

Mainstreaming inclusion in Indian cities through robust monitoring and evaluation framework

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1. Introduction

Traditionally, cities have been attractive locations to live and work with a wide range of socio-economic opportunities and spatial experience. Now cities have evolved as complex ecosystems with their biotic (people) and abiotic (infrastructure, facilities), striving to be favourable and compatible with each other. While dealing with these complexities, cities often become incognisant to the needs and aspirations of the marginalised demographics, including persons with disabilities, the elderly, children and women. Lack of opportunities, inaccessible urban environments, absence of inclusive policies and insensitivity among social groups increases the vulnerability of these groups, filling them with latent uncertainties, concealed worries, and potential risks. For instance, Persons with disabilities often experience barriers to education, employment, and public services preventing them from improving their quality of lives as well as actively contributing to the economic growth of the city.

The Census 2011 of India estimates persons with disabilities to constitute about 2.21% of the total population¹ and is expected to exponentially increase in the upcoming national census with the threefold increase in the number of disabilities in the Rights of Persons with Disabilities Act, 2016. Out of these, about 31% reside in urban areas. The challenges are compounded with the intersectionality of age for the (above 60 years age 21% of the total disability population) and gender (women constituting about 44% of the disabled population). Although, with the highest percentage of persons with disabilities expected to be concentrated in the working age population, their inclusion and empowerment could become a potential contributor to the city's GDP.

Independent living has become a social phenomenon among the urban dwellers. The right based legislation also advocates independent living of persons with disabilities along with their socio-economic empowerment and active participation in all urban activities. This has substantially altered the needs and aspirations of these groups making it peremptory for the city to adopt the path of inclusive development and start building “cities for all”. The New Urban Agenda represents a shared vision for a better and more sustainable future – one in which all people have equal rights and access to the benefits and opportunities that cities can offer. The concept of inclusivity is integral to the Sustainable Development Goals, specifically, Goal 11 which calls for “inclusive, safe, resilient and sustainable” cities.

The World Bank defines the concept of inclusive cities as a complex network of multiple spatial, social and economic factors that are intertwined among themselves². The South African Cities Network states that an inclusive city offers all its citizens a decent quality of life: access to job opportunities, a safe and secure environment, clean water, healthcare, and education, as well as recreational activities³. Considering various definitions adopted worldwide by different organisations including ADB, WIEGO, it will be safe to infer that an Inclusive city would ensure the vulnerable groups have access to secure and dignified

¹ Ministry of Statistics and Programme Implementation, National Sample Survey 2016

² Inclusive Cities: Development News, Research, Data | World Bank” n.d.

³ Inclusive Cities - SA Cities” n.d

livelihoods, affordable housing, and essential services such as water/sanitation and electricity supply. The concept of inclusive cities requires a holistic approach to integrate inclusion as a cross-cutting approach to urban planning from policies & guidelines to implementation & provisions to monitoring & governance. In essence, an Inclusive City shall provide a conducive environment ensuring equal opportunities and scope for dignified, independent, and productive participation in various aspects of urban life for all citizens, including the vulnerable groups. The urban spaces, services, and systems will be equitable, accessible, safe, affordable, and culturally acceptable to all residents irrespective of physical, sensory, and cognitive abilities, gender, age or class.

The objectives of the study included (1) **to identify the gaps in existing urban development in India with respect to inclusion, particularly of persons with disabilities** and (2) **to develop a robust monitoring and evaluation framework for integrating inclusivity in the cities**. The exercise aims to identify and eliminate existing physical, social, cultural, psychological, and institutional barriers and shall ensure accessibility to a maximum number of urban spaces, services, and systems by all, the safety of the vulnerable groups, and improve the quality of life for all, especially the vulnerable groups. The framework, thus developed, further aims to create safe, accessible, and inclusive cities promoting empowered and independent living and create provisions for the socio-economic growth of all.

2. Methodology adopted

A detailed methodology is opted for development of the framework-

- i. A detailed study of existing literature including approaches, relevant acts, policies, successful examples across the globe and India. The study helped in
 - a. Identification of policy gaps and areas of interventions
 - b. Identification of important sectors of urban development relevant for inclusive development
 - c. Validation for the need for development of a robust framework for monitoring and evaluation
- ii. In the second step, correlation analysis amongst applicable guidelines, standards, policies, legal frameworks and international commitments of India, 23 components of the six critical sectors were identified.
- iii. Further, with the informal interviews with over 250 beneficiaries and key personnel interviews, in all 196 indicators were developed to measure the performance of any Indian City on aspects of Inclusion and universal accessibility.

3. Literature Review

3.1. Evolution of the concept of disability

A more humane and inclusive idea combining the aspects of medical and social model were proposed by International Classification of Functioning as against the unidirectional deterministic approach put forward by International Classification of Impairment, Disability and Handicap (ICIDH)⁴. The concept of disability evolved over time from 'segregation through institutionalisation' in charity model, 'normalisation' in Medical model to 'empowerment' in Social and Right based model to 'relativistic view' as proposed by Nagi model. The capability approach views the problem of disability in a broader socio-economic context and relates disability to availability of opportunities. The seven Global Principles of Universal Design presents the philosophy for Design for All⁵ and not only for persons with disabilities. Nine Indian authors from across fields formulated five principles of Universal Design for the Indian

⁴ (World Health Organization 2002)

⁵ (Burgstahler 2021)

context- Sahaj (Usable), Saman (Equitable), Sanskritik (Cultural), Sasta (Economic) and Sundar (Aesthetic) . Universal Design India Principles (UDIP) address the needs of diversity of Indian demographics as per age, gender, disability, caste, class, religion, poverty and urban/rural background⁶.

3.2. Inclusive policies and guidelines

In 1976, the UN General Assembly identified the demand for creation of an action plan with a focus on equal opportunity, disability prevention, and rehabilitation at the national, regional, and global levels. Since then, a number of policies and frameworks have been adopted with consideration to persons with disability and other marginalised groups of elderly, children and women.

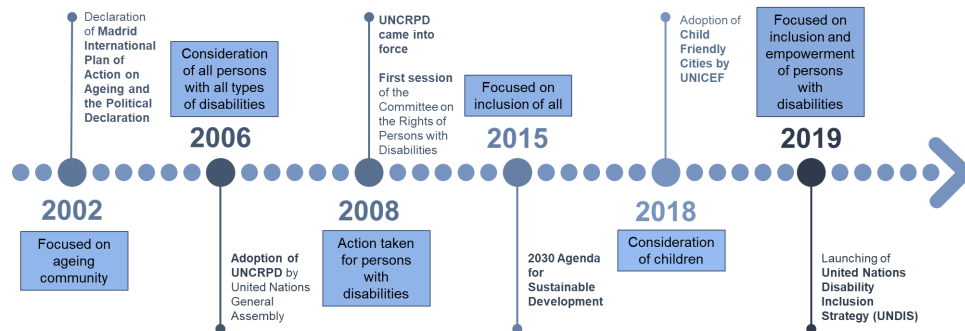


Figure 2: Timeline of the international policies ⁷

In India, the Rights of Persons with Disabilities (RPwD) Act, 2016 has been one of the most progressive laws across the globe, based on the recommendations of the UN Convention of Rights of Persons with Disabilities. The Act succeeded the Person with Disabilities Act of 1995, and brought in a threefold increase in disabilities including conditions and invisible disabilities like specific learning disabilities, autism spectrum disorders, acid attack victims, hard of hearing, speech and language disability etc. The Act redefined important terms such as ‘barriers,’ ‘communication,’ ‘discrimination’ in the Indian context. Additionally, the act advocated the right to access important aspects of urban life including education, employment, mobility, infrastructure services, communication, and recreation. The Act also incorporated mechanisms for awareness creation and grievance redressal.

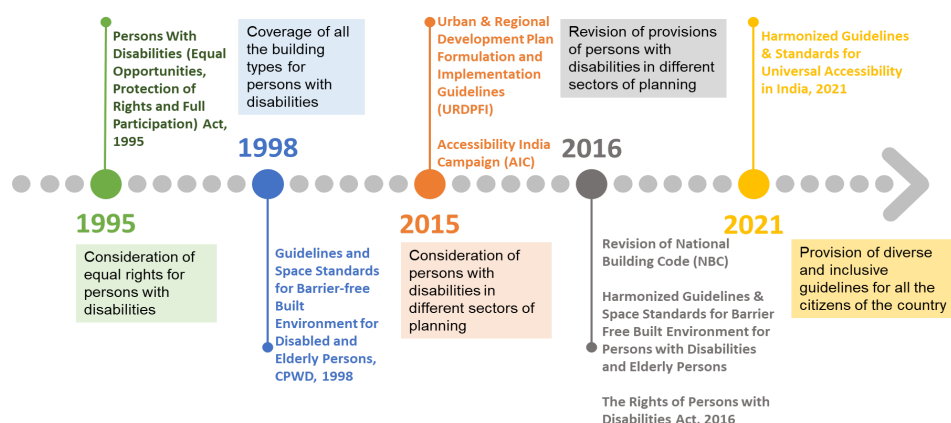


Figure 3: Timeline of Indian Inclusive Policies ⁸

As a commitment to the convention, the ministry also took up auditing of the built environment as well as formulation of Harmonised Guidelines and Space Standards for Barrier Free built environments for persons with disabilities and elderly, 2016. The guidelines

⁶ (Khare, Mullick and Raheja 2011)

⁷ Compiled by authors

⁸ Compiled by authors

were not only recognised in the RPwD Act ,2016 but also came in handy in the implementation of the aspirational campaign of the Accessible India Campaign (AIC) of the Government of India. It was one of the flagship campaigns completely dedicated for empowerment of persons with disabilities, has facelift the status of accessibility in the built environment (public buildings), public transport and ICT (governance) for persons with disabilities. Many other interventions have taken up to make urban living easy for persons with disabilities in the recent times including Sugamya Pustakalaya under Digital India Mission to initiative for creation of inclusive infrastructure under the Smart City mission of Government of India.

4. Global and National best practices

Around the world, different countries have enabled various accessible approaches to ensure the inclusivity of all the citizens, in particular the persons with disabilities. The global accessible guidelines have focused on a single or multiple sectors to provide an inclusive environment to its citizens.

Table 1: Accessibility guidelines in the world⁹

| Accessibility guidelines | Sectors | Learnings |
|--|---|--|
| Accessibility Master Plan to create a user-friendly built environment, Singapore | Mobility Livelihood IT Connectivity, digitization and citizen participation Tourism | <ul style="list-style-type: none"> Provides support to the needs of persons with disabilities for training, employment, and information and referral to schemes and services. Dedicated transport service for persons with disabilities. Tech Able, located at the Enabling Village, showcases a wide range of Assistive Technology (AT) devices, highlighting the possibilities of AT for work, learning and living. Provision of Access Maps to offer critical information to a traveller on accessibility |
| Special Action Plan for Accessibility, 2002, Spain | Mobility and public transport Citizen's participation Tourism | <ul style="list-style-type: none"> Upgradation of public transport accessibility. Enabling of public participation |
| Universal Design 2020 Plan, Japan | Public amenities and services Outdoor environment Public transport IT Connectivity Tourism | <ul style="list-style-type: none"> The guidelines focused on accessible amenities, Enhanced Amenity Seats, effective drainage and waste bins. Increased manoeuvrability in public places and public transports for persons with disabilities. |
| Colour Coded Accessibility Map , Queenstown, New Zealand | Outdoor environment | <ul style="list-style-type: none"> The map provides colour-categorised roads and street networks that will serve as a guide for new residents and visitors who have walking |

⁹ Compiled by authors

| | | |
|---|---------------------|---|
| | | difficulties or use a wheelchair, mobility scooter or pram. |
| World's Largest' Braille and Tactile Network for Vision Impaired Pedestrians, Australia | Outdoor environment | <ul style="list-style-type: none"> Helped visually impaired pedestrians to move around the city more independently and safely. |
| Accessible Housing-Supportive Housing for Persons with Disabilities, New York, USA | Housing | <ul style="list-style-type: none"> Provision of affordable rental housing for homeless persons and persons with disabilities and mental aids Grant to subsidies |
| Safe Access to Schools for Disabled Children, Kenya | Mobility | <ul style="list-style-type: none"> The plan addressed the difficulties of disabled children and improved the safety around schools. |

Numerous Indian cities like Delhi, Bhubaneswar, etc. have implemented a number of inclusive measures (Table 2). These procedures are essential for determining the particular requirements of an Indian city. The case studies demonstrate that education, outdoor environment, mobility, and recreation are the key areas that have seen intervention.

Table 2: Inclusive interventions in Indian cities¹⁰

| Area of accessibility intervention | Sectors | Learnings |
|---|-------------------------------|--|
| Bhima Bhoi School for Blind, Bhubaneswar, Odisha | Education | <ul style="list-style-type: none"> Special school for blinds with accessible physical infrastructure. Provision of talking library to make books accessible to all. |
| Dilli Haat, NCT Delhi | Outdoor environment | <ul style="list-style-type: none"> Presence of ramps and mergers bordered with railings throughout the market Accessible ticket counter |
| Pedestrianisation of Streets, Pune, Maharashtra | Outdoor environment | <ul style="list-style-type: none"> Accessible street design for senior citizens, people using wheelchairs, crutches, walkers, and visually or hearing impaired. |
| National Career Service Centre for Differently Abled, Bhubaneswar, Odisha | Livelihood | <ul style="list-style-type: none"> The center provides educational, vocational and rehabilitation needs of PWD. |
| Delhi Metro Rail Corporation, NCT Delhi | Mobility and Public transport | <ul style="list-style-type: none"> Provision for wheelchairs with extra wide automatic flap gates Tactile paths for the visually impaired Lifts with wide access doors, hand rails, call buttons in Braille |

¹⁰ Compiled by authors

| | | |
|--|-------------------------------|---|
| Delhi Transport Corporation Buses, NCT Delhi | Mobility and Public transport | <ul style="list-style-type: none"> Provision of low-floor buses Presence of levelled Bus Q Shelters |
| "All Abilities" Children Park, Visakhapatnam, Andhra Pradesh | Recreation | <ul style="list-style-type: none"> Provides opportunity for all park users Dedicated space with multiple levels of play |

It is clear from the several illustrations of inclusive interventions provided in Table 2 that Indian cities have begun to move toward inclusive design. The inclusive programmes in the cities, however, are not all-encompassing. Additionally, due to the vast differences in population, customs, traditions, culture, and living conditions, each city's needs are unique. Therefore, it is significant to consider the accessibility, safety and inclusivity in all the sectors of urban services.

The Indian case studies in multiple cities highlight the success in the different urban services. The case studies also show that each Indian city is expected to perform differently. These cases are used to identify the different components that needs intervention in the Indian cities.

5. Identification of sectors for intervention

To analyse the Accessibility, Safety, and Inclusivity of a city and its services, the components are extracted from the above discussed national and international frameworks, acts, guidelines, standards, and best practices. This is the first stage for identifying the sectors for intervention in the existing planning policies. The specified components are modified to align with the provisions of the Rights of Persons with Disabilities Act 2016 and other prevailing national policies and programmes. Each sector comprises relevant components and subsequent indicators required to quantify. Each sector is further subdivided into components. Therefore, a total of six sectors and 23 components are selected to implement the inclusivity, as described in figure 4.



Figure 4: Sectors and components used in Inclusive City Framework¹¹

¹¹ (Ban, et al. 2021)

6. Formulation of Inclusive City Framework

After the identification of the 6 sectors for intervention, the principles of safety, accessibility, and inclusivity should be included into the process of physical, institutional, social, and economic development to prepare a comprehensive urban development. In order to achieve urban transformation, the ULBs need to frame the vision for inclusion. This is the second stage to ensure inclusivity in the Indian cities. The Inclusive City Framework includes

- (i) Inclusive city checklist and
- (ii) Inclusive City Scoring.

7. Inclusive city checklist

The six sectors identified for intervention can be used by the Urban Local Bodies for undertaking a strategic accessibility analysis of the city and highlighting the priority areas. The components identified for each sector are assessed through the development of indicators. The indicators act as a checklist for assessing the inclusivity performance of an urban area.

7.1. Development of indicators

After the identification of the six sectors and 23 components, the various indicators to measure each of the component was done. The checklist was prepared after a structured interview with 250 beneficiaries and personnel like the members of Town and Country Planning Organisation of India, professionals like architects and planners and officials of various departments associated with the urban services. With a thorough review of feedback from all the stakeholders, 196 indicators were identified (Refer Table 4 for the number of indicators in each sector).

8. Inclusive City Score: Star Rating

The Inclusive City Score is an important step in determining a city's level of inclusivity. The first step is to alter the data to achieve parity between indicators that are positively correlated with the indicators of inclusivity / safety (as the case may be) and those that are negatively correlated with it.

As previously stated, the indicators will produce different types of responses, therefore they are not comparable in their raw form. Since the responses have various units, it is necessary to normalise the data before attempting to aggregate. Ideally, the normalisation technique can be used to convert all of the data into dimensionless numbers or numerical scores. The following conversion factors and ranges have been used.

Table 3: Numerical scoring for each type of response

| Range for percentage / ratio type responses | Qualitative responses- level of satisfaction | Binary responses | Numerical Score |
|---|--|-----------------------------------|-----------------|
| > 90 % of desired value | Very satisfied | Accessible or yes | 5 |
| 80 – 89 % of desired value | Quite satisfied | - | 4 |
| 70 – 79 % of desired value | Moderately satisfied | Partially accessible or partially | 3 |

| | | | |
|-----------------------------------|--------------------|----------------------|---|
| 60 – 69 % of desired value | Not much satisfied | - | 2 |
| 50 – 59 % of desired value | Just acceptable | - | 1 |
| <50% | Not acceptable | Not accessible or no | 0 |

Following the above conversion factor, a city can get a maximum score of 5 and minimum of 0 against each indicator.

Table 4: Range of values for each sector

| Sectors | No. of Components | No. of Indicators | Range of value for sectors | |
|--|-------------------|-------------------|----------------------------|------------|
| | | | Minimum | Maximum |
| Housing, social and physical infrastructure | 6 | 67 | 0 | 67*5 = 335 |
| Outdoor environment | 4 | 24 | 0 | 24*5 = 120 |
| Livelihood | 3 | 16 | 0 | 16*5 = 80 |
| Urban mobility & public transport | 5 | 40 | 0 | 40*5 = 200 |
| IT connectivity and digitalization and Citizen participation | 3 | 25 | 0 | 25*5 = 125 |
| Tourism and recreation | 2 | 24 | 0 | 24*5 = 120 |
| Total | | 196 | | 980 |

Considering the above maximum and minimum sector scores, the cumulative score of a city can be obtained. Based on the **cumulative city score**, the following **star-rating** is proposed. Considering the maximum achievable value of 980, the lower limits for each star are kept as 882 (90% of 980), 784 (80% of 980), 686 (70% of 980) and 588 (60% of 980). Ranges are mentioned in the following table. The lowest score considered for a city to be eligible for any star rating is 490 (50% of the 980 i.e., maximum achievable value).

Table 5: Star rating based on cumulative scores

| Cumulative Score received by city | Star marks |
|-----------------------------------|------------|
| 882– 980 | ***** |
| 784 – 881 | **** |
| 686 – 783 | *** |
| 588– 685 | ** |
| 490– 587 | * |

9. Application of the framework

The Inclusive City Framework is an easy mechanism to determine the level of inclusivity of any Indian city. The framework duly considers the wide variety of requirements of the different categories of persons with disabilities, elderly, children and women. The framework encourages cohesive accessibility and a seamless travel chain from a person's place of residence to the street, to public transport services, on the transport vehicle, to the pick-up location, to the destination building, inside the destination building to the room where the intended function would take place, and finally to the function itself and back home.

The framework will act as a robust mechanism to the policy makers, officials of Urban local bodies, Development Authorities, Public Works Department and Special Purpose Vehicles, professional architects / town planners / civil engineers, officials of Public Health Engineering

department and Public Sector Undertakings working in the field of providing urban services and Disability Officers at state and district level. Implementation of ICF will facilitate India to achieve its commitment to the international mandates of inclusive design. The ICF will enable sector-by-sector evaluation of current cities in terms of safety, accessibility, and inclusivity and serve as a planning tool for safe, accessible, and inclusive green-field cities. It was developed with the aid of existing Indian policies and will be implemented at all levels. It will also help in identification and application of transformative policies and projects with the highest possible impact on-

- accessibility to maximum number of urban spaces, services and systems by all
- safety of the vulnerable groups
- improving the quality of life for all, especially the vulnerable groups.

10. Conclusions

The study provides a holistic and robust framework at the city level for mainstreaming the persons with disabilities along with elderly, children and women. The Inclusive City Framework (ICF) is aimed at ensuring inclusivity in all the 6 sectors for intervention. The framework includes the preparation of an inclusive city checklist against the indicators identified for each of the 6 sectors. The inclusive city scores are calculated to give the rating of the cities. The ICF shall be implemented by the Urban Local Bodies through the formation of an Advisory Forum and Inclusive City Cell. The framework considers the participatory approach and shall enable the Citizen Perception Survey for ensuring a holistic development in the domain of Inclusive City. The Inclusive City Planning principles can be integrated into urban retrofitting or redevelopment projects /sectoral plans and projects, pan-city plan (Developmental/ Master Plan) and greenfield city/project plan.

11. References

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