PLANNING FOR PERSONS WITH DISABILITIES

DELHI

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BP/727/2017

Bachelor of Planning

2017 -2022

Department of Physical Planning

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I, **Aatish Kumar**, author of the thesis titled '**Planning for Persons with Disabilities, Delhi,** hereby declare that this is an independent work of mine and is free from plagiarism. It has been carried out towards partial fulfilment of the requirements for the award of the Degree of Bachelor of Planning, School of Planning and Architecture, New Delhi, India. This work has not been submitted to any other institution for award of any other degree/ diploma.

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CERTIFICATE

This is to certify that the thesis titled '**Planning for Persons with Disabilities, Delhi** has been submitted by **Aatish Kumar, BP/727/2017** in partial fulfilment of the requirements for the award of the degree of Bachelor of Planning.

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ACKNOWLEDGEMENTS

I would like extend sincere regards to the people who have made this research work what it has come out to be. Foremost I would like to thank my supervisor, Mr. Parul Sharma, whose guidance and the will to get the best out of me inspired me to work to the best of my abilities. Without his constant push, from the initial stages of formulating the topic till its completion the work would not have reached where it is now. I would also like to extend my sincere regards to my Co-Guide Dr Poonam Prakash for whose expertise, understanding, criticism, guidance and support made it possible for me to work on a topic that was of great interest to me. I would like to thank Head of the Department, Prof. Dr Mahavir, and acting Head of the Department Prof. Dr Mayank Mathur. I am also Grateful to Prof. Papiya B. Raut, Prof. Dr Rabidutyi Biswas. and Prof. Sairam Desari and all the faculty of Physical Planning Department for providing me with insightful remarks during the reviews that helped me refine my work in the right direction. Moving ahead this research consumed huge amount of on-ground research, superior knowledge and experience for which I would like to thank all the individuals and organisations for their support.

Lastly and the most significantly I would like to thank my parents and my family who have been the ultimate guiding forces throughout my life. without their constant encouragement and support this thesis would not have been possible.,

Aatish Kumar

BP/727/2017

ABSTRACT

Person with disabilities is one of the most important and diverse categories of population and needed to be addressed in all development and decision-making process. According to the World Health Organization, 15 percent of the world's population has a disability. The 2011 census statistics showed that during the 2001 census the prevalence of impairments in our nation has risen from 2.13 percent to 2.21 percent.

we have been used to cities that plan, construct and build urban public places and services disregarding the requirements of disabled persons and thus restricting their access. Against this backdrop, access the job, socialising and pleasure possibilities offered by cities. This means that urban forms and urban systems are designed to provide individuals access to parks and public spaces, as well as to transit systems and to engage actively in public life, regardless of their level of capacity. Disabled people are less likely to be working, earn less per year and are more likely to be poorly employed. The needs of those with disabilities are seldom addressed. Unplanned urbanisation has placed stress on fair delivery, public services, inaccessible and inadequate infrastructure, inefficient design of public buildings and housing, and restricted public transit access. These obstacles have contributed to increasing exclusion and inequality among disabled people and other marginalized groups. Making cities accessible and inclusive for everyone, including disabled people, is critical for sustainable urban growth and the preservation of human rights. The India Smart Cities Mission is the biggest chance to guarantee that people with disabilities are included and involved in All new advancements in India.

This study aims to develop urban planning approaches that can assist people with impairments live more independently. and will seek out ways to overcome physical and social obstacles. This study looks into several facets of urban planning and decision-making. It entails government actions, attitudes at the national and state levels, and current legislation aimed at making cities more accessible and inclusive for handicapped people.

सार

विकलांग व्यक्ति जनसंख्या की सबसे महत्वपूर्ण और विविध श्रेणियों में से एक है और इसे सभी विकास और निर्णय लेने की प्रक्रिया में संबोधित करने की आवश्यकता है। विश्व स्वास्थ्य संगठन के अनुसार, दुनिया की 15 प्रतिशत आबादी विकलांग है। 2011 की जनगणना के आँकड़ों से पता चलता है कि 2001 की जनगणना के दौरान हमारे देश में दुर्बलताओं की व्यापकता 2.13 प्रतिशत से बढ़कर 2.21 प्रतिशत हो गई है।

हम उन शहरों के अभ्यस्त हो गए हैं जो विकलांग व्यक्तियों की आवश्यकताओं की उपेक्षा करते हुए शहरी सार्वजनिक स्थानों और सेवाओं की योजना, निर्माण और निर्माण करते हैं और इस प्रकार उनकी पहुंच को प्रतिबंधित करते हैं। इस पृष्ठभूमि के खिलाफ, शहरों द्वारा दी जाने वाली नौकरी, सामाजिकता और आनंद की संभावनाओं तक पहुंचें। इसका मतलब यह है कि शहरी रूपों और शहरी प्रणालियों को पार्कों और सार्वजनिक स्थानों के साथ-साथ पारगमन प्रणालियों तक पहुंच प्रदान करने और सार्वजनिक जीवन में सक्रिय रूप से संलग्न करने के लिए डिज़ाइन किया गया है, चाहे उनकी क्षमता का स्तर कुछ भी हो। विकलांग लोगों के काम करने की संभावना कम होती है, प्रति वर्ष कम कमाते हैं और खराब रोजगार की संभावना अधिक होती है। विकलांग लोगों की जरूरतों को शायद ही कभी संबोधित किया जाता है। अनियोजित शहरीकरण ने उचित वितरण, सार्वजनिक सेवाओं, दुर्गम और अपर्याप्त बुनियादी ढांचे, सार्वजनिक भवनों और आवास के अक्षम डिजाइन और प्रतिबंधित सार्वजनिक परिवहन पहुंच पर जोर दिया है। इन बाधाओं ने विकलांग लोगों और अन्य हाशिए के समूहों के बीच बहिष्करण और असमानता को बढ़ाने में योगदान दिया है। विकलांग लोगों सहित सभी के लिए शहरों को सुलभ और समावेशी बनाना सतत शहरी विकास और मानवाधिकारों के संरक्षण के लिए महत्वपूर्ण है। इंडिया स्मार्ट सिटीज मिशन यह गारंटी देने का सबसे बड़ा मौका है कि विकलांग लोगों को शामिल किया गया है और भारत में सभी नई प्रगति में शामिल किया गया है।

इस अध्ययन का उद्देश्य शहरी नियोजन दृष्टिकोण विकसित करना है जो विकलांग लोगों को अधिक स्वतंत्र रूप से जीने में सहायता कर सकता है। और शारीरिक और सामाजिक बाधाओं को दूर करने के तरीके तलाशेंगे। यह अध्ययन शहरी नियोजन और निर्णय लेने के कई पहलुओं को देखता है। इसमें सरकारी कार्रवाइयां, राष्ट्रीय और राज्य स्तर पर नजरिया और विकलांग लोगों के लिए शहरों को अधिक सुलभ और समावेशी बनाने के उद्देश्य से मौजूदा कानून शामिल हैं।

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CHAPTER 1

1 Introduction

1.1 The Introduction

Persons with disabilities are one of the most important and diverse categories of population and needed to be addressed in all development and decision-making process.

According to the World Health Organization, 15 percent of the world's population has a disability. The 2011 census statistics showed that during the 2001 census the prevalence of impairments in our nation has risen from 2.13 percent to 2.21 percent. In numerical numbers, over 49 lakes with disabilities in our nation have increased in a decade. In India, 2.68 people are handicapped out of the 121 Cr population, 2.21 percent of the entire population. However, we have been used to cities that plan, construct and build urban public places and services disregarding the requirements of disabled persons and thus restricting their access. Against this backdrop, this research seeks to improve urban design techniques that may successfully help individuals with disabilities access the job, socialising and pleasure possibilities offered by cities. This means that urban forms and urban systems are designed to provide individuals access to parks and public spaces, as well as to transit systems and to engage actively in public life, regardless of their level of capacity. Disabled people are less likely to be working, earn less per year and are more likely to be poorly employed. The needs of those with disabilities are seldom addressed. Unplanned urbanisation has placed stress on fair delivery, public services, inaccessible and inadequate

infrastructure, inefficient design of public buildings and housing, and restricted public transit access. These obstacles have contributed to increasing exclusion and inequality among disabled people and other marginalised groups. Making cities accessible and inclusive for everyone, including disabled people, is critical for sustainable urban growth and the preservation of human rights.

1.2 Need Of the Study

The study's overall goal is to develop Smart Cities that are accessible to people with disabilities. A city exists for the benefit of all of its residents. There should not be any individuals who are unable to take pleasure in it in the same manner as everyone else. A city is made up of all of

us, and it is under this concept that we must design our projects, regardless of where they are located, what nation they are in, or what sector they are in. Accessibility is not a "favor," but rather a fundamental right, and we must respect it as such. India has one of the biggest populations of handicapped individuals in the world, with an estimated 80 million impaired people. Women, men, girls, and boys with disabilities continue to suffer significant discrimination in terms of mobility and access to urban infrastructure and services, as well as in other aspects of their lives (e.g., housing, transport, clean water, education, employment, health services, and information technology). Not only does this result in marginalisation, but it also results in fewer chances for work, education, and involvement in politics. This huge group, which is already marginalised, runs the danger of becoming even more marginalised if the issues of accessibility and inclusion are not taken into consideration while building smart cities. The Americans with Disabilities Act of 1990 made accessibility, inclusiveness, and non-discrimination a legal requirement. Specifically, sections 40 to 46 of the Act place a strong emphasis on accessibility of educational institutions, public buildings, new construction, sanitation facilities, transportation, documents and information (including websites and mobile apps), products and services (including products and services that are not yet available on the market), and set specific time limits for each.

1.3 Research Question

How to support a better urban experience for people with disabilities?

1.4 Aim And Objectives

Aim of the study "To give good quality of life by providing equal opportunity to person with disability “.

The objectives of the study are addressed below

- To study the concept of disability and to study the initiatives taken for persons with disabilities.
- To study the existing Act/policies on rights of persons with disabilities in Indian cities.
- Planning interventions for reducing barriers for full participation of persons with Disabilities in development and decision-making process and analyse the existing social and physical barriers for persons with Disabilities
- To formulate proposals for making friendly cities for persons with disabilities.

1.5 Scope And Limitations

It is an exploratory study which is confined to persons with disabilities in urban areas. The study seeks to build an understanding of concepts related to disabilities, develop indicators through literature study and take into account the barriers experienced by persons with disabilities in urban areas. It also covers the existing condition of persons with disabilities by looking at their personal profile, accessibility issues, perceptions towards physical and social environment, extent of awareness about government initiatives and participation at local level etc.

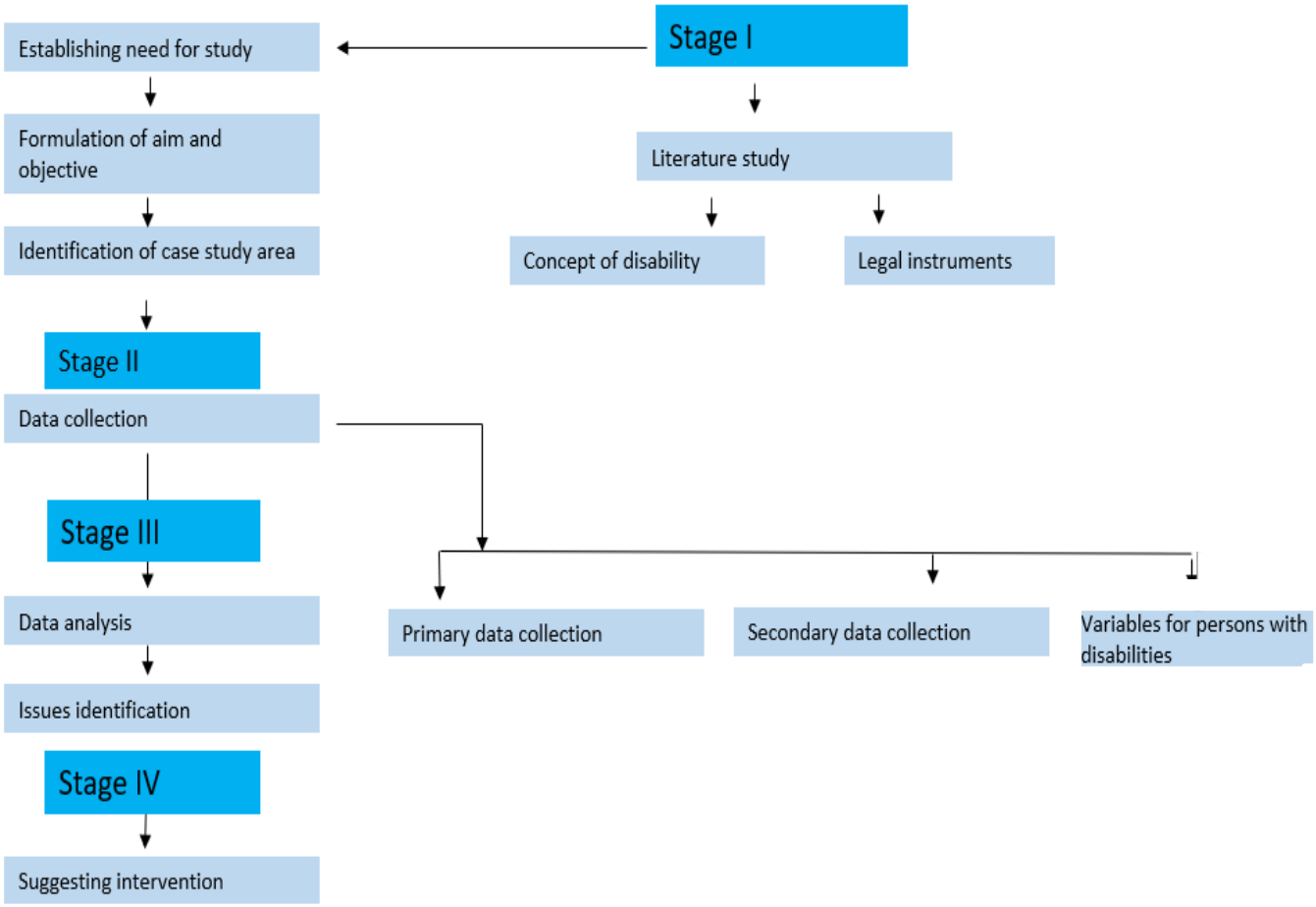
The Limitations that can hinder the smooth completion of the study are

There is a gap in data as information related to disabled in the city is insufficient or very small in number. Also, the survey will be conducted in various institutions due to lack of contact and residence information. Since there is a short period of 4 months it is difficult to consider all the categories of disability so I will only be focusing on disability of movement and visual impairment.

1.6 Research Methodology

The methodology adopted for planning for person with disability has been based on standard methodologies adopted across the world. The methodology is composed of 4 major stages- inception stage, data collection stage which is followed by data analysis, and formulation of vision, actions and detailed recommendations. In the first stage- inception stage, formulation of aim, objectives, scope and limitations and need of the study, followed by data requirements and sources of data are identified before proceeding to the stage of data collection on field, whereby data is collected in the form of primary survey and secondary data from various sources including organisations (NGO's special schools, institutes, etc.) doing welfare work for person with disabilities Once the data is collected, it is brought back for diagnosis and analysis to assess the urban situation, institutional capacity, physical barriers, accessibility of an area and thereby identify issues of the existing condition, facilities available, accessibility issues of the area. Further, based on issues, actions are decided, needs to be taken and detailed recommendations accordingly.

Figure 1.1 Methodology for Planning for Persons with Disabilities



source: Author, 2022

CHAPTER 2

2 Concept of Disability

2.1 Introduction to the term Disability

A person is considered to have a disability if, according to the legal definition set by the Americans with Disabilities Act, that person has a physical or mental impairment that limits one or more of their main life activities in a significant way.

Nevertheless, this description does not actually provide a whole picture of what it means to be disabled. It is essential to take into account the many forms that disability might take. A person may be born with a disability or acquire one at any point in their lifetime. Disabilities may be

either visible or invisible. When most people think of disability, the image that immediately comes to mind is of a person using a wheelchair. However, there are many other kinds of disabilities that go beyond mobility impairments. When we discuss people with disabilities, it is important to keep in mind that this term includes a wide range of conditions, including but not limited to those relating to mental health, chronic diseases, intellectual difficulties, as well as hearing and visual impairments.

2.1.1 As per CDC

"A disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions)."

2.1.2 As per UNCRPD

The United Nations Convention on the Rights of Persons with Disabilities defines disability as: "long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder [a person's] full and effective participation in society on an equal basis with others."

There are 8 guiding principles that underlie the convention:

1. Respect for inherent dignity, individuals' autonomy including freedom to make one's own choices, and independence of person.
2. Non-discrimination
3. Full and effective participation and inclusion in society.
4. Respect for difference and acceptance of person with
5. Equal opportunity
6. Accessibility
7. Equality between men and women
8. Respect for the evolving capabilities of children with disabilities and respect for the right of children with disabilities to preserve their identities.

2.1.3 As per WHO

Disability results from the interaction between individuals with a health condition, such as cerebral palsy, Down syndrome and depression, with personal and environmental factors

including negative attitudes, inaccessible transportation and public buildings, and limited social support.

A person's environment has a huge effect on the experience and extent of disability. Inaccessible environments create barriers that often hinder the full and effective participation of persons with disabilities in society on an equal basis with others. Progress on improving social participation can be made by addressing these barriers and facilitating persons with disabilities in their day to day lives.

As per NSSO

A person with restrictions or lack of abilities to perform an activity in the manner or within the range considered normal for a human being was treated as having disability. It excluded illness/injury of recent origin (morbidity) resulting into temporary loss of ability to see, hear, speak or move.

2.2 Type of disabilities

Types of disabilities According to the census types of disabilities are in Seeing, in Hearing, In Speech, In Movement, Mental Retardation, Mental illness, Any Other and Multiple Disability (combination of two)

Table 1 Types of disabilities According to the census, 2011

Sr. No.	TYPE OF DISABILITY	CHANGE IN DEFINITION
1	IN SEEING	•One eyed person was treated as disabled at Census 2001. In Census 2011 such persons have not been treated as disabled in seeing. At the Census 2011 enumerators were asked to apply a simple test to ascertain blurred vision. At Census 2001 no such instructions were given.
2	IN HEARING	•Person using hearing aid have been treated as disabled at Census 2011. They were not treated as disabled at the Census 2001. Persons having problem in hearing through one ear although the other ear is functioning normally was considered having hearing disability in Census 2001. But in Census 2011, such persons were not considered as disabled.
3	IN SPEECH	•Definition was made clearer in Census 2011 to record persons with speech disability. For instance, "persons who speak in single words and are not able to speak in sentences" was specifically mentioned to be treated as disabled.
4	IN MOVEMENT	•Specific mention of the following was made in the definition for Census 2011: Paralytic persons; Those who crawl; Those who are able to walk with the help of aid; Have acute and permanent problems of joints/muscles; Have stiffness or tightness in movement or have loose, involuntary movements or tremors of the body or have fragile bones.
5	MENTAL RETARDATION	•New category introduced at Census 2011. Mental Retardation was covered under the category of Mental disability at Census 2001.
6	MENTAL ILLNESS	•New category introduced at Census 2011. Mental Illness was covered under the category of Mental disability at Census 2001
7	ANY OTHER	•New category introduced at Census 2011 to ensure complete coverage. This option enabled respondents to report those disabilities which are not listed in the question. In such cases, where informant was not sure about the type of disability this option of reporting disability as 'Any Other' was available to her/him.
8	MULTIPLE DISABILITY	•New category introduced at Census 2011. The question has been designed to record as many as three types of disabilities from which the individual was reported to be suffering.

source: Census of India, 2021

The types of disabilities have been increased from existing 7 to 21.

The 21 disabilities are as follows

1. Blindness
2. Low-vision
3. Leprosy Cured persons
4. Hearing Impairment (deaf and hard of hearing)
5. Locomotor Disability
6. Dwarfism
7. Intellectual Disability
8. Mental Illness
9. Autism Spectrum Disorder
10. Cerebral Palsy
11. Muscular Dystrophy
12. Chronic Neurological conditions
13. Specific Learning Disabilities
14. Multiple Sclerosis
15. Speech and Language disability
16. Thalassemia
17. Hemophilia
18. Sickle Cell disease
19. Multiple Disabilities including deaf blindness
20. Acid Attack victim
21. Parkinson's disease

2.3 Models of disabilities

To meet the many different forms of impairments, several methods of disability definition have been established. Disability models serve as a guide for society when programmes and services, legislation, rules, and institutions that influence the lives of persons with disabilities are designed. There are several models of disability, including religious or moral models, medical models, charity models, rights-based models, economic models, and so on. Disability models serve as a guide for society when programmes and services, legislation, rules, and institutions that influence the lives of persons with disabilities are designed. The three most common models of disability are the Medical Model, the Biopsychosocial Model, and the Social Model. The three most common models of disability are the Medical Model, the Functional Model, and the Social Model.

2.3.1 Medical Model of Disability

The medical model defines impairment as the result of a health condition, disease, or trauma that might affect a person's physiological or cognitive functioning. This paradigm views disability as a condition that a person has and focuses on preventing, treating, or curing the debilitating condition.

- In the medical approach, disability management aims for a "cure," or the individual's adjustment and behavioral change that would result in a "almost-cure" or effective cure.
- Medical treatment is considered as the primary concern in the medical model, and the primary political reaction is to amend or reform health-care legislation.

2.3.2 Functional Model of Disability:

This model, like the medical model, considers disability to be an impairment or deficit. Physical, medical, or cognitive deficiencies produce disability. The impairment itself impairs a person's capacity to operate or execute functional tasks.

2.3.3 Social Model of Disability:

Instead than focusing on the person's impairments and shortcomings, this paradigm focuses on the hurdles that persons with disabilities face. In this concept, a person's actions are restricted by the environment rather than the disability or condition, and obstacles are the result of a lack of social order. Disability is considered as something imposed by society on those with impairments (whether they have a physical disability, sensory impairment, learning challenge, or mental health issue).

These barriers include:

Environmental barriers

Institutional barriers

Attitudinal barriers

Policy barriers

Social barriers

Transportation barriers

Policy barriers are caused by a lack of understanding about disability inclusion. Policy must ensure enforceable laws that ensure equal participation in all aspects of our fellow disabled citizens' lives. Furthermore, if this is not practicable, the state should provide benefits that ensure adequate living circumstances. This, however, should not be considered as charity (see above), but rather as recompense for the State's incapacity to give equal opportunities to equal people under the law

Social barriers are pervasive and accompany a disabled person for the rest of their life. These impediments are related to how they develop, learn, work, live, and age. People with impairments, for example, are less likely to complete high school, obtain job, or earn a good living.

Transportation barriers make handicapped people reliant on others for basic needs. They are either unable to drive or do not have access to convenient private or public transportation. This reliance on others limits their capacity to travel and, as a result, keep a steady work.

The World Health Organization (WHO) describes barriers as being more than just physical obstacles.

Attitude- Many of the challenges that people with disabilities face are the result of their mindset. Attitude is tied to stereotyping and prejudice, and it is directly related to how we respond with situations in general. Many people see a handicap as someone's horrible failing rather than proactively recognising the problem. Being proactive means considering disability as a societal duty to accommodate disabled people so that they can live full lives.

Communication- People who have trouble hearing, speaking, or understanding are more likely to have communication challenges. For example, not many items offer facilities for the visually handicapped, such as a Braille description. Alternatively, only a small number of individuals learn sign language, posing a huge communication hurdle for many.

Physical obstacles may be found everywhere. A handicapped person faces several challenges the moment he or she leaves the house. People with impairments confront a variety of challenges, from walking on the sidewalk to descending or ascending the stairs.

2.3.4 Biopsychosocial Models of Disability

Disability IS not a strictly medical concept nor a strictly social concept, the world health organization (WHO) released the international classification of impairments, disabilities, and handicaps **(ICIDH)** that classified disability into three domains:

1. Impairment
2. Disability
3. Handicap

Impairments were defined as abnormalities of body structure, appearance, and/or organ system and function.

Disabilities were defined as the consequences of impairments in terms of functional performance and activity of the individual.

Handicaps were defined as the disadvantages experienced by the individual as a result of impairments and disabilities.

2.4 Law and regulation of India and around the world

- The rehabilitation council of India act ,1992
- Person with disability act, 1995
- United nation convention on the right of person with disabilities (UNCRPD) 2006
- Right of person with disability act 2016
- Accessible India campaign

Table 2 Laws and Regulations and Their definition

Year	Scheme and policy	Definition of disability	Accessibility	Broder provisions under policy/scheme	prepared by
1995	THE PERSONS WITH DISABILITIES (EQUAL OPPORTUNITIES, PROTECTION OF RIGHTS AND FULL PARTICIPATION) ACT	The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) (PWD) Act, 1995 defines disability in relation to medical conditions and degrees of impairment.it was a predominantly a welfare-oriented Act.		Preliminary, Definitions The Central Coordination Committee (and Central Executive Committee) The State Coordination Committee (and State Executive Committee) Prevention and Early Detection of Disabilities s Education, Employment, Affirmative Action, Non-discrimination Research And Manpower Development Recognition of Institutions for Persons with Disabilities Institution for Persons with severe Disabilities The Chief Commissioner and Commissioners for Persons with Disabilities Social Security, Miscellaneous Reservation in Government Job (3%)	
2016	THE RIGHTS OF PERSONS WITH DISABILITIES ACT	"Person with disability" means a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others;	In consultation with the Chief Commissioner, the Central Government shall develop rules for persons with disabilities that establish accessibility standards for the physical environment, transportation, information and communications, including appropriate technologies and systems, and other facilities and services provided to the public in urban and rural areas.	Preliminary, definitions Rights and entitlements Education, skill development and employment, social security, health, rehabilitation and recreation Special provisions for persons with benchmark disabilities Special provisions for persons with disabilities with high support needs Duties and responsibilities of appropriate governments Registration of institutions for persons with disabilities and grants to such institutions Central and state advisory boards on disability and district level committee The Chief Commissioner and Commissioners for Persons with Disabilities National and state fund for persons with disabilities Social security, miscellaneous	ministry of social justice and empowerment
2015	ACCESSIBLE INDIA CAMPAIGN	The Accessible India Campaign drew inspiration form UNCRPD 2007 which views disability not in relation to a medical condition and degree of impairment but as an interaction of impairment and barriers that hinder effective participation in society.	The Campaign envisages providing features of accessibility in the 3 verticals of built-up environment, transportation sector and Information & Communication Technology ecosystem, for creation of an universal barrier free environment.	Gaps in accessibility Accessible India Campaign – Genesis Coverage of the Accessible India Campaign - Key Features Grounds Covered – Achievements under Accessible India Campaign Awareness Generation and Upscaling of the Campaign Accessible India Campaign - Before and After	Department of Empowerment of Persons with Disabilities under the Ministry of Social Justice & Empowerment.
2006	HARMONISED GUIDELINES AND SPACE STANDARDS ON BARRIER FREE BUILT ENVIRONMENT FOR PERSONS WITH DISABILITY AND ELDERLY PERSONS		Increasing accessibility leads to increased opportunities for Persons with Disabilities to access employment and to fully participate in the social, cultural, recreational, economic life of India	Introduction Accessibility, diversity and universal design 1 External elements Internal elements Information & wayfinding systems Building typologies Building operations & maintenance Evaluating accessibility	Ministry of Urban Development
2021	HARMONISED GUIDELINES AND SPACE STANDARDS ON BARRIER FREE BUILT ENVIRONMENT FOR PERSONS WITH DISABILITY AND ELDERLY PERSONS		Accessibility is basic to human existence ranging from access to basics to live or to move or to functionally perform in diverse living environments	PREAMBLE APPLICABILITY ANTHROPOMETRICS CLASSIFICATION OF BUILDINGS UNIVERSAL DESIGN ELEMENTS WITHIN BUILDING PREMISES SIGNAGE LEVEL CHANGES FIRE EVACUATION NEEDS ALIGHTING AND BOARDING AREAS TRANSPORT AND ROAD PLANNING ADAPTED HOUSING	Ministry of Urban Development

source: Author, 2022

2.4.1 The rehabilitation council of India act ,1992

This act came into being to regulate the training of rehabilitation professionals and to maintain a Central Rehabilitation Register to certify rehabilitation professionals. Thus, by this act, the Rehabilitation Council of India has become the apex body to further professional development of those in the field of disability rehabilitation.

The main aims of the Rehabilitation Council of India are.

- To regulate training policies and programs in the field of disability rehabilitation.
- To standardize training courses for professionals working with people with disabilities.
- To prescribe minimum standards of education and training of various categories of professionals working with people with disabilities.
- To recognize institutions/universities running degree/diploma/certificate courses in the field of disability rehabilitation.
- To recognize foreign degree/diploma/certificates awarded by universities/institutions on a reciprocal basis.

To maintain a Central Rehabilitation, Register of Institutions possessing the recognized rehabilitation qualification.

2.4.2 The persons with disabilities act, 1995

"The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995" has come into enforcement on February 7, 1996. This law is an important landmark and is a significant step in the direction to ensure equal opportunities for people with disabilities and their full participation in the nation building. The Act addresses both preventive and promotional aspects of rehabilitation, such as education, employment and vocational training, reservation, research and manpower development, barrier-free environments, rehabilitation of people with disabilities, unemployment, and the establishment of homes for people with severe disabilities.

The main aims of the person with disabilities Act are.

- Prevention and Early Detection of Disabilities
- Education
- Employment
- Non-discrimination
- Research and Manpower Development
- Affirmative Action
- Social Security
- Grievance Redressal

2.4.3 UNCRPD, 2006

"The full form of UNCRPD is United Nations Convention on the Rights of Persons with Disabilities. It is an international treaty that aims to protect the rights and dignity of persons with disabilities.

The convention consists of 50 articles which outline the inherent rights and freedoms of PWD.

UNCRPD are based on 8 General Principles

1. Respect for inherent dignity and individual autonomy
2. Non-discrimination, including reasonable accommodation
3. Full & effective participation and inclusion in society
4. Respect of difference and acceptance of PWD as part of human diversity and humanity
5. Equality of opportunity
6. Accessibility
7. Equality between men and women
8. Respect for evolving capacities of children with disabilities and respect for the right of children with disabilities to preserve their identities

2.4.4 Accessible India campaign

- Department of Empowerment of Persons with Disabilities (DEPwD) launched Accessible India Campaign (Sugamya Bharat Abhiyan) as a nation-wide Campaign for achieving universal accessibility for Persons with Disabilities (PwDs) on December 3,2015. It has three important verticals, namely - the Build Environment, the transportation sector and the ICT ecosystem.
- The vision of Accessible India Campaign is to create a barrier free environment for independent, safe and dignified living of Persons with Disabilities. The Vision statement declares: "Accessible India. Empowered India."

2.4.4.1 Built Environment Accessibility

Target 1.1: Conducting an accessibility assessment of at least 25-50 of the most important government buildings in the selected 50 cities and transforming them to fully accessible structures.

Target 1.2: Converting 50% of all government buildings in the National Capital and all state capitals into completely accessible structures.

Target 1.3: Conducting an audit of 50% of government buildings and transforming them into completely accessible buildings in the top ten cities/towns in each state (other than those, which are already covered in Target 1.1 and 1.2 above)

2.4.4.2 Transportation System Airports

Target 2.1: Conducting an accessibility assessment of all international airports and converting them to fully accessible airports.

Target 2.2: Conducting an accessibility assessment of all domestic airports and making them completely accessible. Railways

Target 3.1: Converting all A1,A, and B category railway stations in the country to fully accessible railway stations.

Target 3.2: Ensure that 50 percent of the country's railway stations are turned into fully accessible railway stations. Public Transportation (Buses)Target 4.1: Ensuring that 25% of

Government-owned public transport carriers in the country are converted into fully accessible carriers

2.4.4.3 ICT Eco- System

Target 5.1: Conducting an accessibility assessment of 50 percent of all government websites (both central and state) and converting them to fully accessible websites.

Target 5.2: Ensuring that at least 50% of all public papers released by the Central and State Governments fulfil accessibility criteria.

Key features related to built environment accessibility

- In the built environment the Accessible India campaign stresses on retrofitting works of public buildings (Occupied and operational) to make them barrier-free. The ten essential elements that are identified include:

As prescribed in the Harmonised Guidelines

- Providing tactile pavers
- Earmarked parking for Persons with Disabilities be provided just near to entrances with the international symbol of parking for persons with disability and an unhindered path leading to the entrance ramp.
- Ramps at entries.
- Staircases with continuous handrails on both sides
- Steps edges to be in contrast colors 50 mm wide band tape/ sticker
- Lifts of car size minimum 1500 x 1500 mm (wherever feasible) with door opening not less than 900 mm with grab bars of 38 mm – 45 mm inside the car lifts to have an audio-visual display
- At least one toilet on the ground floor be unisex, wherein grab bars to be provided
- Reception counters with at least part of the counter lowered to for the benefit of Persons with Disabilities.
- Drinking water point to be lowered for making it accessible for persons with disability

Key features related to transport infrastructure accessibility

- Well-lit streets and bus shelters
- Raised pedestrian crossings to facilitate barrier-free movement with differently textured paving material to make the crossing more perceivable.
- Footpaths with even surfaces for movement of mobility aid users and continuous tactile pavers along the entire stretch for persons with visual impairment.
- Special white lighting for footpaths that maintains color contrast from the road and ensures that the tactile pavers are visible at night.
- Audible light signals that beep when light is green
- Bus shelters with barrier-free access having defined boarding gates with warning tiles
- Folding ramp inside low floor buses allowing access to mobility aid users
- Space to park wheelchairs with the provision of safety belt to secure during journey inside the buses
- Provision of Braille signage and audible messages on signage panels
- Metro stations and coaches with accessibility feature is a vital component for independent living, and like others in society, PwDs rely on transportation facilities to move from one place to another. The term transportation covers a number of areas including air travel, buses, taxis, and trains

2.4.5 Right of person with disability act 2016

- The Bill, introduced by the union minister for social justice and empowerment
- Government introduced the Rights of Persons with Disabilities Bill in Rajya Sabha, seeking to increase reservation for disabled persons in public sector jobs from existing 3% to 5% and reserve seat for them in higher educational institutions. At present, the reservation for the disabled is only 3% in the ratio of 1% each for the physically, visually and hearing-impaired persons. The new Bill, if passed by the Parliament, will extend the quota by 2%, covering two new additional categories - mentally disabled and people with multiple disabilities.
- Persons with at least 40% of a disability are entitled to certain benefits such as reservations in education and employment, preference in government schemes, etc.
- The Bill confers several rights and entitlements to disabled persons. These include disabled friendly access to all public buildings, hospitals, modes of transport, polling stations, security, education, and special provision for person with benchmark disabilities

Table 3 Provisions in the Right of Person with Disability Act 2016

Built Environment and Information & technology	Rules for Persons with Disabilities laying down the standards of accessibility for: physical environment, information and communications, including appropriate technologies and systems, and other facilities and services provided to the public in urban and rural areas. Access to information
Citizen participation	Accessible elections Access pooling booth Material to be in Accessible format
Transportation	Formulation of rules
	facilities for Persons with Disabilities at bus stops, railway stations and airports conforming to the accessibility standards relating to parking spaces, toilets, ticketing counters and ticketing machines;
	access to all modes of transport that conform to the design standards, including retrofitting old modes of transport, wherever technically feasible and safe for Persons with Disabilities, economically viable and without entailing significant structural changes in design;
	accessible roads to address the mobility needed by Persons with Disabilities.
Education and Livelihood	Proper rehabilitation particularly in the areas of education and employment for all Persons with Disabilities.
	provide necessary support individualised or otherwise in environments that maximise academic and
	social development consistent with the goal of full inclusion
	provide transportation facilities to the children with disabilities and also the attendant of the children with disabilities having high support needs
Health care and emergency response	Proper rehabilitation particularly in the areas of health for all Persons with Disabilities.
	formulation of necessary schemes and programmes to safeguard and promote the right of Persons with Disabilities for an adequate standard of living to enable them to live independently or in the community:
	Community integration through:
	community centres with right living conditions in terms of safety, sanitation, health care and counselling; facilities for persons including children with disabilities who have no family or abandoned, or are without shelter or livelihood;
	support during natural or man-made disasters and in areas of conflict;
	access to safe drinking water and appropriate and accessible sanitation facilities especially in urban slums
Public&Green spaces	redesign and support infrastructure facilities of all sporting activities for Persons with Disabilities;
	provide multi-sensory essentials and features in all sporting activities to ensure active participation of
	all Persons with Disabilities;
	Special Schemes and Development Programs
	five per cent. Reservation in allotment of land on a concessional rate to use for housing, shelter, setting up of occupation, business, enterprise, recreation centres and production centres

Source: Harmonised Guidelines, 2021

2.5 Provisions in MPD 2021

Transportation

- Provision for introducing cycle tracks, pedestrian and disable friendly.
- The multimodal system will be integrated with safe facilities for pedestrians, bicyclists, disabled persons and Intelligent Transport System (ITS) enabled taxis and three-wheeled scooter rickshaws (TSR).
- Parking close to entrance should be reserved for physically handicapped.
- All road should be made pedestrian, disabled and bicycle friendly as far as possible.
- Street furniture and signage should be designed sensitively considering land use, intensity of activity, and other identified design district.
- Access should be made for person with disability, from street to overcome the curb height, rain water gratings.
- Parking place close to the entrance should be reserved for person with disability
- Continuity of side walk should be maintained in terms of width, surface treatment, curb cut, tree and street furniture locations, for pedestrian and disabled.

Barrier free environment

- In planning and designing of our door and indoor movement, PwD, older person, and people in wheelchairs should be considered
- Pathways and pavements shall be flat, uniform, slip free, and free from unnecessary obstacles.
- Orientation point and guide routes may be provided for visually challenged
- Information and warning signs must be clear, understandable, well lit.

Night shelter

- Special provision should be made for the homeless, women, and children including the disabled, orphan, and old.

Social infrastructure.

Education

- For 10 lakh population, 1 special school, with plot area of 0.2 ha should be provided.
- 1 care center for physically/ mentally challenged per 10 lakh population.
- 20% of maximum can be utilized for residential use of essential staff and student accommodation.

2.6 Evolution of guidelines and standards on accessibility in India

Figure 2 Evolution of Guidelines and Standards on Accessibility

Source: Harmonised Guidelines, 2022

2.7 Accessibility:

Accessibility can be defined as the "**ability to access**" the functionality, and possible benefit of a system or entity.

Accessibility encompasses more than just "wheelchair accessibility"; it also includes Braille signs, ramps, elevators, audio signals at pedestrian crossings, walkway contouring, and website design. Another component of accessibility is the ability to get information and services while overcoming obstacles including distance, cost, and interface usability. Physical accessibility in buildings, transportation, and access to services, among other things, continues to be a key barrier for the disabled. Accessibility is not a "favor," but rather a fundamental right that must be respected.

Built Environment Accessibility: Everyone has access to a physically accessible environment. Obstacles and obstructions to indoor and outdoor facilities such as schools, hospitals, and workplaces The physical environment includes not only buildings, but also steps and ramps, corridors, pathways, curb cuts, parking, access gates, emergency exits, restrooms, and impediments that impede the flow of impaired pedestrian traffic.

Transportation System Accessibility: Transportation is an essential component of self-sufficiency. The term transportation encompasses a wide range of activities such as air travel, buses, taxis, and trains. For many people who require accessible transportation, an inaccessible transportation system restricts mobility, inhibits freedom of movement, and prevents active engagement. Disabled people have the same right as everyone else to travel and use public and private transportation infrastructure with dignity and independence.

Information and Communication Eco-System Accessibility: Everyone in society benefits from having access to knowledge. Access to information encompasses all types of information. This can include acts such as reading price tags, physically entering a hall, participating in an event, reading a brochure with healthcare information, understanding a railway itinerary, or seeing webpages. These are the sociocultural hurdles of infrastructure and inaccessible formats that prevent a disabled person from acquiring and utilising information in daily life.

2.7.1.1 How to improve accessibility

• Increasing the accessibility of public areas and infrastructure. Government buildings, educational institutions, public housing, tourist attractions, religious attractions, parks, retail districts, hospitals and health centres, airports, railway stations and bus stops, boat jetties, kiosks, ATMs, and so on.

• Ensuring the accessibility of new ICT-based solutions and systems, such as reading price tags, physically entering a hall, participating in an event, reading a booklet, understanding a train itinerary, or seeing webpages. Ensure that all government websites, mobile applications, and documents are accessible to individuals with disabilities in accordance with the requirements.

• Increasing access to physical and digital services, as well as other service and information centres.

2.7.1.2 • Including people with disabilities in the creation of policies and strategies. Issues and Challenges

Urban environments, infrastructures, amenities, and services can either limit or facilitate involvement and inclusion of all parts of society. People with disabilities suffer pervasive inaccessibility to built environments, including roads and housing, public buildings and spaces, and fundamental urban services such as sanitation and water, as well as health, education, transportation, and emergency response and resilience programmes. Barriers to information and communication, including applicable technology, as well as cultural attitudes such as negative stereotyping and stigma, all contribute to the exclusion and marginalisation of people with disabilities in metropolitan settings.

Lack of accessibility contributes significantly to the disadvantaged and vulnerable situations faced by people with disabilities, resulting in disproportionate rates of poverty deprivation and exclusion. For example, if people with disabilities are unable to access urban education facilities due to a lack of accessible transportation options, they are excluded from programmes designed to promote universal education. These limitations limit not just the mobility of persons with impairments, but also their prospects for socialisation and economic development. For example, playgrounds that lack facilities for disabled children separate them from other children, and transportation systems that are unable to accommodate individuals with impairments limit their ability to access jobs.. By enabling access to urban centers and to transit for more people, cities would only increase economic opportunities and economic productivity.

Health:

- A large number of disabilities are preventable, including those arising from medical issues during birth, maternal conditions, malnutrition, as well as accidents and injuries.
- However, the health sector especially in rural India has failed to react proactively to disability
- Further there are lack of affordable access to proper health care, aids and appliances
- Healthcare facilities and poorly trained health-workers in rehabilitation centres is another concern.

Education:

- The education system is not inclusive. Inclusion of children with mild to moderate disabilities in regular schools has remained a major challenge.
- There are various issues such as availability special schools, access to schools, for the disabled, this result in marginalization, but it also results in fewer chances for work, education, and involvement in politics.
- Further, reservations for the disabled in higher educational institutions has not been fulfilled in many instances

Employment:

- Even though many disabled adults are capable of productive work, disabled adults have far lower employment rates than the general population.
- The situation is even worse in the private sector, where much less disabled are employed

2.8 Person with disabilities in India

According to the 2011 census of India, there are 26.8 million persons with disabilities in India, while other sources have provided greater numbers. India is a signatory to the UN Convention on the Rights of Persons with Disabilities. The Rights of Persons with Disabilities Act of 2016, the Mental Health Care Act of 2017, the National Trust Act of 1999, and the Rehabilitation Council of India Act of 1992 are all pieces of legislation that affect individuals with disabilities

in India. People with disabilities in India encounter unfavourable societal views from the general public.

According to the 2011 Census, there are 14.9 million males with impairments in the country, compared to 11.9 million women. The overall number of differently abled individuals is about 18.0 million in rural regions and just 8.1 million in metropolitan areas. Men have a disability rate of 2.41 percent, while women have a rate of 2.01. According to a social group analysis, 2.45 percent of the overall impaired population is from the Scheduled Castes (SC), 2.05 percent from the Scheduled Tribes (ST), and 2.18 percent from other than SC/ST.

In 1995, India passed the Persons with Disabilities (Equal Opportunity, Protection of Rights, and Full Participation) Act to acknowledge the rights and specific needs of the disabled in the country. It also provided for disability reservations in government positions and higher education institutions. The previous legislation was superseded by the Rights of Persons with Disabilities Act of 2016, which raised the number of recognised disabilities from seven to twenty-one. While the previous legislation retained 3% of government employment, the current act reserves 4%. According to the new legislation, all institutions of higher education operated or sponsored by the government must reserve 5% of their enrollment seats for individuals with disabilities..

The Mental Health Care Act of 2017 protects the rights of people with psychosocial disability. The Rehabilitation Council of India Act of 1992 established the Rehabilitation Council of India, which is responsible for educating rehabilitation professionals and supporting rehabilitation and special education research. The National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation, and Multiple Disabilities Act, 1999, or simply the National Trust Act, governs disability problems in India. This law established the National Trust, a government agency that collaborates with volunteer networks and Disabled Individuals's Organizations, as well as local-level committees that designate legal guardians for people with disabilities who are considered to require them.

2.9 Status of Persons with Disabilities National level

In India, information on people with disabilities is gathered through the Decennial Population Census and Large-Scale Sample Surveys. The Census 2011, conducted by the Office of the

Registrar General and Census Commissioner, India, is the most recent source of data on persons with disabilities in India obtained through complete enumeration The 76th round of

Table 4 Population of persons with Disabilities India 2011

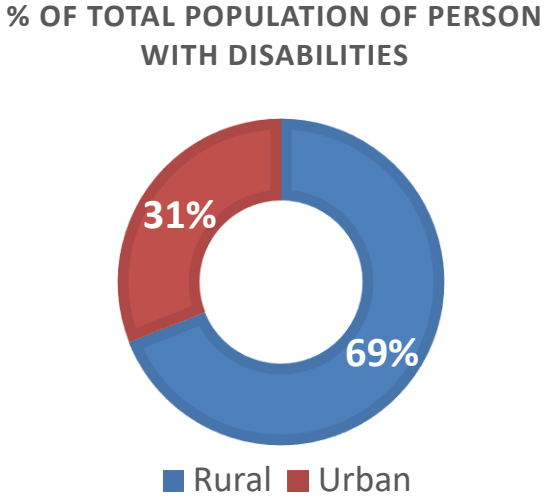
National Sample Surveys (NSS) conducted by the National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI) during July-December, 2018 is the most recent sample survey on Disability. The study of disability aspects in India is based on **Census 2011** findings, and the analyses focus on the number of disabled, distribution of disabled by kind of disability, age groups, educational level.

Table 5 population of persons with disabilities- India

Population India - 2011			**Persons with disabilities population-2011**		
Persons	Males	Females	Persons	Males	Females
121.08 crore	62.32 crore	58.76 crore	2.68 crore	1.50 crore	1.18 crore

Source: census of India, 2011

Figure 3 Total Percentage of Person with Disabilities in Urban and Rural India



Source: census of India, 2011

Total Number of Person with Disabilities in India and Percentage Distribution by Type of Disability-CENSUS 2011

Table 6 Total Number of Person with Disabilities in India and Percentage Distribution by Type of Disability-CENSUS 2011

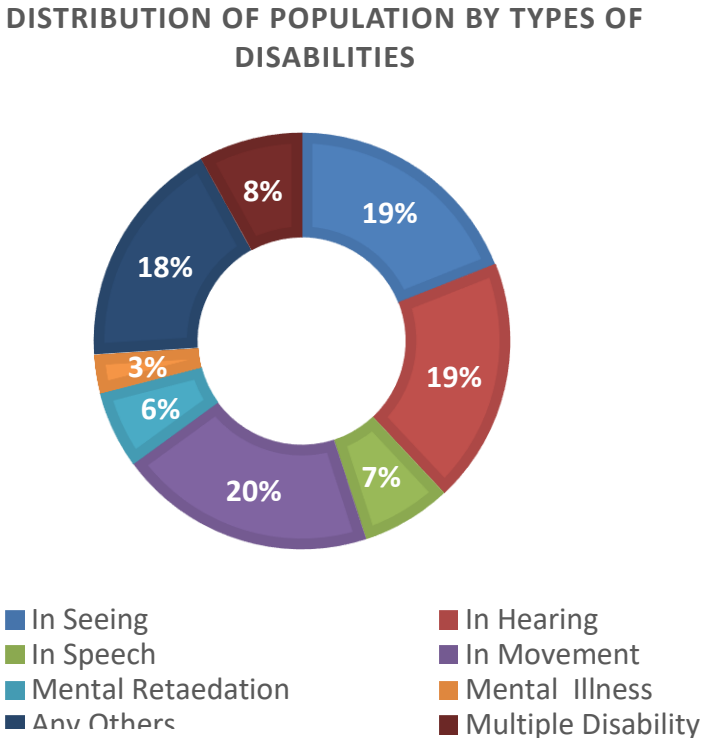
Total Number of Person with Disabilities in India and Percentage Distribution by Type of Disability-CENSUS 2011																				
		Total Distribution of person with Disabilities by their type																Total Person with Disabilities	Total Poppulation	%
	Population category	In Seeing	%	In Hearing	%	In Speech	%	In Movement	%	Mental Retardation	%	Mental Illness	%	Any Other	%	Multiple Disability	%			
India	Males	2638516	9.8	2677544	10	1122896	4.2	3370374	13	870708	3.2	415732	1.6	2727828	10	1162604	4.3	14986202	623121843	2.4
	Females	2393947	8.9	2393463	8.9	875639	3.3	2066230	7.7	634916	2.4	307094	0.4	2199183	8.2	953883	3.6	11824355	587447730	2
	SC	941540	3.5	859685	3.2	255883	1	1010293	3.8	251968	0.9	117334	0.4	1130527	4.2	360201	1.3	4927431	201378086	2.4
	ST	427213	1.6	412761	1.5	112669	0.4	479693	1.8	104912	0.4	56265	0.2	352096	1.3	191069	0.7	2136678	104281034	2
	Urban	1529873	5.7	1679186	6.3	694752	2.6	1401085	5.2	480064	1.8	227000	0.8	1634482	6.1	532194	2	8178636	377106125	2.2
	Rural	3502590	13	3391821	13	1303783	4.9	4035519	15	1025560	3.8	495826	1.8	3292529	12	1584293	5.9	18631921	833463448	2.2
	Total	**5032463**	**18.7**	**5071007**	**19.3**	**1998535**	**7.5**	**5436604**	**20.2**	**1505624**	**5.6**	**722826**	**2.6**	**4927011**	**18.1**	**2116487**	**7.9**	**26810557**	**1210569573**	**2.2**

Source: census of India, 2011

2.9.1 Distribution of persons with disabilities by different types of disability

According to the Census 2011, 20% of disabled people in India have a disability in movement, 19% have a disability in seeing, 19% have a disability in hearing, and 8% have multiple disabilities.

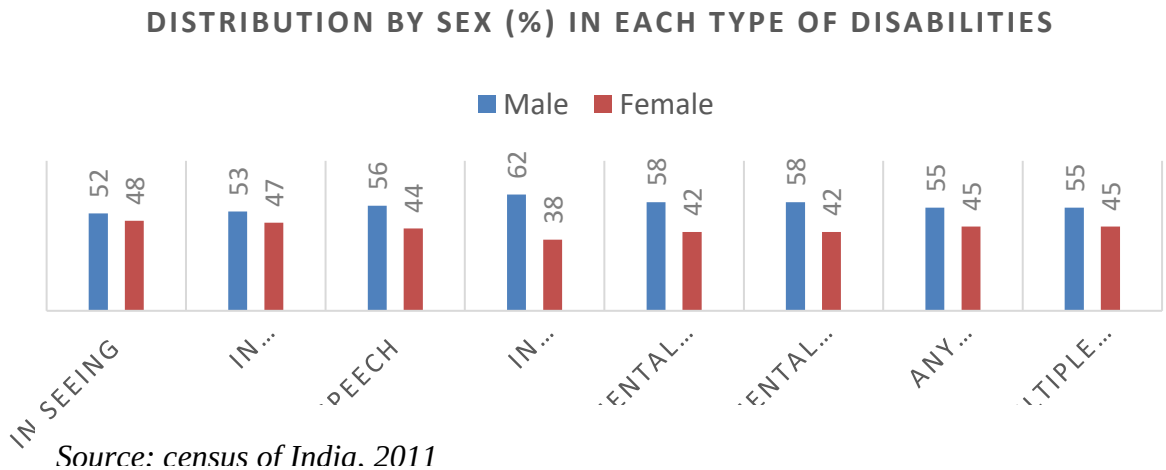
Figure 4Distribution of Population by Type of Disabilities



Source: census of India, 2011

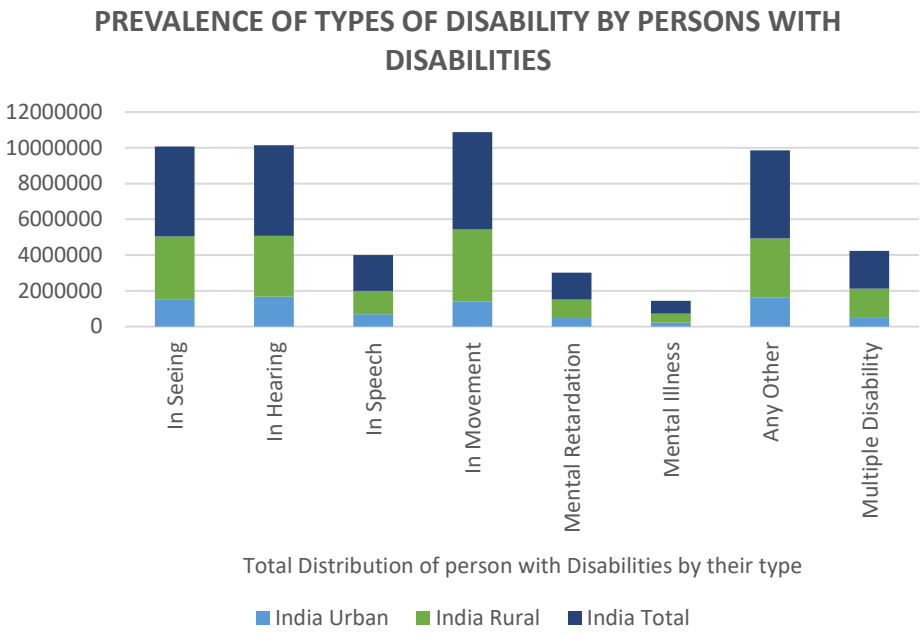
The share of males is more than females for all the types of disability

Figure 5 Distribution by sex in each type of Disabilities



Source: census of India, 2011

Figure 6 Prevalence of Type of Disability by Persons with Disabilities

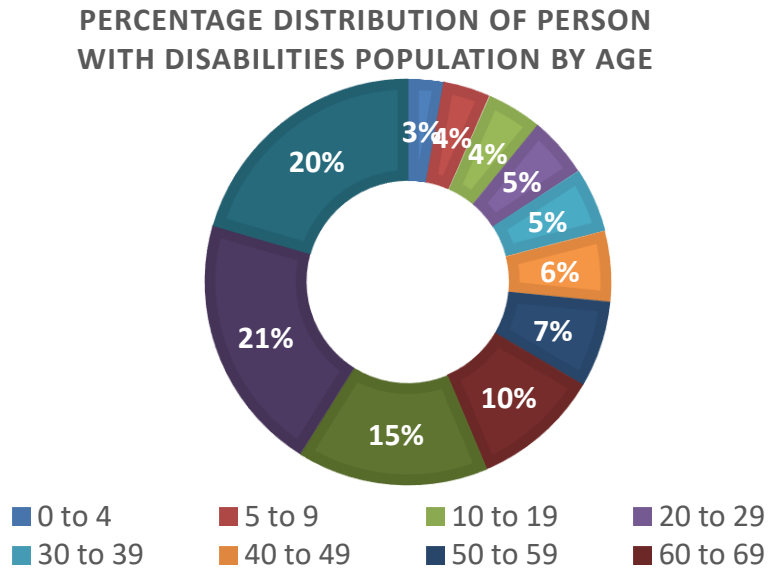


Source: census of India, 2011

Disability in movement is most prevalent in rural areas (21%) and disability in hearing is prevalent in urban areas (20%), whereas disability in seeing is equally prevalent in both urban and rural areas with 19% of the population.

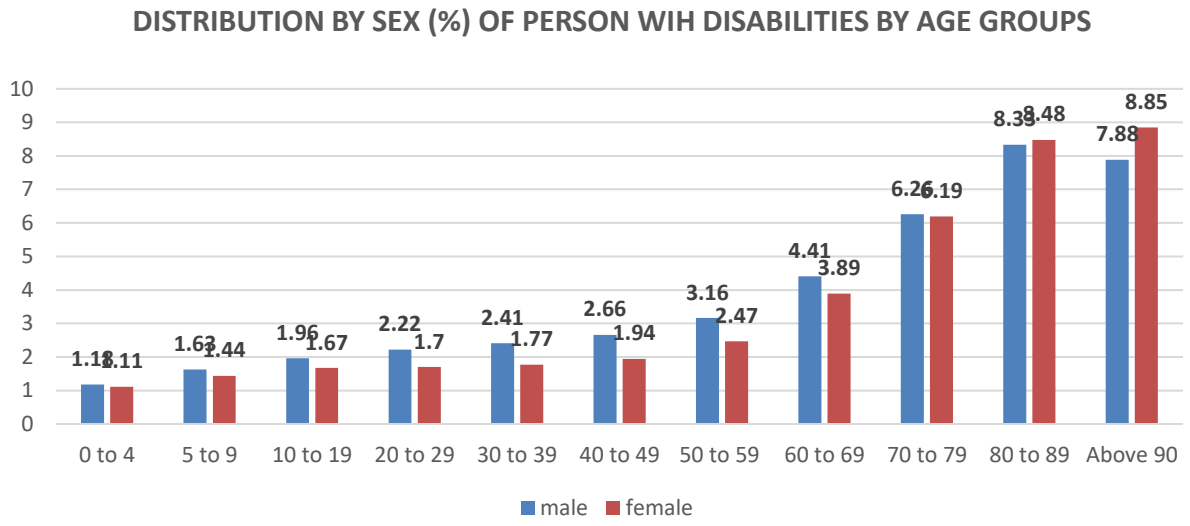
2.9.2 Distribution of persons with disabilities by different age groups

Figure 7 Distribution of Persons with Disabilities Population by age group



Source: census of India. 2011

Figure 8 Distribution by Sex of Persons with Disabilities by Age Group

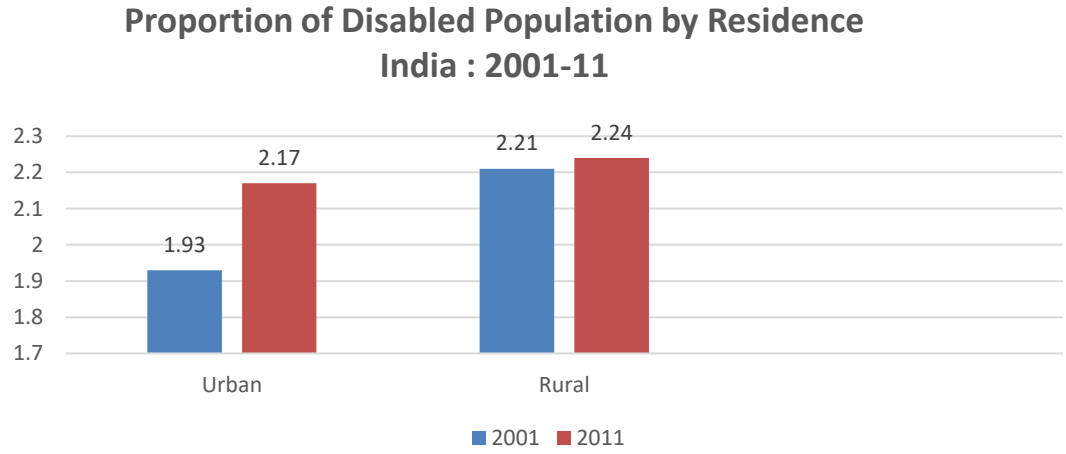


Source: census of India, 2011

- Disability among males is higher up to the age group 70+
- Disability among females is higher thereafter

2.9.3 Distribution of persons with disabilities by residence and sex

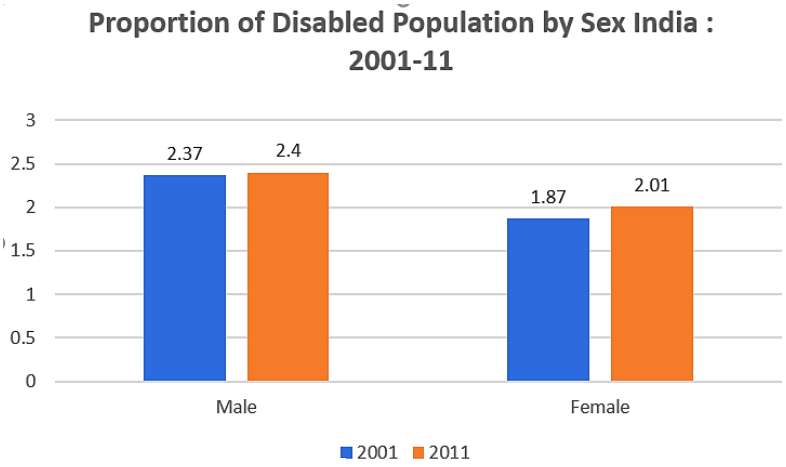
Figure 9 Distribution of Persons with Disabilities by Residence and Sex



Source: census of India, 2011

- During the previous decade, the percentage of disabled people in India has grown in both rural and urban regions.
- Rural areas have a larger proportion of disabled people.
- In urban areas, there has been a large decadal increase in percentage.

Figure 10 Showing Proportion of Persons with Disabilities by sex -India



Source: census of India, 2011

- Slight growth in disability among both sexes throughout the decade
- Male population has a greater proportion of disabled people
- Females have a higher proportion of disabled people over the decade

CHAPTER 3

3 Study Area Profile- Delhi

The total population of Delhi as per census 2011 is 16787941 comprising 8987326 males and 7800615 females as compared to the total population as per census 2001 of 13850507.The decadal growth of population for Delhi has declined from 51.45% in 1981-91 to 47.02% in 1991-2001 to 21.2 % in 2001-2011.The average annual exponential growth rate of population of Delhi during 2001-2011 has been recorded as 1.94%

3.1 Profile of Delhi by Population Category

Table 7 Profile of Delhi by Population Category

Profile of Delhi by population category		
population category	Number of total populations	percentage
Male	8987326	54
Female	7800615	46
Urban	16368899	97.5
Rural	419042	2.5
Total	16787941	

Source: census of India, 2011

3.2 Area wise Population of Delhi

Table 8 Area wise Population of Delhi

Area and population of districts of Delhi			Population	
S.No	District	Area in Km2	(Census 2001)	(Census 2011)
1	central Delhi	23.36	6463885	578671
2	new Delhi	34.95	179112	133713
3	east Delhi	48.9	1463583	1707725
4	north east Delhi	56.32	1768061	2240749
5	north Delhi	58.92	781525	883418
6	west Delhi	130.56	2128908	2531583
7	south Delhi	249.44	2267023	2733752
8	south west Delhi	420.8	1755041	2292363
9	north west Delhi	442.84	2860869	3651261

Source: census of India, 2011

3.3 Total Number of Person with Disabilities in Delhi and Percentage Distribution by Type of Disability-CENSUS **2011**

Table 9 Total Number of Person with Disabilities in Delhi and Percentage Distribution by Type of Disability-CENSUS 2011

Total Number of Person with Disabilities in Delhi and Percentage Distribution by Type of Disbility-CENSUS 2011																				
		Total Distribution of person with Disabilities by their type																		
	Population category	In Movement	%	In Seeing	%	In Hearing	%	In Speech	%	Mental Retardation	%	Mental Illness	%	Any Other	%	Multiple Disability	%	Total Person with Disabilities	%	Urban	Rural
Delhi	Central Delhi	3311	1.4	1567	0.7	1620	1	611	0.3	722	0.3	505	0.2	1925	0.8	1251	0.5	11512	5	11512	0
	New Delhi	577	0.2	444	0.2	521	0	143	0.1	125	0.1	73	0	457	0.2	219	0.1	2559	1	2559	0
	East Delhi	6984	3	2735	1.2	3458	1	1341	0.6	1745	0.7	1102	0.5	3290	1.4	2519	1.1	23229	10	23174	55
	North east Delhi	9983	4.3	3951	1.7	3852	2	2016	0.9	2032	0.9	1412	0.6	4961	2.1	3452	1.5	31939	14	31659	280
	North Delhi	3474	1.5	1578	0.7	1623	1	742	0.3	829	0.4	682	0.3	1653	0.7	1209	0.5	12039	5	11790	249
	West Delhi	10691	4.6	4255	1.8	4917	2	2261	1	2495	1.1	1575	0.7	5973	2.5	3927	1.7	36184	15	36094	90
	South Delhi	9204	3.9	5688	2.4	6625	3	2768	1.2	2572	1.1	1335	0.6	5926	2.5	3580	1.5	37870	16	37698	172
	South west Delhi	7490	3.2	3825	1.6	5410	2	2151	0.9	1786	0.8	1090	0.5	5775	2.5	2566	1.1	32680	14	30093	2587
	North west Delhi	13784	5.9	5289	2.3	5648	2	2722	1.2	3682	1.6	2025	0.9	6048	2.6	4989	2.1	46870	20	44187	2683
	Total	65498	28	29332	12.6	33674	14	14755	6.5	15988	7	9799	4.3	36008	15.3	23712	10.1	234882	100	228766	6116

Source: census of India, 2011

3.4 Total Number of Person with Disabilities in Delhi and Percentage Distribution by Type of Disability and age group-CENSUS 2011

Table 10 Total Number of Person with Disabilities in Delhi and Percentage Distribution by Type of Disability and age group-CENSUS 2011

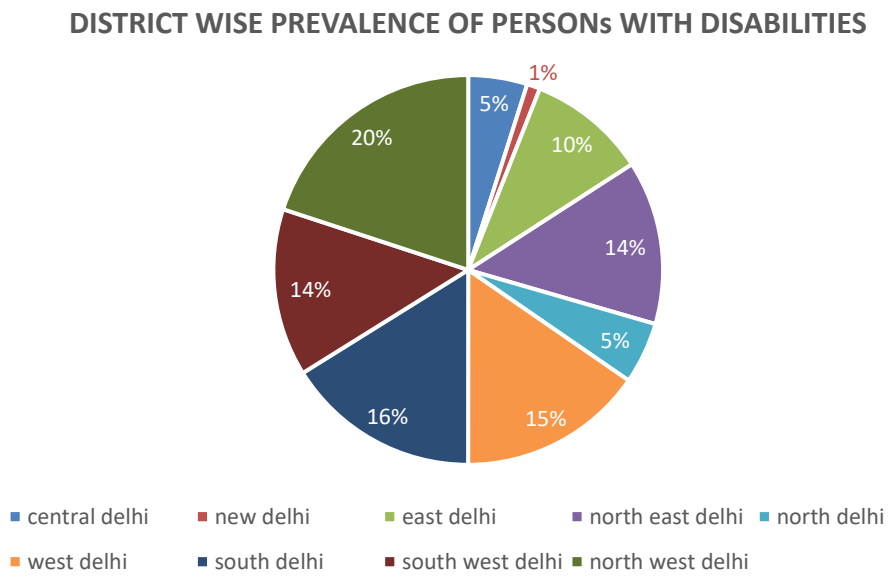
Age-group	Total number of disabled persons					%	In seeing	%	In Hearing	%	In Speech	%	In Movement	%	Mental Retardation	%	Mental Illness	%	Any Other	%
	Persons		Males		Females															
0-19	58923	25.8	34467	58.4	24456	41.5	6704	11.4	8651	14.7	5414	9.2	9712	16.5	6497	11.0	2469	4.2	11501	19.5
20-39	71037	31.1	44506	62.6	26531	37.3	7155	10.1	10307	14.5	5134	7.2	20606	29.0	6240	8.8	3714	5.2	12282	17.3
40-59	49503	21.7	31056	62.7	18447	37.2	7256	14.7	7063	14.3	2843	5.7	16102	32.5	2476	5.0	2557	5.2	7861	15.9
60-79	39014	17.1	20111	51.5	18903	48.4	6873	17.6	5683	14.6	1176	3.0	15405	39.5	657	1.7	919	2.4	3734	9.6
80+	9536	4.1	4129	43.2	5407	56.7	1210	12.7	1782	18.7	153	1.6	3526	37.0	87	0.9	123	1.3	480	5.0
Total	228013	100	134269	58.8	93744	41.1	29198	12.8	33486	14.7	14720	6.5	65351	28.7	15957	7.0	9782	4.3	35858	15.7

Source: census of India, 2011

CHAPTER 4

4 Data Analysis and Findings of Persons with disabilities -Delhi

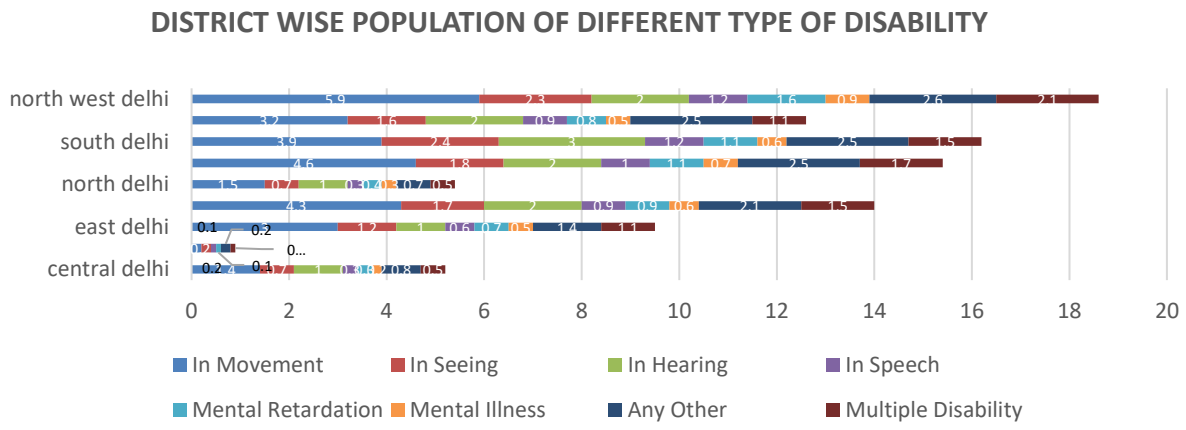
Figure 11 District wise Prevalence of Persons with Disabilities



Source: census of India, 2011

District wise prevalence of disability is shown in above chart. North west with the maximum population of persons with disabilities. which is 20 % And followed by west, north east, south west and south Delhi with disability respectively

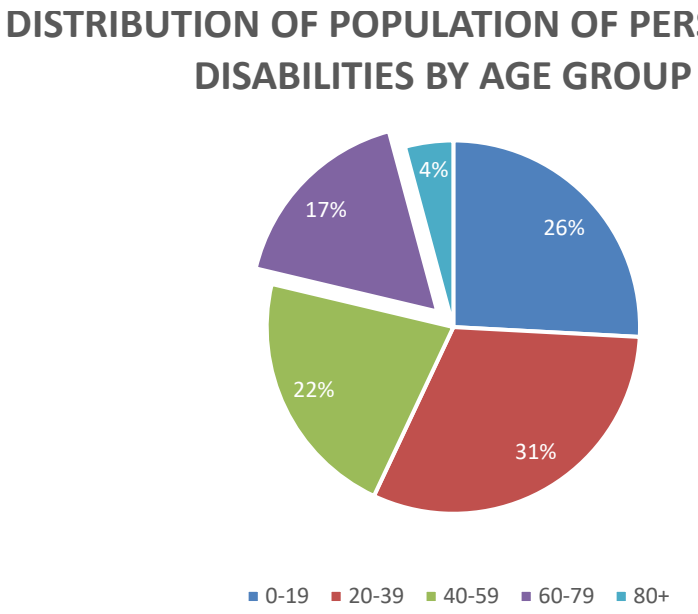
Figure 12 District wise Population of different types of Disabilities



Source: census of India, 2011

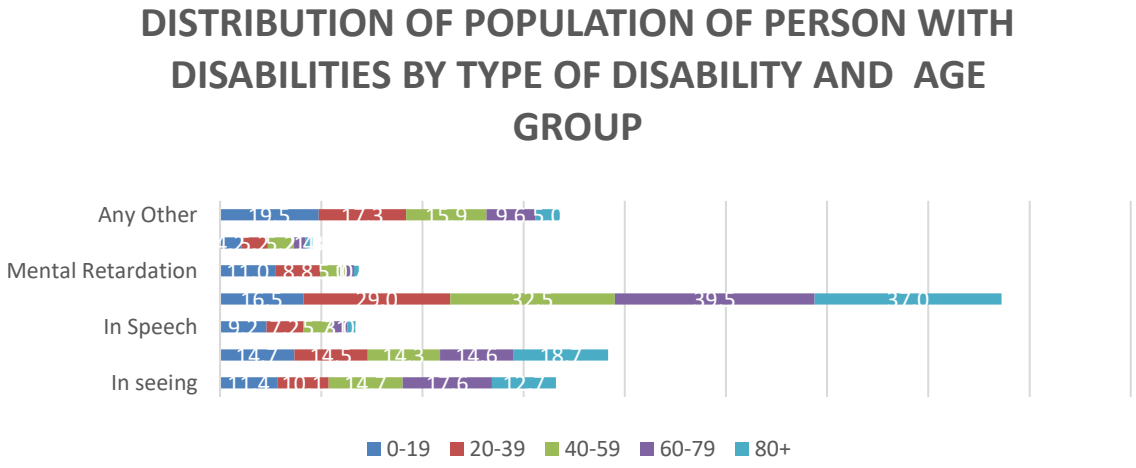
District wise population of different disabilities has been shown in above chart. Total no of persons with disabilities is maximum in northwest district and minimum in new delhi.5 out of 09 disability is seeing prevalent in north west. Locomotor disability is the highest in all districts.4 out of 9 disability are prevalent in south.

Figure 14 distribution of population of person with disabilities by age



Source: census of India, 2011

Figure 13 distribution of population of person with disabilities by type of disability and age group

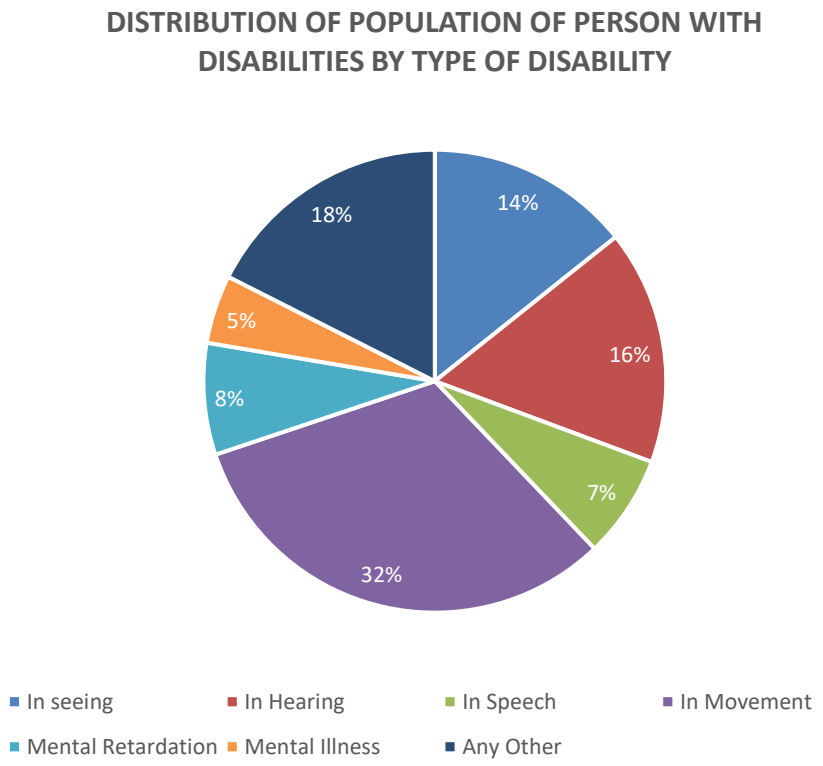


Source: Census of India 2011

Age group of above 60 have maximum prevalent in locomotor disability

Maximum prevalent disability in age group of 20-39 which is 31 %.and maximum affected by disability in movement/locomotor disability

Figure 15 distribution of population of person with disabilities by type of disability

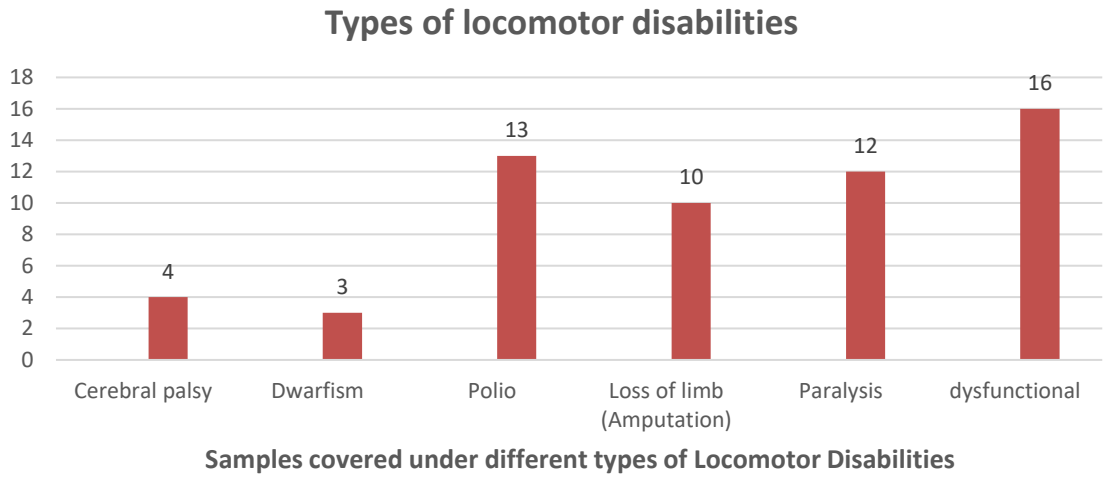


Source: census of India, 2011

Disability wise population of persons with disability is shown in chart. Movement or locomotor disability is prevalent with 32% and Mental illness is the lowest with 5% of total population of person with disability.

4.1.1 Person with movement/locomotor impairment- Delhi

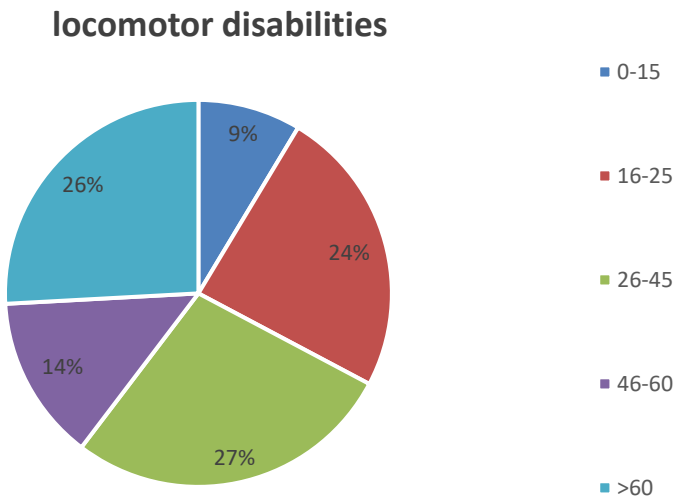
Figure 16 Types of Locomotor Impairment



Source: Author, 2022

Out of 117 samples, 58 were surveyed under locomotor disabilities. It is the most diverse of all the disabilities, and it covered 6 types of locomotor disabilities during the surveys. Samples were collected from all age groups and types. Major reason of these disabilities is accidents which covered dysfunction of lower limb and loss of limb.

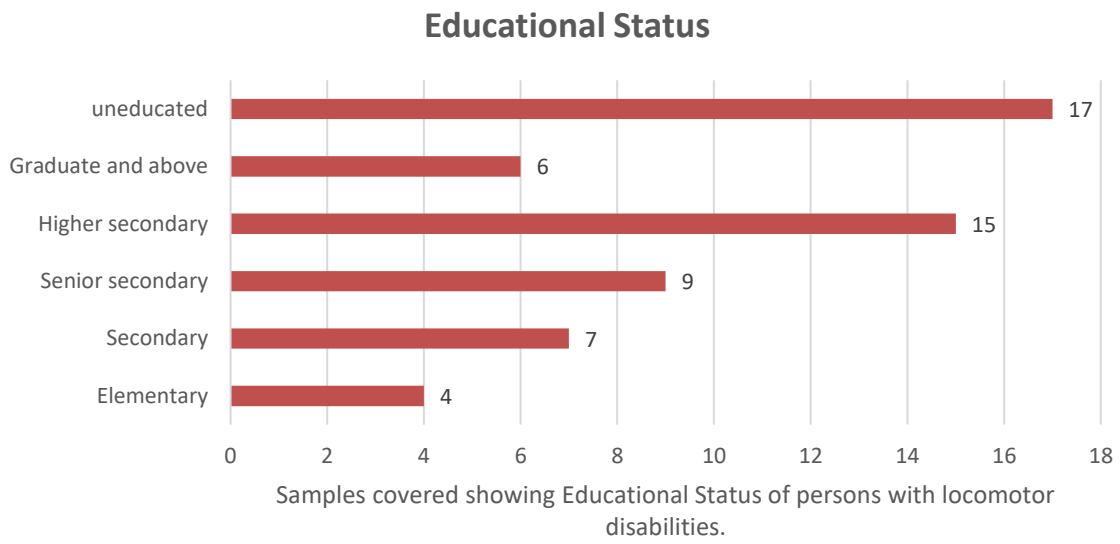
Figure 17 Sample covered under Different Age groups of Locomotor Impairment



Source: Author, 2022

16 out of 58 Locomotor Disabled are dealing with dysfunction of lower limb due to spinal injury, followed by paralysis and loss of limb. Maximum effected age group 26-45 and >60, 27% and 26% respectively.

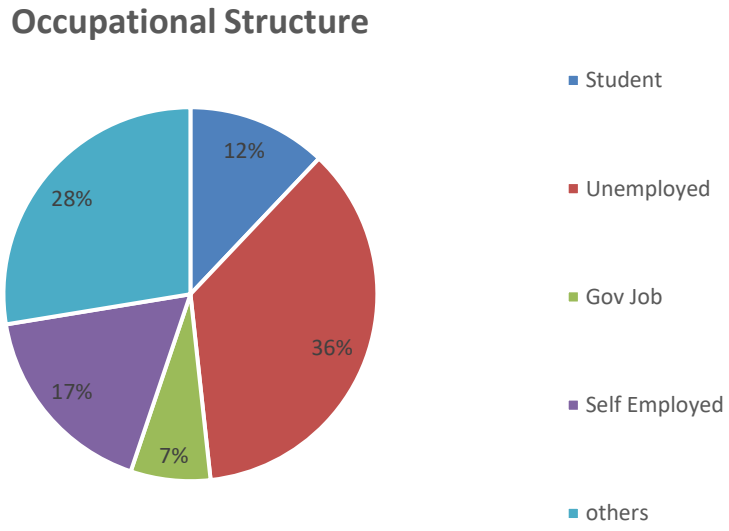
Figure 18 Education Status of Person with Locomotor Impairment



Source: Author, 2022

Maximum persons with locomotor impairments are uneducated (17 of 58), followed by people going to higher secondary (15 out of 58). Only 6 out of 58 are going for higher studies (graduate and above).

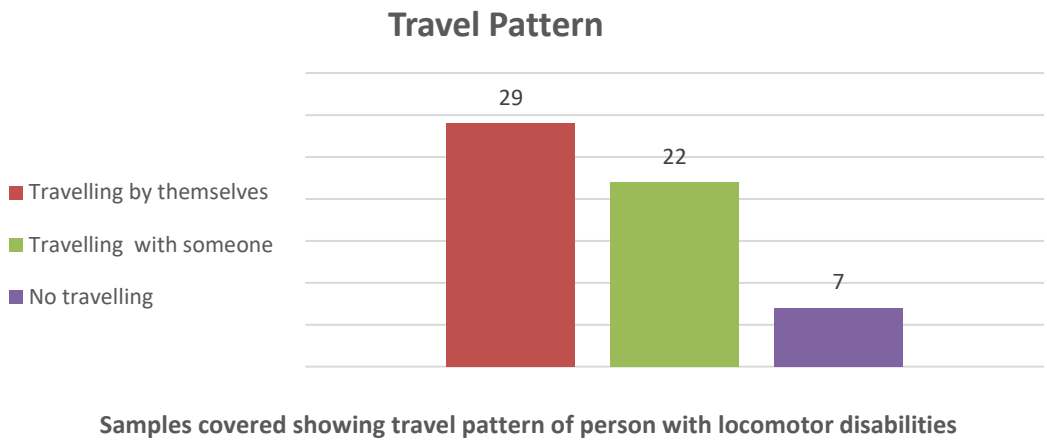
Figure 19 Occupational Structure of Persons with Locomotor Impairment



Source: Author, 2022

36% of locomotor disabled are unemployed, 12% are students out of total sample collected (58). Only 7% in Govt. Jobs (stable income)

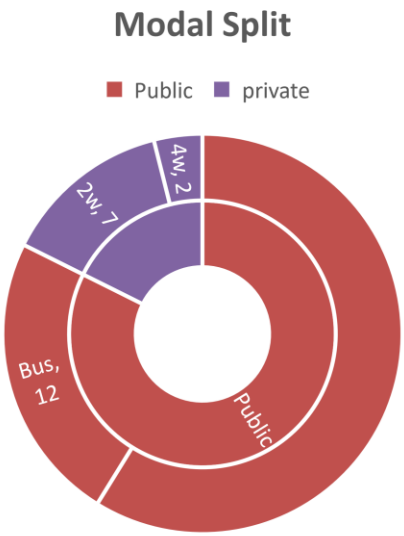
Figure 20 Travel Pattern of Persons with Locomotor Impairment



Source: Author, 2022

29 out of 58 are travelling by themselves. 7 are not travelling. Others are travelling with someone's help, to improve the condition, utmost need of accessible environment for person with disabilities.

Figure 21 Mode of Transport use by person with Locomotor Impairment

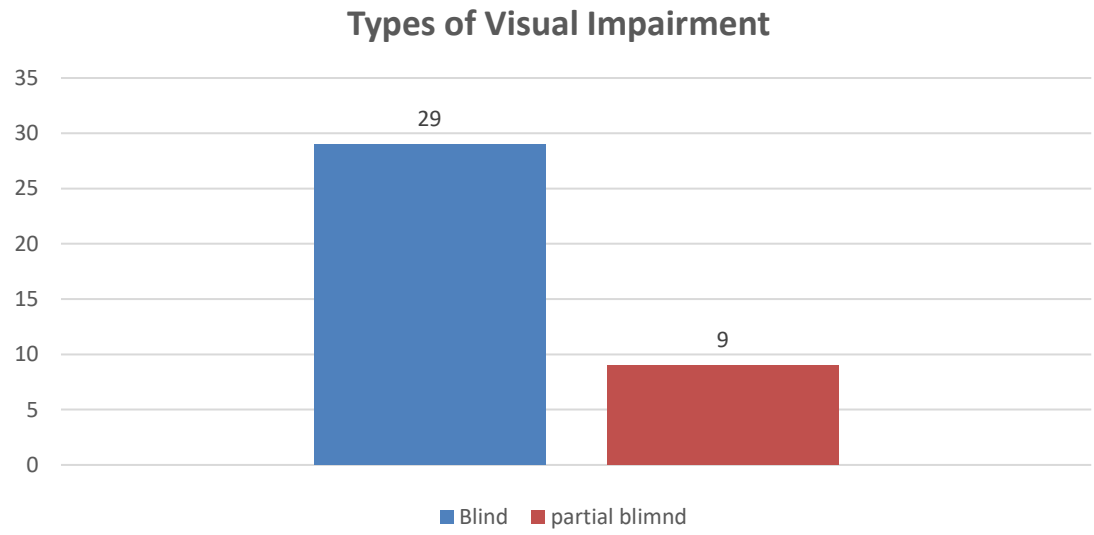


Source: census of India, 2011

42 out of 58 persons with locomotor disabilities are travelling by public mode of transport, out of which metro is having maximum modal split. Although buses are cheaper but metro being accessible mode of transport, maximum person with disabilities are using the metro as preferred mode of transport. Persons with disability using bus as mode of transport are travelling with assistance

4.1.2 Person with visual impairment- Delhi

Figure 22 Showing persons with visual Impairment



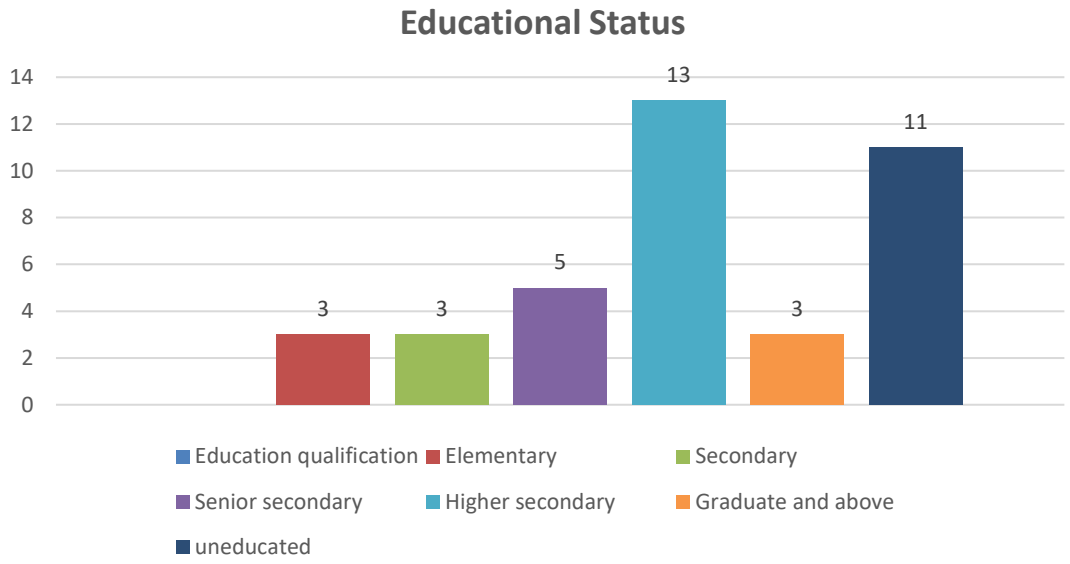
Source: Author, 2022

Out of 117 samples, 38 were surveyed under visually impaired category. It covers 2 types of disabilities during the surveys, fully blind and partially blind are 2 categories. Samples were collected from all age groups and types of visual impairment. 29 are fully blind and 9 are partially blind. Fully blind are maximum in number and need of special infrastructure to improve the accessibility in the city

.

Maximum effected age group under the visually impaired category, age group 26-45 and >60, 27% and 26% respectively.

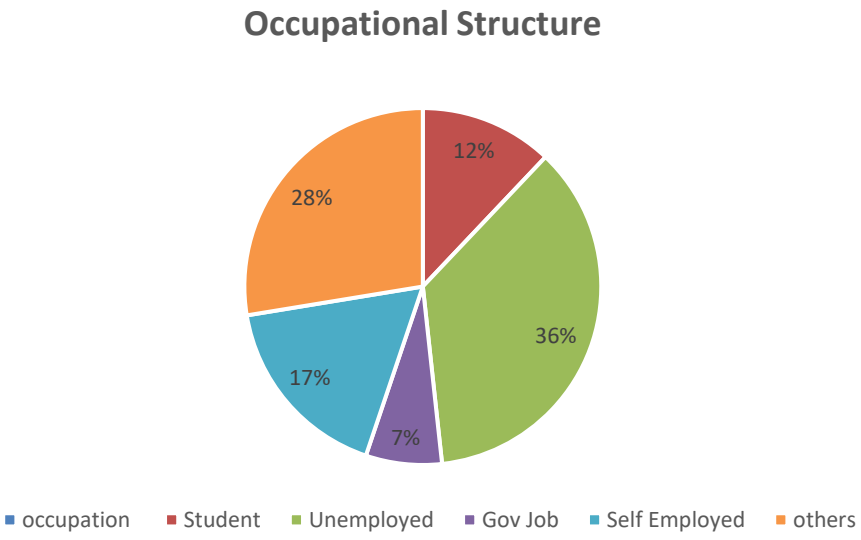
Figure 23 showing Educational Status of Persons with Visual Impairment



Source: Author, 2022

Maximum are uneducated (11 out of 38 persons with visual impairment), followed by people going to higher secondary (13 out of 38 persons with visual impairment). Only 3 out of 38 are going for higher studies (graduate and above)

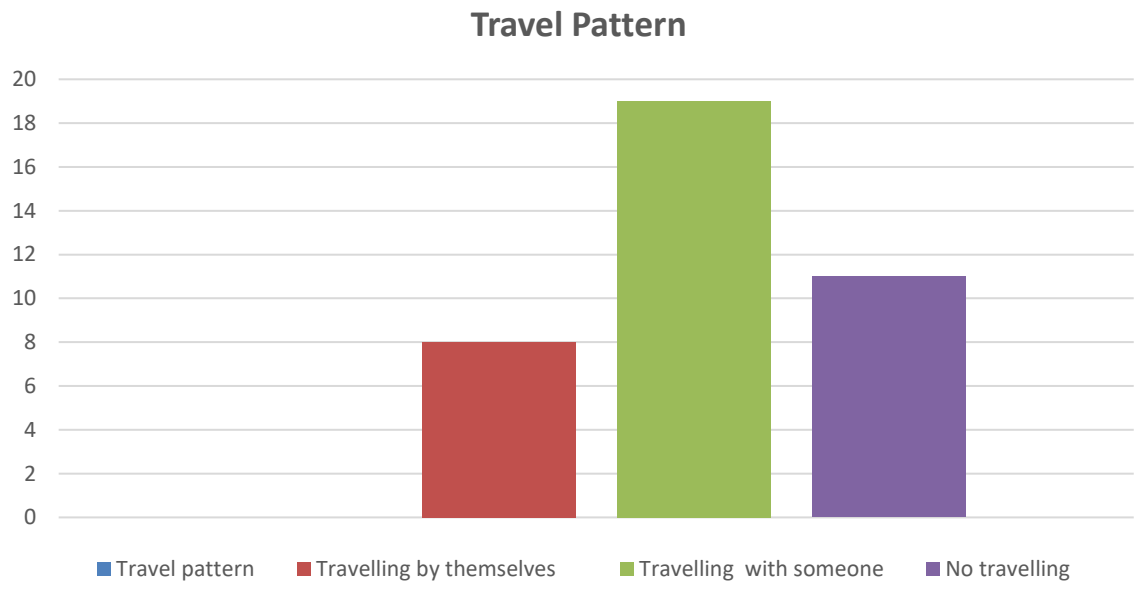
Figure 24 Showing Occupational structure of Persons with Visual Impairment



Source: Author, 2022

Out of total visually impaired person, 36% are unemployed, 12% are students and only 7% are in government jobs.

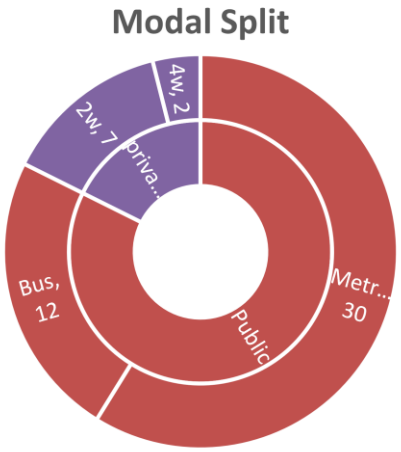
Figure 25 Showing Travel Patterns of Persons with visual Impairment



Source: Author, 2022

11 are not travelling out of 38 persons with visual impairment and 19 are dependent on someone's help to commute from one place to another.

Figure 26 Showing the Mode of Transport persons with Visual Impairment are using

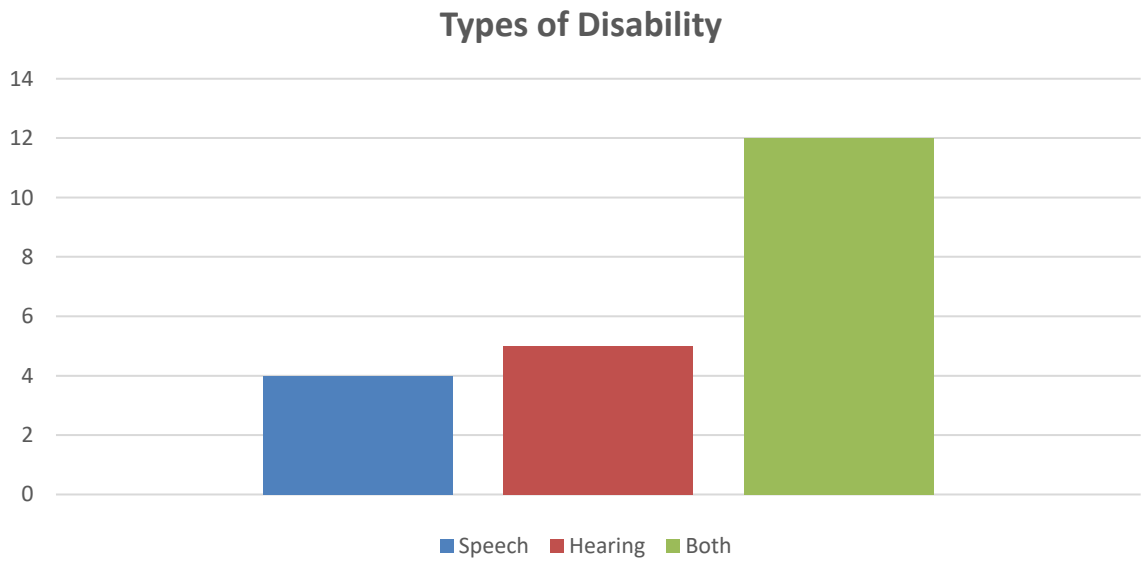


Source: Author, 2022

Out of 38 visually impaired only 2 are using 4-wheeler as private mode of transport, other 42 are using public mode of transport, out of them metro is the preferred mode of transport for 30 of them.

4.1.3 Person with hearing impairment- Delhi

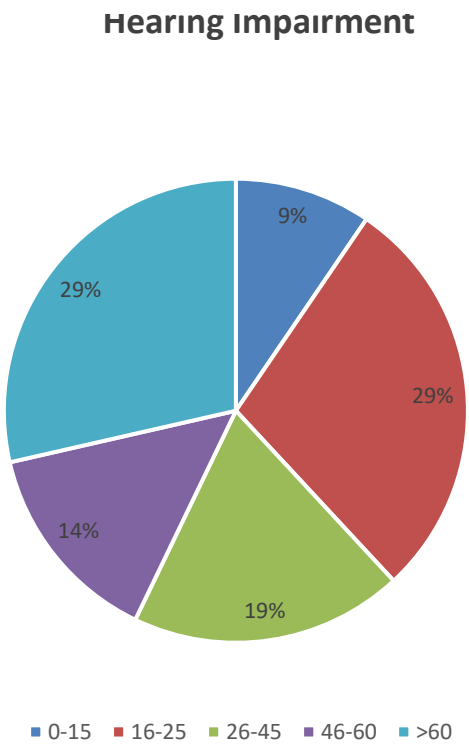
Figure 28 Showing the types of Hearing Impairment



Source: Author, 2022

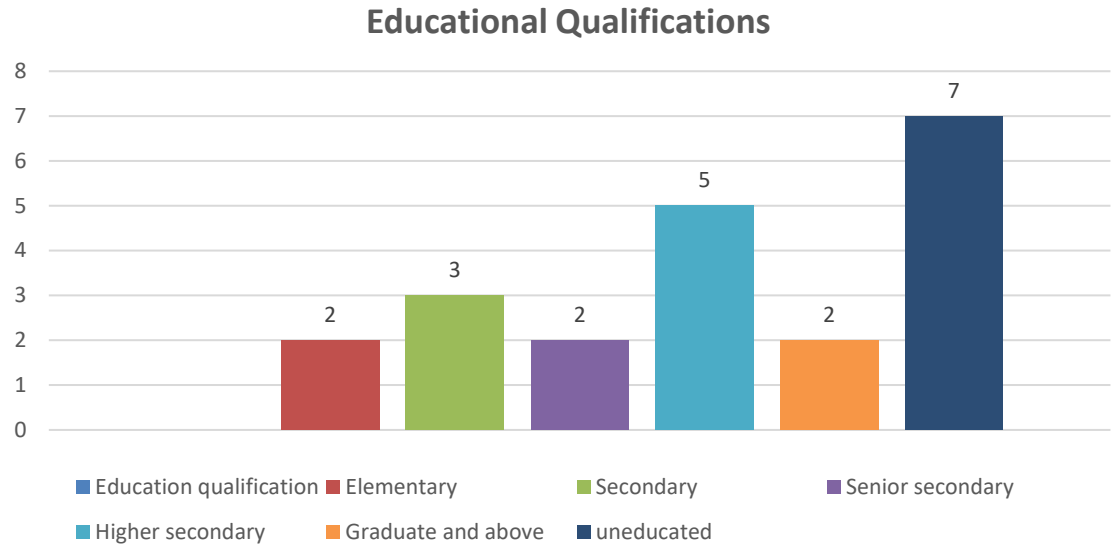
Out of 117 samples, 21 were surveyed under hearing impaired category. speech impairments, hearing impairments, and speech and hearing both, these are 3 categories. Samples were collected from all age groups and types of persons with speech and hearing impairment. Out of 21 maximum 12 persons are dealing with speech and hearing impairments. Only speech or only hearing impairment are less in numbers, 4 and 5 respectively.

Figure 29 Age Group of persons with Hearing Impairment



Source: Author, 2022

Figure 30 Showing Educational Qualification of persons with Hearing Impairment

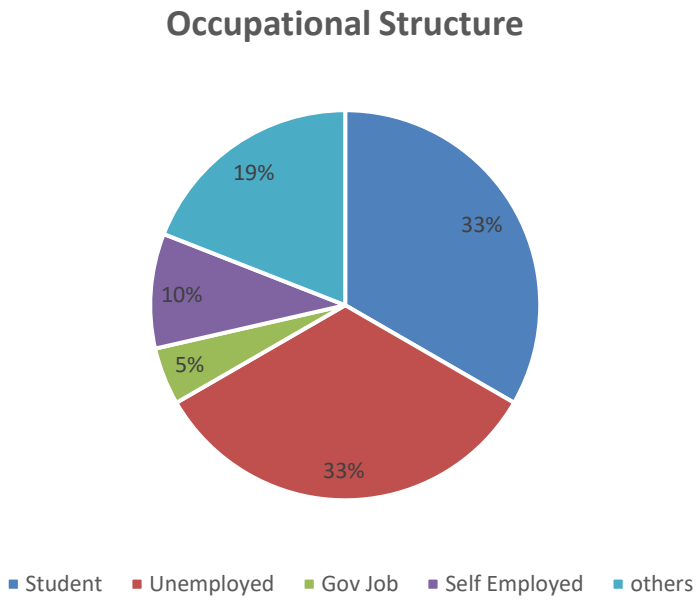


Source: Author, 2022

Maximum effected age group 16-25 and >60, 29% and 29% respectively out of total person with speech and hearing impairments

Maximum are uneducated (7 out of 21 persons with hearing and speech impairment), followed by people going to higher secondary (5 out of 21 person). Only 2 out of 21 are going for higher studies (graduate and above)

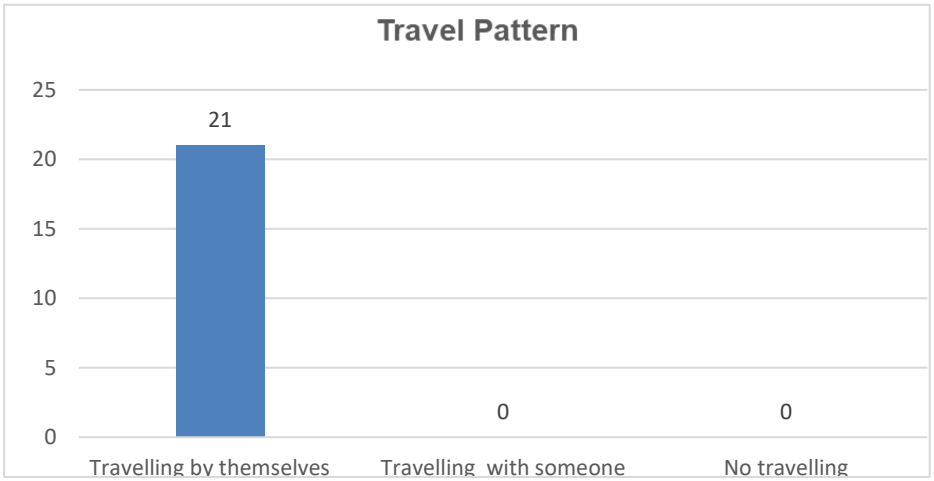
Figure 31 Showing Occupational Structure of persons with Hearing Impairment



Source: Author, 2022

Occupational structure 33% are unemployed and other 33% are students. Only 5% are in govt. sector.

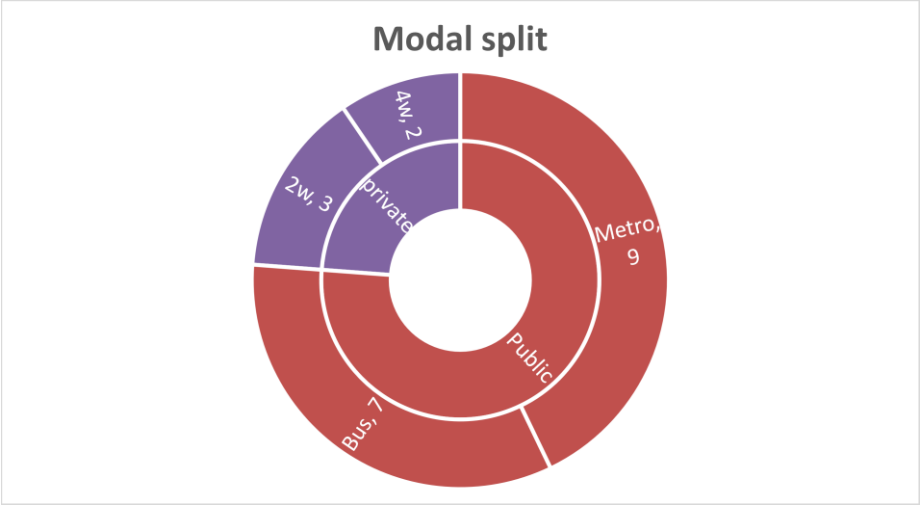
Figure 32 Showing Travel Pattern of Persons with Hearing Impairment



Persons with Speech and hearing disability are traveling by themselves.

Source: Author, 2022

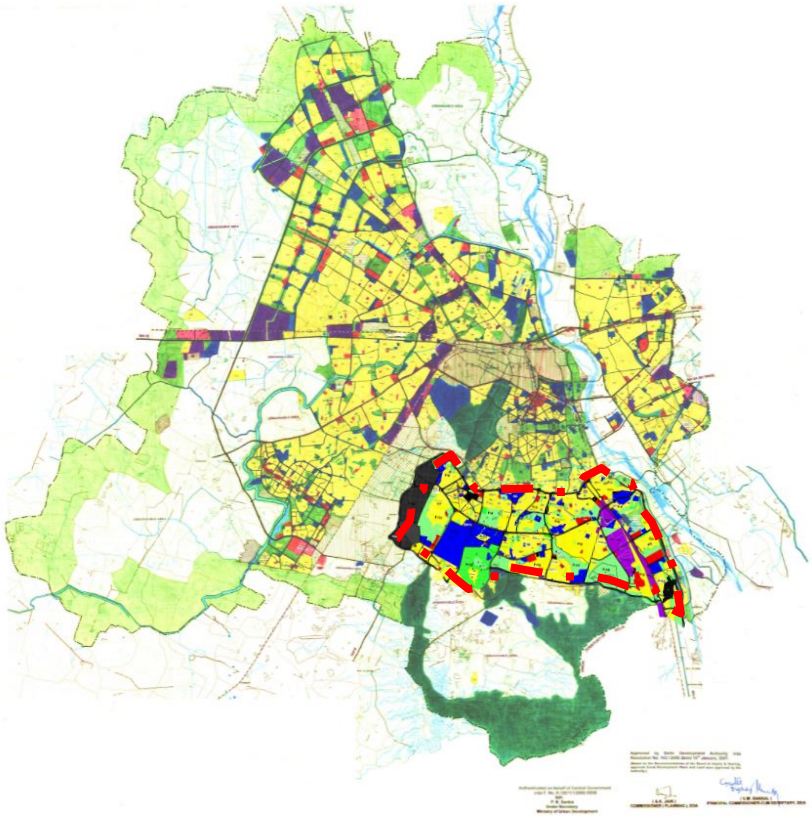
Figure 33Showing Mode of Transport use by Persons with Speech and Hearing Impairment



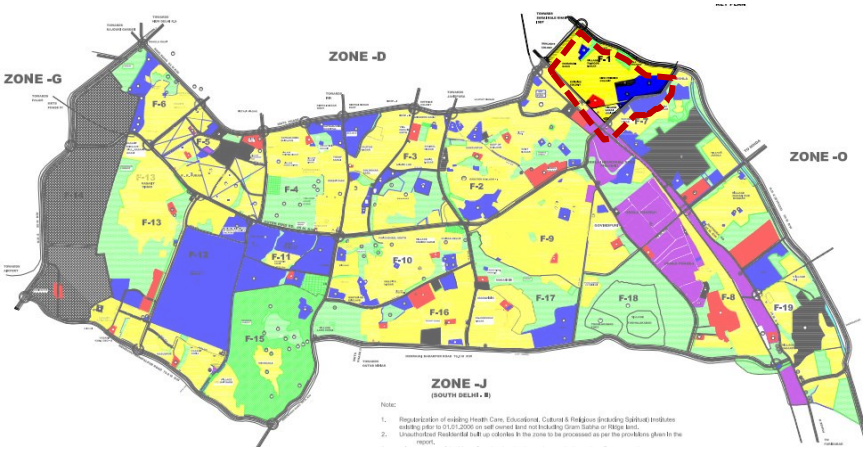
Source: Author, 2022

Out of 21 persons with hearing and speech impairment only 2 are using 4– wheelers and 3 are using 2- wheeler, as private mode of transport. Other 16 are using public mode, out of that metro is preferred by 9 of them.

4.2 Selection and profile of detail area



DELHI NCT MAP



ZONE-F MAP **SUB-ZONE-F MAP**

Source: MPD 2021, Zonal Plan

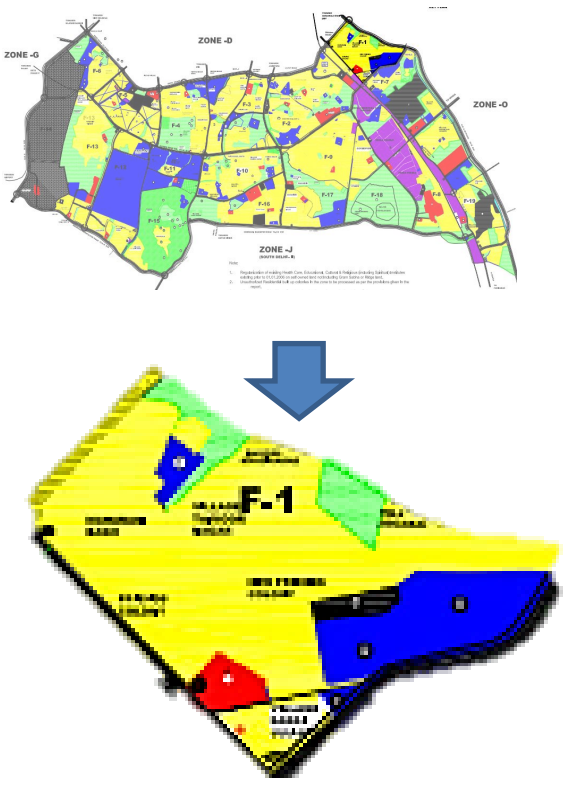
4.3 Detail study area profile

From primary survey locations, one area has been carried forward for the details study. Map which is sub zone F1, a well-planned and well-connected area consist of mainly new friends' colony, maharani Bagh, Taimoor Nagar and Bharat Nagar etc.

Study area is well planned and stretches over 277 HA, the study area is well connected to all mode of transport and other facilities, all the necessary amenities and facilities like schools, markets and other daily requirements. ASHRAM AND SHUKHDEV VIHAR is the nearest metro stations.

As per the MPD 2021 and the Zonal Plan, the area lies under Zone F and sub-zone F-1. The predominant land use of the area of study is residential.

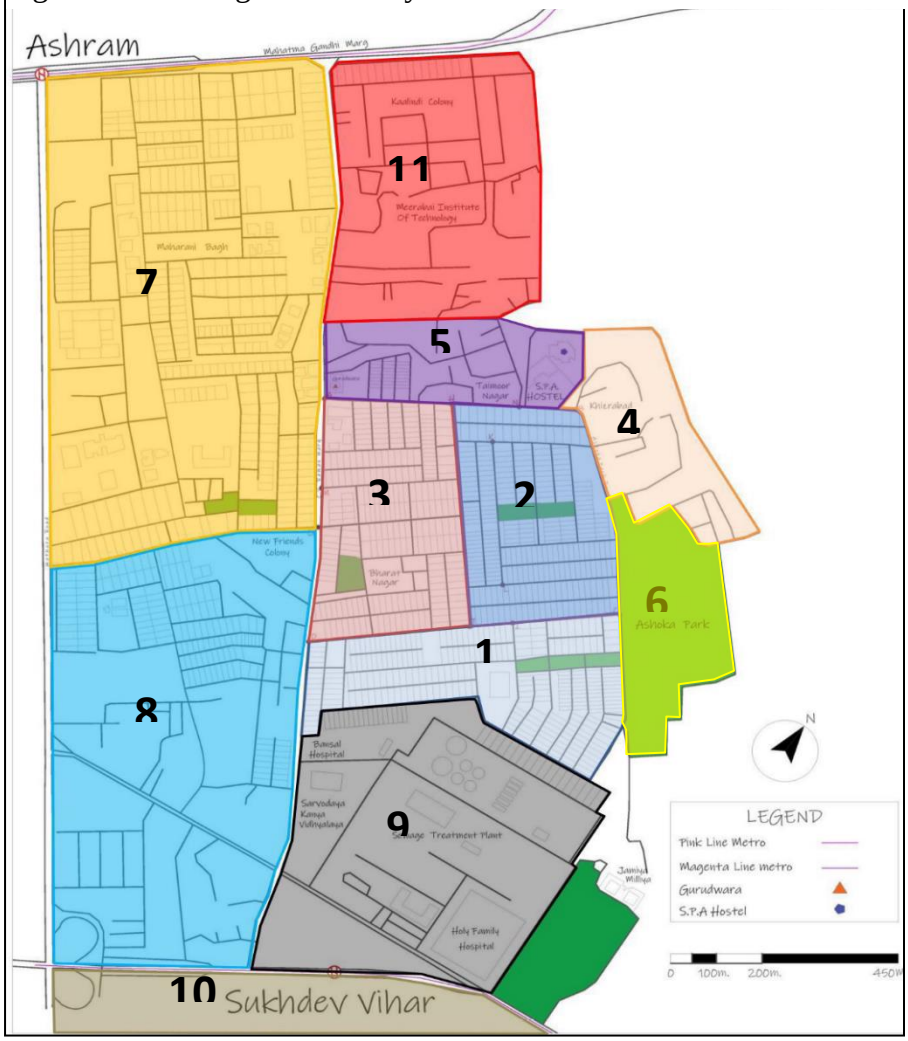
I chose this location because it is well-planned and well-connected to all modes of transportation, including bus and metro. This area is made up of people ranging in income from low to high. This area is equipped with all of the required services and facilities, such as schools, colleges, hospitals, and commercial marketplaces.



Source: MPD 2021, zonal plans

4.4 Detail study area

Figure 34 Showing Detail Study Area in 8 zones



Source: Author, 2022

ZONE 1: NFC BLOCK A

ZONE 2: NFC BLOCK B

ZONE 3: NFC BLOCK C + BHARAT NAGAR

ZONE 4: KHIZRABAD

ZONE 5: TAIMOOOR NAGAR+SPA HOSTEL

ZONE 6: ASHOKA PARK

ZONE 7: MAHARANI BAGH

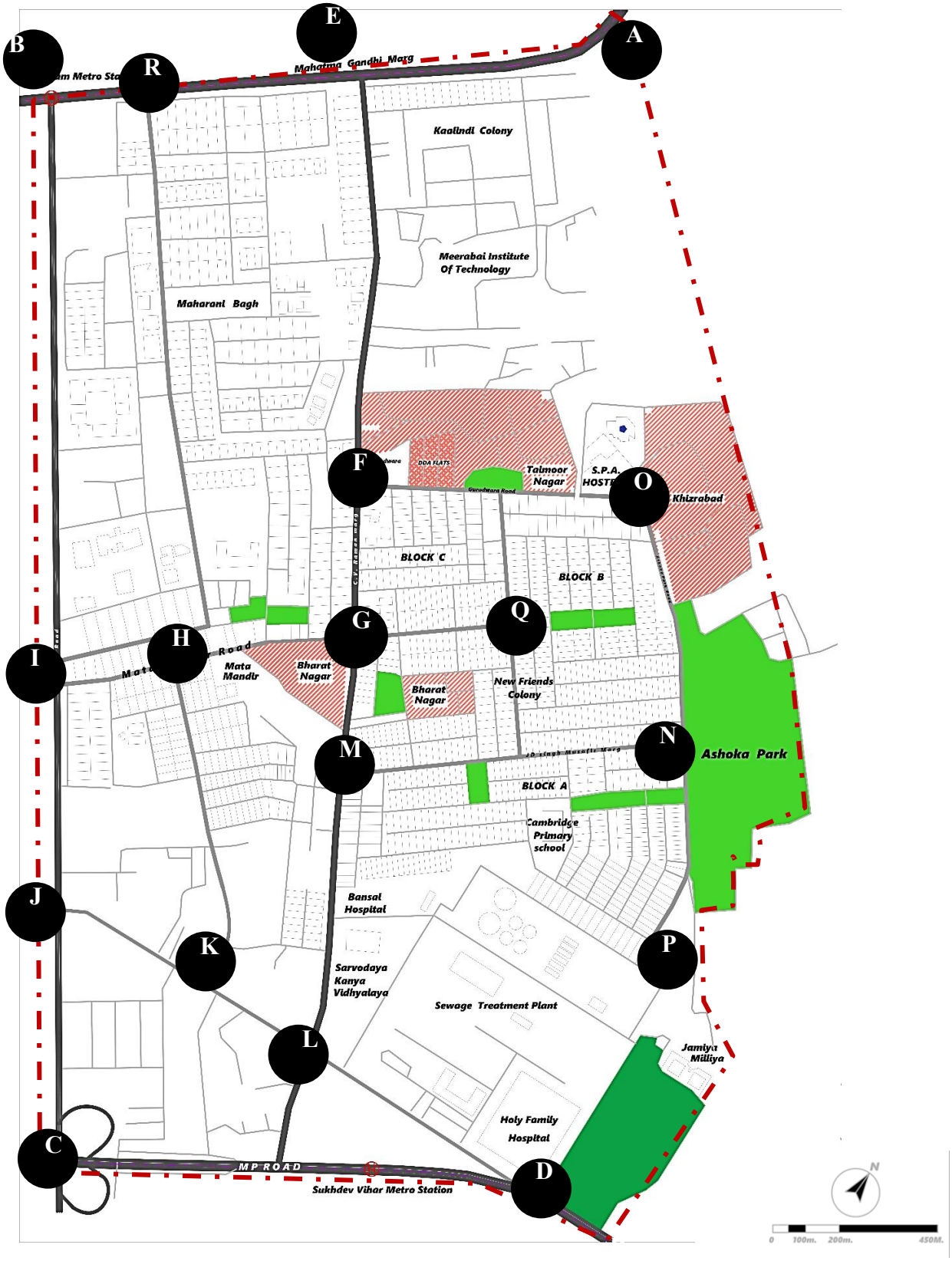
ZONE 8: NFC BLOCK D

- ***All factors are scored out of 5 in sections:***
- ***The scores for each factor are then added up to get the TOTAL SCORE of the SECTION.***
- ***The total score is then converted to a score out of 10 for ease of understanding***

CATEGORY				obstructions											
street code	pathway(y/n)	maintenance and condition of footpath	Continuity of footpath	vendors	parking	trees/land-scaping	others	Ramps	sinages	Tactile paving	Braille sinages	lighting	Amenities	TOTAL score out of 60	Score out of 10
AE	Y	3.5	3	3	3	2.5	2.5	3	2	1	1	4	1	29.5	4.9
ER	Y	3	4	3.5	3.5	3	3.5	2.5	2.5	1	1	3.5	1	32	5.3
RB	Y	3	4	3.5	3.5	3	3.5	2.5	2.5	1	1	3.5	1	32	5.3
BI	Y	4	4.5	4	4	3.5	3	3	3	1	1	4	1.5	36.5	**6.1**
IJ	Y	4	4.5	4	3.5	3.5	3	3	3	1	1	4	1.5	36	**6.0**
JC	Y	4	4.5	4	3.5	3.5	3	3	3	1	1	4	1.5	36	**6.0**
CD	Y	3.5	4	3	4	4	4	2.5	3.5	1	1	4	2	36.5	**6.1**
EF	Y	3	2	2	2.5	3.5	3	2.5	3	1	1	3.5	1	28	4.7
FG	Y	3	3	2.5	2.5	3.5	3	2.5	3	1	1	3.5	1	29.5	4.9
GM	Y	3	2	2	2.5	3.5	3	2.5	3	1	1	3.5	1	28	4.7
ML	Y	3	2	2	2.5	3.5	2.5	2.5	3	1	1	3.5	1	27.5	**4.6**
FO	Y	2	2	2	3	4	2.5	3	2	1	1	3	1	26.5	**4.4**
GQ	Y	3	3	2.5	2.5	3.5	3	2.5	3	1	1	3.5	1	29.5	4.9
GH	Y	3	2	2	2.5	3.5	2.5	2.5	3	1	1	3.5	1	27.5	**4.6**
HI	Y	3	2	2	2.5	3.5	2.5	2.5	3	1	1	3.5	1	27.5	**4.6**
HR	Y	3	3	2.5	2.5	3.5	3	2.5	3	1	1	3.5	1	29.5	4.9
HK	Y	3	3	2.5	2.5	3.5	4	3	3	1	1	3.5	1	31	5.2
JK	Y	4	4	3	3	4	4	3	3.5	1	1	4	2	36.5	6.1
KL	Y	4	4	3	3	4	4	3	3.5	1	1	4	2	36.5	6.1
NP	Y	3.5	3	2.5	3.5	3	2.5	2.5	2	1	1	3	1	28.5	4.8
NO	Y	3.5	3	3	3.5	3	3	2.5	2	1	1	3	1	29.5	4.9
MN	Y	3	3.5	4.5	3.5	3.5	2.5	2	2	1	1	3.5	1	31	5.2

Figure 35 Scoring of all the pathways and roads ***Source: Author, 2022***

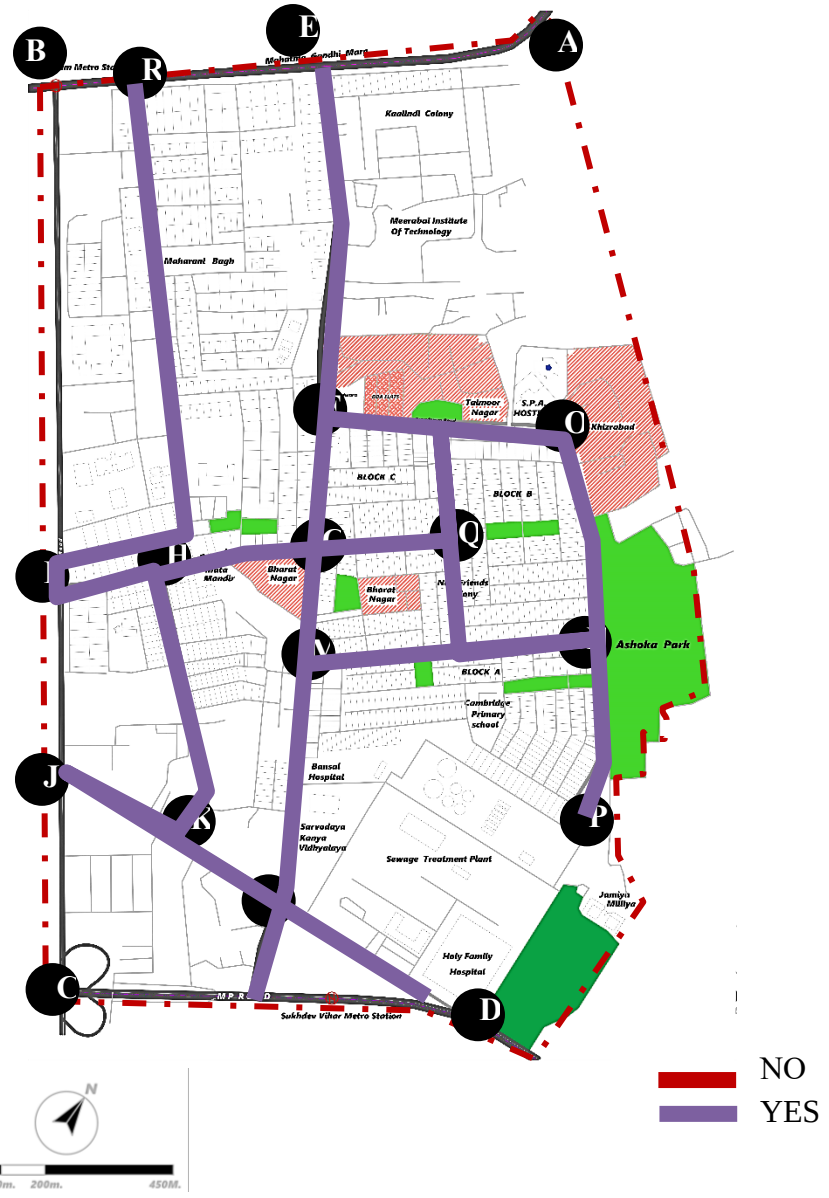
Figure 36 Study area with divided stretches



Source: Author, 2022

4.4.1 Availability of pathway

Figure 38 Showing Availability of pathways in the area



Source: Author, 2022

Almost all major roads have pathways but There are obstructions like improperly placed information signs, vehicles parked on pavements, hawkers' encroachment, broken and uneven pavement surfaces

Broken pathways

improperly placed signs

Encroached pathways

obstruction

4.4.2 Condition of pathway

Figure 39 Showing Condition of Pathways in the Area

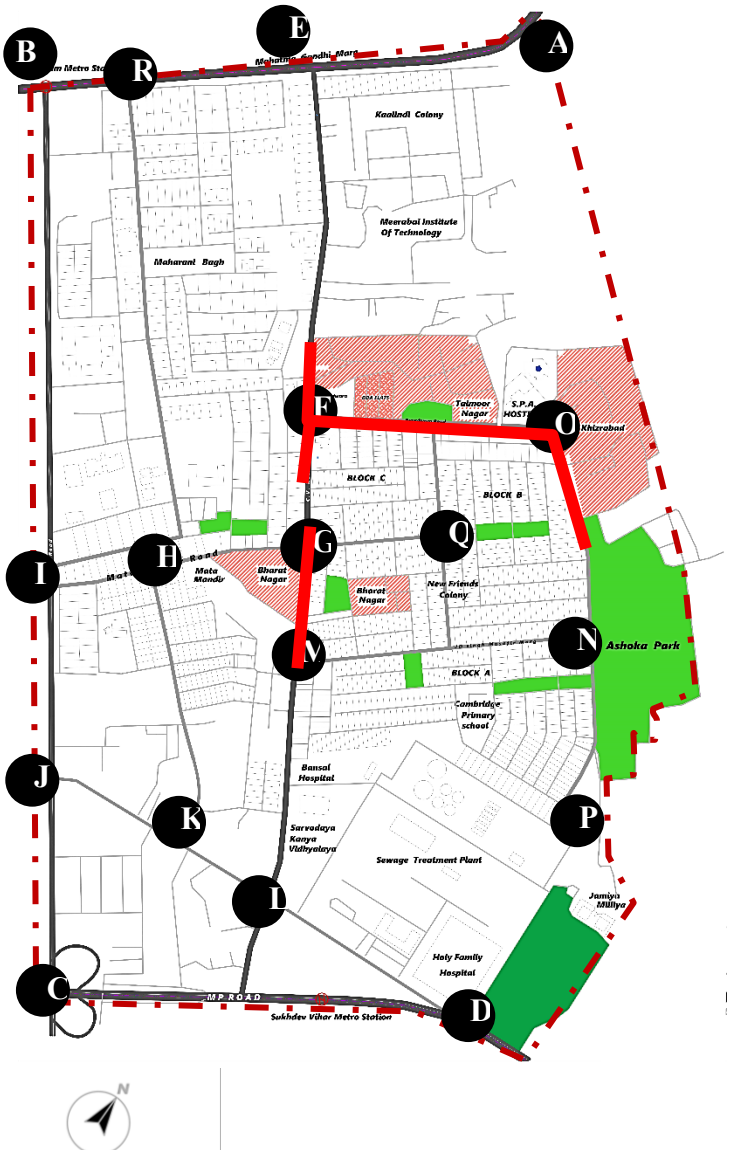
Source: Author, 2022

Almost all major roads have pathways but There are improperly placed information signs, vehicles parked on pavements, hawkers' encroachment, broken and uneven pavement surfaces, missing ramps, missing tactile paving's, and unusually high pavements

Broken and poorly maintained pathways

4.4.3 Major areas of concern

Figure 40 Showing major Areas of Concern



Source: Author, 2022

The area contains zebra crossings which are not visible. It contains pedestrian signals which are either not working, visible or audible. The maintenance of these facilities needs to be kept in check.

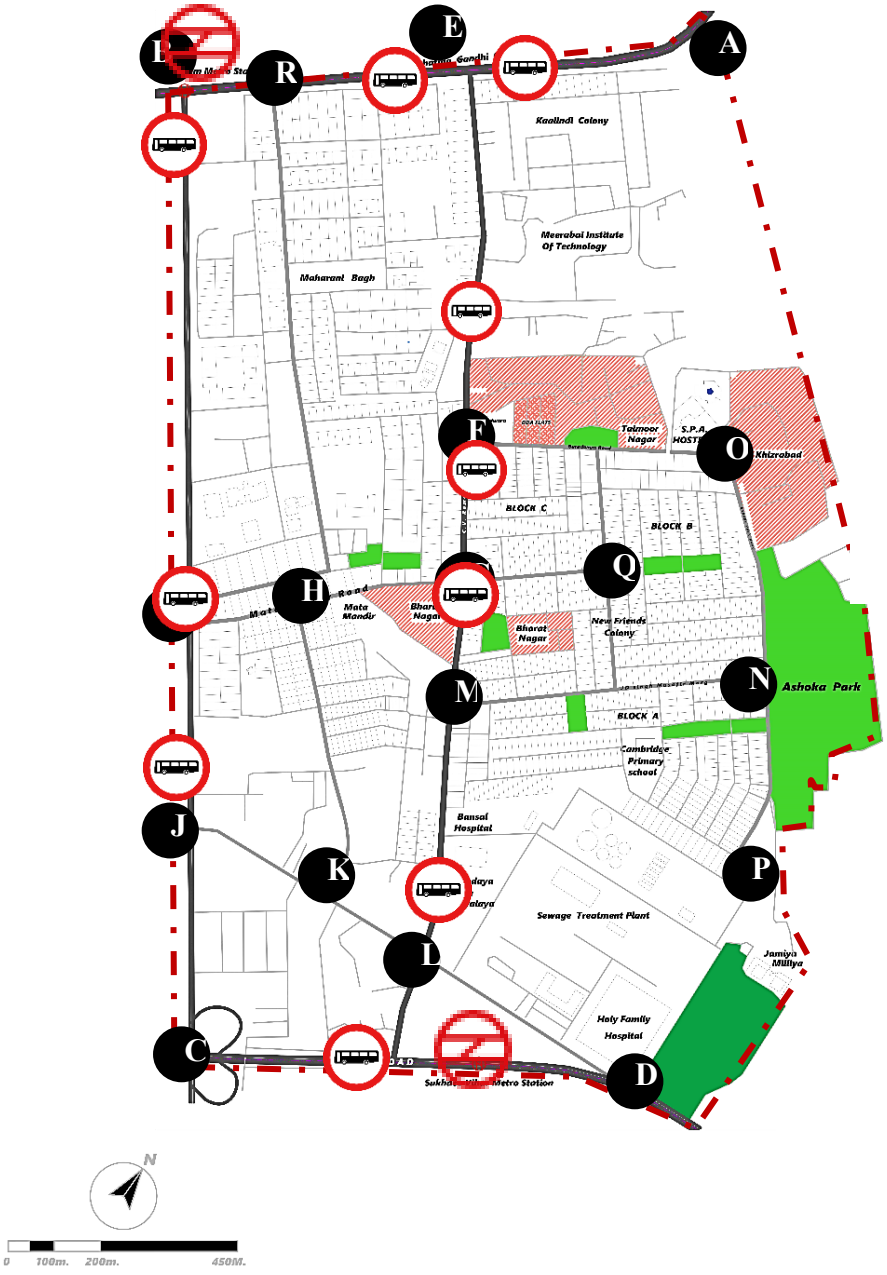
On street parking is another serious problem causing pedestrians difficulty in accessing footpaths, and also crossing roads.

Even though proper infrastructure is provided, pedestrians do not walk on footpaths due to low quality and accessibility.

Major problems are obstructions on footpaths in the form of vendors on the streets

4.4.4 Major areas of concern

Figure 41 Showing major Areas of Concern



BUS

- Absence of drop-down kerbs in the area
- Buses do not stop at bus stops
- lack of functional ramps at bus stands, inaccessible pavements

METRO

- Absence of drop-down kerbs in the area
- Buses do not stop at bus stops
- lack of functional ramps at bus stands, inaccessible pavements

Source: Author, 2022

5 Issues

5.1.1 Gap of data

Data Gaps and Scarcity According to WHO, NSSO, and Census, the disaggregated data available for PWD is severely lacking. There is a scarcity of trend data; collection began in 1981, was halted in 1991, and then resumed in 2001.

Between the 2001 and 2011 Census Surveys, there were some modifications in the definition of disability and its kinds. The National Sample Survey Organization (NSSO) completed its 58th round of disability surveys in 2002. There were major numerical and definitional variations between this round and the 2001 Census of India survey. Due to the nine-year time gap between the NSS 58th cycle and Census 2011, there will be a significant numerical difference in the count.

There is no data available to illustrate the availability and accessibility of physical and social infrastructure, socioeconomic profile, household data, ownership, or access to information for people with disabilities. Issues of poverty, access to health and sanitation, and other basic utilities cannot be addressed due to a lack of statistics on PWD living in slums.

5.1.2 Master plan of Delhi 2021

- Inclusion and persons with disabilities are not mentioned in the vision and framework of the Delhi master plan for development process and participation.
- The requirement for a barrier-free environment is acknowledged, but there are no guidelines for accomplishing it (infrastructure, transportation, accessibility needs).
- The term "integrated schooling" is mentioned, but the scope, inclusion, and accessibility norms are not specified.
- There is only one school per ten thousand people, and the disability rate in Delhi is 1390 people per ten thousand people.

5.1.3 At City (Delhi) level

- **Age group and Type of disability**
- Inaccessible environment

- The 20-40 age group is the most affected by disability. The rate of movement-related impairment is greatest among those aged 20 to 40. In the 20-40 age bracket, 61 percent of men are male. Females in the 20-40 age bracket account for 49 percent of the total. All age groups and zones/districts have the highest prevalence of mobility disabilities.
- District wise disability & facilities
- North west with the maximum population of disability which is 20 % And followed by west, north east, south west and south Delhi with disability respectively 15%,14%, 14% and 16%. New Delhi with minimum population of disability which is 1%.
- From survey analysis I got know that majority of person with disabilities commutes only when assisted
- 42 out of 58 persons with locomotor disabilities are travelling by public mode of transport, out of which metro is having maximum modal split. Only 12 person uses bus for travelling.
- As per as users rating metro was considered as most accessible mode of transport
- Roads/crossing/bus/bis stops are least accessible
- Maximum locomotor impairment persons are uneducated (17 of 58), 11 out of 38 persons with visual impairment

5.1.4 At detailed area level

- **Pathways**
- Almost all major roads have pathways but There are improperly placed information signs, vehicles parked on pavements, hawkers' encroachment, broken and uneven pavement surfaces.
- There are missing ramps, missing tactile paving's in the study area.
- Pathways are not in continuation.
- Road crossings are blocked with medians.
- Drains underneath the pavements, which are often left open
- Planning norms /design standards are not being followed
- Encroachments/obstruction are big issues for roads and pathways.

- **Street amenities and singes**
- Inaccessible existing infrastructure for all type of person with disabilities.
- There are no braille singes available in study area.
- Street lights are not enough for pathways.

others

- Metro is disabled-friendly, but reaching it is a challenge for persons with disabilities, especially for wheelchair users.
- Bus stops does not have ramps.
- Inaccessible toilets
- With maximum car ownership, this area has heavy traffic issues, which is leading to the blocked streets, creating encroachments

6 Issues/conclusion and recommendation

Conclusion	Recommendation
STATISTICS (DELHI LEVEL)	
Age Group	
Age group 20-60 is most affected with disabilities:	As age group of 20-60 is most affected by disability, provision of accessible environment becomes essential as major working group is essential for economic growth of nation as well as state.
Male (61%) with disability in movement.	
Female (49%) in the age group of >60	
Age group >60 shows prevalence of disability in movement.	
Type of Disability	
Disability in movement is most prevalent in all the age groups and maximum in >60 age group	Disability in movement is most prevalent of all, thus effective and compulsory provision of accessible environment becomes utmost important.
District wise Disability	
North West District is having maximum population with disabilities (20%)	Proper rehabilitation and health facilities are required to be provided in the prevalent districts. Accessible and efficient infrastructure for learning and growth of persons with disabilities is needed to be facilitated.
Central and New Delhi districts are having highest disability rate (per 1000 persons) with 20 and 19 persons with disability respectively for every 1000 person in the district.	
North East, Central and East Districts are top 3 districts having maximum density of persons with disabilities with 567, 493	
Disability in movement is prevalent in 29% of the urban population followed by disability in hearing (15%) and seeing (13%).	

Table 11 issues and recommendations

6.1 Issues/conclusion and recommendation

Conclusion	Recommendation
MASTER PLAN 2021	
There is no specific term adopted in master plan for persons with disabilities, as it uses term physically challenged and disabled while introducing provisions.	The facilities can be alternatively introduced by way of promoting and introducing inclusive schools
There is no mention in vision of master planning document about inclusion of persons with disabilities in the development process and participation.	There is need of standardization and introduction of terms related to persons with disabilities in the planning document and to develop guidelines, provisions of facilities and standards as per their needs.
The master plan talks about sustainable environment in the vision but it cannot be achieved without participation and inclusion of persons with disabilities in the development process.	Inclusion and effective participation must be envisaged in the vision of master planning document.
The master plan promotes special schools and care centers, but does not promote inclusive education (schools and colleges) and training centers.	For provisions of infrastructure, inclusive infrastructure with barrier free environment should also be given preference along with special infrastructure.
Under barrier free environment, it has mentioned three requirements but is no specific norms for achieving the same in context to infrastructure and transportation.	
Under social infrastructure, for Health facilities, there is no specific mention of persons with different types of disabilities but only mental disability.	The provisions for accessible infrastructure should be linked with zonal plan regulations, standards and bye laws for implementation in new development at zonal level.
For education facilities, it specifies integrated schooling but does not mention its extent and inclusion for children with disabilities and accessibility standards.	
Also, for 10 lakh population only 1 school for persons with physical disability and mental disability is provided, without even realizing that it will become a challenge for children with physical and/or mental disability to reach from distant areas	This will not only help persons with disabilities to live with dignity, participate, and empower themselves but also the elderly persons, women with pregnancy and persons with temporary disability, thus making it universally accessible.
For planning norms and standards of education facilities, there is no mention of accessibility needs of children with disabilities.	

Table 12issues and recommendations

6.2 Issues/conclusion and recommendation

Conclusion	Recommendation
DATA COLLECTION LEVEL	
paucity of data	
There is no trend of data on persons with disabilities in India, as the initial collection began in 1981 and discontinued for 1991 and again started for 2001.	Department of empowerment of persons with disabilities should assess indicators for evaluation of existing conditions and requirements of persons with disabilities in urban areas.
There is no specific and segregated data on persons with disabilities by availability of water and sanitation facilities, income, education, household, house ownership and accessibility to information, facilities etc.	Census should collect specific and segregated data on persons with disabilities living in slums, by availability of water and sanitation facilities, income, education, household details, house ownership and accessibility to basic amenities, facilities and information.
paucity of data on persons with disabilities in slum area Delhi	
Due to non-availability of data on persons with disabilities living in slum areas, the issues related to poverty, access to water and sanitation and other basic amenities cannot be addressed sanitation and other basic amenities cannot be addressed.	
Also, facilities required for education, health, special schools and training institutes etc. cannot be assessed.	

Table 13 Issues and recommendations

6.3 Issues/conclusion and recommendation

Conclusion	Recommendation
Primary servey [locomotor impaired]	
Out of 117 samples, 58 were surveyed under locomotor disabilities. It is the most diverse of all the disabilities	36% of locomotor disabled are unemployed, thus provision of quality education, accessible and barrier free working environment is important
16 out of 58 Locomotor Disabled are dealing with dysfunction of lower limb due to spinal injury, followed by paralysis and loss of limb.	Metro is rated most accessible mode of transport but first mile and last mile is a challage for them so it is important to provide the facility of metro to every person in Delhi to make their life easy
Maximum effected age group 26-45 and >60, 27% and 26% respectively.	Roads/crossings and buses are least accessible and people who are travelling by using bus as a mode of transport require assistance thus there has been requirement of special provision regarding barrier free environment and ease of access to make them live with dignity and self dependent.
Maximum persons with locomotor impairments are uneducated (17 of 58)	
36% of locomotor disabled are unemployed	7031 buses are in Delhi right now but only 3600 low flooring buses are there so provision of increasing the number of low flooring buses with ramp . Automatic openable ramps in low floor buses.
29 out of 58 are travelling by themselves	
Persons with disability using bus as mode of transport are travelling with assistance.	

Table 14 Issues and recommendations

6.4 Issues/conclusion and recommendation

Conclusion	Recommendation
PRIMARY SERVEY [visual impaired]	
Out of 117 samples, 38 were surveyed under vision impairment (29 are fully blind and 9 are partially blind)	35% of visual impaired people are unemployed, thus provision of quality education, accessible and barrier free working environment is important
Maximum effected age group under the visually impaired category, age group 26-45 and >60, 27% and 26% respectively.	Roads/crossings and buses are least accessible and people who are travelling by using bus as a mode of transport require assistance and they also need assistance for crossing the road thus there has been requirement of special provision regarding barrier free environment and provision of **Audio traffic signals** and **audio signals at** different locations in the city.
persons with visual impairments are uneducated (11 of 38)	
36% of visual impairment are unemployed	
8 out of 58 are travelling by themselves and 19 are dependent on someone	
42 are using public mode of transport, out of them metro is the preferred mode of transport for 30 of them.	provision of paratransit service (demand share ride service)
Metro is rated most accessible mode of transport but there are many complains of falling of visually impaired person from the platforms in the city.	platform screen gates are unavailable at many stations so it is important to implement platform screen gates to all metro stations

Table 15 Issues and recommendations

6.5 Issues/conclusion and recommendation

ACTION- Strengthening the existing advisory committee, by giving power and function, new recommending and implementing committee.

FUNCTIONS

The committee will review(audit) the exiting area.

It will give the recommendation to the concerned authority, for implementation.

For new development committee will review the plans,

Will give recommendations/reviews

Committee will give approval according the implementation of the changes.

Committee will give suggestions to form planning guidelines.

awareness program.

POWERS

Committee has the right to approve or disapprove the design of any area.

Committee Can incentivize or disincentivize to an organization or group of people

ACTION- To provide accessible and barrier free public environment.

TARGET-1

Enhance the accessibility of the public spaces (Market, parks, landscape, etc.)

Conduct accessibility audit in formal markets and parks.. (city level) and converting them into fully accessible.

Conduct accessibility audit in small markets (community level) and convert them into fully accessible.

TARGET-2

Improve the accessibility of pathways, sidewalks.

Conduct accessibility audit on pathways and sidewalks (community level) and convert it into fully accessible.

TARGET -3

Improve the accessibility of public transport (bus stops, metro stations) and transport carriers (buses, metro)

Conduct accessibility audits on bus stops and metro station and make them fully accessible.

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Annexure I

Department of Physical Planning

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PLANNING FOR PERSONS WITH DISABILITIES

Aatish kumar
BP/727/2017

THESIS OUTLINE

"A DISABILITY IS ANY CONDITION OF THE BODY OR MIND (IMPAIRMENT) THAT MAKES IT MORE DIFFICULT FOR THE PERSON WITH THE CONDITION TO DO CERTAIN ACTIVITIES (ACTIVITY LIMITATION) AND INTERACT WITH THE WORLD AROUND THEM (PARTICIPATION RESTRICTIONS)."

- AS PER AS **CDC**

"LONG-TERM PHYSICAL, MENTAL, INTELLECTUAL OR SENSORY IMPAIRMENTS WHICH IN INTERACTION WITH VARIOUS BARRIERS MAY HINDER [A PERSON'S] FULL AND EFFECTIVE PARTICIPATION IN SOCIETY ON AN EQUAL BASIS WITH OTHERS."

- AS PER AS **UNCRPD**

INTRODUCTION

Persons with disabilities are one of the most important and diverse category of population and needed to be addressed in all development and decision making process.

According to the **World Health Organisation (WHO), about 15%** of the world's population lives with some form of disability.

"India has one of the biggest populations of persons with disabilities individuals in the world ."

NEED FOR STUDY

World health organization in 2011 estimated that **15.3%** of the world's population deals with disability of one kind or the other. United Nations, around one billion people live with disabilities globally.

The **Census of India 2011** says over **26.8 million** people in India have one or the other kind of disability. This is equivalent to 2.71% of the population. From 2001 to 2011 Decadal increase in proportion is significant in urban areas which is **1.93% to 2.7% of** the total population.

AIM & OBJECTIVE

Aim of the study "**To give good quality of life by providing equal opportunity to persons with disabilities"**

- To study the concept of disability and to study the initiatives taken for persons with disabilities.
- To study the existing Act/policies on rights of persons with disabilities in Indian cities.
- Planning interventions for reducing barriers for full participation of persons with Disabilities in development and decision-making process and analyse the existing social and physical barriers for persons with Disabilities
- To formulate proposals for making friendly cities for persons with disabilities

SCOPE

It is an exploratory study which is confined to persons with disabilities in urban areas .The study seeks to build an understanding of concepts related to disabilities, develop indicators through literature study and take into account the barriers experienced by persons with disabilities in urban areas. It also covers the existing condition of persons with disabilities by looking at their personal profile, accessibility issues, perceptions towards physical and social environment, extent of awareness about government initiatives and participation at local level etc.

RESEARCH QUESTION

How to promote inclusion for persons with disabilities?

TYPE OF DISABILITIES

Types of disabilities According to the census types of disabilities are in Seeingin Hearing, In Speech, In Movement, Mental Retardation, Mental illness, Any Other and Multiple Disability(combination of two)

Sr. No.	TYPE OF DISABILITY	CHANGE IN DEFINITION
1.	IN SEEING	•One eyed persons were treated as disabled at Census 2001. In Census 2011 such persons have not been treated as disabled in s eeing. At the Census 2011 enumerators were asked to apply a simple test to ascertain blurred vision. At Census 2001 no such instructions were given.
2.	IN HEARING	•Person using hearing aid have been treated as disabled at Census 2011. They were not treated as disabled at the Census 2001. Persons having problem in hearing through one ear although the other ear is functioning normally was considered having hearing disability in Census 200 1. But in Census 2011, such persons were not considered as disabled.
3.	IN SPEECH	•Definition was made clearer in Census 2011 to record persons with speech disability. For instance, "persons who speak in sin gle words and are not able to speak in sentences" was specifically mentioned to be treated as disabled.
4.	IN MOVEMENT	•Specific mention of the following was made in the definition for Census 2011: Paralytic persons; Those who crawl; Those who are able to walk with the help of aid; Have acute and permanent problems of joints/muscles; Have stiffness or tightness in movement or have loose, invo luntary movements or tremors of the body or have fragile bones; Have difficulty balancing and coordinating body movement; Have loss of sensation i n body due to paralysis, Leprosy etc.; Have deformity of body like hunch back or are dwarf.
5.	MENTAL RETARDATION	•New category introduced at Census 2011. Mental Retardation was covered under the category of Mental disability at Census 200 1.
6.	MENTAL ILLNESS	•New category introduced at Census 2011. Mental Illness was covered under the category of Mental disability at Census 2001
7.	ANY OTHER	•New category introduced at Census 2011 to ensure complete coverage. This option enabled respondents to report those disabili ties which are not listed in the question. In such cases, where informant was not sure about the type of disability this option of reporting disability as 'Any Other' was available to her/him.
8.	MULTIPLE DISABILITY	•New category introduced at Census 2011. The question has been designed to record as many as three types of disabilities from which the individual was reported to be suffering.

TYPE OF DISABILITIES

The types of disabilities have been increased from existing 7 to 21.

The 21 disabilities are given below

1. Blindness
2. Low-vision
3. Leprosy Cured persons
4. Hearing Impairment (deaf and hard of hearing)
5. Locomotor Disability
6. Dwarfism
7. Intellectual Disability
8. Mental Illness
9. Autism Spectrum Disorder
10. Cerebral Palsy
11. Muscular Dystrophy
12. Chronic Neurological conditions
13. Specific Learning Disabilities
14. Multiple Sclerosis
15. Speech and Language disability
16. Thalassemia
17. Hemophilia
18. Sickle Cell disease
19. Multiple Disabilities includingdeafblindness
20. Acid Attack victim
21. Parkinson's disease

MODELS OF DISABILITIES

There are many models of disability,which includes **Religious or Moral Model, Medical Model, Charity Model, Rights-Based Model, Economic Model .etc..** Models of disability provide a reference for society as programs and services,laws, regulations and structures are developed,which affect the lives of people living with a disability. The primary models of disability used are the **Medical Model, Biopsychosocial Model, and Social Model.**

Medical Model of Disability

The medical model of disability is presented as viewing disability as **a problem of the person, directly caused by disease, trauma, or other health condition** which therefore requires sustained medical care provided in the form of individual treatment by professionals

•In the medical model, management of the disability is aimed at a "cure," or the individual's adjustment and behavioral change that would lead to an "almost-cure" or effective cure.

•In the medical model, medical care is viewed as the main issue, and at the political level, the principal response is that of modifying or reforming health-care policy.

MODELS OF DISABILITIES

Social Model of Disability

The social model of disability sees the issue of "disability" as a socially created problem and a matter of the full integration of individuals into society.

In this model, disability is not an attribute of an individual, but rather a complex collection of conditions, many of which are created by the social environment. Hence, the management of the problem requires social action and is the collective responsibility of society at large to make the environmental modifications necessary for the full participation of people with disabilities in all areas of social life.

Disability is viewed as something which is imposed on people with impairments (whether they have a physical impairment, sensory impairment, learning difficulty or mental health condition) by a society which **creates barriers to equality.**

DISABILITY BARRIERS TO INCLUSION

Policy barriers are due to a lack of awareness of disability inclusion. Policy needs to ensure enforceable laws that guarantee equal participation to our fellow impaired citizens' walks of life. Also, wherever this is impossible, the state should give benefits that guarantee decent living conditions. However, this should not be regarded as a charity (see attitude above) but rather as compensation for the State's inability to provide equal opportunities to equal citizens under the law.

Social barriers are everywhere and follow a person with a disability for life. These barriers have to do with how they grow, learn, work, live and age. For instance, people with disabilities are less likely to graduate high school, find work or have a good income.

Transportation barriers make disabled persons dependent on others for everyday things. Either they cannot drive or do not have access to convenient private or public transportation means. This dependence on others hinders their ability to travel and, therefore, to maintain a stable job.

DISABILITY BARRIERS TO INCLUSION

The World Health Organization (WHO) describes barriers as being more than just physical obstacles.

Attitude is the source of many barriers that people with disabilities face. Attitude relates to stereotyping and prejudice and directly correlates with how we deal with the problem overall. Many regard a disability as a tragic shortcoming of someone instead of proactively seeing the problem. Being proactive means considering a disability as a social responsibility to proactively accommodate disabled people to live a fulfilling life.

Communication barriers are common with people who are having trouble hearing, speaking or understanding in general. For example, not many products have provisions for vision-impaired people like a description in Braille. Alternatively, only a few people learn sign language that creates a significant communication barrier for many.

Physical barriers are everywhere. From the moment a disabled person steps out of home must deal with many obstacles. From walking on the pavement to coming down or climbing up the stairs, people with disabilities face various obstacles.

MODELS OF DISABILITIES

Biopsychosocial Models of Disability

Disability is not a strictly medical concept nor a strictly social concept, the world health organization (WHO) released the international classification of impairments, disabilities, and handicaps**(ICIDH)** that classified disability into three domains:

1. Impairment
2. Disability
3. Handicap

Impairments *were* defined as abnormalities of body structure, appearance, and/or organ system and function.
Disabilities were defined as the consequences of impairments in terms of functional performance and activity of the individual.
Handicaps were defined as the disadvantages experienced by the individual as a result of impairments and disabilities

LAW AND REGULATION OF INDIA AND AROUND THE WORLD

- The rehabilitation council of india act ,1992
- Person with disability act, 1995
- United nation convention on the right of person with disabilities (UNCRPD) 2006
- Right of person with disability act 2016
- Accessible India campaign

LAW AND REGULATION OF INDIA AND AROUND THE WORLD

Year	Scheme and policy	Defination of disability	Accessibility	Broder provisions under policy/scheme	prepared by
1995	**THE PERSONS WITH DISABILITIES (EQUAL OPPORTUNITIES, PROTECTION OF RIGHTS AND FULL PARTICIPATION) ACT**	The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) (PWD) Act, 1995 defines disability in relation to medical conditions and degrees of impairment.it was a predominantly a welfare-oriented Act.		Preliminary, Definitions The Central Coordination Committee (and Central Executive Committee) The State Coordination Committee (and State Executive Committee) Prevention and Early Detection of Disabilities s Education, Employment, Affirmative Action, Non-discrimination Research And Manpower Development Recognition of Institutions for Persons with Disabilities Institution for Persons with severe Disabilities The Chief Commissioner and Commissioners for Persons with Disabilities Social Security, Miscellaneous Reservation in Government Job (3%)	
2016	**THE RIGHTS OF PERSONS WITH DISABILITIES ACT**	"person with disability" means a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others;	In consultation with the Chief Commissioner, the Central Government shall develop rules for persons with disabilities that establish accessibility standards for the physical environment, transportation, information and communications, including appropriate technologies and systems, and other facilities and services provided to the public in urban and rural areas.	Preliminary, definitions Rights and entitlements Education, skill development and employment, social security, health, rehabilitation and recreation Special provisions for persons with benchmark disabilities Special provisions for persons with disabilities with high support needs Duties and responsibilities of appropriate governments Registration of institutions for persons with disabilities and grants to such institutions Central and state advisory boards on disability and district level committee The Chief Commissioner and Commissioners for Persons with Disabilities National and state fund for persons with disabilities Social security, miscellaneous	ministry of social justice and empowerment
2015	**ACCESSIBLE INDIA CAMPAIGN**	The Accessible India Campaign drew inspiration form UNCRPD 2007 which views disability not in relation to a medical condition and degree of impairment but as an interaction of impairment and barriers that hinder effective participation in society.	The Campaign envisages providing features of accessibility in the 3 verticals of built -up environment, transportation sector and Information & Communication Technology ecosystem, for creation of an universal barrier free environment.	Gaps in accessibility Accessible India Campaign – Genesis Coverage of the Accessible India Campaign - Key Features Grounds Covered – Achievements under Accessible India Campaign Awareness Generation and Upscaling of the Campaign Accessible India Campaign - Before and After	Department of Empowerment of Persons with Disabilities under the Ministry of Social Justice & Empowerment.
2006	**HARMONISED GUIDELINES AND SPACE STANDARDS ON BARRIER FREE BUILT ENVIRONMENT FOR PERSONS WITH DISABILITY AND ELDERLY PERSONS**		Increasing accessibility leads to increased opportunities for Persons with Disabilities to access employment and to fully participate in the social, cultural, recreational, economic life of India	Introduction Accessibility, diversity and universal design 1 External elements Internal elements Information & wayfinding systems Building typologies Building operations & maintainence Evaluating accessibility	Ministry of Urban Development
2021	**HARMONISED GUIDELINES AND SPACE STANDARDS ON BARRIER FREE BUILT ENVIRONMENT FOR PERSONS WITH DISABILITY AND ELDERLY PERSONS**		Accessibility is basic to human existence ranging from access to basics to live or to move or to functionally perform in diverse living environments	PREAMBLE APPLICABILITY ANTHROPOMETRICS CLASSIFICATION OF BUILDINGS UNIVERSAL DESIGN ELEMENTS WITHIN BUILDING PREMISES SIGNAGE LEVEL CHANGES FIRE EVACUATION NEEDS ALIGHTING AND BOARDING AREAS TRANSPORT AND ROAD PLANNING ADAPTED HOUSING	Ministry of Urban Development

THE REHABILITATION COUNCIL OF INDIA ACT ,1992

This act came into being to regulate the training of rehabilitation professionals and to maintain a Central Rehabilitation Register to certify rehabilitation professionals. Thus by this act, the Rehabilitation Council of India has become the apex body to further professional development of those in the field of disability rehabilitation.

The main aims of the Rehabilitation Council of India are..

- To regulate training policies and programs in the field of disability rehabilitation.
- To standardize training courses for professionals working with people with disabilities.
- To prescribe minimum standards of education and training of various categories of professionals working with people with disabilities.
- To recognize institutions/universities running degree/diploma/certificate courses in the field of disability rehabilitation.
- To recognize foreign degree/diploma/certificates awarded by universities/institutions on a reciprocal basis.
- To maintain a Central Rehabilitation Register of Institutions possessing the recognized rehabilitation qualification.

THE PERSONS WITH DISABILITIES ACT, 1995

"The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995" has come into enforcement on **February 7, 1996** . This law is an important landmark and is a significant step in the direction to ensure equal opportunities for people with disabilities and their full participation in the nation building. The Act provides for both preventive and promotional aspects of rehabilitation like education, employment and vocational training, reservation, research and manpower development, creation of barrierfree environment, rehabilitation of persons with disability, unemployment and establishment of homes for persons with severe disability

The main aims of the person with disabilities Act are..

- Prevention and Early Detection of Disabilities
- Education
- Employment
- Non-discrimination
- Research and Manpower Development
- Affirmative Action
- Social Security
- Grievance Redressal

UNCRPD, 2006

"The full form of UNCRPD is **United Nations Convention on the Rights of Persons with Disabilities**. It is an international treaty that aims to protect the rights and dignity of persons with disabilities.
The convention consists of 50 articles which outline the inherent rights and freedoms of PWD.

UNCRPD are based on 8 General Principles

1. Respect for inherent dignity and individual autonomy
2. Non-discrimination, including reasonable accommodation
3. Full & effective participation and inclusion in society
4. Respect of difference and acceptance of PWD as part of human diversity and humanity
5. Equality of opportunity
6. Accessibility
7. Equality between men and women
8. Respect for evolving capacities of children with disabilities and respect for the right of children with disabilities to preserve their identities

RIGHT OF PERSON WITH DISABILITY ACT 2016

- The Bill, introduced by the Union minister for social justice and empowerment
- .Government introduced the Rights of Persons with Disabilities Bill in Rajya Sabha, seeking to increase reservation for disabled persons in public sector jobs from existing**3% to 5%** and reserve seat for them in higher educational institutions. At present, the reservation for the disabled is only 3% in the ratio of 1% each for the physically, visually and hearingimpaired persons. The new Bill, if passed by the Parliament, will extend the quota by 2%, covering two new additional categories - **mentally disabled and people with multiple disabilities**.
- Persons with at least 40% of a disability are entitled to certain benefits such as reservations in education and employment, preference in government schemes, etc.
- The Bill confers several rights and entitlements to disabled persons. These include disabled friendly access to all public buildings, hospitals, modes of transport, polling stations, security, education, and special provision for person with benchmark disabilities

PROVISIONS IN THE RPWD ACT, 2016

Built Environment and Information & technology	Rules for Persons with Disabilities laying down the standards of accessibility for: physical environment, information and communications, including appropriate technologies and systems, and other facilities and services provided to the public in urban and rural areas. Access to information
Citizen participation	Accessible elections Access pooling booth Material to be in Accessible format
Transportation	Formulation of rules facilities for Persons with Disabilities at bus stops, railway stations and airports conforming to the accessibility standard s relating to parking spaces, toilets, ticketing counters and ticketing machines; access to all modes of transport that conform to the design standards, including retrofitting old modes of transport, whereve r technically feasible and safe for Persons with Disabilities, economically viable and without entailing significant structural changes in design; accessible roads to address the mobility needed by Persons with Disabilities.
Education and Livelihood	Proper rehabilitation particularly in the areas of education and employment for all Persons with Disabilities. provide necessary support individualised or otherwise in environments that maximise academic and social development consistent with the goal of full inclusion provide transportation facilities to the children with disabilities and also the attendant of the children with disabilities having high support needs
Health care and emergency response	Proper rehabilitation particularly in the areas of health for all Persons with Disabilities. formulation of necessary schemes and programmes to safeguard and promote the right of Persons with Disabilities for an adequate standard of living to enable them to live independently or in the community: Community integration through: community centres with right living conditions in terms of safety, sanitation, health care and counselling; facilities for persons including children with disabilities who have no family or abandoned, or are without shelter or liveli hood; support during natural or man -made disasters and in areas of conflict; access to safe drinking water and appropriate and accessible sanitation facilities especially in urban slums
Public&Green spaces	redesign and support infrastructure facilities of all sporting activities for Persons with Disabilities; provide multi -sensory essentials and features in all sporting activities to ensure active participation of all Persons with Disabilities; Special Schemes and Development Programs five per cent. Reservation in allotment of land on a concessional rate to use for housing, shelter, setting up of occupation, business, enterprise, recreation centres and production centres

ACCESSIBLE INDIA CAMPAIGN

- Department of Empowerment of Persons with Disabilities (DEPwD) **launched Accessible India Campaign** (**Sugamya Bharat Abhiyan**) as a nation-wide Campaign for achieving universal accessibility for Persons with Disabilities (PwDs) on December 3,2015. It has three important verticals, namely - **the Build Environment, the transportation sector and the ICT ecosystem.**
- The vision of Accessible India Campaign is to create a barrier free environment for independent, safe and dignified living of Persons with Disabilities. The Vision statement declares: "Accessible India. Empowered India."

Built Environment Accessibility

Target 1.1: Conducting accessibility audit of at least 25-50 most important government buildings and converting them into fully accessible buildings in the selected 50 cities.
Target 1.2 : Converting 50% of all the government buildings of National Capital and all the State capitals into fully accessible buildings
Target 1.3: Conducting audit of 50% of government buildings and converting them into fully accessible buildings in 10 most important cities / towns of all the States (other than those, which are already covered in Target 1.1 and 1.2 above)

ACCESSIBLE INDIA CAMPAIGN

Transportation System Airports

Target 2.1: Conducting accessibility audit of all the international airports and converting them into fully accessible international airports
Target 2.2: Conducting accessibility audit of all the domestic airports and converting them into fully accessible airports Railways
Target 3.1: Ensuring that A1,A & B categories of railway stations in the country are converted into fully accessible railway stations
Target 3.2: Ensuring that 50% of railway stations in the country are converted into fully accessible railway stations Public Transport (Buses)
Target 4.1: Ensuring that 25% of Government-owned public transport carriers in the country are converted into fully accessible carriers

ICT Eco- System

Target 5.1: Conducting accessibility audit of 50% of all government (both Central and State Governments) websites and converting them into fully accessible websites

Target 5.2 : Ensuring that at least 50% of all public documents issued by the Central Government and the State Governments meet accessibility standards

KEY FEATURES RELATED TO BUILT ENVIRONMENT ACCESSIBILITY

- In the ***built environment*** the Accessible India campaign stresses on retrofitting works of public buildings (Occupied and operational) to make them barrierfree. The ten essential elements that are identified include:

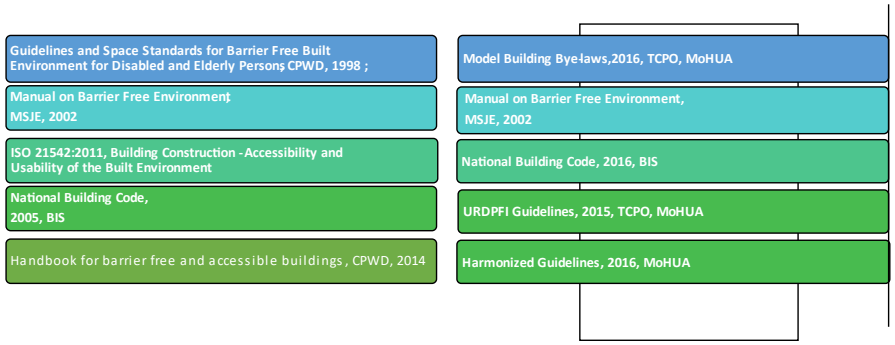
as prescribed in the Harmonised Guidelines

- Providing **tactile pavers**
- Earmarked **parking** for Persons with Disabilities be provided just near to entrances with the International symbol of parking for persons with disability and an unhindered path leading to the entrance ramp.
- **Ramps** at entries.
- **Staircases** with continuous handrails on both sides
- **Steps** edges to be in contrast colors 50 mm wide band tape/ sticker
- **Lifts** of car size minimum 1500 x 1500 mm (wherever feasible) with door opening not less than 900 mm with grab bars of 38 mm – 45 mm inside the car lifts to have an audio-visual display
- At least one **toilet** on the ground floor be unisex, wherein grab bars to be provided
- Reception counters with at least part of the counter lowered to for the benefit of Persons with Disabilities.
- Drinking water point to be lowered for making it accessible for persons with disability

KEY FEATURES RELATED TO TRANSPORT INFRASTRUCTURE ACCESSIBILITY

- Well-lit streets and bus shelters
- Raised pedestrian crossings to facilitate barrier-free movement with differently textured paving material to make the crossing more perceivable.
- Footpaths with even surfaces for movement of mobility aid users and continuous tactile pavers along the entire stretch for persons with visual impairment.
- Special white lighting for footpaths that maintainscolour contrast from the road and ensures that the tactile pavers are visible at night.
- Audible light signals that beep when light is green
- Bus shelters with barrier-free access having defined boarding gates with warning tiles
- Folding ramp inside low floor buses allowing access to mobility aid users
- Space to park wheelchairs with the provision of safety belt to secure during journey inside the buses
- Provision of Braille signage and audible messages on signage panels
- Metro stations and coaches with accessibility feature is a vital component for independent living, and like others in society, PwDs rely on transportation facilities to move from one place to another. The term transportation covers a number of areas including air travel, buses, taxis, and trains

EVOLUTION OF GUIDELINES AND STANDARDS ON ACCESSIBILITY IN INDIA



ACCESSIBILITY

Accessibility: Accessibility can be defined as the "**ability to access**" the functionality, and possible benefit of a system or entity.

Accessibility isn't only about "wheelchair accessibility"; it also includes things **like Braille signs, ramps, elevators, audio signals at pedestrian crossings, walkway contouring, and website design** . Another aspect of accessibility is the capacity to obtain information and services while eliminating barriers such as distance , cost, and interface usability.

- **Built Environment Accessibility**
- **Transportation System Accessibility**
- **Information and Communication Eco -System Accessibility**

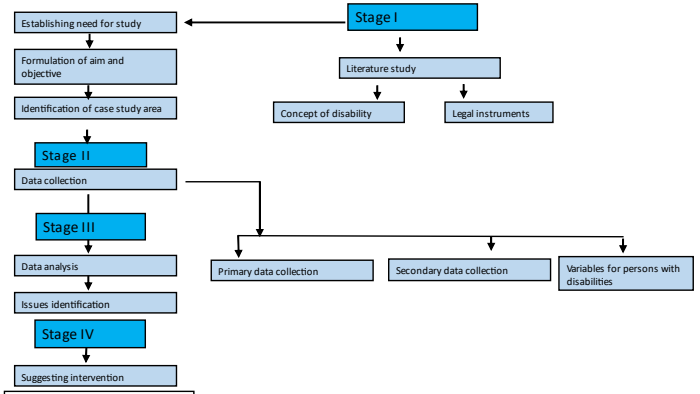
HOW TO IMPROVE ACCESSIBILITY

- Making public spaces/ infrastructure fully accessible. This includes Government buildings, educational institutions, public housing, places of tourist interest, places of religious interest, parks, shopping areas, hospitals and health centers, airports, railway stations and bus stops, boat jetties, kiosks, ATMs etc.
- Ensuring accessibility of new ICT based solutions and systems ranging from being able to read price tags, to physically entering a hall, to participating in an event, read a pamphlet, understand a train timetable or view webpages. Ensuring Government websites, all mobile apps and documents developed are accessible for people with disabilities as per the standards.
- Promoting accessibility of services physical and digital and other service and knowledge centres.
- involving persons with disabilities in the development of policies and plans.

DISABILITY IN INDIA

- There are **26.8 million** people with disabilities in India according to the2011 census of India,
- As per the Census 2011, there are **14.9 million men** with disabilities as compared to **11.9 million women** in the country.
- Social groups wise analysis shows 2.45 per cent of the total disabled population belong to the Scheduled Castes (SC), 2.05 per cent to the Scheduled Tribes (ST) and 2.18 per cent to other than SC/ST.
- A UNESCO and UNICEF (2015) study states that out of 2.9 million children with disabilities in India, 990,000 children aged 6 to 14 years (34 percent) are out of school. These findings are reinforced by another NCERT study that found that only 21.1 percent schools in the country adhere to inclusive education for children with disabilities.
- Only **54.5** percent of India's people with disabilities are literate. 13.4 million people with disabilities in India are in the employable age of 15-59 years of age. (Census 2011)

METHODOLOGY



METHODOLOGY

Stage I

Establishing need for study

Formulation of aim and objective

Identification of case study area

Literature study

Concept of disability

Definition of disability
Inclusion and participation
- Accessibility (Built Environment Accessibility ,Transportation System Accessibility, Information
- Different barriers
- Barrier free environment

Legal instruments

National Acts
National policies and schemes
State policies and schemes
International instruments – UNCRPD, WHO
NBC

METHODOLOGY

Stage II

Data collection

Primary data collection

- Observation
- Interviews of government officials, NGO's etc.
- Questionnaire survey on person with disabilities
  - Type of disability
  - Reason of disability
  - Age, gender
  - Education qualification
  - Income group
  - Accessibility to build environment and information
  - Inclusion and social attitudes

Secondary data collection

- Census of India data on person with disabilities(state and district)
- Acts, policies and schemes for person with disabilities

METHODOLOGY

Stage III

Data analysis

- Mobility and accessibility

Issues identification

Stage IV

Suggesting intervention

SURVEY DESIGN

Quantitative and qualitative research method are adopted for study. This method is adopted to describe and explore the characteristics of persons with disabilities, to identify barriers that hinder their full participation and inclusion; to understand their perception about social attitude and access to physical environment.
The sample of data collection will be confined to person **with locomotor/ movement related impairments, visual impairments, speech impairment, Hearing impairments.**

Types of surveys

Personal interviews of persons with disabilities, Interviews of professionals, Observation survey.

Objectives of the Survey:

- To find Prevalence and incidence of person with disabilities
- To know Level of education among persons with disabilities
- To know the difficulties faced by persons with disability in accessing/using public building/publictransport,

Sample size

Total sample size 117, and all age group and gender are included, from all types of Disability. Due to paucity of contact and residential information on persons with disabilities in Delhi, various institutions and NGO's are chosen to perform a survey.

QUESTIONNAIRE

Questionnaire for Movement /Locomotor, visual, speech and multiple impairment survey:

Person with disabilities survey
SCHOOL OF PLANNING AND ARCHITECTURE, NEW DELHI

Name
_____
_____
Sex: Male Female Other
Address_____

1.Types of locomotor disabilities
Cerebral palsy ☐
Dwarfism ☐
Polio ☐
Loss of limb (Amputation) ☐
Paralysis ☐
dys☐

Types of visual impairment disabilities
fully blind ☐
partially blind ☐

speech
hearing ☐
both ☐

QUESTIONNAIRE

2. Age group?
0-5 6 -15 16 -25
26-45 46 -60 >60

3. occupational status?
student gov. job Other_____
unemployed self employed
4. Education qualification
Elementary
Secondary
Senior secondary
Higher secondary
Graduate and above
uneducated
5. Travel pattern?

Travelling by themselves Travelling with someone
No travelling

6. Mode of transport?
2w 4w metro bus others_____

7. do you face any accessibility related issues/barriers.

QUESTIONNAIRE

8. Rate the facilities as for you experience in terms of accessibility

Home
1☐ 2☐3☐4☐ 5☐

Neighbourhood parks/gardens
1☐ 2☐3☐4☐ 5☐

Pavements/pathways
1☐2 ☐3 ☐4 ☐5 ☐

Roads/crossings
1☐2 ☐3☐4 ☐5 ☐

PUBLIC TRANSPORT SYSTEM

Bus
1☐2 ☐3☐4 ☐5 ☐

Metro
1☐2 ☐3☐4 ☐5 ☐

Auto
1☐2 ☐3☐4 ☐5 ☐

STATUS OF PERSONS WITH DISABILITIES NATIONAL LEVEL

In India, information on people with disabilities is gathered through the Decennial Population Census and Large Scale Sample Surveys.

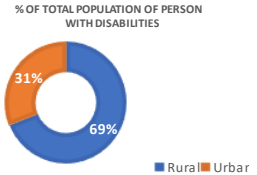
The Census 2011, conducted by the Office of the Registrar General and Census Commissioner, India, is the most recent source of data on persons with disabilities in India obtained through complete enumeration

The 76th round of **National Sample Surveys (NSS)** conducted by the National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI) during July-December, 2018 is the most recent sample survey on Disability

The study of disability aspects in India is based on **Census 2011** findings, and the analyses focus on the number of disabled, distribution of disabled by kind of disability, age groups, educational level.

Population India - 2011			Persons with disabilities population -2011		
Persons	Males	Females	Persons	Males	Females
121.08 crore	62.32 crore	58.76 crore	2.68 crore	1.50 crore	1.18 crore

Source :census of India -2011



STATUS OF PERSONS WITH DISABILITIES NATIONAL LEVEL

Total Number of Person with Disabilities in India and Percentage Distribution by Type of Disability -CENSUS 2011

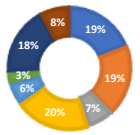
	Total Distribution of person with Disabilities by their type																			
	Population category	In Seeing	%	In Hearing	%	In Speech	%	In Movement	%	Mental Retardation	%	Mental Illness	%	Any Other	%	Multiple Disability	%	Total Person with Disabilities	Total Population	%
India	Males	2638516	9.8	2677544	10	1122896	4.2	3370374	13	870708	3.2	415732	1.6	2727828	10	1162604	4.3	14986202	623121843	2.4
	Females	2393947	8.9	2393463	8.9	875639	3.3	2066230	7.7	634916	2.4	307094	0.4	2199183	8.2	953883	3.6	11824355	587447730	2
	SC	941540	3.5	859685	3.2	255883	1	1010293	3.8	251968	0.9	117334	0.4	1130527	4.2	360201	1.3	4927431	201378086	2.4
	ST	427213	1.6	412761	1.5	112669	0.4	479693	1.8	104912	0.4	56265	0.2	352096	1.3	191069	0.7	2136678	104281034	2
	Urban	1529873	5.7	1679186	6.3	694752	2.6	1401085	5.2	480064	1.8	227000	0.8	1634482	6.1	532194	2	8178636	377106125	2.2
	Rural	3502590	13	3391821	13	1303783	4.9	4035519	15	1025560	3.8	495826	1.8	3292529	12	1584293	5.9	18631921	833463448	2.2
	Total	**5032463**	**18.7**	**5071007**	**19.3**	**1998535**	**7.5**	**5436604**	**20.2**	**1505624**	**5.6**	**722826**	**2.6**	**4927011**	**18.1**	**2116487**	**7.9**	**26810557**	**1210569573**	**2.2**

Source :census of India -2011

Distribution of persons with disabilities population in India and percentage distribution by types of disabilities

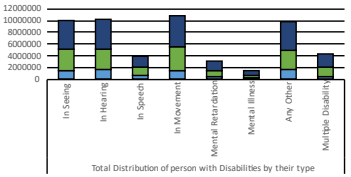
DISTRIBUTION OF PERSONS WITH DISABILITIES BY DIFFERENT TYPES OF DISABILITY

DISTRIBUTION OF POPULATION BY TYPES OF DISABILITIES

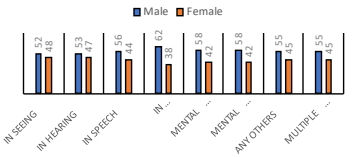


In Seeing
In Hearing
In Speech
In Movement
Mental Retaedation
Mental Illness
Any Others
Multiple Disability

PREVALENCE OF TYPES OF DISABILITY BY PERSONS WITH DISABILITIES



DISTRIBUTION BY SEX (%) IN EACH TYPE OF DISABILITIES



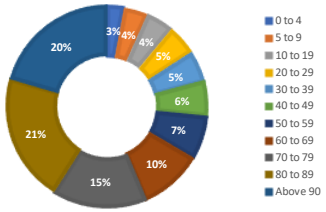
According to the Census 2011, 20% of disabled people in India have a disability in movement, 19% have a disability in seeing, 19% have a disability in hearing, and 8% have multiple disabilities.

Disability in movement is most prevalent in rural areas (21%) and disability in hearing is prevalent in urban areas (20%), whereas disability in seeing is equally prevalent in both urban and rural areas with 19% of the population.

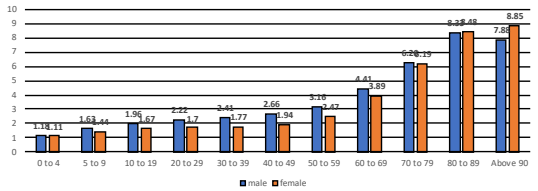
The share of males is more than females for all the types of disability

DISTRIBUTION OF PERSONS WITH DISABILITIES BY DIFFERENT AGE GROUPS

PERCENTAGE DISTRIBUTION OF PERSON WITH DISABILITIES POPULATION BY AGE



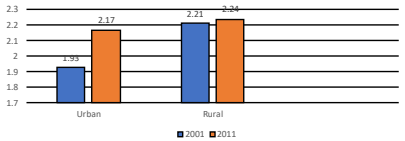
DISTRIBUTION BY SEX (%) OF PERSON WIH DISABILITIES BY AGE GROUPS



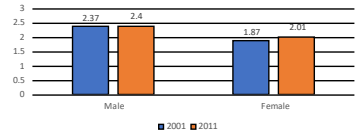
- Disability among males is higher up to the age group 70+
- Disability among females is higher thereafter

DISTRIBUTION OF PERSONS WITH DISABILITIES BY RESIDENCE AND SEX

Proportion of Disabled Population by Residence India : 2001-11



Proportion of Disabled Population by Sex India : 2001-11



- During the previous decade, the percentage of disabled people in India has grown in both rural and urban regions.
- Rural areas have a larger proportion of disabled people.
- In urban areas, there has been a large decadal increase in percentage.

- Slight growth in disability among both sexes throughout the decade
- Male population has a greater proportion of disabled people
- Females have a higher proportion of disabled people over the decade

STUDY AREA PROFILE- **DELHI**

The total population of Delhi as per census**2011 is 16787941**comprising **8987326 males and 7800615 females** as compared to the total population as per census 2001 of 13850507.The decadal growth of population for Delhi has declined from 51.45% in 1981-91 to 47.02% in 1991-2001 to 21.2 % in 2001-2011.

The average annual exponential growth rate of population of Delhi**during 2001 -2011 has been recorded as 1.94%**

Profile of Delhi by population category		
population category	Number of total pollution	percentage
Male	8987326	54
Female	7800615	46
Urban	16368899	97.5
Rural	419042	2.5
Total	16787941	

Source :census of India -2011

Area and population of districts of Delhi				
S.No	District	Area in Km2	Population(census 2001)	Population(census 2011)
1	central delhi	23.36	6463885	578671
2	new delhi	34.95	179112	133713
3	east delhi	48.9	1463583	1707725
4	north east delhi	56.32	1768061	2240749
5	north delhi	58.92	781529	883418
6	west delhi	130.56	2128908	2531583
7	south delhi	249.44	2267023	2733752
8	south west delhi	420.8	1755041	2292363
9	north west delhi	442.84	2860869	3651267

STUDY AREA PROFILE- **DELHI**

Total Number of Person with Disabilities in Delhi and Percentage Distribution by Type of Disability-CENSUS 2011

		Total Distribution of person with Disabilities by their type																					
	Population in category	In Movement	%	In Seeing	%	In Hearing	%	In Speech	%	Mental Retardation	%	Mental Illness	%	Any Other	%	Multiple Disability	%	Total Person with Disabilities	%	Urban	Rural
Delhi	central delhi	3311	1.4	1567	0.7	1620	1	611	0.3	722	0.3	509	0.2	1925	0.8	1253	0.5	11512	5	11512	0
	new delhi	577	0.2	444	0.2	523	0	143	0.3	125	0.1	73	0	457	0.2	219	0.1	2559	1	2559	0
	east delhi	6984	3	2735	1.2	3458	1	1341	0.6	1745	0.7	1102	0.5	3290	1.4	2519	1.1	23225	10	23174	55
	north east delhi	9983	4.3	3953	1.7	3852	2	2016	0.9	2032	0.9	1412	0.6	4961	2.1	3452	1.5	31935	14	31655	280
	north delhi	3474	1.5	1578	0.7	1623	1	742	0.3	829	0.4	682	0.3	1653	0.7	1209	0.5	12039	5	11790	249
	west delhi	10691	4.6	4255	1.8	4917	2	2263	1	2495	1.1	1575	0.7	5973	2.5	3927	1.7	36184	15	36094	90
	south delhi	9204	3.9	5688	2.4	6625	3	2768	1.2	2572	1.1	1335	0.6	5926	2.5	3580	1.5	37870	16	37698	172
	south west delhi	7490	3.2	3825	1.6	5410	2	2151	0.9	1786	0.8	1090	0.5	5775	2.5	2566	1.1	32680	14	30093	2587
	north west delhi	13784	5.9	5289	2.3	5648	2	2722	1.2	3682	1.6	2025	0.9	6048	2.6	4989	2.1	46870	20	44182	2688
	Total	65498	28	29332	12.6	33674	14	14755	6.3	15988	7	9798	4.3	36008	15.3	23712	10.1	234882	100	228766	6116

Source :census of India -2011

PERSON WITH DISABILITIES PROFILE-**DELHI**

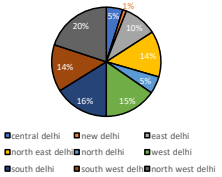
Age-group	Total number of disabled persons		Males		Females	%	In seeing	%	In Hearing	%	In Speech	%	In Movement	%	Mental Retardation	%	Mental Illness	%	Any Other	%
	Persons																			
0-19	58923	25.8	34467	58.4	24456	41.5	6704	11.4	8651	14.7	5414	9.2	9712	16.5	6497	11.0	2469	4.2	11501	19.5
20-39	71037	31.1	44506	62.6	26531	37.3	7155	10.1	10307	14.5	5134	7.2	20606	29.0	6240	8.8	3714	5.2	12282	17.3
40-59	49503	21.7	31056	62.7	18447	37.2	7256	14.7	7063	14.3	2843	5.7	16102	32.5	2476	5.0	2557	5.2	7861	15.9
60-79	39014	17.1	20111	51.5	18903	48.4	6873	17.6	5683	14.6	1176	3.0	15405	39.5	657	1.7	919	2.4	3734	9.6
80+	9536	4.1	4129	43.2	5407	56.7	1210	12.7	1782	18.7	153	1.6	3526	37.0	87	0.9	123	1.3	480	5.0
Total	228013	100	134269	58.8	93744	41.1	29198	12.8	33488	14.7	14720	6.5	65351	28.7	15957	7.0	9782	4.3	35858	15.7

Source :census of India -2011

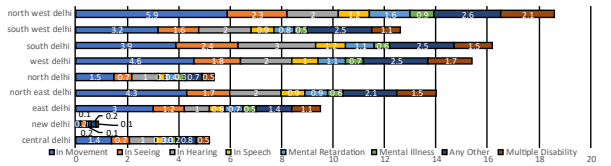
Total Number of Person with Disabilities in Delhi and Percentage Distribution by Type of Disability and age group CENSUS 2011

PERSONS WITH DISABILITIES PROFILE-**DELHI**

DISTRICT WISE PREVALENCE OF PERSONs WITH DISABILITIES



DISTRICT WISE POPULATION OF DIFFERENT TYPE OF DISABILITY



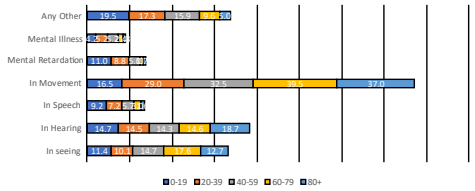
District wise prevalence of disability is shown in above chart. North west with the maximum population of persons with disabilities .which is 20 % And followed by west, north east, south west and south Delhi with disability respectively 15%,14% , 14% and 16%. New delhi with minimum population of disability which is 1%.

District wise population of different disabilities has been shown in above chart. Total no of persons with disabilities is maximum in northwest district and minimum in new delhi.5 out of 09 disability is seeing prevalent in north west. Locomotor disability is the highest in all districts.4 out of 9 disability are prevalent in south.

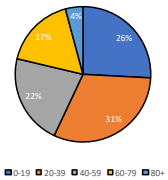
Source :census of India -2011

PERSON WITH DISABILITIES PROFILE-**DELHI**

DISTRIBUTION OF POPULATION OF PERSON WITH DISABILITIES BY TYPE OF DISABILITY AND AGE GROUP



DISTRIBUTION OF POPULATION OF PERSON WITH DISABILITIES BY AGE GROUP



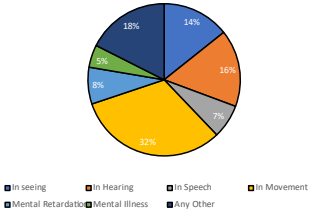
Age group of above 60 have maximum prevalent in locomotor disability

Maximum prevalent disability in age group of 20-39 which is 31 %.and maximum affected by disability in movement/locomotordisability

Source :census of India -2011

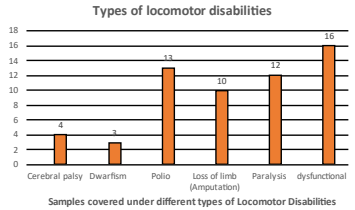
PERSON WITH DISABILITIES PROFILE-**DELHI**

DISTRIBUTION OF POPULATION OF PERSON WITH DISABILITIES BY TYPE OF DISABILITY

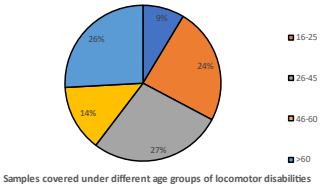


Disability wise population of persons with disability is shown in chart. Movement or locomotor disability is prevalent with 32% and Mental illness is the lowest with 5% of total population of person with disability.

PERSON WITH MOVEMENT/LOCOMOTOR IMPAIRMENT-**DELHI**



Samples covered under different types of Locomotor Disabilities



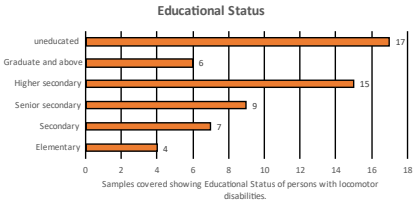
Samples covered under different age groups of locomotor disabilities

Out of 117 samples, 58 were surveyed under locomotor disabilities. It is the most diverse of all the disabilities, and it covered 6 types of locomotor disabilities during the surveys. Samples were collected from all age groups and types. Major reason of these disabilities is accidents which covered dysfunction of lower limb and loss of limb.

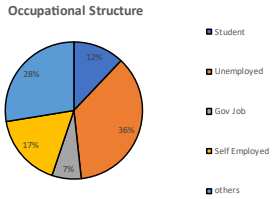
16 out of 58 Locomotor Disabled are dealing with dysfunction of lower limb due to spinal injury, followed by paralysis and loss of limb.

Maximum effected age group 26-45 and >60, 27% and 26% respectively.

PERSON WITH MOVEMENT/LOCOMOTOR IMPAIRMENT-**DELHI**



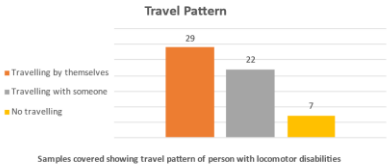
Samples covered showing Educational Status of persons with locomotor disabilities.



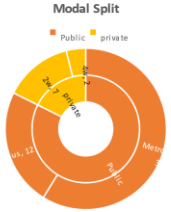
Maximum persons with locomotor impairments are uneducated (17 of 58), followed by people going to higher secondary (15 out of 58). Only 6 out of 58 are going for higher studies (graduate and above).

36% of locomotor disabled are unemployed, 12% are students out of total sample collected (58). Only 7% in Govt. Jobs (stable income)

PERSON WITH MOVEMENT/LOCOMOTOR IMPAIRMENT-**DELHI**



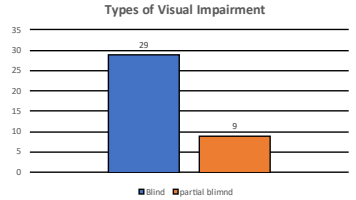
Samples covered showing travel pattern of person with locomotor disabilities

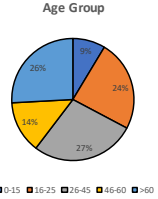


29 out of 58 are travelling by themselves. 7 are not travelling. Others are travelling with someone's help, to improve the condition, utmost need of accessible environment for person with disabilities.

42 out of 58 persons with locomotor disabilities are travelling by Public mode of transport, out of which metro is having maximum modal split. Although buses are cheaper but metro being accessible mode of transport , maximum person with disabilities are using the metro as preferred mode of transport. Persons with disability using bus as mode of transport are travelling with assistance.

PERSON WITH VISUAL IMPAIRMENT-**DELHI**



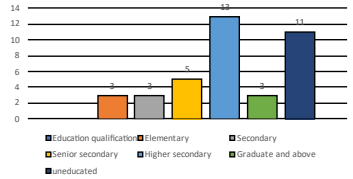


Out of 117 samples, 38 were surveyed under visually impaired category. It covers 2 types of disabilitiesduring the surveys, fullyblind and partiallyblind are 2 categories. Samples were collected from all age groups and types of visualimpairment.
29 are fullyblindand 9 are partiallyblind. Fullyblindare maximum in number and need of special infrastructure to improve the accessibilityin the city.

Maximum effected age group under the visually impaired category, age group 26-45 and >60, 27% and 26% respectively.

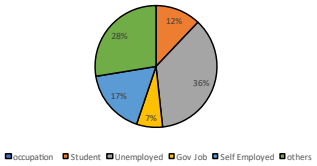
PERSON WITH VISUAL IMPAIRMENT-**DELHI**

Educational Status



Maximum are uneducated (11 out of 38 person with visual impairment), followed by people going to higher secondary (13 out of 38 person with visual impairment). Only 3 out of 38 are going for higher studies (graduate and above)

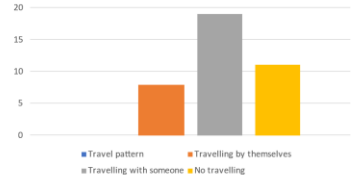
Occupational Structure



Out of total visually impaired person, 36% are unemployed, 12% are students and only 7% are in government jobs.

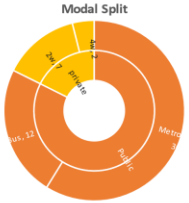
PERSON WITH VISUAL IMPAIRMENT-**DELHI**

Travel Pattern



11 are not travelling out of 38 persons with visual impairment and 19 are dependent on someone's help to commute from one place to another.

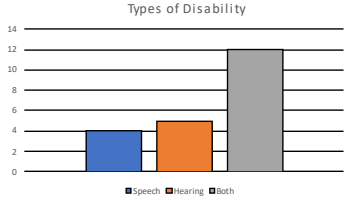
Modal Split



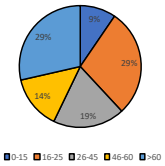
Out of 38 visually impaired only 2 are using 4wheeler as private mode of transport, other 42 are using public mode of transport , out of them metro is the preferred mode of transport for 30 of them.

PERSON WITH HEARING IMPAIRMENT- **DELHI**

Types of Disability



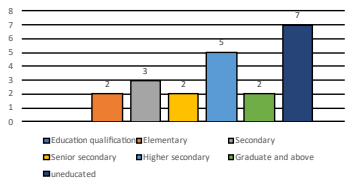
Out of 117 samples, 21 were surveyed under hearing impaired category. speech impairments, hearing impairments, and speech and hearing both, these are 3 categories. Samples were collected from all age groups and types of person with speech and hearing impairment . Out of 21 maximum 12 persons are dealing with speech and hearing impairments. Only speech or only hearing impairment are less in numbers, 4 and 5 respectively.



Maximum effected age group 16-25 and >60, 29% and 29% respectively out of total person with speech and hearing impairments.

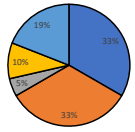
PERSON WITH HEARING IMPAIRMENT- **DELHI**

Educational Qualifications



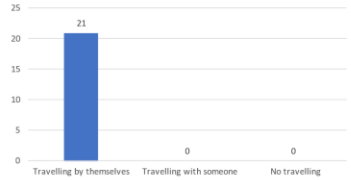
Maximum are uneducated (7 out of 21 person with hearing and speech impairment), followed by people going to higher secondary (5 out of 21 person). Only 2 out of 21 are going for higher studies (graduate and above)

Occupational Structure

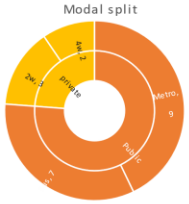


Occupational structure 33% are unemployed and other 33% are students. Only 5% are in govt. sector.

PERSON WITH HEARING IMPAIRMENT- **DELHI**

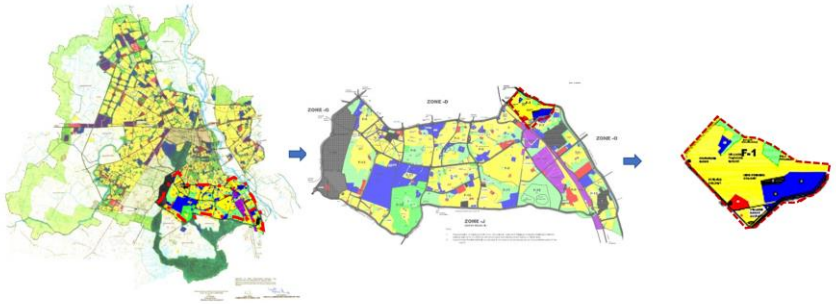


Persons with Speech and hearing disability are traveling by themselves.



Out of 21 person with hearing and speech impairment only 2 are using 4– wheelers and 3 are using 2- wheeler, as private mode of transport. Other 16 are using public mode, out of that metro is preferred by 9 of them.

SELECTION AND PROFILE OF DETAIL AREA



DELHI NCT MAP **ZONE-F MAP** **SUB-ZONE F MAP**

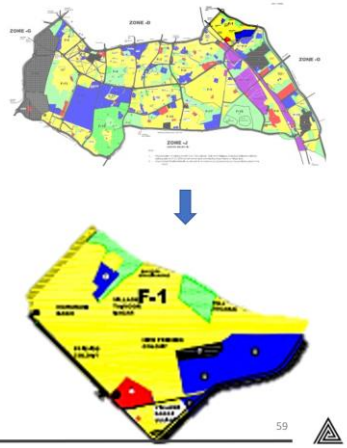
DETAIL STUDY AREA PROFILE

From primary survey locations, one area has been carried forward for the details study .Map which is sub zone F1, a well planned and well-connected area consist of mainly New friends colony, maharani Bagh, Taimoor nagar and bharat nagar etc.

Study area is well planned and stretches over 277 HA, The study area is well connected to all mode of transport and other facilities, all the necessary amenities and facilities like schools, markets and other daily requirements .ASHRAM AND SHUKHDEV VIHAR is the nearest metro stations.

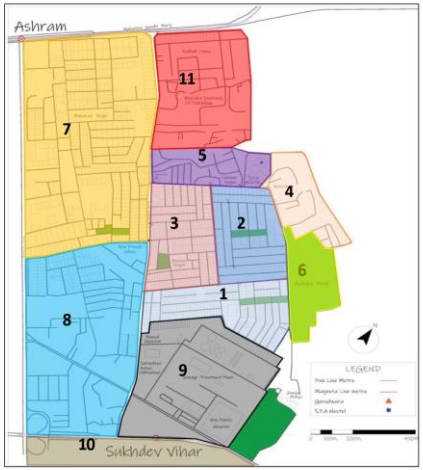
As per the MPD 2021 and the Zonal Plan, the area lies under Zone F and sub-zone F-1. The predominant land use of the area of study is residential.

I chose this location because it is well-planned and well-connected to all modes of transportation, including bus and metro. This area is made up of people ranging in income from low to high. This area is equipped with all of the required services and facilities, such as schools, colleges, hospitals, and commercial marketplaces.



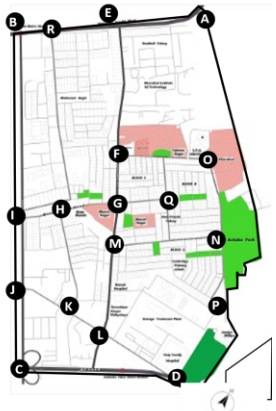
DETAIL STUDY AREA

ZONE 1: NFC BLOCK A
ZONE 2: NFC BLOCK B
ZONE 3: NFC BLOCK C + BHARAT NAGAR
ZONE 4: KHIZRABAD
ZONE 5: TAIMOOR NAGAR+SPA HOSTEL
ZONE 6: ASHOKA PARK
ZONE 7: MAHARANI BAGH
ZONE 8: NFC BLOCK D



SCORE OF EACH STRETCH BY ACCESSIBILITY INDICATORS

CATEGORY street code	pathway(y/n)	maintenance and condition of footpath	Continuity of footpath	obstructions vendors	parking	trees/landscaping	others	Ramps	sinages	Tactile paving	Braille sinages	lighting	Amenities	TOTAL score out of 60	Score out of 10
AE	Y	3.5	3	3	3	2.5	2.5	3	2	1	1	4	1	29.5	4.9
ER	Y	3	4	3.5	3.5	3	3.5	2.5	2.5	1	1	3.5	1	32	5.3
RB	Y	3	4	3.5	3.5	3	3.5	2.5	2.5	1	1	3.5	1	32	5.3
BI	Y	4	4.5	4	4	3.5	3	3	3	1	1	4	1.5	36.5	6.1
IJ	Y	4	4.5	4	3.5	3.5	3	3	3	1	1	4	1.5	36	6.0
JC	Y	4	4.5	4	3.5	3.5	3	3	3	1	1	4	1.5	36	6.0
CD	Y	3.5	4	3	4	4	4	2.5	3.5	1	1	4	2	36.5	6.1
EF	Y	3	2	2	2.5	3.5	3	2.5	3	1	1	3.5	1	28	4.7
FG	Y	3	3	2.5	2.5	3.5	3	2.5	3	1	1	3.5	1	29.5	4.9
GM	Y	3	2	2	2.5	3.5	3	2.5	3	1	1	3.5	1	28	4.7
ML	Y	3	2	2	2.5	3.5	2.5	2.5	3	1	1	3.5	1	27.5	4.6
FO	Y	2	2	2	3	4	2.5	3	2	1	1	3	1	26.5	4.4
GQ	Y	3	3	2.5	2.5	3.5	3	2.5	3	1	1	3.5	1	29.5	4.9
GH	Y	3	2	2	2.5	3.5	2.5	2.5	3	1	1	3.5	1	27.5	4.6
HI	Y	3	2	2	2.5	3.5	2.5	2.5	3	1	1	3.5	1	27.5	4.6
HR	Y	3	3	2.5	2.5	3.5	3	2.5	3	1	1	3.5	1	29.5	4.9
HK	Y	3	3	2.5	2.5	3.5	4	3	3	1	1	3.5	1	31	5.2
JK	Y	4	4	3	3	4	4	3	3.5	1	1	4	2	36.5	6.1
KL	Y	4	4	3	3	4	4	3	3.5	1	1	4	2	36.5	6.1
NP	Y	3.5	3	2.5	3.5	3	2.5	2.5	2	1	1	3	1	28.5	4.8
NO	Y	3.5	3	3	3.5	3	3	2.5	2	1	1	3	1	29.5	4.9
MN	Y	3	3.5	4.5	3.5	3.5	2.5	2	2	1	1	3.5	1	31	5.2



- *All factors are scored out of 5 in sections:*
- *The scores for each factor are then added up to get the TOTAL SCORE of the SECTION.*
- *The total score is then converted to a score out of 10 for ease of understanding*

AVAILABILITY OF PATHWAY

Almost every major roads have pathways but There are obstructions like improperly placed information signs, vehicles parked on pavements, hawkers encroachment, broken and uneven pavement surfaces


Broken pathways


improperly placed signs


Encroached pathways

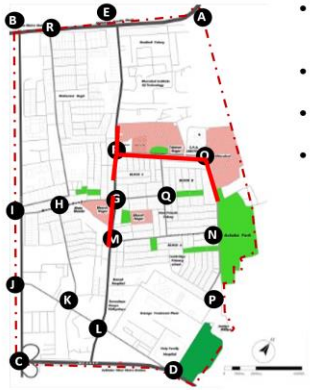

obstruction

CONDITION OF PATHWAY

Almost every major roads have pathways but There are improperly placed information signs, vehicles parked on pavements, hawkers encroachment, broken and uneven pavement surfaces, missing ramps, missing tactile pavings, and unusually high pavements

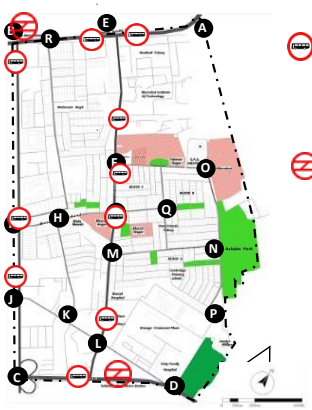
Broken and poorly maintained pathways

MAJOR AREAS OF CONCERN



- The area contains zebra crossings which are not visible. It contains pedestrian signals which are either not working, visible or audible. The maintenance of these facilities needs to be kept in check.
- On street parking is another serious problem causing pedestrians difficulty in accessing footpaths, and also crossing roads.
- Even though proper infrastructure is provided, pedestrians do not walk on footpaths due to low quality and accessibility.
- Major problems are obstructions on footpaths in the form of vendors on the streets

MAJOR AREAS OF CONCERN



BUS

- Absence of drop down kerbs in the area
- Buses do not stop at bus stops
- lack of functional ramps at bus stands inaccessible pavements

METRO

- Metro is effective and accessible
- Lift and ramps are available.
- Tactile pavers are available from entrance to platforms




ISSUES/CONCLUSION

Gap of data

Data Gaps and Scarcity According to WHO, NSSO, and Census, the disaggregated data available for PWD is severely lacking. There is a scarcity of trend data; collection began in 1981, was halted in 1991, and then resumed in 2001.

Between the 2001 and 2011 Census Surveys, there were some modifications in the definition of disability and its kinds. The National Sample Survey Organization (NSSO) completed its 58th round of disability surveys in 2002. There were major numerical and definitional variations between this round and the 2001 Census of India survey. Due to the nine year time gap between the NSS 58th cycle and Census 2011, there will be a significant numerical difference in the count.

There is no data available to illustrate the availability and accessibility of physical and social infrastructure, socioeconomic profile, household data, ownership, or access to information for people with disabilities. Issues of poverty, access to health and sanitation, and other basic utilities cannot be addressed due to a lack of statistics on PWD living in slums.

ISSUES/CONCLUSION

Master plan of Delhi 2021

- Inclusion and persons with disabilities are not mentioned in the vision and framework of the Delhi master plan for development process and participation.
- The requirement for a barrier-free environment is acknowledged, but there are no guidelines for accomplishing it (infrastructure, transportation, accessibility needs).
- The term "integrated schooling" is mentioned, but the scope, inclusion, and accessibility norms are not specified.
- There is only one school per ten thousand people, and the disability rate in Delhi is 1390 people per ten thousand people.

ISSUES/CONCLUSION

At City (Delhi) level

Age group and Type of disability

Inaccessible environment

The 20-40 age group is the most affected by disability. The rate of movementrelated impairment is greatest among those aged 20 to 40. In the 20 -40 age bracket, 61 percent of men are male. Females in the 20-40 age bracket account for 49 percent of the total. All age groups and zones/districts have the highest prevalence of mobility disabilities.

District wise disability & facilities

North west with the maximum population of disability which is 20 % And followed by west, north east, south west and south Delhi with disability respectively 15%,14%, 14% and 16%. New delhi with minimum population of disability which is 1%.

ISSUES/CONCLUSION

At City (Delhi) level

- **From survey analysis I got know that majority of person with disabilities commutes only when assisted**
- 42 out of 58 persons with locomotor disabilities are travelling by Public mode of transport, out of which metro is having maximum modal split. Only 12 person uses bus for travelling.
- **As per as users rating metro was considered as most accessible mode of transport**
- **Roads/crossing/bus/bis stops are least accessible**
- Maximum locomotor impairment pesrsons are uneducated (17 of 58), 11 out of 38 person with visual impairment

ISSUES/CONCLUSION

At detailed area level

Pathways

- Almost every major roads have pathways but There are improperly placed information signs, vehicles parked on pavements, hawkers encroachment, broken and uneven pavement surfaces.
- There are missing ramps, missing tactile paving's in the study area.
- Pathways are not in continuation.
- Road crossings are blocked with medians .
- Drains underneath the pavements, which are often left open
- Planning norms /design standards are not being followed
- Encroachments/obstruction are big issues for roads and pathways.

Street amenities and singes

- Inaccessible existing infrastructure for all type of person with disabilities..
- There are no braille singes available in study area.
- Street lights are not enough for pathways.

ISSUES/CONCLUSION

At detailed area level

others

- Metro is disabled-friendly, but reaching it is a challenge for persons with disabilities, especially for wheelchair users.
- Bus stops does not have ramps.
- Inaccessible toilets
- With maximum car ownership, this area has heavy traffic issues, which is leading to the blocked streets ,creating encroachments

ISSUES/CONCLUSION AND RECOMENDATION

Conclusion	Recommendation
STATISTICS (DELHI LEVEL)	
Age Group	
Age group 20-60 is most affected with disabilities:	As age group of 20-60 is most affected by disability, provision of accessible environment becomes essential as major working group is essential for economic growth of nation as well as state.
Male (61%) with disability in movement.	
Female (49%) in the age group of >60	
Age group >60 shows prevalence of disability in movement.	
Type of Disability	
Disability in movement is most prevalent in all the age groups and maximum in >60 age group	Disability in movement is most prevalent of all, thus effective and compulsory provision of accessible environment becomes utmost important.
District wise Disability	
North West District is having maximum population with disabilities (20%)	Proper rehabilitation and health facilities are required to be provided in the prevalent districts. Accessible and efficient infrastructure for learning and growth of persons with disabilities is needed to be facilitated.
Central and New Delhi districts are having highest disability rate (per 1000 persons) with 20 and 19 persons with disability respectively for every 1000 person in the district.	
North East, Central and East Districts are top 3 districts having maximum density of persons with disabilities with 567, 493	
Disability in movement is prevalent in 29% of the urban population followed by disability in hearing (15%) and seeing (13%).	

ISSUES/CONCLUSION AND RECOMENDATION

Conclusion	Recommendation
MASTER PLAN 2021	
There is no specific term adopted in master plan for persons with disabilities, as it uses term physically challenged and disabled while introducing provisions.	The facilities can be alternatively introduced by way of promoting and introducing inclusive schools
There is no mention in vision of master planning document about inclusion of persons with disabilities in the development process and participation.	There is need of standardization and introduction of terms related to persons with disabilities in the planning document and to develop guidelines, provisions of facilities and standards as per their needs.
The master plan talks about sustainable environment in the vision but it cannot be achieved without participation and inclusion of persons with disabilities in the development process.	Inclusion and effective participation must be envisaged in the vision of master planning document.
The master plan promotes special schools and care centers, but does not promote inclusive education (schools and colleges) and training centers.	For provisions of infrastructure, inclusive infrastructure with barrier free environment should also be given preference along with special infrastructure.
Under barrier free environment, it has mentioned three requirements but is no specific norms for achieving the same in context to infrastructure and transportation.	
Under social infrastructure, for Health facilities, there is no specific mention of persons with different types of disabilities but only mental disability.	The provisions for accessible infrastructure should be linked with zonal plan regulations, standards and bye laws for implementation in new development at zonal level.
For education facilities, it specifies integrated schooling but does not mention its extent and inclusion for children with disabilities and accessibility standards.	
Also, for 10 lakh population only 1 school for persons with physical disability and mental disability is provided, without even realizing that it will become a challenge for children with physical and/or mental disability to reach from distant areas	This will not only help persons with disabilities to live with dignity, participate, and empower themselves but also the elderly persons, women with pregnancy and persons with temporary disability, thus making it universally accessible.
For planning norms and standards of education facilities, there is no mention of accessibility needs of children with disabilities.	

ISSUES/CONCLUSION AND RECOMENDATION

Conclusion	Recommendation
DATA COLLECTION LEVEL	
paucity of data	
There is no trend of data on persons with disabilities in India, as the initial collection began in 1981 and discontinued for 1991 and again started for 2001.	Department of empowerment of persons with disabilities should assess indicators for evaluation of existing conditions and requirements of persons with disabilities in urban areas.
There is no specific and segregated data on persons with disabilities by availability of water and sanitation facilities, income, education, household, house ownership and accessibility to information, facilities etc.	Census should collect specific and segregated data on persons with disabilities living in slums, by availability of water and sanitation facilities, income, education, household details, house ownership and accessibility to basic amenities, facilities and information.
paucity of data on persons with disabilities in slum area Delhi	
Due to non-availability of data on persons with disabilities living in slum areas, the issues related to poverty, access to water and and sanitation and other basic amenities cannot be adressed sanitation and other basic amenities cannot be addressed.	
Also, facilities required for education, health, special schools and training institutes etc. cannot be assessed.	

ISSUES/CONCLUSION & RECOMENDATION

Conclusion	Recommendation
Primary servey [locomotor impaired]	
Out of 117 samples, 58 were surveyed under locomotor disabilities. It is the most diverse of all the disabilities	36% of locomotor disabled are unemployed, thus provision of quality education, accessible and barrier free working environment is important
16 out of 58 Locomotor Disabled are dealing with dysfunction of lower limb due to spinal injury, followed by paralysis and loss of limb.	Metro is rated most accessible mode of transport but first mile and last mile is a challage for them so it is important to provide the facility of metro to every person in Delhi to make their life easy
Maximum effected age group 26 -45 and >60, 27% and 26% respectively.	Roads/crossings and buses are least accessible and people who are travelling by using bus as a mode of transport require assistance thus there has been requirement of special provision regarding barrier free environment and ease of access to make them live with dignity and self dependent.
Maximum persons with locomotor impairments are uneducated (17 of 58)	
36% of locomotor disabled are unemployed	7031 buses are in Delhi right now but only 3600 low flooring buses are there so provision of increasing the number of low flooring buses with ramp . Automatic openable ramps in low floor buses.
29 out of 58 are travelling by themselves	
Persons with disability using bus as mode of transport are travelling with assistance.	

Conclusion	Recommendation
PRIMARY SERVEY [visual impaired]	
Out of 117 samples, 38 were surveyed under vision impairment (29 are fully blind and 9 are partially blind)	35% of visual impaired people are unemployed, thus provision of quality education, accessible and barrier free working environment is important
Maximum effected age group under the visually impaired category, age group 26 -45 and >60, 27% and 26% respectively.	Roads/crossings and buses are least accessible and people who are travelling by using bus as a mode of transport require assistance and they also need assistance for crossing the road thus there has been requirement of special provision regarding barrier free environment and provision of **Audio traffic signals** and **audio signals at** different locations in the city.
persons with visual impairments are uneducated (11 of 38)	
36% of visual impairment are unemployed	
8 out of 58 are travelling by themselves and 19 are dependent on someone	
42 are using public mode of transport , out of them metro is the preferred mode of transport for 30 of them.	provision of paratransit service (demand share ride service)
Metro is rated most accessible mode of transport but there are many complains of falling of visually impaired person from the platforms in the city.	platform screen gates are unavailable at many stations so it is important to implement platform screen gates to all metro stations

ISSUES/CONCLUSION AND RECOMENDATION

ACTION- Strengthening the existing advisory committee, by giving power and function, new recommending and implementing committee.

FUNCTIONS

The committee will review(audit) the exiting area.

- It will give the recommendation to the concerned authority, for implementation.
- For new development committee will review the plans,
- Will give recommendations/reviews
- Committee will give approval according the implementation of the changes.
- Committee will give suggestions to form planning guidelines.
- awareness program.

POWERS

- Committee has the right to approve or disapprove the design of any area.
- Committee Can incentivize or disincentivize to an organization or group of people

ISSUES/CONCLUSION AND RECOMENDATION

ACTION- To provide accessible and barrier free public environment.

TARGET-1

Enhance the accessibility of the public spaces (Market, parks, landscape, etc.)
Conduct accessibility audit in formal markets and parks.. (city level) and converting them into fully accessible.
Conduct accessibility audit in small markets (community level) and convert them into fully accessible.

TARGET-2

Improve the accessibility of pathways, sidewalks.
Conduct accessibility audit on pathways and sidewalks (community level) and convert it into fully accessible.

TARGET -3

Improve the accessibility of public transport (bus stops, metro stations) and transport carriers(buses, metro)
Conduct accessibility audits on bus stops and metro station and make them fully accessible.

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Annexure II

Introduction:

Person with disabilities are one of the most important and diverse category of population and needed to be addressed in all development and decision making process.

According to the World Health Organization, 15 percent of the world's population has a disability. The 2011 census statistics showed that during the 2001 census the prevalence of impairments in our nation has risen from 2.13 percent to 2.21 percent. In numerical numbers, over 49 lakes with disabilities in our nation have increased in a decade. In India, 2.68 people are handicapped out of the 121 Cr population, 2.21 percent of the entire population. However, we have been used to cities that plan, construct and build urban public places and services disregarding the requirements of disabled persons and thus restricting their access. Against this backdrop, this research seeks to improve urban design techniques that may successfully help individuals with disabilities access the job, socialising and pleasure possibilities offered by cities. This means that urban forms and urban systems are designed to provide individuals access to parks and public spaces, as well as to transit systems and to engage actively in public life, regardless of their level of capacity. Disabled people are less likely to be working, earn less per year and are more likely to be poorly employed. The needs of those with disabilities are seldom addressed. Unplanned urbanisation has placed stress on fair delivery, public services, inaccessible and inadequate

infrastructure, inefficient design of public buildings and housing, and restricted public transit access. These obstacles have contributed to increasing exclusion and inequality among disabled people and other marginalised groups. Making cities accessible and inclusive for everyone, including disabled people, is critical for sustainable urban growth and the preservation of human rights.

Objectives of the Survey:

- To find Prevalence and incidence of person with disabilities
- To know Level of education among persons with disabilities
- To know the difficulties faced by persons with disability in accessing/using public building/public transport,

1.1 Survey Location:

The survey area is located Delhi which is NFC (New friends’ colony)

1.2 Survey Methodology:

Quantitative and qualitative research method are adopted for study. This method is adopted to describe and explore the characteristics of persons with disabilities, to identify barriers that hinder their full participation and inclusion; to understand their perception about social attitude and access to physical environment.

The sample of data collection will be confined to person with

- **locomotor/ movement related impairments**
- **visual impairments**
- **speech impairment**
- **Hearing impairments.**

Types of surveys

Personal interviews of persons with disabilities, Interviews of professionals, Observation survey.

Sample size

Total sample size 200, and all age group and gender are included, from all types of Disability. Due to paucity of contact and residential information on persons with disabilities in Delhi, various institutions and NGO's are chosen to perform a survey

Based on this method we prepared questionnaire for person with disabilities

Questionnaire for **Movement /Locomotor impairment** survey:

Person with disabilities survey

SCHOOL OF PLANNING AND ARCHOTECTURE, NEW DELHI

Name _____

Sex: Male ☐ Female ☐ Other ☐

Address_____

1.Types of locomotor disabilities

☐ Cerebral palsy

☐ Dwarfism

☐ Polio

☐ Loss of limb (Amputation)

☐ Paralysis

☐ dysfunctional

☐ others_____

2. Age group?

☐ 0-5 ☐ 6-15 ☐ 16-25

☐ 26-45 ☐ 46-60 ☐ >60

3. occupational status?

☐ student ☐ gov. job ☐ Other_____

☐ unemployed ☐ self employed

4. Education qualification

☐ Elementary

☐ Secondary

☐ Senior secondary

☐ Higher secondary

☐ Graduate and above

☐ uneducated

5. Travel pattern?

1.1.1.

☐ Travelling by themselves ☐ Travelling with ☐ someone No travelling

6. Mode of transport?

☐ 2w ☐ 4w metro ☐ bus ☐ ☐ others_____

7. do you face any accessibility related issues/barriers.

8. Rate the facilities as for you experience in terms of accessibility

Home

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Neighbourhood parks/gardens

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Pavements/pathways

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Roads/crossings

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

PUBLIC TRANSPORT SYSTEM

Bus

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Metro

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Auto

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Schools

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Hospitals/medical facilities

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Markets

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Questionnaire for **visual impairment** survey:

Person with disabilities survey

SCHOOL OF PLANNING AND ARCHOTECTURE, NEW DELHI

Name _____

Sex: Male ☐ Female ☐ Other ☐

Address_____

1.Types of visual impairment disabilities

☐ fully blind

☐ partially blind

2. Age group?

☐ 0-5 ☐ 6-15 ☐ 16-25

☐ 26-45 ☐ 46-60 ☐ >60

3. occupational status?

☐ student ☐ gov. job ☐ Other_____

☐ unemployed ☐ self employed

4. Education qualification

☐ Elementary

☐ Secondary

☐ Senior secondary

☐ Higher secondary

☐ Graduate and above

☐ uneducated

5. Travel pattern?

1.1.2.

☐ Travelling by themselves ☐ Travelling with ☐ someone No travelling

6. Mode of transport?

☐ 2w ☐ 4w metro ☐ bus ☐ ☐ others_____

7. do you face any accessibility related issues/barriers

8. Rate the facilities as for you experience in terms of accessibility

Home

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Neighbourhood parks/gardens

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Pavements/pathways

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Roads/crossings

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

PUBLIC TRANSPORT SYSTEM

Bus

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Metro

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Auto

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Schools

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Hospitals/medical facilities

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Markets

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Questionnaire for **speech and hearing impairment** survey:

Person with disabilities survey

SCHOOL OF PLANNING AND ARCHOTECTURE, NEW DELHI

Name _____

Sex: Male ☐ Female ☐ Other ☐

Address_____

1.Types of locomotor disabilities

☐ speech

☐ hearing

☐ both

2. Age group?

☐ 0-5 ☐ 6-15 ☐ 16-25

☐ 26-45 ☐ 46-60 ☐ >60

3. occupational status?

☐ student ☐ gov. job ☐ Other_____

☐ unemployed ☐ self employed

4. Education qualification

☐ Elementary

☐ Secondary

☐ Senior secondary

☐ Higher secondary

☐ Graduate and above

☐ uneducated

5. Travel pattern?

1.1.3.

☐ Travelling by themselves ☐ Travelling with ☐ someone No travelling

6. Mode of transport?

☐ 2w ☐ 4w metro ☐ bus ☐ ☐ others_____

7. do you face any accessibility related issues/barriers

8. Rate the facilities as for you experience in terms of accessibility

Home

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Neighbourhood parks/gardens

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Pavements/pathways

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Roads/crossings

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

PUBLIC TRANSPORT SYSTEM

Bus

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Metro

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Auto

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Schools

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Hospitals/medical facilities

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Markets

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Questionnaire for **Person with multiple disabilities** survey:

Person with disabilities survey

SCHOOL OF PLANNING AND ARCHOTECTURE, NEW DELHI

Name _____

Sex: Male Female Other ☐ ☐ ☐

Address_____

1. Age group?

☐ 0-5 ☐ 6-15 ☐ 16-25

☐ 26-45 ☐ 46-60 ☐ >60

2. occupational status?

☐ student ☐ gov. job ☐ Other_____

☐ unemployed ☐ self employed

3. Education qualification

☐ Elementary

☐ Secondary

☐ Senior secondary

☐ Higher secondary

☐ Graduate and above

☐ uneducated

4. Travel pattern?

1.1.4.

☐ Travelling by themselves ☐ Travelling with ☐ someone No travelling

5. Mode of transport?

☐ 2w ☐ 4w metro ☐ bus ☐ ☐ others_____

6. do you face any accessibility related issues/barriers

7. Rate the facilities as for you experience in terms of accessibility

Home

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Neighbourhood parks/gardens

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Pavements/pathways

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Roads/crossings

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

PUBLIC TRANSPORT SYSTEM

Bus

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Metro

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Auto

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Schools

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Hospitals/medical facilities

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Markets

☐ 1 ☐ 2 ☐ 3 4 ☐ 5 ☐

Thank you