Monuments and heritage sites,Temples, mosques, churches, and other religious structures,Ghats and waterfronts
6	Social and Community Spaces	Community halls,Convention centers,Wedding venues,Clubs and social gathering spaces
7	Waterfront and Environmental Public Spaces	Riverfronts,Lakesides,Beaches, Wetlands and mangrove areas

1.3 Categories of Public Spaces As Per URDPFI Guidelines –

SI NO	CATEGORIES	SUB CATEGORIES
1	Recreational and Open Spaces	Parks and Gardens,Playgrounds and Sports Complexes,Urban Forests and Eco Parks
2	Streets and Public Thoroughfares	Pedestrian Streets and Markets,Public Plazas and Chowks, Hawker Zones and Bazaars
3	Transport and Mobility Spaces	Railway Stations and Bus Terminals,Airports and Metro Stations Footpaths, Skywalks, and Cycling Tracks
4	Cultural and Heritage Spaces	Heritage Monuments and Sites,Ghats and Riverfronts, Libraries and Museums
5	Religious and Pilgrimage	Temples, Mosques, Churches, and Gurudwaras,Festival Grounds

	Spaces	and Procession Routes,Sacred Lakes and Holy Rivers
6	Institutional and Civic Spaces	Government Buildings and Public Offices,Town Halls and Civic Centers,Public Universities and Educational Campuses
7	Waterfronts and Natural Public Spaces	Beaches and Coastal Promenades,Lakes, Wetlands, and Mangroves Hill Stations and Public Camping Sites
8	Social and Community Spaces	Community Halls and Convention Centers,Public Art Spaces and Street Performances,Public Toilets and Urban Amenities
9	Temporary and Event-Based Public Spaces	Mela Grounds and Fairgrounds,Exhibition and Trade Fair Spaces Protest and Demonstration Grounds

1.4 Categories of Disabilities As Per WHO (World Health Organization):–

SI NO	CATEGORIES	SUB CATEGORIES
1	Physical Disabilities	Locomotor Disability , Neurological Disabilities
2	Sensory Disabilities	Visual Impairment , Hearing Impairment, Speech and Language Disability
3	Intellectual and Developmental Disabilities	Intellectual Disability (ID),Autism Spectrum Disorder (ASD),Specific Learning Disabilities
4	Mental and Psychological Disabilities	Schizophrenia and Psychotic Disorders,Bipolar Disorder and Depression,Anxiety Disorders and PTSD
5	Chronic Illness-Related Disabilities	Diabetes-Related Complications,Cardiovascular and Respiratory Disorders,Cancer and Autoimmune Diseases
6	Multiple Disabilities	Combination of two or more disabilities

1.5 Categories of disabilities as per ICF (International Classification of Functioning, disability, and health) :-

SI NO	CATEGORIES	SUB CATEGORIES
1	Physical Disabilities	Neuromusculoskeletal and Movement-Related Disabilities,Disabilities Due to Chronic Illnesses
2	Sensory Disabilities	Visual Impairment , Hearing Impairment,Speech and Language Impairment
3	Cognitive and Intellectual Disabilities	Intellectual Disabilities, Neurodevelopmental Disorders
4	Mental and Psychological Disabilities	Mood and Anxiety Disorders,Psychotic Disorders,Neurodegenerative Disorders
5	Multiple Disabilities	Deafblindness,Combination of physical and cognitive impairments,Conditions causing progressive functional limitations

1.6 Categories of disabilities as per rights of persons with disabilities (RPwd) act , 2016:–

SI NO	CATEGORIES	SUB CATEGORIES
1	Physical Disabilities	Locomotor Disability,Leprosy-Cured Persons,Dwarfism,Acid Attack Victims
2	Sensory Disabilities	Blindness,Low Vision,Deafness,Hard of Hearing,Speech and Language Disability
3	Intellectual and Developmental Disabilities	Intellectual Disability,Autism Spectrum Disorder (ASD),Specific Learning Disabilities
4	Mental and Psychological Disabilities	Mental Illness

5	Blood and Genetic Disorders	Thalassemia, Hemophilia, Sickle Cell Disease
6	Neurological and Chronic Disabilities	Multiple Sclerosis (MS), Parkinson's Disease
7	Multiple Disabilities	A combination of two or more disabilities

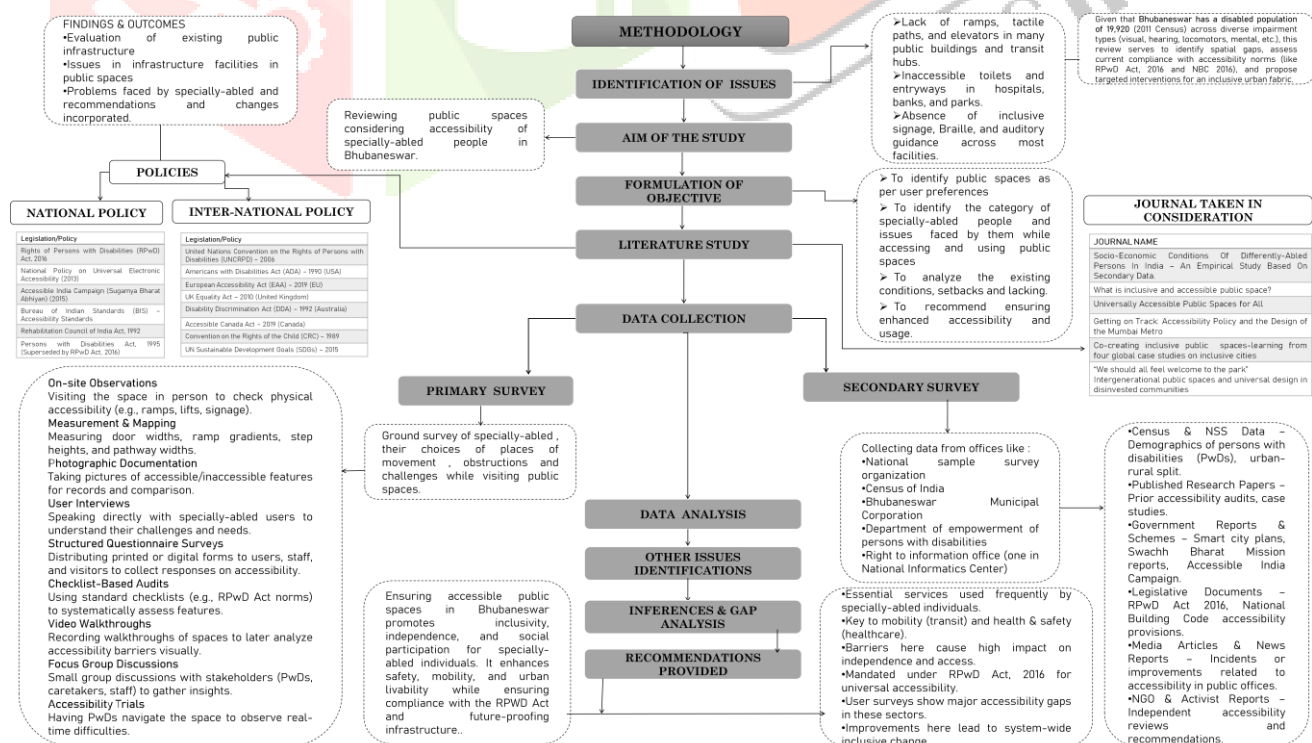
Despite the presence of progressive legislation like the Rights of Persons with Disabilities (RPWD) Act, 2016, which emphasizes the need for barrier-free access and inclusive infrastructure, ground realities often fall short—especially in urban public spaces. Bhubaneswar, a flagship Smart City, offers a unique opportunity to bridge this implementation gap by integrating universal design principles into its urban fabric.

This study aims to critically assess the accessibility of Bhubaneswar's public spaces for specially-abled individuals across diverse categories such as transit hubs, healthcare facilities, educational institutions, parks, marketplaces, and government buildings. It seeks to highlight accessibility gaps, document user experiences, and offer practical recommendations to enhance inclusivity in the city's rapidly evolving urban landscape.

This study holds critical significance in promoting inclusive urban development by addressing the often-overlooked accessibility needs of persons with disabilities in Bhubaneswar. By evaluating the design and usability of public spaces, the research contributes to bridging the gap between policy and implementation under the RPWD Act, 2016. The findings will offer evidence-based recommendations for planners, architects, and civic authorities to create environments that uphold dignity, autonomy, and equal access. As Bhubaneswar continues to evolve as a Smart City, this study reinforces the importance of accessibility as a cornerstone of sustainable and equitable urban planning.

2. Methodology -

Fig 2 : Methodology detailed structure



The methodology followed four key objectives:

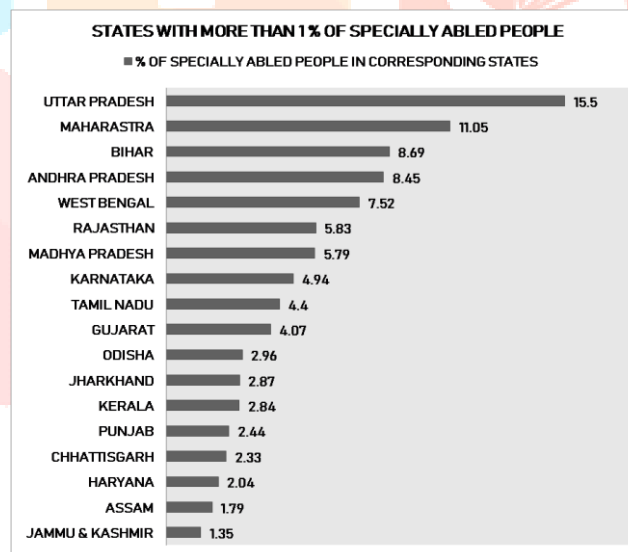
1. To identify public spaces as per user preferences.
2. To identify the category of specially-abled people and issues faced by them.
3. To analyze the existing conditions, setbacks and lackings.
4. To recommend enhanced accessibility and usage.

2.1 Assess inclusive accessibility in public spaces of Bhubaneswar–

Inclusive accessibility in public spaces ensures that persons with disabilities (PwDs) can equally participate in urban life without facing physical, sensory, or cognitive barriers. In the context of Bhubaneswar—a city aspiring to be a smart and inclusive urban center—accessibility remains a critical concern despite ongoing infrastructural advancements. Bhubaneswar has taken commendable steps toward enhancing accessibility, such as drafting street guidelines aimed at making the city completely accessible to all citizens, including PwDs.

Efforts like the Accessible India Campaign (Sugamya Bharat Abhiyan) have also been instrumental in promoting barrier-free environments nationwide. However, challenges persist. Many public buildings and spaces still lack essential features like ramps, tactile paving, and accessible restrooms, limiting the mobility and independence of PwDs. Moreover, while initiatives like the Mukhyamantri Bus Seva (MBS) scheme offer fare concessions to PwDs, the physical accessibility of buses and transit hubs requires continuous improvement to ensure seamless travel experiences. Addressing these gaps is crucial for Bhubaneswar to truly embody the principles of a smart and inclusive city, where every resident, regardless of ability, can navigate and engage with the urban environment independently and with dignity.

Fig 2.1.1: State wise percentile of specially-abled



[illegible]

able in Khurda District

District-wise Percentage of Persons with Disabilities (PWs) - Census 2011

District	Percentage (%)
Kandrapara	11.88
Jagatsinghapur	12.12
Dhenkanal	12.62
Sundargarh	13.12
Baleshwar	13.62
Puri	13.75
Jelone	13.75
Debagarh	14.12
Bhadrak	14.12
Khordha	14.38
Boudh	14.50
Kalahandi	14.75
Mayurbhanj	14.75
Bargarh	15.25
Cuttack	15.25
Nayagarh	15.25
Anugul	15.50
Jharsuguda	15.62
Subarnapur	16.38
Nabarangapur	16.38
Nuapada	16.88
Sambalpur	17.25
Galapatti	17.38
Malkangiri	17.38
Kandhamal	17.50
Balangir	17.75
Kendujhar	17.88
Koraput	18.12
Rayagada	18.38
Garjam	18.75

% of Persons with Disabilities

% of Persons with Disabilities (PWs) - Census 2011

Disability Type	Percentage (%)
Seeing	21.00
Hearing	18.90
Speech	5.10
Movement (Locomotor)	21.70
Mental Retardation	5.90
Mental illness	3.40
Any other disabilities	13.70
Multiple disabilities	10.10

In Bhubaneswar, despite its vision of becoming an inclusive smart city, public spaces still present significant barriers to accessibility for Persons with Disabilities (PwDs). These barriers hinder independent mobility, participation in public life, and access to essential services.

Public Space	Key Physical Barriers	Key Sensory Barriers
1. Transportation Hubs (e.g., Baramunda ISBT, Railway Station, Airport)	- Lack of ramps or steep non-compliant gradients - Uneven platforms and stair-only entries - No accessible ticket counters or elevators	- No visual display boards for hearing-impaired - Poor audio announcements for visually impaired users
2. Healthcare Facilities (e.g., AIIMS, Capital Hospital)	- Non-standard ramps, narrow doorways - Inaccessible toilets - No height-adjustable beds or diagnostic equipment	- Absence of Braille signage - No ISL (Indian Sign Language) support - Inaudible emergency alerts
3. Markets & Commercial Complexes (e.g., Unit-I Market, Esplanade Mall)	- Steps at entries, no lifts/escalators with wheelchair access - Narrow aisles and cluttered walkways	- Absence of tactile flooring - No contrasting color cues for low vision users
4. Religious Places (e.g., Lingaraj Temple, ISKCON)	- Steep steps, no ramps - Uneven flooring - No accessible washrooms or seating	- Lack of Braille scriptures or auditory guides - Crowded, echo-heavy spaces with unclear

Public Space	Key Physical Barriers	Key Sensory Barriers
		announcements
5. Educational Institutions (e.g., Utkal University, Schools)	- Multi-storey buildings without lifts - Narrow corridors and inaccessible blackboards - Lack of accessible hostels	- No Braille textbooks - Absence of auditory learning aids or ISL interpreters
6. Parks & Recreational Spaces (e.g., IG Park, Ekamra Kanan)	- Uneven walking paths - High curbs, no ramps at entry - No inclusive play equipment	- Lack of tactile maps - No sound indicators or signage for visually impaired users
7. Government & Administrative Offices (e.g., BMC, Collectorate)	- Inaccessible entrances - High counters, lack of ramps - Files and services not digitized or adapted	- No visual alert systems - Official forms not available in accessible formats (Braille/audio)
8. Banks & Financial Institutions	- No ATMs with ramp or voice-enabled features - Tall counters and inaccessible seating	- No Braille keypads or screen readers in ATMs - No ISL-trained staff or audio instructions
9. Amphitheaters & Event Grounds	- No accessible seating zones - Steep audience terraces or steps - No accessible pathways	- No assistive hearing systems - Poorly lit signage for wayfinding at night

The inaccessibility of public spaces in Bhubaneswar directly contravenes the provisions of the Rights of Persons with Disabilities (RPwD) Act, 2016, which guarantees equal rights and access to services, facilities, and opportunities. The lack of inclusive design and supportive infrastructure results in several critical exclusions for PwDs:

- Inability to access timely healthcare, as hospitals and clinics often lack ramps, accessible toilets, and navigation aids.
- Dependence on others for mobility, due to non-inclusive public transportation systems that are not designed for independent use by individuals with mobility or sensory impairments.
- Exclusion from educational and cultural participation, since institutions and recreational spaces do not accommodate diverse physical and sensory needs.
- Limited participation in financial and civic life, as banks, administrative offices, and civic institutions remain physically and digitally non-inclusive.

2.3 Rationale for Selection of Public Spaces & its detail evaluation -

- Transportation Hubs (e.g., Bus Stands, Railway Stations, Airport)
 - Critical for enabling independent mobility and regional connectivity.
 - First point of access to essential services such as healthcare, education, and employment.
 - Represents key public infrastructure where inclusive transit systems are vital.
- Healthcare Facilities (e.g., AIIMS, Capital Hospital)
 - Fundamental to timely medical access, particularly for those with chronic conditions or mobility impairments.
 - Often the most urgently needed service for PwDs and must be fully accessible in both infrastructure and communication.
- Markets & Commercial Complexes (e.g., Esplanade Mall, Unit-I Market)
 - Essential for daily living and economic independence, including shopping, employment, and social interactions.
 - Represents the intersection of commerce and accessibility, critical for inclusivity in urban livelihoods.
- Religious Places (e.g., Lingaraj Temple, ISKCON)
 - Important for spiritual and cultural inclusion, as these are major gathering spaces in the Indian context.
 - Ensuring access supports the right to freedom of religion and participation in social customs.
- Educational Institutions (e.g., Schools, Colleges, Universities)
 - Integral to long-term empowerment and skill development.

- Educational inclusion promotes equal opportunity from a young age and breaks cycles of marginalization.
- Parks & Recreational Spaces (e.g., IG Park, Ekamra Kanan)
 - Contribute to mental and physical well-being, particularly for individuals with limited indoor mobility.
 - Promotes social integration and leisure for people of all abilities.
- Government & Administrative Offices (e.g., BMC, Collectorate)
 - Access to these spaces ensures participation in governance, grievance redressal, and public schemes.
 - A vital domain where PwDs must exercise their citizenship rights and entitlements.
- Banks & Financial Institutions (e.g., SBI, Axis Bank branches)
 - Enables economic autonomy, access to pensions, DBT schemes, and personal financial management.
 - Financial inclusion is a critical component of dignified independent living.
- Amphitheatres & Event Grounds (e.g., IDCO Exhibition Ground)
 - Serve as venues for cultural expression, civic events, and public participation.
 - Inclusion here ensures that PwDs are not left out of social and community experiences.

Graph 2.3.1: Individual evaluation of public spaces accessed by specially abled in Bhubaneswar

Category	Key Locations	Observer's Perception	Specially Abled Perception	General Public & Staff Perception	Reasons for movement	User Preference Rank	Rank Category
Public Transport & Transit Hubs	Baramunda Bus Stand, Railway Station, Airport, City Bus Stops	- Basic ramps but blocked - Limited tactile paving - No auditory alerts	- Boarding difficulty - No signage - Lack of staff - High social rejection	- Untrained staff - Misuse of reserved seats - Impatient crowd	Mobility for daily activities, medical visits, reliance on public transport.	1	Very High
Healthcare Facilities	AIIMS, SUM, Kalinga, Apollo, AMRI, Capital Hospital	- Inconsistent ramps - Narrow corridors - No sign language support	- Long waits - No priority - Restroom access difficult	- Staff lack training - Frustration over delays	Medical check-ups, surgeries, assistive devices, therapy, disability health schemes.	2	Very High
Educational Institutions	KIIT, SOA, Utkal, BJB, XIMB, ITI, Schools, Libraries	- Few ramps - No elevators - No accessible materials	- No assistive tech - Group exclusion - Physical barriers	- Teachers untrained - Peer discomfort	Schools for specially-abled, vocational training, assistive learning tools.	3	High

Commercial Buildings	Offices, Hotels, Esplanade Mall	- No accessible counters - Lack of tactile/braille signage	- Difficult access to ATMs/counters - Lack of volunteers	- Low awareness - Social discomfort	To withdraw or deposit money from banks or ATMs To access services at offices (e.g., insurance, telecom, consultancies) To stay at hotels during travel or medical visits To shop for essentials at malls and retail outlets To access customer service desks for grievances or inquiries For employment, training, or interviews in corporate setups To access eateries or food courts in commercial spaces For recreation, leisure, or social interaction within malls or complexes	4	High
Bank & Financial Institutions	SBI, PNB, Canara, Cooperative Banks	- No ramps or signage - Poor queue system	- ATM access issues - No digital/in-person assistance	- Lack of staff awareness - Users frustrated with	Pension withdrawals, financial aid, banking transactions, accessibility	5	High

				delays	issues.		
Markets & Shopping Areas	Bapuji Nagar, Master Canteen, Sahid Nagar, Janpath, Street Shops	- Vendors block paths - No rest zones or accessible toilets	- Overcrowding - No designated routes or facilities	- Vendors unaware - Space constraints with PWDs	Daily essentials, groceries, assistive tools, preference for accessible open markets & accessible malls.	6	Moderate
Religious & Cultural Sites	Lingaraj, Rajarani, ISKCON, Ram Mandir, Museums	- No ramps - Heritage barriers - Stairs dominate layout	- No tactile maps - Limited religious inclusion	- Resistance to change - Assistive tools viewed as disruptive	Spiritual/social interaction, prayer gatherings, mental peace, accessibility barriers.	7	Low
Parks & Recreational Spaces	Biju Patnaik, Indira Gandhi, Ekamra Kanan, Buddha Jayanti, Sports Complexes	- Uneven terrain - Poor lighting - No rest benches	- Few ramps - No trained staff - Social rejection felt	- Discomfort from general users seeing PWDs use public tracks	Leisure, exercise, socializing, accessibility barriers in parks.	8	Low
Government & Admin Offices	BMC, Collectorate, Lok Seva Bhawan, Courts, RTO, Income Tax Office	- Navigation hard - No signage - Staff unaware	- No priority service - Difficult access - Sign language absent	- Staff bias - Other users resent PWD priority	Legal issues, disability rights cases, accessibility issues in courts.	9	Very Low

Graph 2.3.2: Compliance with RPwD Act & Universal Design Norms by specially abled in Bhubaneswar :

Public Space Category	Compliance with RPwD Act	Compliance with Universal Design Norms	Observations
Transportation Hubs	Partial compliance – ramps and lifts are inconsistently available	Poor signage, lack of tactile paths, and inaccessible ticket counters	Baramunda ISBT and railway stations lack full accessibility; audio aids missing
Healthcare Facilities	Mostly non-compliant – basic accessible features often missing	Washrooms and diagnostic spaces not PwD-friendly; limited tactile or visual guides	AIIMS has some facilities; Capital Hospital lacks standard infrastructure
Markets & Commercial Complexes	Minimal compliance – uneven entries, narrow aisles, no designated access routes	No inclusive parking, signage, or sensory navigation aids	Informal markets (e.g., Unit-I) are highly exclusionary in form and design
Religious Places	Non-compliant – stairs dominate, no ramps, no inclusive washrooms	Lack of Braille/ISL content; navigation for visually impaired nearly absent	Lingaraj Temple and ISKCON largely inaccessible for mobility or sensory disabilities
Educational Institutions	Mostly non-compliant – old infrastructure, no lifts, narrow staircases	Poor adherence to classroom/hostel design norms for PwDs	Utkal University and many schools lack inclusive access infrastructure
Parks & Recreational Spaces	Partial compliance – some entry ramps exist but limited play or sensory features	No tactile maps, adaptive play structures, or quiet zones	IG Park lacks universal pathway access; no inclusive equipment for children
Government Offices	Partial compliance – some ramps and elevators, but counters remain non-inclusive	Limited digital/physical service accessibility; poor signage	BMC office has basic access; others do not meet full RPwD criteria
Banks & Financial Institutions	Minimal compliance – no Braille ATMs, high counters	No screen readers or ISL-trained staff; digital services inaccessible	Public banks especially remain outdated in inclusive service design
Amphitheaters & Event Spaces	Mostly non-compliant – no designated PwD seating, uneven flooring	No assistive hearing or visual aids, and no tactile signage	IDCO Exhibition Ground lacks reserved viewing zones or smooth accessible entries

2.4 Recommend strategies to enhance accessibility across the city (on transit hubs & healthcare facilities)

We prioritize providing recommendations for transit hubs and hospitals because these facilities are essential to the daily functioning of urban life. Transit hubs manage large-scale human movement and require efficient design to ensure safety, reduce congestion, and enhance user experience. Hospitals, as critical healthcare providers, must maintain seamless access, operational efficiency, and patient-centered environments. Improving these areas has a broad and lasting impact on public health, mobility, and overall urban resilience.

In Bhubaneswar, transportation hubs and hospitals are critical areas that demand focused accessibility improvements for specially-abled individuals. Transport hubs such as the railway station, ISBT, MoBus stops, and airport are essential for mobility, enabling access to education, employment, and services. Without barrier-free infrastructure, these become zones of exclusion, limiting independence and

participation. As BBSR develops under Smart City and AMRUT missions, accessible transit systems are both a legal mandate and a reflection of inclusive urban planning.

Ensuring accessibility at transportation hubs in Bhubaneswar is critical to building an inclusive and equitable urban environment. This is especially important for individuals with physical, sensory, cognitive, or social impairments, as transport hubs serve as the backbone of urban mobility.

Improving hospital accessibility in Bhubaneswar is essential to ensure equitable healthcare for all, particularly for persons with disabilities. While initiatives like the Accessible India Campaign and Bhima Bhoi Bhinnakshyama Samarthya Abhiyan (BBSA) have laid the groundwork, a concerted effort is required to address existing gaps.

Table 2.4.1: Recommendations for Transit hubs in Bhubaneswar for enhanced usage by the specially abled :

Location	Key Accessibility Issues	Refined Recommendations
Baramunda Bus Stand	Lack of accessible restrooms Unclear signage insufficient waiting areas	• Install 2 wheelchair-accessible restrooms with grab bars; • 1800 mm+ wide non-slip paths - Barrier-free connection from entry to platforms & exits - No level differences without ramp/lift support • Upgrade 100% signage with Braille and LED backlighting • Add 20 additional waiting seats with proper turning radius for wheelchairs • Install audio-visual announcement systems at 3 zones • Deploy 4 trained accessibility support staff in 2 shifts. • Specially abled restrooms with tactile passage and guidance assistance • Smart elevators with Braille signage • Tactile pathways • On-site kiosks + online portal - Feedback forms in local languages - Timely follow-up and response mandate
Master Canteen Railway Station	Absence of tactile paths Inaccessible restrooms Poor visual guidance	• Construct 1 tactile pathway (100m) from entry to platform • Retrofit 3 restrooms with adapted sinks and bars • Replace 70% of existing signs with high-contrast and Braille-supported boards • Install audio-visual announcement systems at 3 zones • Deploy 4 trained accessibility support staff in 2 shifts. • Creating public & social awareness • Surveillance & security guidance • Accessible toilets and drinking water facilities • Trained staff assistance
City Bus Stops	No ramps No tactile support Lack of audio announcements Limited toilets	• Install ramps with @1:12 slope at 5 key stops • Lay 150m tactile path; implement audio announcement systems in at least 50% of city buses • Add 10 accessible restrooms across zones • Install audio-visual announcement systems at 3 zones • Deploy 4 trained accessibility support staff in 2 shifts. • Creating public & social awareness • Surveillance & security guidance at blind spots • Trained staff assistance

		On-site kiosks + online portal - Feedback forms in local languages - Timely follow-up and response mandate
Vani Vihar Bus Stop	No ramps or digital wayfinding Insufficient seating for specially-abled	- Provide 3 ramps (with railings) near primary access points - Install 8 digital display boards for wayfinding - Allocate 12 dedicated seating spaces with armrests and contrast color - Install audio-visual announcement systems at 3 zones - Deploy 4 trained accessibility support staff in 2 shifts. - On-site kiosks + online portal - Feedback forms in local languages - Timely follow-up and response mandate
BBI Airport	Lack of user feedback channels No structured assistance system	- Conduct quarterly audits of infrastructure usability - Deploy 2 feedback-enabled kiosks for PwDs - Add QR-code based grievance redressal at 3 key boarding zones - Install audio-visual announcement systems at 3 zones - Deploy 4 trained accessibility support staff in 2 shifts. - On-site kiosks + online portal - Feedback forms in local languages - Timely follow-up and response mandate

Table 2.4.2: Recommendations for Healthcare centers in Bhubaneswar for enhanced usage by the specially abled :

Hospital Name	Key Accessibility Issues	Recommendations
Capital Hospital	No assistance desk, limited staff support	- Addition of 1 assistance desk - Recruitment of minimum 3 support staff trained in disability assistance - Installation of 2 digital way finding screens with voice navigation - Retrofitting of 2 accessible restrooms. - Tactile pathways & Both side handrails at entry and corridors - Audio visual announcement - Surveillance and trained assistance
Apollo Hospital, BBSR	Assistance and sensory support missing	- Installation of atleast 2 sensory alert systems and provide 1 info kiosk for PwDs - Provision of minimum 10 accessible seating spaces - Trained 5 emergency staff in inclusive response protocols. - Tactile pathways & Both side handrails at entry and corridors - Audio visual announcement - Surveillance and trained assistance - Floor height ≤ 400 mm - Hydraulic lifts at emergency drop points - Door width ≥ 900 mm and turning space for wheelchairs

AIIMS Bhubaneswar	Lack of tactile paths and support staff	• Building of 120m tactile path • Deployment of atleast 2 trained support personnel on each floor • Installation of QR-code feedback panels on 3 floors • Retrofitting of all elevators with Braille buttons. • Tactile pathways and Both side handrails • Audio visual announcement • Surveillance and trained assistance • - Floor height ≤ 400 mm - Hydraulic lifts at emergency drop points - Door width ≥ 900 mm and turning space for wheelchairs
SUM Hospital	No signage, limited sensory and seating provision	• Installation of 10 signage boards with Braille • Minimum 5 more accessible waiting seats • Addition of 1 hearing induction loop at reception • Conduct monthly disability sensitivity workshops. • Tactile pathways • Both side handrails & Audio visual announcement • Surveillance and trained assistance
Kalinga Hospital	No tactile paths or sensory assistance	• Laying of tactile paths at 3 entry points • Integrate auditory navigation tools & Train 4 security guards for mobility aid usage • Place 2 assistance booths at OPD and Emergency.
Hi-Tech Medical College	No accessible restrooms, assistance desk missing	• Construction of 2 universal design restrooms • Installation of a help desk near reception • Provision of 6 accessible wheelchairs at entry & Adding contrast color flooring at 3 junctions.
Manipal Hospital	No tactile path and emergency support mechanisms	• Well Developed tactile path from entry to emergency unit • Setup automated emergency response signs • Upgrade 5 directional boards • Place 4 accessible seating spaces with armrests. • - Floor height ≤ 400 mm - Hydraulic lifts at emergency drop points - Door width ≥ 900 mm and turning space for wheelchairs

3. Conclusion -

In conclusion, the analysis of transit hubs and healthcare facilities in Bhubaneswar highlights critical shortcomings in ensuring inclusive accessibility for persons with disabilities. While the city's infrastructural development has advanced in recent years, this progress has not been equitably reflected in the creation of universally accessible public environments. The study's recommendations—such as the implementation of tactile and auditory guidance systems in transit zones, barrier-free physical infrastructure, accessible signage, and patient-centered assistive services in healthcare facilities—emphasize the urgent necessity of embedding universal design principles into urban planning.

Crucially, these measures are not only feasible within the healthcare and transit sectors but can also be effectively extended to all public spaces, including educational institutions, government offices, recreational areas, and commercial centers. Doing so would greatly enhance the independent mobility, safety, and dignity of persons with disabilities. Realizing this vision requires a multidimensional approach that combines inclusive policy enforcement, periodic accessibility audits, stakeholder engagement, and user-informed design strategies. Such steps are vital in transforming Bhubaneswar into a genuinely accessible and equitable city for all.

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