



PLANNING AND DESIGNING ACCESSIBLE MAJOR PUBLIC SPACES FOR DIFFERENTLY ABLED (A CASE STUDY OF PATNA)

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Abstract

The purpose of this study is to offer urban planning techniques that are suitable for differently abled requirements. In order to do so, it examines the issues that physically challenged persons, in particular, face when attempting to live in Patna. An area or collection of services that everyone can use with pride and as much independence as feasible. The term "environment" refers to things like buildings, roads, parks, gardens, and other locations, as well as services, modes of transportation, everyday items, etc. Visually impaired and locomotive impaired are two categories selected as target group. As Bihar has the third highest disabled population rate of 8.69% & since Patna being the capital of it has high number of disabled population so identifying their problems and giving suitable proposals for their easier independent movement. The barrier-free design should be used to allow access to people with disabilities.

Highlights

As Bihar has the third highest disabled population rate of 8.69% & since Patna being the capital of it has maximum number of disabled population among all district but discrepancy in barrier free access is seen in the major public areas that has the footfall of disabled.

Keywords:-Urban Planning, Differently abled, feasible, Visually impaired, Locomotive impaired, Barrier free design, Independent movement.

1. Introduction

A barrier-free environment allows individuals with disabilities to access built-in amenities and move about in safety and freedom. Around 1 billion individuals, or 15% of the world's population, are disabled, and 80% of them reside in developing nations. The UN estimates that there are 285 million blind people and 70 million deaf people worldwide, but these numbers are uncertain because there is no consensus on what counts as being blind or deaf. Cognitive impairments also range from learning disabilities to dementia, after a recent survey done by WHO indicates that 76% and 85% of people living with serious mental disorders in developing nations that not receive treatment. The aim is to give Planning Proposal to Create More Accessible major Public Space i.e: commercial areas recreational areas and public buildings for visually impaired and locomotive impaired in Patna. However, the primary goal of this essay is to offer useful suggestions for the social, physical, and geographical enhancement of cities for the benefit of individuals with physical disabilities.

Differently abled people	Male	Female	Total
GLOBAL	700 MILLION	300 MILLION	1 BILLION
INDIA	12.6 MILLION	9.3 MILLION	21.9 MILLION
BIHAR	13,43,100	9,87,909	23,31,009
PATNA	74,994	55,204	1,30,198

Table1: Census data (2011) showing disabled population at global, India, Bihar and Patna level source- survey Data

2. Background study

The total area of Patna is 136 sqkm (53sq.mi), Out of this, **the municipal area constitutes 104.2 sqkm (40 sq. mi)**, while the sub-urban area constitutes 36 sqkm (14sq.mi).

Patna Municipal corporation	Male	Female	Total
Population	10,87,285	9,61,871	20,49,156
Literates	8,27,725	6,57,02	14,84,749
Literacy rate	86.95%	77.96%	82.73%

Table2- Demography of PMC

source- survey Data

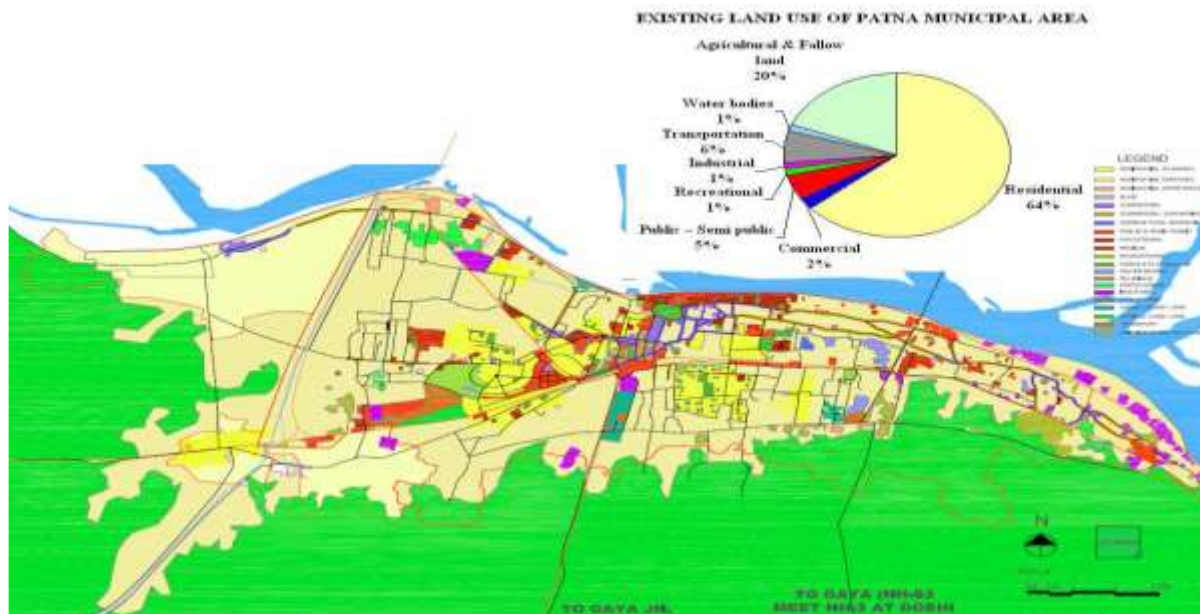
3. Objectives

This paper aims to identify the problems faced by differently abled and make an inclusive approach for their easy mobility.

- ❖ To emphasis on 2 groups of people i.e; blind and locomotive differently abled persons

- ❖ To identify the problems faced by the disabled people while entering into the public buildings , recreational areas and commercial areas.
- ❖ To analyse and find the gap by studying existing scenario of infrastructure provided for differently abled people.
- ❖ To provide safer , easier environment for differently abled that will help in their independent mobility .

4. Quantitative aspects of commercial , public and semi-public and recreational areas



Map 1: : Existing landuse map of patna Municipality

Source: Kumar, S. (2015). Study & analysis of urban green spaces and an integrative approach to sustainable development in historic city Patna 2. Benefits of Urban Green Spaces. International Journal of Advanced Research, 3(4), 66–75.

As per the existing landuse map major commercial ,public and semi-public areas are seen in CBD area of Patna. These areas are highly accessed by the differently abled due to the presence of commercial and public buildings.

5. Methodology

- Identification of the problem
- Aim of study
 - To give Planning Proposal to Create More Accessible Public Space for Differently Abled People in Patna
- Formulation of objective
 - To find the gap by studying existing scenario of infrastructure provided for differently abled people.
 - To give planning proposal to create more accessible public spaces using standard guideline that improves the existing condition and full fill needs of differently abled people

- Case study
 - Findings and outcomes
 - Issues in Infrastructure facilities in public places
 - Problems faced by disabled
- Data collection
 - Primary survey
 - Secondary survey
- Data analysis
- Issue Identification
- Proposal and recommendation

6. Data Base

A field survey of 400 sample size was done to analyse the present scenario of the area.

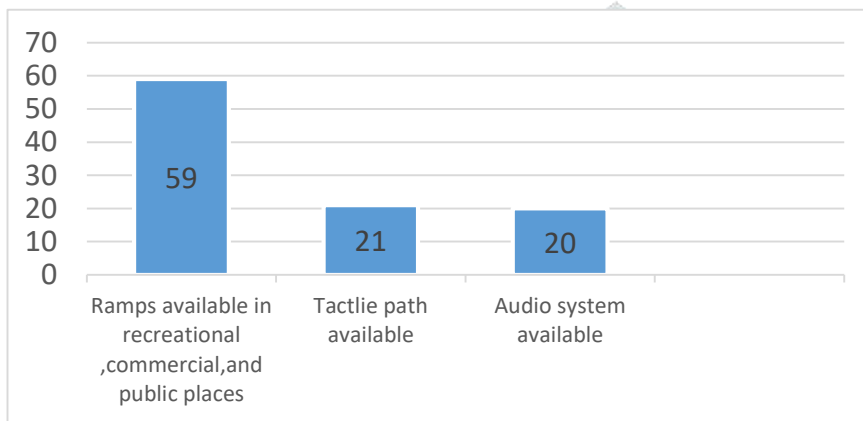


Figure 1: shows the availability of facilities for the differently abled Source: survey data

After the survey it was found that ramps available 59% ,tactile path available is 21% and audio system available is 20%.

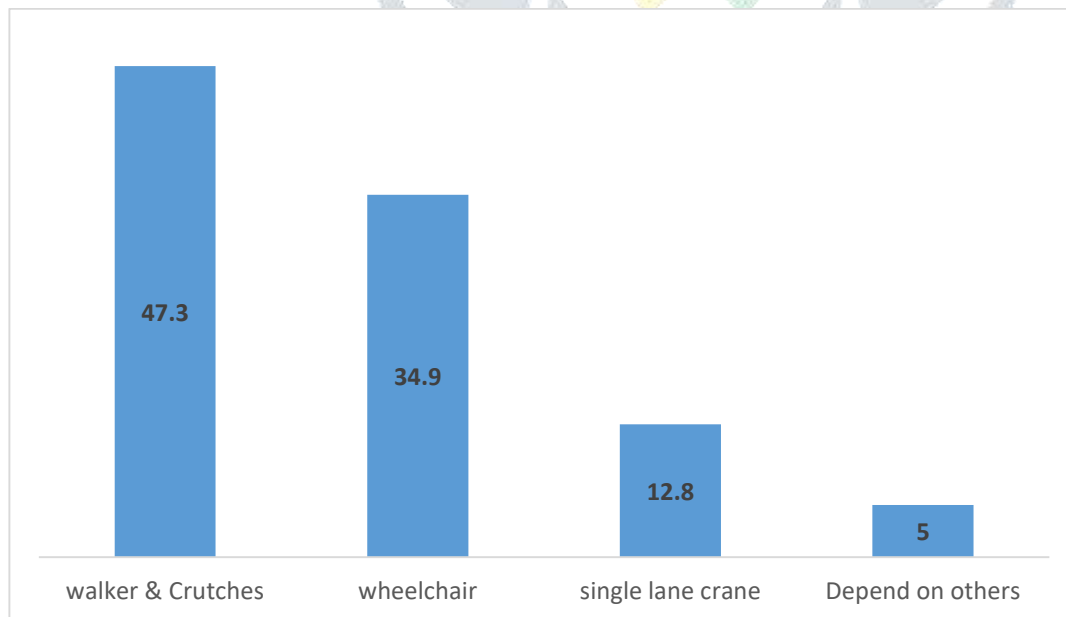


Figure 2: shows the device that differently abled use to move Source: survey data

47.3% of disabled population uses walker & crutches for their movement . However wheelchair movement of disabled persons is 34.9%.

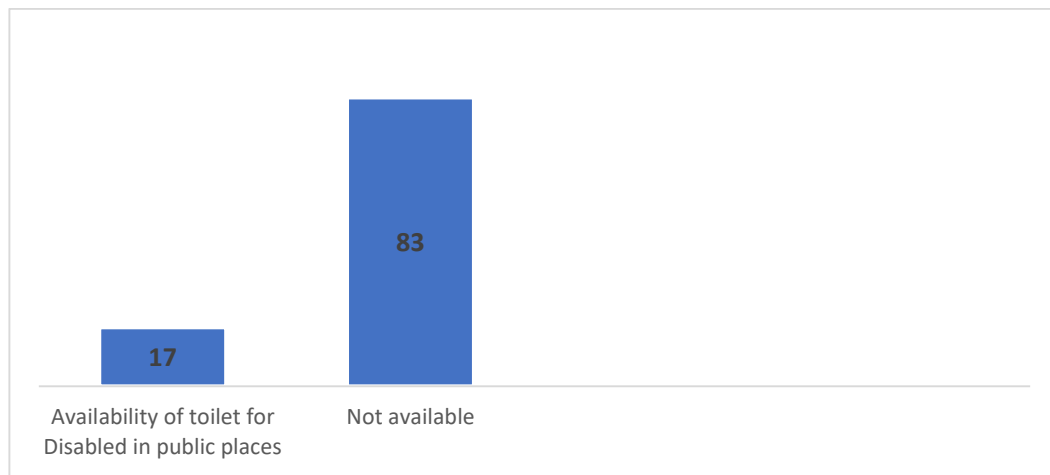


Figure 3: shows the availability of and non- availability of toilets in public places for the differently abled

Source: survey data

The improper presence of structural barrier and inadequacy in infrastructure provision needs to be improvised for the better independent movement of differently abled.

*There can be some variation in data found.

7. Recommendations

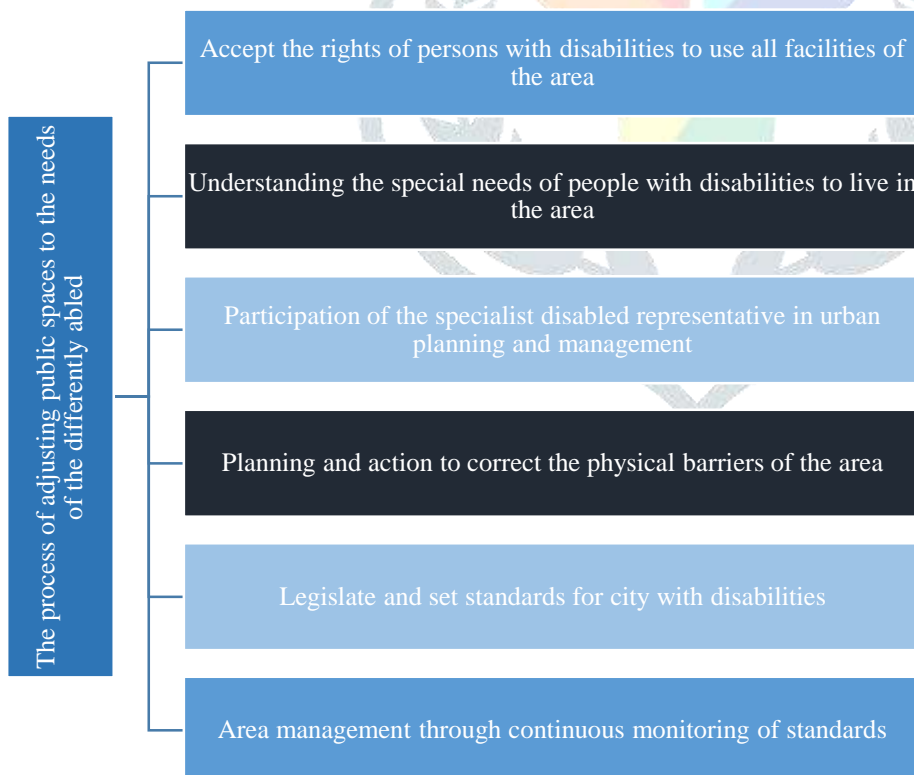


Figure 4: shows process of adjusting cities with physical disabilities

Source: Shahraki, A. A. (2021). Urban planning for physically disabled people’s needs with case studies. Spatial Information Research, 29(2), 173–184. <https://doi.org/10.1007/s41324-020-00343-9>

(Shahraki, 2021)

❖ **Mobility devices**

- People who use mobility aids, such as wheelchairs, crutches, and walkers, as well as those who need assistance from others when walking, should have access to enough space.
- The range of reach (forward and side; with or without obstruction) of a person
- in a wheelchair should be taken into consideration

❖ **Foothpath**

- Provision of non –slippery floor surface.
- Be along the entire length of road.
- Should not be high from the road or there must be a small incline plane for wheelchair users to cross the roads.
- Tactile blocks should be laid along the road so as for the easy independent movement of visually impaired.

Preferably have well-defined edges of paths and routes by use of different colours and textures and warning blocks at the end of the path

❖ **PUBLIC TRANSPORTATION & BUS STOP**

- Directional sign as well as braille services should be installed to direct differently abled persons to access .
- As in the study area ,provision of the bus shelter and also to make barrier free for differently abled, seating area should be of low height and space for wheelchair users.
- Guiding blocks should be provided along the accessible walkway from the bus stop to building entrance to aid the visually impaired person.
- Should have lower floor ,handrail and footlight installed.
- Have apparatus such as foldable ramps installed in the doorway for mobility impaired.
- Space for wheelchairs should be provide in an appropriate position without preventing other passengers from getting on and off.
- Location of that space should be as indicated ,inside and outside the bus using standard symbols for wheelchair accessibility.
- Wheel stoppers and wheelchair safety belts should be provided.
- Audio system should be installed .

❖ **COMMERCIAL BUILDINGS AND PUBLIC BUILDINGS(GOVERNMENT & PRIVATE OFFICES)**

- Commercial and public buildings should have space for differently abled people movement with ramp and tactile path at entrance.
- Lift for wheelchair users should be provided.
- Provision of separate toilet for differently abled.
- A separate cash counter should be provided for differently abled in commercial buildings.
- Public buildings should have provision of slope , lift , small cubicle offices on ground floor for differently abled.
- Provide signage in ramps or lifts for differently abled people (easy accessibility of wheelchair users and visually impaired) in public buildings.

❖ **RECREATIONAL AREAS**

- Provision of separate entrance with ramp ,signages , guiding rails and tactile path for easy movement of ambulatory people and visually impaired.
- The benches should be of low height for differently abled.

- Provide exercise facilities and related accessories for the differently abled.
- Provision of accessible public toilets.
- Barrier-free environment for differently abled , also providing physiotherapy facilities.



Figure 5:shows conceptual diagram for recommendation need to be done

Source: survey data

8. Conclusion

This study clarified why urban planning, design, and development are necessary for people with physical disabilities. The results show that these physically challenged people significantly emphasise the value of barrier-free access in the built environment on empowerment, and that facilitators and policy makers agree.

Currently, Patna's public buildings and public spaces do not adequately implement barrier-free access, which is undesirable and has had a significant negative impact on the empowerment of people with physical disabilities. Additionally, the significance of barrier-free design is extensively emphasised in order to empower them. The physical and psychological empowerment of a physically challenged person made possible by adequate access reflects this. The ability to participate and feel in control has increased, and eventually a disabled person can contribute positively to society. In conclusion, "Barrier Free Design" in the built environment shows a good association with the empowerment of physically challenged people based on these research findings.

The data show that those with leg disabilities are the group who depend on public facilities for access and who say that Patna's accessibility standards are subpar. As a result, this element must be taken into account, and more care should be taken to create appropriate ramps, hand railings, suitable floor treatments, and other barrier-free approaches that will enable people with disabilities in their legs to access public facilities. Additionally, the majority of disability development initiatives in the nation still prioritise rehabilitation, giving, treating, and turning the disabled into passive recipients. However, these initiatives do not lead to "empowerment" because they approach the disabled person from a "charity" and "medical" standpoint.

The government should improve the data base on disabled people because it now presents a significant obstacle to planning for them. In order to achieve the empowerment goals for people with disabilities through barrier-free design, "Equity in Planning" is a fundamental requirement. The current building regulating system is seriously lacking the "Accessibility Audit" tactic. As the primary "user" group of this

cultural transmission, it is crucial to include physically challenged people in Patna in the process of developing, teaching, researching, and correcting. National programmes should forcefully shift away from the conventional methods and toward the "Social" perspective, which emphasises "Inclusiveness," and the "Citizenship" perspective, which ensures empowerment.

It is important to frequently practise empowering people with physical disabilities through barrier-free accessibility since it raises both the quality and quantity of productive citizens in the nation. As a result, the Western Province's value system needs to be adjusted and planning should be incorporated into development agendas since the inclusion of empowered impaired people strengthens the mainstream development activities.

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