ASSESSING THE ACCESSIBILITY OF THE BUILT ENVIRONMENT TO PERSONS WITH REDUCED MOBILITY, A CASE OF NAROK TOWN

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF ARTS IN CONSTRUCTION MANAGEMENT, FACULTY OF BUILT ENVIRONMENT AND DESIGN, OF THE UNIVERSITY OF NAIROBI.

2021

DECLARATION

I declare that this project is entirely original to me and has never been submitted to another university for the purpose of receiving a degree.

Signature..... Date..05.07.2022.....

Linet Namunyak Mwanik

B53/34860/2019

This research project has been submitted for examination with my approval as a University supervisor.

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DEDICATION

This work is dedicated to my son Nathaniel Losim, my loving family, who have always supported and encouraged me, as well as to my husband, who has been patient, understanding, and supportive of me throughout my studies period.

ACKNOWLEDGMENT

I want to express my gratitude to God for bringing me this far.

A special thank you to my supervisor, Arch. Peter Njeru, for your direction, which made my project successful. I appreciate your prompt assistance whenever I needed it.

I also want to express my gratitude to my father Jackson Seleila Ole Mwanik and mother Mary S. Mwanik, who have supported and loved me unconditionally during this journey. My husband, for his tolerance, inspiration, and moral assistance.

Finally, I'd like to appreciate my employer for giving me a flexible schedule that made it easy for me to complete my studies.

Many thanks and God's blessings to all.

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LIST OF ABBREVIATIONS

ADA	Americans with Disabilities Act
CBD	Central Business District
DIAUD	Disability Inclusive and Accessible Urban Development
GDI Hub	Global Disability Innovation Hub
ISO	International Organization for Standardization
LCDIDC	Leonard Cheshire Disability and Inclusive Development Centre
KNBS	Kenya National Bureau of Statistics
NCPWD	National Council for Persons with Disability
PDA	Persons with Disabilities Act, 2003
PWDs	Persons with Disabilities
PWRM	Persons with Reduced Mobility
RNIB	Royal National Institute for the Blind
UD	Universal Design
UN	United Nations
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
WHO	World Health Organization

ABSTRACT

Reduced mobility is part of a normal life cycle that many people likely experience during some period of their life. It might lead to transient or permanent disability and usually arises from an accident, old age, carrying heavy luggage, a woman being pregnant, challenges with low vision etc. Disability is estimated to affect one billion people, that is about 15% of the global population, and this figure is projected to increase to about 6.25 billion by the year 2050. However, there is a general absence of accessibility features in the built environment, including in public structures, streets, sidewalks, and open areas. Many public buildings and spaces lack accessible washrooms, ramps, tactile paving, lifts, braille signage and other accessibility requirements. The target of this study was to evaluate the accessibility of the built environment to persons with reduced mobility in Narok town. The study used the qualitative methodology to explore the phenomenon where observation and measurement, and interviews were used to collect data. Key building elements that were examined included; external approaches, entrances and reception areas, room spaces, horizontal and vertical circulations, toilets and washrooms, information provision and signage, guided by the Americans with Disabilities Act checklist for readily achievable barrier removal. Interviews were conducted to find out hindrances to accessibility incorporation in the built environment in Narok town. Research findings showed that the most accessible were entrances/approaches and route of travel components in the built environment in Narok town while vertical circulation, getting and using washrooms was the least accessible component in buildings. Pedestrian walkways were also lacking accessibility provisions such as kerb ramps, street furniture, required width, and raised humps for pedestrian crossing on roads. Data further revealed that lack of enforcement of policies and regulations that guide accessibility inclusion as well as insufficient awareness contributed to lack of accessibility in the built environment in Narok town. Interventions that can improve accessibility inclusion were also suggested where enforcement of policies and regulations as well as creation of awareness on the importance and need for accessibility inclusion in the built environment ranked highest. The implication of this study points to the need for inclusion of accessibility components to encourage equal engagement of persons in the built environment and the society without leaving others behind because of disability.

CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Background of the Study

The built environment is one in which we interact with all the time throughout our lives. Once constructed, it remains the same until its functional time is over unless it has to be modified, demolished or renovated. Unlike the built environment, the human ability keeps changing with time either naturally or otherwise and usually mostly unavoidable. Green and Jackson, (2011) note that the ability of a human being varies throughout their natural life span. People with disabilities should not be viewed as an outcast group on the margins of society because changes in personal mobility and temporary reductions in ability, such as maneuvering with infants in strollers and temporary injuries from an accident, sport, or illness, are all natural parts of life. (Green and Jackson, 2011).

The number of individuals with disabilities is expected to rise in urban settlements as urbanization increases, this is according to the United Nations' 2018 disability report. However inaccessible facilities and transport systems continue to impede people living with disabilities from enjoying their right to life when the physical, social and attitudinal barriers exist. According to the World Urbanization Prospects (2014), prediction shows that by 2050, 15% of the world's 6.25 billion inhabitants would live in urban centres. Further, UN World Population Prospects, (2019), estimates that one in six people (16 per cent) in the world will be over 65 years by 2050 increasing from one in eleven (9 per cent) in 2019. The mobility of such people is likely to reduce due to age related factors. Evidence demonstrates a widespread lack of accessibility to the built environment for the 15 per cent of the global population who live with a handicap, including in roads, housing, public spaces, and fundamental urban services like water and sanitation, transportation, resilient structures, etc. (World Urbanization prospects, 2014). The marginalization and disadvantages that people with disabilities experience, which result in disproportionately high rates of poverty, hardship, and exclusion, are substantially exacerbated by these accessibility restrictions. This circumstance makes it more difficult to achieve the vision of the 2030 Agenda for

Sustainable Development and other internationally recognized development objectives (DIAUD, n.d).

There exist legislations that provide for inclusivity of accessibility and mobility in the built environment. Kenya enacted the Persons with Disabilities Act in 2003, a law passed by the legislature guaranteeing the rights, rehabilitating, and promoting equality of opportunities for people with disabilities, the Constitution 2010, however the same is not implemented on the ground and further action is needed.

1.2 Research Problem

Disability is part of the human condition. All people have reduced mobility at some time in a certain way in their lives. An elderly person, a youngster, a person with a broken limb, parents using a stroller, a pregnant woman, a person with a back injury etc. all face different difficulties that predispose them to hurdles in their daily lives in various kinds. From this angle, it's critical that the built environment be barrier-free to ensure equal access and use. (Uslu, 2008; WHO, 2011).

PWDs are typically one of the poorest of the poor and likely to stay that way due to the various barriers that exist in the physical, financial and social environments that impede individuals from achieving their potential and desired living standard (KNSPWD, 2008). All people can equally and autonomously share a single environment. In order to provide equal access, this setting must be planned and formed to meet a wide range of requirements with the highest level of flexibility. In many towns and cities, cultural beliefs and policies about disability have placed restrictions with regard to the built environment. (Church and Marston, 2003; Baris and Uslu, 2009).

In Kenya, according to the 2019 census, 2.2 per cent (0.9 million) individuals have a disability. The census also indicated that more disabled persons reside in rural locations rather than in cities, 2.6 per cent (0.7 million) and 1.4 per cent (0.2 million) respectively. This could be because of the lack of an accommodating environment in which these people can freely access and participate in as other people without disabilities and limitations. Mobility was found to be the most frequently reported difficulty, with 0.4 million Kenyans reporting it, accounting for 42% of people with disabilities. The other disability domains, including sight, listening, cognitive

processing, self-care, and information exchange, were reported to be experienced by 36% to 12% of disabled individuals.

In Narok county, the disabled with hearing difficulties was 0.2 per cent, seeing difficulties 0.3 per cent, cognition difficulties 0.2 per cent, self-care difficulties 0.2 percent, communication difficulties 0.3 per cent and mobility difficulties leading with 0.4 per cent (Development Initiatives based on KNBS, 2020)

The statistics of disabled and elderly were not of much significance to this study as the researcher believes that they should not be the only guiding indicator for the need of an accessible built environment because, the point at which a person develops mobility difficulties is unforeseen, for example; brief or long-term impairment brought on by an illness, accidents, or activity, reduced mobility of pregnant women, small children, the elderly, wheelchair users, ambulates and semi-ambulates and the blind but they can be used to emphasize and justify the need.

Despite much national efforts to address disability such as enactment of the Disability Act 2003 mandated to form the National council for PWD, formation of disability policies that seek to eliminate disparities in service provision, there is still an ongoing challenge of ensuring that standards and norms are consistently and effectively enforced in Kenya. Due to what has been said, "inadequate budgetary allocation for the implementation of these legislations and policies; lack of definitional clarity about what constitutes a disability; the non-prioritisation of disability; lack of robust monitoring and enforcement mechanisms; the lack of involvement of organisations of persons with disabilities and service providers in planning and implementation; lack of collaboration between government departments providing services and other actors; low levels of awareness of disability and negative attitudes among some policy makers and implementers" (Rohwerder, 2020; Sightsavers, 2018; LCDIDC, 2016,). The situation is evident as seen in a Kenya National Survey for Persons with Disabilities (KNSPWD) study, where environmental factors have a daily and a weekly impact on 15% and 3% of people with disabilities, respectively. Furthermore, the surrounding is considered a significant barrier in the daily lives of 65% of PWDs (KNSPWD, 2008).

This study examined how accessibility was incorporated into the built environment with respect to people with limited mobility in Narok Town, Narok County.

1.3 Research Questions

The following are the research questions;

i. What are the features of a universally accessible built environment?
ii. What is the extent of accessibility of the built environment in Narok town by persons with reduced mobility?
iii. What are the hindrances to accessibility incorporation in the built environment in Narok town?
iv. What measures can be taken to improve accessibility incorporation in the built environment in Narok town?

1.4 Research Objectives

The primary objective of this study was to assess the accessibility of the built environment to persons with reduced mobility in Narok town, Narok. The specific objectives are;

i. To identify the features of a universally accessible built environment.
ii. To find out the extent of accessibility of the built environment in Narok town by persons with reduced mobility.
iii. To find out hindrances to accessibility incorporation in the built environment in Narok.
iv. Measures that can be taken to improve accessibility incorporation in the built environment in Narok town.

1.5 Research Proposition

The built environment in Narok town is insufficiently accessible to persons with reduced mobility.

1.6 Significance of the Study

It is impractical to promote and champion for the inclusion of persons with disabilities in all spheres of life such as in education, employment and even in elective and leadership positions without providing an accessible built environment or adapting an existing inaccessible one. Besides, having legislations that ensure compliance to the inclusion of accessibility provision in the built environment in

Kenya is supposed to see that all buildings, spaces and transport systems are accessible by all persons including persons with reduced mobility. This study sought to assess the situation of the built environment in Narok town to determine whether or not there is improvement when it comes to inclusivity of the needs of all persons in the built environment. This study is significant as it sheds light on the current situation on accessibility in the built environment in Narok town which is important to policy makers, designers, planners, builders, tourists, built environment users and all persons involved in construction in Narok town. It is also significant as it sought to find out reasons for lack of accessibility incorporations and it further suggests measures that can be taken to improve inclusion of accessibility components in the built environment in Narok town which can guide those seeking to ensure that the built environment is made accessible for all persons in Narok town.

1.7 Scope of the Study

The study focused on the built environment in Narok town, Narok North, Narok County. It sought to assess the existence of accessible provisions in various public buildings and facilities (county government offices, the national library Narok, shopping mall, banks, Narok stadium, Narok law courts, huduma center etc.) as well as on pedestrian walkways. Public buildings were targeted as the researcher assumes that they are the best examples that should be emulated by developers and owners of private buildings. Many public buildings also provide essential services such as huduma centre, the national library, county offices. It also aimed at finding out factors that impede the incorporation of accessibility components in the said environment and the measures that can be taken to improve accessibility incorporation.

1.8 Study Limitation

The study was limited to public buildings in Narok town and hence the results cannot be generalized for the whole county or elsewhere in Kenya.

1.9 Operational Definition of Terms

1.9.1 Accessibility

ISO 21542, (2011), describes accessibility as "provision of buildings or parts of buildings for people to be able to gain access to them, into them, to use them and exit them, regardless of disability, age or gender". They should be able to make use of the built environment without assistance and with dignity. It involves all possible users of the facility being able to independently approach, enter, evacuate, and/or use the building's services and facilities with the guarantee of their health and safety while undertaking those activities.

It also refers to a quality or feature of any physical or virtual environment, location, facility, or service that can accommodate users' needs for understanding, gaining access to, or interacting with its contents. (UN, 2016).

Valdes, (1998) explains accessibility as "provision of flexibility to accommodate each user's needs and preferences"

1.9.2 Built environment

The built environment according to the built environment bill of 2019 refers to the human-made surroundings that provide the setting for individual dwelling and buildings to neighbourhoods and cities that can often include their supporting infrastructure services (The Built Environment Bill, 2019).

1.9.3 Mobility

This is the ability or capacity to move freely and easily (Cambridge Dictonary,2021)

1.9.4 Mobility limitation

Mobility limitation or constraint or challenge is an inability to move or a restricted range of movement which may be caused by physical impairments to one or more body parts due to congenital anomaly, disease e.g. arthritis, amputation, fractures, injury or other factors, leading to use of aid, wheelchairs, crutches or other appliances for independent movement.

1.9.5 Persons with Reduced Mobility (PWRM)

These comprises the disabled and the handicap. A disabled refers to a person with a restriction that affects their mobility, hearing, vision, or ability to learn on a physical,

sensory, or cerebral level. A condition or obstacle imposed by one's surroundings, society, or even oneself is referred to as a handicap. So, for a person with a disability, physical obstacles in the built environment are a handicap. For instance, a staircase is a handicap to a wheelchair user who encounters it. However, believing that one is inferior to and different from others is a self-imposed handicap (United Nations, 2003-04).

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter evaluates a range of studies-related literature that will form its foundation and which are consistent with the study's aims. It also contains the study's conceptual foundation.

2.1 Models and Types of Disabilities

The According to the Kenyan Constitution of 2010, a disability is defined as "...any physical, sensory, mental, psychological, or other impairment, condition, or illness that has, or is perceived by significant sectors of the community to have, a substantial or long-term effect on an individual's ability to carry out ordinary day-to-day activities." This definition is similar to that found in the UNCRPD. (CRPD, 2011; Constitution of Kenya,2010; Nzioki et al., 1992).

2.1.1 Models of disability

that are widely recognized.

1. **Medical Model**- which recognizes disability as an impairment or condition which affects a person’s ability to perform normally; people with disability are looked at as the problem and they are expected to adapt to the existing environment, attitudes and social setup.
2. **Social Model**- Places the fault in the existing environment, attitudes and social setup that handicap the disabled from participating equally in the society.

This study considers both models of disability as impediments to the participation of PWDs in society.

2.1.2 Types of disabilities

Some disabilities may be related to conditions present before or after birth which affect normal functioning later in life, others may arise from accidents or injury,

diseases while some arise from genetic factors. The needs of PWDs can be put into four main categories (Nzioki et al., 1992). These are:

2.1.2.1 Persons with physical disabilities

Involves those people without a leg(s) or whose legs need additional assistance to bear the weight of the body, or whose legs are incapable of bearing the weight of the body. This group has wheelchair users, ambulant and semi-ambulant and people who spent most of their time lying down. Wheelchair users require a built environment that allows a barrier free access without obstacles on pathways such as ramps and dropped curbs, wide entrances and exits, wheelchair height working surfaces in buildings, wide corridors to allow for circulation, grab rails in toilets etc. The ambulant and semi-ambulant may or may not use wheelchairs but often require assistive walking devices and can only walk for limited distances. They require ramped access and wide doors for easy navigation in the built environment. People with disabilities who are confined to beds and spend much of their time lying down due to chronic illnesses that disable them.

2.1.2.2 Hearing Impairment

This involves persons with varying degrees of hearing difficulty and communication. According to Nzioki et al. (1992), their accessibility needs for the built environment mostly revolve around sound signals like fire alarms and sounds of falling things. They recommend that good visual cues be incorporated and prepared for in projects to ensure their safety in buildings because their condition prevents them from hearing (Nzioki et al., 1992). Ramps would be preferable over steps in order to prevent cases of a person falling because some hearing issues are medically known to cause a bodily imbalance. In these circumstances also, handrails are an added benefit.

2.1.2.3 Visual impairment

This is a condition of seeing difficulty majorly affecting the blind. Mobility of visually impaired persons is severely limited hence their needs require audio signals to guide them. They should be placed in strategic places such as lifts. Braille should be included in building entrances, notice boards and where any directional information is located. Ramps and tactile paving should also be incorporated in the built environment.

2.1.2.4 Mental impairment

Affects the cognitive abilities of memory, learning and understanding. According to Nzioki et al. (1992), the mentally disabled suffer the most social rejection and segregation among disabled people, particularly in extreme cases in which the disabled person keeps shouting at people, does have poor personal hygiene, among others.

2.2 Accessibility Barriers

Law and Kitchen (2001) define "barrier" as any barrier that prevents people with disabilities from participating fully and effectively in society, including those of communication, culture, economic, environment, institutions, politics, society, psychological, or architectural in nature. According to (Hashim et al, 2012), the requirements for a barrier free area are to be included in public and open places, in recreational facilities and in pedestrian walkways. An inclusive barrier free design brings solutions to the main issues with outdoor environment design.

Technical cards for accessible construction (2015), identifies four areas in which barriers commonly arise for PWDs and PWRMs in the built environment as; "movement in the outdoor environment and reaching the building, entering, exiting and evacuating buildings, movement within a building and use of individual rooms and facilities" as illustrated in the table below.

Table 1: Areas barriers commonly arise

Area/activity	**Design Requirement**	**Applicable components**
1. "Movement in the outdoor environment and outside buildings	Pedestrian routes in the built environment to be designed to guarantee easy movement from one entrance to the other. This means that pathways and routes should be easy to find, continuous, easy to use, free of obstacles, have a firm surface and be properly dimensioned.	1.A Way-findings 1.B Pathway 1.C Parking 1.D Gaps, grates and other openings 1.E Outdoor facilities

2. Entering, exiting and evacuating buildings	The entrance(s), including final fire exits, to a building should be easy to find and easy to use by any person irrespective of impairment. They should be easy to use even during an emergency evacuation	2.A Ramps 2.B Handrails 2.C Entrance door and door handles 2.D Reception counter desk 2.E Fire emergency warning systems and signals
3. Movement within buildings	Indoor communication linking the entrance area with the various parts of a building should be easy to find and follow, be well dimensioned, have a good standard of lighting and be easy to use even during an emergency evacuation by all. Differences in levels should be clearly marked and safe, adequately lit with well dimensioned staircases, ramps and lift should be provided with suitable handrails. Staircases should facilitate safe assisted evacuation/rescue in emergencies. Doorways should be large enough to facilitate use for wheelchair or other mobility aid users	3.A Horizontal circulation (Corridors) 3.B Vertical circulation (Stairs, ramp and lift) 3.C Information, signage, simple layout

4. Use of individual rooms and facilities	Rooms should be well dimensioned to allow for sufficient space for wheelchair users, a person using crutches or a person relying on an assistant. All fixtures and fittings should be appropriately designed and correctly positioned. Good lighting or natural light, and appropriate acoustics should always be considered. Signposted information of different kinds improves accessibility, usability and orientation.	4.A Window 4.B Switches and controls 4.C Accessible toilet and water supply facilities 4.D Acoustics 4.E Security Access Systems 4.F Conference and meeting rooms 4.G Cafeterias 4.H Kitchens and Kitchenettes.”

(Source: Technical Cards for Accessible Construction ,2015)

Below are measurements required for various accessible components.

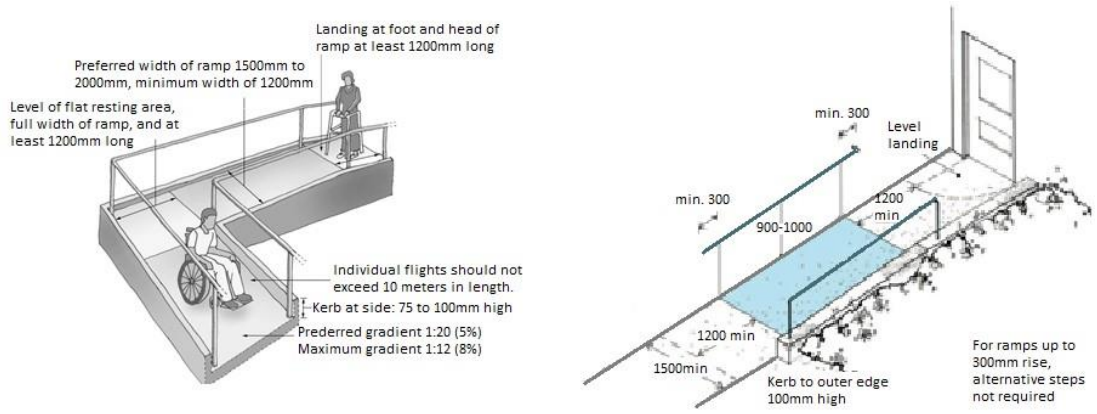


Figure 2.1: Ramp with handrails

(Source: Technical Cards for Accessible Construction, 2015)

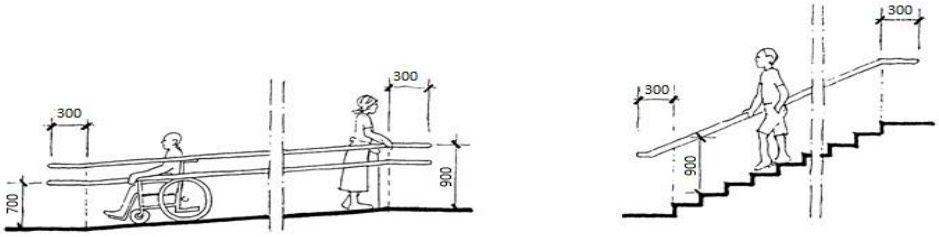


Figure 2.2: Horizontal extension of handrails

(Source: Technical Cards for Accessible Construction, 2015)

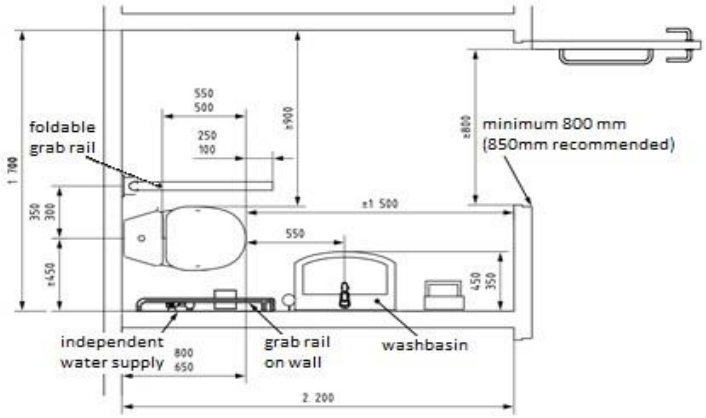


Figure 2.3: Floor plan of an accessible toilet

(Source: ISO-21542 2011)

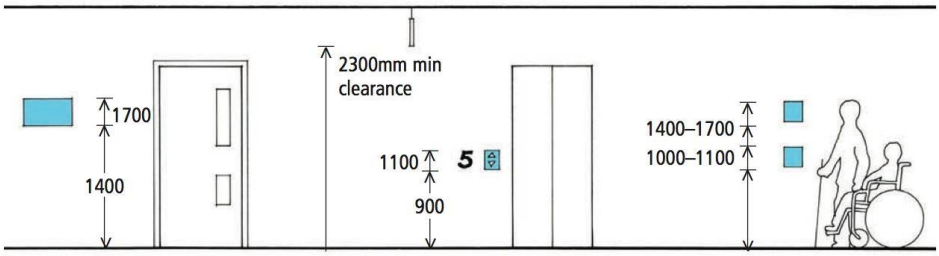


Figure 2.4: Recommended location of signage

(Source: Technical Cards for Accessible Construction, 2015)

Figure 2.5: Universal accessibility symbols

(Source: Technical Cards for Accessible Construction, 2015)

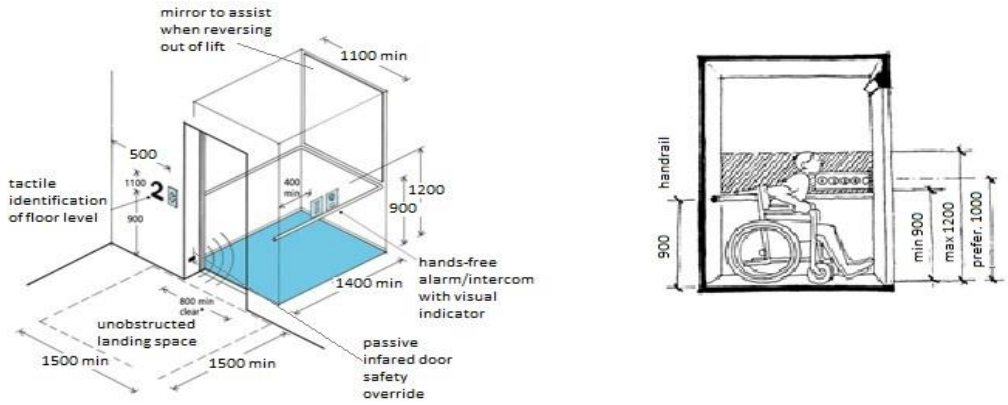


Figure 2.6: Dimensions of lift

(Source: Technical Cards for Accessible Construction, 2015)

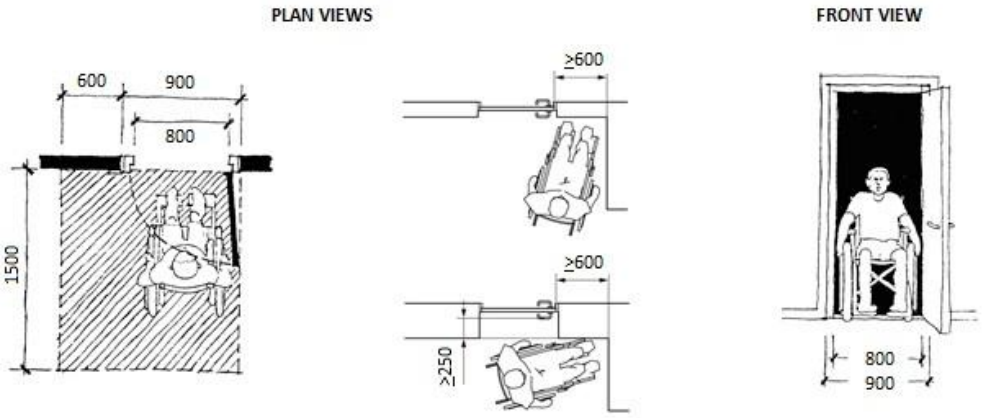


Figure 2.7: Dimensions of entrance door

(Source: Technical Cards for Accessible Construction, 2015)

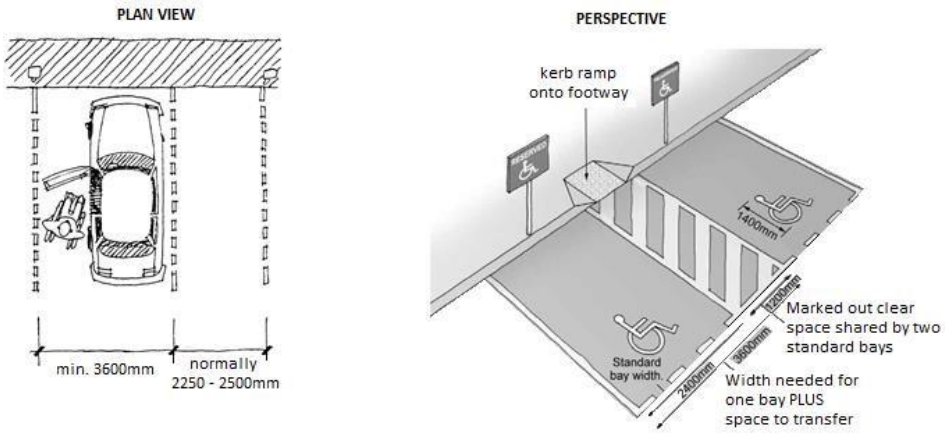


Figure 2.8: Dimension of an accessible parking

(Source: Technical Cards for Accessible Construction, 2015)

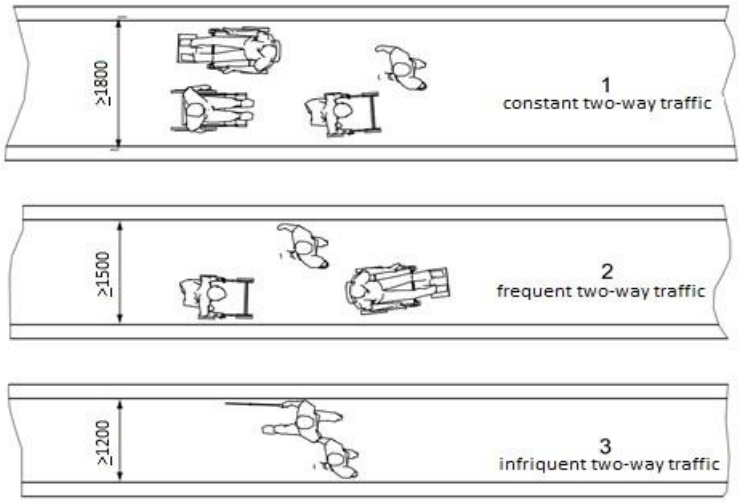


Figure 2.9: Minimum corridor width (Source: ISO-21542 2011)

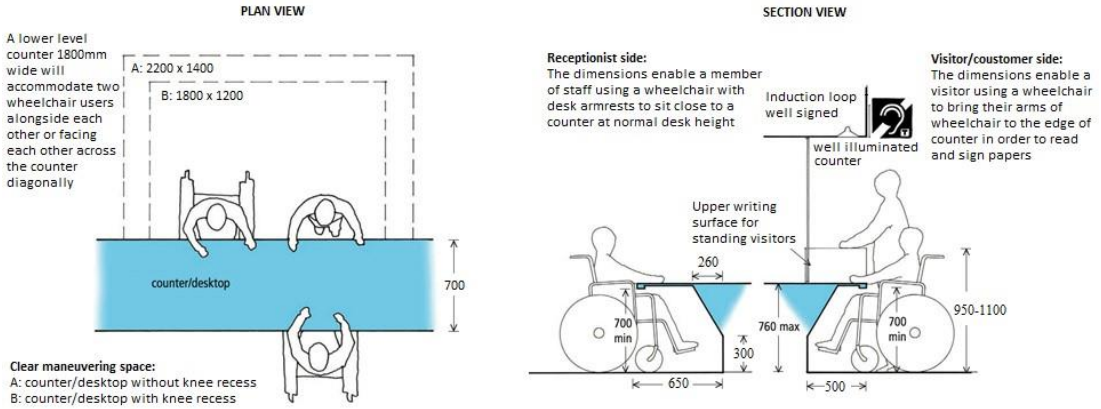


Figure 2.10: Reception desk

(Source: Technical Cards for Accessible Construction, 2015)

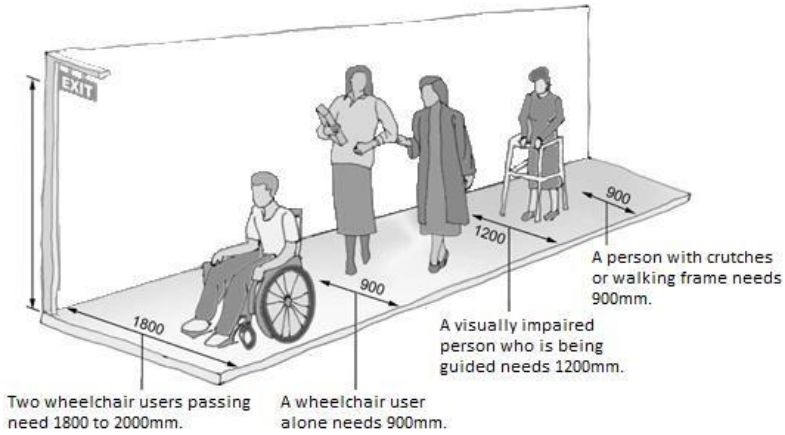


Figure 2.11: Minimum width of path needed by different users

(Source: Technical Cards for Accessible Construction, 2015)

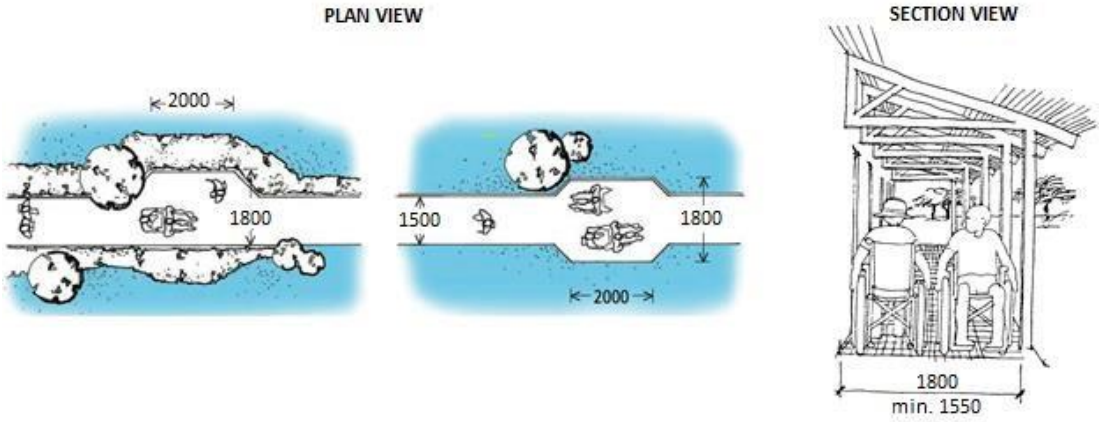


Figure 2.12: Required wideness of pathway for wheelchair users

(Source: Technical Cards for Accessible Construction, 2015)

Figure 2.13: Parking area layout with kerb ramp for on-street access

(Source: Technical Cards for Accessible Construction, 2015)

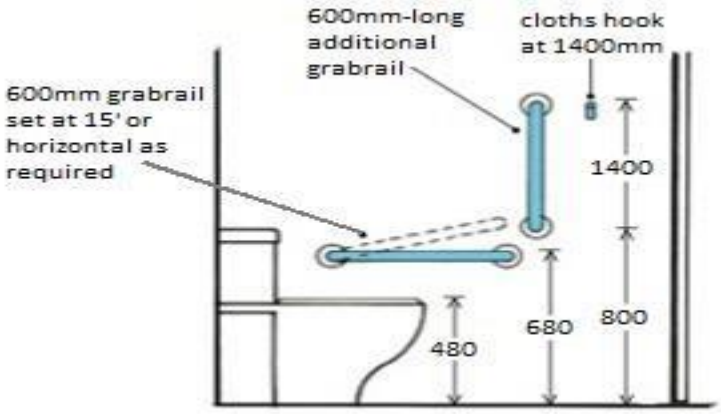


Figure 2.14: Location of grab rails

(Source: Technical Cards for Accessible Construction, 2015)

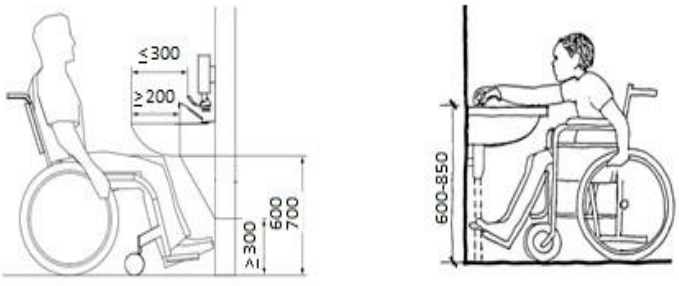


Figure 2.15: Accessible wash basin

(Source: Technical Cards for Accessible Construction, 2015)

The Government of Ontario identifies five barriers to accessibility as; attitudinal related to stereotyping and negative attitudes where non-disabled people fail to see beyond impairments, organizational, physical or architectural lack of communication or information and technology barriers. Ungar (2008) points out environmental barrier as; "high curbs and/or lack of dropped curbs, steep gradients for ramps, uneven paving slabs, rough or cobbled surfaces, slippery surfaces, narrow

pavements, street furniture poorly placed hence restricting access, congested pavements, steps without adjacent ramp, dropped curbs on roads not adjacent to each other, difficult camber on pavement, deep gutters along roadside which impede crossing, busy roads, lack of resting places on slopes and ramps, handrails not provided on ramps, insufficient designated road-crossing places, drains near to dropped curbs, cars parked adjacent to dropped curbs, and raised manhole covers at road-crossing points" (Ungar, 2008).

(Rohwerder, 2015; WHO & World Bank, 2011) include lack of participation where people with disabilities and other limitations are not included in decision-making of matters directly affecting their lives, internalized barriers, Inadequate statistics, proof, and data on what works, as well as false cost worries or excuses on the difficulty of accessibility inclusion. Inadequate policies and standards that do not take into account the needs of PWDs or which are not enforced also bring accessibility barriers.

In their case study on inclusive design and accessibility of the built environment in Ulaanbaatar, Mongolia, Patrick et al. (2020) used Ulaanbaatar as their example city and highlighted the following key barriers to an inclusive built environment.

1. "People with disabilities experience physical, social and economic barriers to accessing the built environment.
2. The way the city is evolving leaves limited space for accessibility.
3. A lack of knowledge on the cost of inclusive design is a barrier for decision makers.
4. Laws and policies fall through on implementation. A lack of responsibility and accountability for inclusion in built environment and infrastructure projects mean existing standards are not enforced
5. A lack of good examples of local inclusive design solutions creates a barrier to motivating the general public and designers" (Patrick et.al., 2020).

2.3 Features of a Barrier-free Built Environment

The creation of a barrier-free constructed environment should be founded on the Universal Design (UD) principles, which are a societal movement focused on maximizing the usability of products, environments, and communication systems by the widest range of users. (Imrie and Hall, 2001; CRPD, 2006). These principles according to Centre for Universal Design (1995) are;

1. **"Simple and intuitive use** -The use of the design is easy to understand regardless of the user's experience, knowledge, language skills or concentration levels.
2. **Equitable use** - The design does not disadvantage or stigmatise any groups of users.
3. **Perceptible information -** The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
4. **Tolerance for error** - The design minimizes hazards and the adverse consequences of accidental or unintended fatigue.
5. **Flexibility in use -** The design accommodates a wide range of individual preferences and abilities.
6. **Low physical effort -** The design can be used efficiently and comfortably and with a minimum of fatigue.
7. **Size and space for approach and use** - Appropriate size and space is provided for approach, reach, manipulation and use, regardless of the user's body size, posture or mobility."

According to (Imrie and Hall, 2001) the following design elements are frequently included into structures by architects: ramps, colour contrast, lifts to all levels, one entry point, lighting, accessible washrooms, tactile paving, level entry or access.

Additionally, ISO 21542 (2011) Building Construction - Accessibility and Usability of the Built Environment offers the precise specifications relating to the key human abilities that must be taken into account during the planning, design, and management of the Built Environment.

2.4 International Policy Frameworks for Universal access.

2.4.1 The 2006 edition of the UN Convention on the Rights of Persons with Disabilities (UNCRPD)

Accessibility is recognized in this agreement, which has been ratified by 145 nations, as one of the principles important for the realization of the other rights protected by article 3 of the convention. Additionally, it has a separate accessibility item (article 9) that requires states to take the necessary steps to guarantee that PDWs have equitable access to the built environment, transportation, information and communication, and other open public places and services in both urban and rural regions (UN-Habitat, 2014). The aim of this convention is to uphold the intrinsic dignity of people with disabilities while also promoting, safeguarding, and ensuring their equitable enjoyment of human rights and freedoms. It encourages women and children to use their rights and fundamental freedoms as stated in Articles 6 and 7.

Article 9 - On Accessibility, it mandates the following;

1. Enabling disabled people to live independently and actively participate in all aspects of life mandates that, "States Parties take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply to, inter alia:

   a. Buildings, roads, transportation and other indoor and outdoor facilities, including schools, housing, medical facilities and workplaces;
   b. Information, communications and other services, including electronic services and emergency services.

2. States Parties shall also take appropriate measures to:

   a. Develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public;
   b. Ensure that private entities that offer facilities and services which are open or provided to the public take into account all aspects of accessibility for persons with disabilities;

c. Provide training for stakeholders on accessibility issues facing persons with disabilities;
d. Provide in buildings and other facilities open to the public signage in Braille and in easy to read and understand forms;
e. Provide forms of live assistance and intermediaries, including guides, readers and professional sign language interpreters, to facilitate accessibility to buildings and other facilities open to the public;
f. Promote other appropriate forms of assistance and support to persons with disabilities to ensure their access to information;
g. Promote access for persons with disabilities to new information and communications technologies and systems, including the Internet;
h. Promote the design, development, production and distribution of accessible information and communications technologies and systems at an early stage, so that these technologies and systems become accessible at minimum cost."

2.4.2 The United Nations

Through its mandate and pursuit of social and economic growth as well as universal respect for human rights, the UN encourages accessibility, inclusion, and advancement of people with disabilities in society and development. Further, the UN departments; UN-Habitat and Economic and Social Affairs (DESA) work hard to improve accessibility and inclusion of people with disabilities in contexts relating to sustainable and inclusive development for all (SCRPD/UNDESA, nd). The UN also commits states to remove accessibility barriers by following developed standard rules and taking appropriate action (Nyangueso, 2006).

2.4.3 Others

Writers Rapley (2013) and Kportufe (2015) explain that PWDs in the US have access to facilities thanks to the Americans with Disabilities Act of 1990 (ADA) and the Architectural Barriers Act of 1968, both of which have been revised (Rapley, 2013: Kportufe, 2015). Bwail (2019) adds that it contains design specifications for construction works and renovation of buildings for public use, commercial purposes, state facilities, and local facilities (Bwail, 2019). Further, (Bwail 2019) notes that the ADA Accessibility Guidelines (ADAAG, 2004), which identify facility categories, set dates, and extra scope or technical needs, are developed and updated by an Access Board. These specifications outline the types of facilities covered, establish

effective dates, and give certain facilities additional scope or technical specifications. (Bwail, 2019: ADAAG, 2004). According to Rapley (2013), Australia's built environment accessibility laws are founded on the Disability Discrimination Act, 1995 (DDA), which prohibits discrimination against PWDs in a number of sectors, including access to places of business, employment, housing, services, and facilities (Rapley, 2013). The Premises Standards Act 49, which went into effect in May 2011, and the Disability (Access to Premises - Buildings) Standards 2010 are intended to make buildings accessible to individuals with disabilities and compliant with discrimination law (DDA, 1995). The Standards are expected to make buildings in Australia more accessible and practical for an aging population (Rapley, 2013) The National Building Code of 2010 is the reference building code for Canada and serves as the foundation for the development of building regulations in each province. To address their own local needs, the provinces may create extra laws or administrative guidelines (Rapley, 2013). The Equality Act of 2010 in the UK protects and forbids discrimination against PWDs in the built environment. Their legal rights are protected in a number of areas, including access to facilities, larger private clubs, and land-based transportation services (Rapley, 2013). Additionally, BS 8300: 2009, published by the United Kingdom's National Standards Body Design of buildings and its approaches to meet the needs of disabled persons - Code of Practice 62, offers recommendations that may be applied to existing buildings to increase accessibility and usability. It also offers guidelines on how to design new buildings to make them more accessible (Rapley, 2013). It includes suggestions on how to make aspects inside and outside of a building more accessible, such as wheelchair places in audience seats, seating arrangements, reading nooks in libraries, and accessible washbasins. It is relevant to a wide range of public buildings. Rapley (2013) adds that the proposals take into account how PWDs use facilities as residents, tourists, clients, employees, spectators at sporting events, performers, and as conference attendees (Rapley, 2013).

2.5 Legal Framework for Universal Access in Kenya

The legal framework for accessibility in Kenya comprises CRPD, the Persons with Disabilities Act, or PDA, and the 2010 Kenyan Constitution. They all seek the promotion of the rights of PWDs to life, to promote appropriate provisions in the

built environment, encourage equitability in all facets of existence just like everyone else (Onyango, 2012)

2.5.1 United Nations Convention on the Rights of Persons with Disabilities 2006 UNCRPD

According to Sightsavers, (2018) and Rohwerder, (2020), Kenya approved the UNCRPD in 2008, and in 2015 it underwent an evaluation of its implementation.

2.5.2 The Persons with Disabilities Act of 2003 (PDA)

It was created in 2004 following the 2003 passage of the Persons with Disabilities Act, No. 14. This law deals with disability issues in Kenya as well as accessibility. It has a responsibility around formulation of policies that are geared towards a better environment for persons with disabilities. The Persons with Disabilities (Amendment) Act, 2019, which is the most recent version, is being revised to bring the Act into compliance with the UNCRPD and the 2010 Kenyan Constitution.

Part III: Rights and The Privileges of Persons with Disabilities

Section 21- On Accessibility and Mobility, this act states that "Persons with disabilities are entitled to a barrier- free and disability friendly environment to enable them to have access to buildings, roads and other social amenities, and assistive devices and other equipment to promote their mobility."

Section 22. (1) On Public Buildings, that "a proprietor of a public building shall adapt it to suit persons with disabilities in such manner as may be specified by the Council. (2) All proprietors of public buildings shall comply with subsection (1) within five years after this section comes into operation."

Section 23. (1) With regard to Public Service Vehicles, it says that "An operator of a public service vehicle shall adapt it to suit persons with disabilities in such manner as may be specified by the Council. (2) All operators of public service vehicles shall comply with subsection (1) within two years after this section comes into operation."

Section 30- Polling stations. Section dictates that "Polling stations shall be made accessible to persons with disabilities during elections, and such persons shall in addition be provided with the necessary devices and assistive devices and services to facilitate the exercise of this right under this section."

2.5.3 The Kenyan Constitution of 2010

It protects and promotes the rights and privileges of all Kenyan citizens including PWDs as enshrined under article 54, where "a person with any disability is entitled to among other things, to access educational institutions and facilities for persons with disabilities that are integrated into society to the extent compatible with the interests of the person, to reasonable access to all places, public transport and information; to use Sign language, Braille or other appropriate means of communication; and to access materials and devices to overcome constraints arising from the personal disability" (Sightsavers, 2018; Rohwerder, 2020,). Further, the article provides for progressive implementation of at least five percent representation of PWDs in elective and appointive positions in public offices (Koech, 2020)

2.6 Cases of Good Practices in The Built Environment Around the World

Globally, developed countries have put in efforts to provide accessible built environments for their citizens. In 2006, Singapore developed a plan of creating a user-friendly constructed environment through an accessibility master plan. A project funded by the government and whose duration was set for 10 years, targeted m all locations in Singapore that are open to the public, with beneficiaries being occupants and users of residential and public buildings, open spaces and parks in the country. Also, the public housing estates were upgraded by the Housing and Development Board to increase accessibility, connectivity between building blocks, major precinct amenities, and linked access routes to traffic crossings. In addition, the Land Transport Authority enhanced the accessibility of railway stations and other transportation-related infrastructure in anticipation of the 2020 deadline for all public transportation to be wheel-accessible (UN, 2016). In Hong Kong SAR, China, the government promotes a barrier-free environment by establishing policies and objectives for barrier removal. It set to retrofit 3,900 government buildings and facilities in 18 districts of Hong Kong city frequently interacted with by the public in the duration 2011-2017 in a move to make them user-friendly and accessible for all including PWDs and the elderly. The retrofitting program also saw to provide barrier-free access(lifts/ramps) at footbridges, subways or elevated walkways lacking them where it was feasible (UN,2016). In 2010, the city of Kuala Lumpur, Malaysia developed an "Action Plan Towards Kuala Lumpur as an Accessible city." It

outlined a framework for implementation that included workshops, access audits, and a comprehensive approach to the three phases of the construction process: design, building, and post construction. Positive changes were observed upon the development of this project such as; the upgrading of a 48.9-kilometer long foot path in 2011-2014, more PWDs working in Kuala Lumpur city hall (more than 1 per cent), nine training seminars were held three times a year, along with more than 100 access audits., there was also a Mayor's award for good practices etc. (UN, 2016). In Rio de Janeiro, Brazil, RIOinclui-Obra Social da Cidade do Rio de Janeiro started a project in 2010; intergrating architectural, universal design, social work, and construction projects for accessibility, with children and youth with disabilities living in squalor in the city as the they key recipients. The project's target was physical and social mobility provision. By 2013, 64 houses had been built. Further outcome of the project was the mobility it gave children; to have access to the neighborhoods and school by being able to leave and return home (UN, 2016).

In an online article titled "the World's most wheelchair-accessible travel destinations," writer Heng, (2020) lists cities around the world that are accessible to persons with limited mobility such as: Barcelona, Spain a city where 80 per cent of metro stations and 100 percent of transport means are accessible using wheelchairs. The city is cobblestone free and in addition, its beaches are wheelchair accessible with people ready to help hence many wheelchair users flock the city. One of the US cities with the highest wheelchair accessibility rates is Las Vegas, Nevada. All gaming establishments and entertainment venues are wheelchair friendly including a majority of sites and attractions. The city also boasts of the High Roller, the tallest observation wheel in the world, which is wheelchair enabled and completes a full rotation in 30 minutes. It also provides a large selection of wheelchair-accessible lodging options, broad pathways on the Strip for easy exploration, a completely accessible bus service that runs throughout the entire city, and a large number of wheelchair-accessible taxis. (Heng, 2020). Singapore, which is one of most accessible cities in the world and the most accessible city in Asia, has a unified access code for barrier-free travel which has been in existence for decades, infrastructure with step-less access to most buildings and many curb cuts. It also has accessible Mass Rail Transit (MRT) and buses. Almost everywhere is accessible for persons with reduced mobility in Singapore. In actuality, the most pertinent issue is "what isn't accessible?" (Heng, 2020).

Elsewhere, Chauhan (2020) in his study on 'The Need to Create a Disabled Friendly India', reports that India has one of the largest number of PWDs at around 80 million and that according to the World Bank, one in every twelve households has a disabled person. Chauhan's research reveals several general impediments for PWDs. Absence of lifts in thousands of high-rise buildings severely obstructing the mobility of wheelchair users and people with calipers. Public buildings and critical infrastructure facilities like hospitals, schools, post offices and banks lacked the provision of ramps. Lack of tactile paving in residential, commercial and public buildings which allow blind people to navigate easily without harming themselves. Seniors and others who have trouble moving around require use of assistive devices, side hand rails on building stairs and on ramp access to avoid risks of falling. India also lacks engraved or braille signage which aid with location of places and the delivery of important instructions for visually impaired persons. However, there was one success story of tactile paving in the Delhi Metro which enables vision challenged persons to commute safely and independently. Chauhan (2020) recommends that developers across the country should aim at simplifying problems of India's disabled as dealing with everyday life is already challenging to them by having all construction projects equipped with facilities for PWDs. He further suggests that accessible washrooms and other utilities must be compulsory in every building project.

In Malaysia, several studies reveal that the built environment is not accessible and that there is an absence of the provision for accessibility requirements in development policies and regulations despite their existence in the building code and regulations. According to a Malaysian study on access and accessibility audits in business buildings, researchers (Hashim et al.,2012) found out that there was a satisfactory level of accessibility incorporation by the commercial complex owners to their facilities with the purpose of meeting PWDs' needs. They however further found out that there was still poor accessibility due to lack of its inclusion during the planning process and lax enforcement of rules and regulations. Additionally reluctant to create accessible facilities were the local government, service providers, and developers due to additional costs incurred in retrofitting (Hashim et al, 2012).

In Ankara, Turkey, (Baris and Uslu, 2009) observed that the built environment hindered the disabled from participating in day to day activities. The disabled faced physical barriers which existed in the urban environment limiting the independent

movement and use of the built environment, bringing feelings of exclusion to the individuals. Baris and Uslu further observed that the heights of pavements, elevations, under and upper pedestrian passages presented barriers to PWDs enslaving them to their homes. In the social context, spaces for PWDs appeared to be neglected in stores, theaters, and other public facilities. Transportation systems were defective as well with the Ankara CBD being significantly obstructed by elevated pedestrian road crossings, traffic lights signal, fences, and barriers. The built environment situation was generally concluded as a social disaster (Baris and Uslu, 2009; Varol et al., 2006).

2.7 Hindrances to the provision of accessibility in the built environment

2.7.1 Attitude of professionals

(Salmen, 2001); (Wijk, 2001) attribute the attitude of professionals to lack of accessibility incorporation asserting that most construction industry professionals from designers to implementers are ignorant of the society's shifting demands and capacities and therefore fail to incorporate accessibility provisions for persons with different ability limitations in designing and building. According to Sommer (1972), it's also important to consider a building's social effects, the types of people and activities it houses, and its effects on the neighborhood in addition to its physical form. The (RNIB, 1995) argue that designers should use "a special kind of design approach that sets out to include as many people as feasible," without negating the need for design solutions to satisfy the needs of particular sorts of impairments. (RNIB, 1995; Imrie and Hall, 2001)

2.7.2 Feeble and Ineffectual building regulations

Imrie (2002): Kportufe (2015) point out that the built environment of many nations has remained essentially inaccessible despite numerous attempts in terms of legislation and the construction of statutory building documents. This situation he explains as being caused by feeble and absent statutory and legal provisions to adequately address a barrier free built environment. In the UK Imrie (2002): Kportufe (2015), additionally explain that building regulations are feeble and ineffectual, and only requiring building developers to make ‘reasonable provision’ for the disabled in new buildings and major renovations. The provision for

‘reasonable provisions’ has limitations in that it is not clearly defined and therefore insufficient in addressing barriers to accessibility in the built environment.

2.7.3 Assumptions within the construction industry

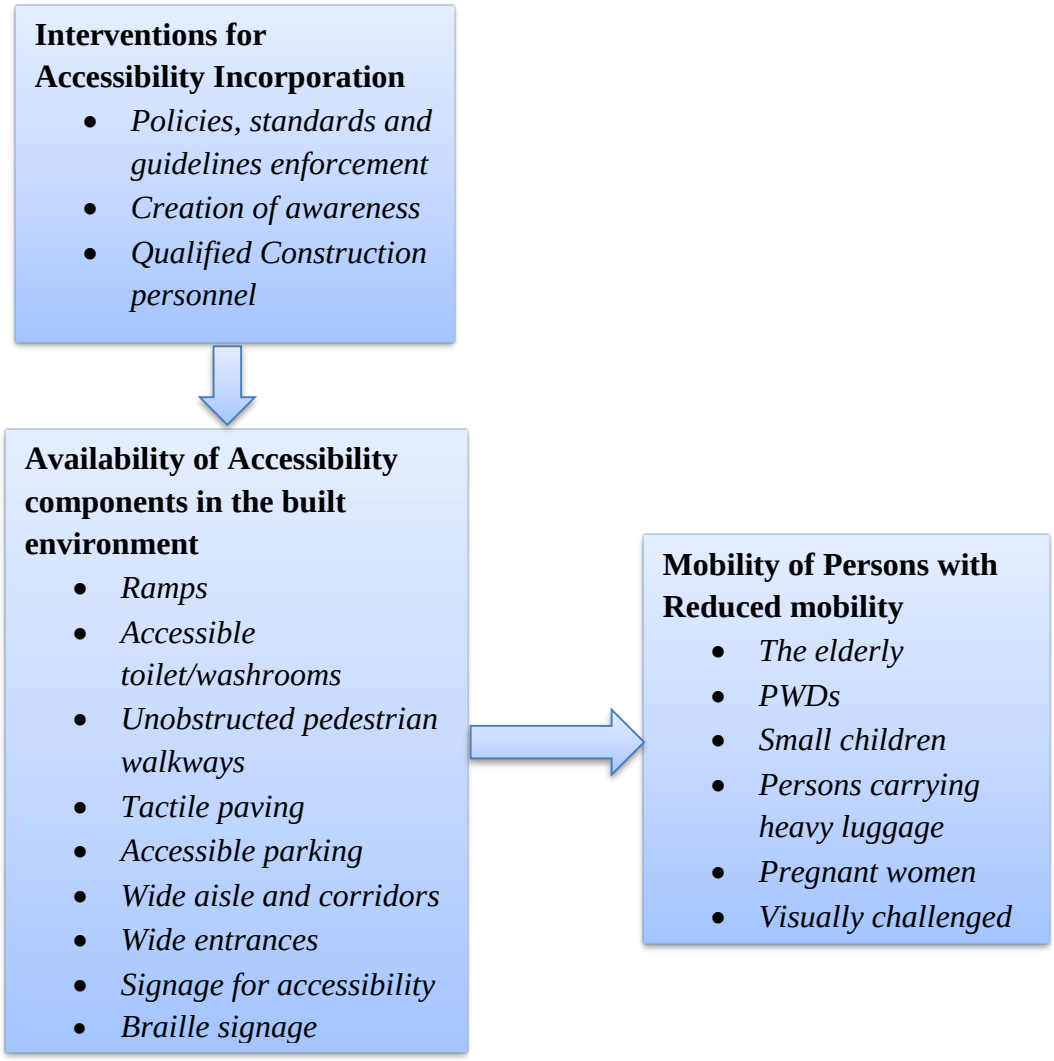
Imrie and Hall (2001) attribute lack of accessibility incorporation to assumptions within the construction industry where they identify four assumptions that prevent the designing of the built environment in a way that minimizes architectural disability. Which are:

i) “Low demand among disabled people to justify providing a more accessible built environment;
ii) That, it is unreasonably costly to provide environments that are fully accessible;
iii) That, meeting the needs of wheelchair users is sufficient to meet the needs of all disabled people,
iv) That accessible environments can be provided by specifying technical design solutions without there being any corresponding change in social attitudes, values or practices”.

2.8 Conceptual Framework

When it comes to the built environment, people with limited mobility are enabled or disabled by the way the built environment is constructed. Provision of accessibility components eliminates physical barriers that limit the mobility of these persons. Removal of accessibility barriers is majorly facilitated by enforcement of policies and legislations on accessibility provision and by construction industry participants. This study explored the built environment in Narok town to determine whether or not it is accessible to enable ease of mobility by PWRM.

Figure 2.16 Conceptual Framework



Source: Author, 2021

CHAPTER THREE

RESEARCH METHODOLOGY

A research methodology is the strategy for conducting a study that covers everything from general hypotheses to specific techniques for gathering, analyzing, and presenting data (Creswell, 2014). It describes in detail research design, sampling techniques, data collection techniques, area of study, ethical considerations and analysis procedures.

3.1 Research Design

This research project is qualitative and uses a case study design. When a case study is used, "a specific instance or a small number of carefully chosen examples are investigated exhaustively" (Gilbert, 2008). A case study "is characterized by a relatively flexible and open-ended technique of data collecting and analysis," claims Grinnell (1981). (Grinnell, 1981). The case study approach provided a better picture of how accessible the built environment in the selected cases was. This study focused on evaluating the built environment's accessibility for people with limited mobility in Narok town. The features of an accessible built environment were derived from reviewing literature. The study also entailed carrying out an accessibility assessment on selected public buildings and pedestrian paths in the town. Assessment of buildings and Accessibility of public spaces is the initial step in a process of designing for easily removable barriers. (Sarsak, 2018). This analysis was completed by observation and taking measurements using “The Americans with Disabilities Act (ADA) Checklist for Readily Achievable Barrier Removal; Checklist for Existing Facilities-Version 2.1” to gauge buildings’ accessibility. Open-ended semi-structured in-depth personal interviews were utilized to acquire information from key informants on the possible hindrances to the incorporation of accessibility components in the built environment as well as measures that can be taken to improve accessibility incorporation.

The study included both primary and secondary data sources. Primary information was gathered form field by observation to determine the presence or absence of accessibility components and if present, substantial measurements were taken to determine their conformity to standards as guided by ADA checklist. Secondary

information was obtained from reviewing literature materials on features of a universally accessible built environment to meet this objective of the study.

3.2 Area of study

Narok town was chosen for the study. It is a small town characterized by poor physical planning. It is rapidly growing and expansion of the town in terms of the built environment is increasing. Major infrastructural developments have recently been undertaken and others ongoing such as Maasai Mara university, Narok law courts, Narok stadium, a level 5 hospital and a medical college. It is important that these building facilities are available to people with reduced mobility and those with disabilities to give a fair and equal chance to employment, education and access without limitation. This area was also chosen because of it's of accessibility and close proximity to the researcher

3.3 Sampling Design

In a scientific study, a sample population refers to the focus group of the study. A population frame, is a summary of every component of a population sample used to derive the sample. In this research, the target population consisted of the public built environment specifically public purpose buildings, pedestrian walkways along the roads and key-informants from the ministry of public works and physical planning, the county government, national construction authority, NCPWD in Narok town and members of APDK Narok and the pedestrian walkways in Narok town. There are 70 public purpose buildings in Narok town according to the Lands, Housing, and Urban Development Ministry; Physical Planning Department (Plan on existing building g building facilities as at February 2020). The sample size is the number of observations in the research. According to Arleck and Settle (1995) it is usually not necessary to sample more than 10% of the population provided that not less than 30 and no more than 1000 units of the resulting sample are chosen. Narok town has many buildings and facilities as well as pedestrian paths/walkways. It was impossible to assess the accessibility of all these built structures under one study. Therefore, 10 public building facilities were purposely sampled and ten streets/roads also purposely sampled. The researcher also identified ten key-informants for in-depth personal interviews.

3.4 Data Collection Tools and Techniques

This study employed direct observations, measurement and personal interviews. Direct observation and measurement was used when evaluating the accessibility of a building and pedestrian walkways to achieve the objective of establishing the degree to which Narok town's built environment is accessible to PWRM. A tape measure was used to take measurements of existing components to determine their conformity according to the ADA checklist attached at the appendix. This checklist is based on the Title III regulations' criteria for planning easily realizable barrier elimination projects. (Sarsak, 2018, ADA checklist, 1995):

a) Accessible approach and entrance Priority
b) Bathroom accessibility
c) Access to products and services

This best suits the study as the researcher is already familiar with the process of performing an accessibility audit. In-depth personal interviews were utilized to gather information from key informants on the possible hindrances to the incorporation of accessibility components in the public built environment in Narok town and the measures that can be taken to improve accessibility incorporation.

3.5 Data Analysis and Presentation

Data analysis involves cleaning to ensure data is free from inconsistencies and incompleteness, organizing the data, identifying themes or patterns and interpreting results in a way consistent with the objectives (Kumar, 2011; Connaway and Powell, 2010). This study used qualitative data analysis, where descriptive statistics of percentages were tabulated and used to determine the level of accessibility of an assessed component. Data was analyzed using content analysis from key informants through open-ended interviews and similar themes consistent with the research objectives tabulated.

3.6 Ethical consideration

Collins Dictionary (1979), claims that ethical refers to “in accordance with principles of conduct that are considered correct, especially those of a given profession or group”. Further, Schinke and Gilchrist (1993), say “under standards set by the National Commission for the Protection of Human Subjects, all informed-consent

procedures must meet three criteria: participants must be competent to give consent; sufficient information must be provided to allow for a reasoned decision; and consent must be voluntary and uncoerced".

Before collecting any information, the researcher obtained informed consent from building or facility managers by explaining the usefulness and relevance of the research. They were made aware of the intent to collect data on accessibility in their buildings or facilities. Confidentiality and anonymity of information provided was also assured and maintained throughout the study and thereafter.

Incorrect reporting and bias by the researcher was avoided by making sure to report results that are exact and without manipulation.

CHAPTER FOUR

DATA ANALYSIS, DISCUSSION AND PRESENTATION.

4.0 Introduction

This study's objective was to evaluate the accessibility of the built environment to persons with reduced mobility in Narok town. This study involved identifying elements of barrier-free access, auditing of public buildings and pedestrian walkways and finding out the hindrances to the incorporation of accessibility in the built environment in Narok town. This chapter presents research finding, analyses and discusses the results from gathered data.

4.1 Response rate

The 10 purposely sampled public building facilities and 10 pedestrian walkways were assessed successfully. Ten purposely selected key informants were interviewed. The table below shows the response rate.

Table 2: Response rate

	Targeted	**Reached**
Building facilities	10	10
Pedestrian walkways	10	10
Interviewees	10	10
Total	**30**	**30**

Source: Author, 2021

This information can be presented in a pie chart as shown below.

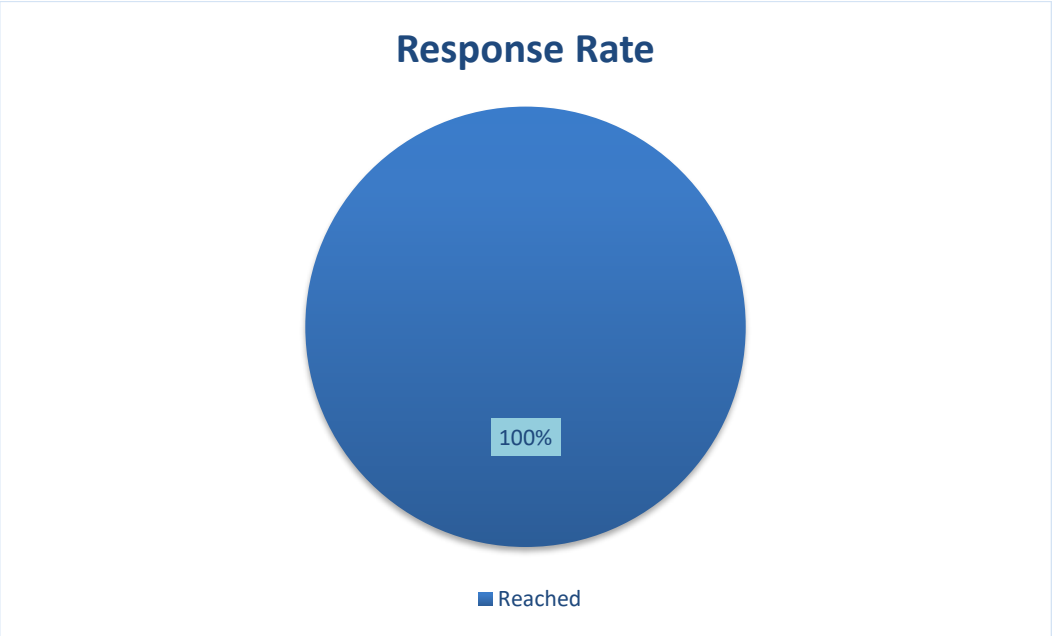


Figure 4.17: Response rate

Source: (Author, 2021)

The response rate was 100% since purposive sampling was used. All key informants were contacted beforehand and interview dates set hence all were interviewed. The targeted public facilities, pedestrian walkways and respondents were adequate to provide a good picture of accessibility in Narok town's built environment.

4.2 Bio-data of Respondents

This section provides general information of the key informants selected for the study.

4.2.1 Age

The table below shows the respondents' age dispersion.

Table 3: Age breakdown of respondents

Age (years)	Frequency	Percentage	Cumulative
20 to 30	1	10	10
31 to 40	2	20	30
41 to 50	4	40	70
51 and above	3	30	100

Source: Author, 2021

Respondents of different age groups give varying but important opinions on accessibility in the built environment. With age also comes experience because of possibly many encounters. This study's respondents were majorly between 41 and 50 at 40% followed by 51 and above at 30% hence were able to provide great insight on the topic.

4.2.2 Years of work

The table below shows the spread in terms of years of experience in the different positions related to accessibility in the built environment in Narok town.

Table 4: Respondents' years of work

Working Experience in years	**Frequency**	**Percentage**	**Cumulative**
0 to 5	1	10	10
6 to 10	3	30	40
10 to 15	4	40	80
Above 15	2	20	100

Source: Author, 2021

From the above information, a satisfactory number of respondents has been working in positions related to accessibility for a relatively long period of time, that is at 80% between 6 and above 15 years. They are therefore able to provide valuable information on the hindrances of accessibility incorporation from the lengthy work experience.

The 10% working between 0-5 years were also able to share their input and view of accessibility incorporation in upcoming constructions.

4.3 Results from Assessment of Buildings

The following results were obtained from assessment of ten public buildings using the "Americans with Disabilities Act (ADA) Checklist for Readily Achievable Barrier Removal, Checklist for Existing Facilities-Version 2.1".

Table 5: Priority 1- Accessible approach/entrance

Component	Number of buildings=10	Score	%
Priority 1- Accessible Approach/Entrance **1.1 Route of travel** Is there a path that doesn't involve climbing stairs?	10	10	100%
Is the route of travel stable, firm and slip-resistant?	10	10	100%
Is the path a minimum of 36 inches wide?	10	10	100%
Do curbs on the route have curb cuts at drives, parking, and drop-offs?	10	9	90%
Total		39	390%
Average		9.75	97.5%
1.2 Ramps Are ramp slopes limited to 1:12 or less?	10	6	60%
Do railings on both sides of any ramps that are longer than 6 feet exist?	8	3	37.5%
Are railings sturdy, and between 34 and 38 inches high?	8	7	87.7%
Is there at least 36 inches between railings or curbs?	10	10	100%
Are ramps slip resistant?	10	10	100%
Total		36	385.2
Average		7.2	77.0%
1.3 Parking and drop-off areas Are there enough spots (8 feet wide for a car plus a 5-foot access aisle) for people with disabilities?	10	3	30%

Are the access aisles a part of the path that is accessible to the entrance that is accessible?	10	4	40%
Are the accessible areas located nearest to the entrance?	10	3	30%
Is the International Symbol of Accessibility displayed in accessible areas??	10	2	20%
Total		12	120%
Average		3	30%
1.4 Entrance Is there a ramp, a lift, or another accessible entry if there are steps at the main entrance?	8	8	100%
Do all doors that aren't accessible have signage pointing to the closest entry that is?	8	1	12.5%
Can a different entry that is accessible be used on its own?	8	4	50%
If a double door, does it have at least one 32-inch leaf? Does the entrance door have a minimum clear opening of 32 inches?	10	10	100%
Does the wall space on the door's draw side adjacent to the handle measure at least 18 inches?	10	7	70%
Is the door handle reachable with a closed fist and no higher than 48 inches?	8	6	75%
Can doors be opened without using too much force (exterior doors are reserved; inside door maximum is 5 lbf)?	9	7	77.8%
Total		43	485.3%
Average		6.1	69.3%

Source: Author, 2021

4.3.1 Accessible approach/ Entrance

Four components are investigated determining whether a building had an accessible entrance and these included;

4.3.1.1 The route of travel

According to the research findings, 97.5% of the buildings assessed had an accessible route of travel, meaning that persons with reduced mobility were able to access entrances of buildings. This was an encouraging observation.

4.3.1.2 Ramps

Results as per table 4.4 show that 77% of the buildings assessed had ramps provided at the entrance alongside stairs. However not all ramps had the required slope i.e. not greater than 1:12 (60%) as some were very steep hence a PWRM was not able to make use of them independently. Railings on both sides of ramps longer than 6 feet were also present in only 37.5% of the buildings that had ramps.

4.3.1.3 Parking and Drop-off areas

In most buildings, no accessible parking was offered and was only provided for in 30% of the building. Also only 20% of them had the parking marked with the international symbol for accessibility.

4.3.1.4 Entrance

From the results, 69.3% of the buildings assessed had accessible entrances after observation of seven components, with provision of required clear opening of at least 32 inches having a 100% compliance. Provision of signage was poorly complied to with only 12.5%

Table 6: Priority 2- Access to goods and services

Component	**Number of buildings=10**	**Score**	**%**
Priority 2: Access to products and services **2.1 Horizontal Circulation** Is there direct access to the main level, lobby, or elevator from the accessible entrance?	10	10	100%
Are there accessible routes to all public areas?	10	4	40%
Are all public spaces accessible via a path that is at least 36 inches wide?	10	10	100%
Is there a 5-foot circle or a T-shaped area where a wheelchair user can turn around?	10	7	70%
Total		31	310

Average		7.75	77.5%
2.2 Doors Do entrance doors to public areas have a minimum 32-inch clear opening?	10	10	100%
Is there at least 18 inches of free wall space on the pull side of doors, adjacent to the handle, to allow a person in a wheelcha ir or using crutches to approach and open the door?	10	9	90%
Can doors be opened with only a moderate amount of force (up to 5 lbf for inside doors)?	10	7	70%
Can you operate a door handle with a closed fist and it must be no taller than 48 inches?	10	9	90%
Total		35	350
Average		8.75	87.5%
2.3 Spaces and Rooms Are there at least 36-inch-wide aisles and access points to goods and services?	10	10	100%
Is there a complete 5-foot circle or T-shaped turning area for wheelchairs?	10	9	90%
Total		19	190%
Average		9.5	95%
2.4 Product and service signage Do signs and room numbers identifying permanent rooms and areas where goods and services are offered, if present, meet the necessary specifications for such signage? signs that are 60 inches from the ground at the middle.	10	8	80%
Mounted on the closest possible wall to the door's latch side.	10	8	80%
High contrast, raised characters between 5/8 and 2 inches tall (for room numbers, rest rooms, exits).	10	10	100%
The same information in braille.	10	0	0%
If a pictogram is utilized, braille and raised characters must	10	0	0%

also be included.			
Total		26	260%
Average		5.2	52%
2.5 Controls Are all publicly visible controls—including those that are electrical, mechanical, cabinet, gaming, and self-service—located at a height that is accessible?	10	6	60%
Can you operate them with your fist closed?	10	10	100%
Total		16	160%
Average		8	80%
2.6 Vertical Circulation Are all public levels accessible by elevators, lifts, or ramps?	10	2	20%
Is there an accessible alternate route on each level if there are steps between the entrance and/or elevator and important public areas?	10	2	20%
Total		4	40%
Average		2	20%
2.7 Stairs *If there are stairs between levels that are not served by an elevator, ramp, or lift, the following questions apply.* Are the treads made of non-slip material?	10	10	100%
Do the rails on stairs extend over the top and bottom steps and are continuous on both sides?	10	4	40%
Total		14	140%
Average		7	70%

Source: Author, 2021

4.3.2 Access to Goods and services

The following components were surveyed to determine whether a building's goods and services could be accessed by PWRM.

4.3.2.1 Horizontal circulation

This component had a 77.5% compliance as shown in table 4.5. However, not all public places were situated on a route that is easily accessible at 40% and there was inadequate provision of maneuvering area to allow a wheelchair user to turn around at 70 percent.

4.3.2.2 Doors

The doors component had a compliance of 87.5% in all the buildings accessed. The opening force was fairly wanting with a 70% score.

4.3.2.3 Rooms and spaces

There were two objects observed for this component. The wideness of aisles and pathways and the enough room for a wheelchair user to maneuver. Both scored highly with a mean of 95%.

4.3.2.4 Signage for goods and services

This component was assessed using five items. It had a score of 52%. Where signage was provided, identical information in brailed text was lacking in all the buildings assessed.

4.3.2.5 Controls

All controls that the public may utilize were fairly easy to access. 100% of them were operable by a closed fist and 60% of them were within reach, averaging at 80%.

4.3.2.6 Vertical circulation

This component had an average score of 20%. Only 20% of the buildings had a means of access for PWRM to all public floors. Others had stairs and no alternative route was provided.

4.3.2.7 Stairs

All buildings had complied with the provision of non-slip surface of treads at 100%, however only 40% of them had continuous railings on both sides that extend past the top and bottom of the staircase.

Table 7: Priority 3- Usability of rest rooms

Component	Number of buildings=10	Score	%
Priority 3: Bathroom accessibility **3.1 Accessing the Bathrooms** If there are public restrooms, is at least one of them (either a gender-neutral restroom or one for each sex) fully accessible?	10	3	30%
Do inaccessible restrooms include signs pointing the way to accessible ones?	7	0	0%
Total		3	30
Average		1.5	15%
3.2 Doorways and Passages Do bathrooms have tactile signs identifying them?	10	0	0%
Are there any pictograms or symbols used to designate bathrooms, and if so, are braille and raised characters placed below them?	10	0	0%
The entryway must be at least 32 inches wide.	10	10	100%
Are doors 48 inches high or less, with accessible knobs that can be operated with a closed fist?	10	5	50%
Can doors be opened with just 5 lbf of force?	10	9	90%
Is there enough room for a wheelchair user to navigate in the entry configuration?	10	6	60%
Is the path to each fixture 36 inches wide?	10	4	40%
Total		34	340
Average		4.86	48.6%
3.3 Lavatories Does one restroom have a clear front space that is 30 inches wide by 48 inches deep?	8	3	37.5%
Is the toilet rim not more than 34 inches high?	8	8	100%

Is there a minimum distance of 29 inches (excluding pipes) from the floor to the bottom of the toilet apron?	8	8	100%
Can you turn on the faucet with a closed fist?	8	5	62.5%
Are hand dryers, soap dispensers, and other amenities easily accessible and useable with a closed fist?	8	3	37.5%
Is the bottom edge of the reflecting surface of the mirror 40 inches high or lower?	6	3	50%
Total		30	387.5
Average		6	64.6%

Source: Author, 2021

4.3.3 Usability of rest rooms

This component was assessed from 3 sub components.

4.3.3.1 Getting to the rest rooms

Results from the above table show that only 30% of the buildings had accessible washrooms. None had signage for or alternative accessible ones.

4.3.3.2 Doorways and passages

This component had a score of 48.6%. Signage and symbols to identify accessible washrooms performed poorly with none of the buildings incorporating tactile or braille. They were however wide enough for a PWRM to make use of, with at least 32inches wide, 100% compliance and the opening force of 5lb complied to at a score of 90%.

4.3.3.3 Lavatories

This component was assessed using 6 items. It had a total score of 64.6%. the provision of accessible washrooms was lacking in many buildings with only 37.5% complying out of eight buildings which allowed the public to use their facilities.

4.4 Results from the assessment of pedestrian pathways

Ten pedestrian pathways were assessed and the table below presents the findings.

Table 8: Assessment of pedestrian walkway

Street / Road component	Score	Percentage
i) Curb cuts	6	60%
ii) Street furniture	0	0%
iii) Required width	5	50%
iv) Even surface	2	20%
v) Road crossing	3	30%
vi) Free of other uses	3	30%
Total	19	190%
Average	3.2	31.7%

Source: Author, 2021

From the findings above, pedestrian pathways had a low compliance to provision of accessibility with an average of 31.7%. 60% of the streets/road had curb cuts but still they were not provided in all the required places. None of the paths had street furniture such as benches for resting, which can be used by PWRM to catch a breath or wait to cross busy roads. Observations also indicated that 50% of the pedestrian pathways had the required width of at least 1800mm to enable persons using wheelchairs to make use of the paths without obstructing other users. Most of the paths, 80% had uneven surfaces such as raised paving blocks, pot holes and open drainage which are supposed to be covered hence causing risks of accidents and impeding the independent use of the paths by PWRM. 30% of the streets/roads had marked crossings and even these experienced challenges of non-adherence by motorists to stop and let pedestrians cross safely. Further, only 30% of the pedestrian paths were free of multiple other uses obstructing the intended use of the paths. The rest had hawking stands on the paths or very close to the paths hence rendering the path unusable, others were used by matatu operators to pick and drop passengers resulting in crowding of the paths and causing difficulties in maneuvering for PWRM.

4.5 Hindrances to the incorporation of accessibility in the built environment

From interviewing key informants, the following themes emerged.

Table 9: Hindrances to the incorporation of accessibility

Hindrances	**Percentage of those that agree**
a) Lack of enforcement of policies and regulations	100%
b) Lack of awareness	86%
c) Cost implications/space available	71%
d) Negative social and cultural attitudes	57%
e) Overlook by developers/clients	57%
f) Unqualified personnel hired for the job	43%

Source: Author, 2021

From the above table, lack of enforcement of policies and regulations was mentioned by all respondents. They agreed that even with the provision of specifications that mandate the inclusion of accessibility in all buildings to promote equality and equity, the same is not implemented and those that fail to comply do not face any consequence from the law. Lack of awareness was mentioned by 86% of the respondents. Here, many people are not aware of the need to incorporate accessibility in the built environment until they experience reduced mobility or when close members of family do. A large number of people is also not aware or do not recognize the challenges PWDs face. Cost implications or space available was mentioned by 71% of the respondents. The cost of retrofitting existing buildings to make them accessible is relatively high, time consuming and there may not be space to make room for the adjustments. Another 57% said that negative social and cultural attitudes hindered the incorporation of accessibility in the built environment. This is where PWDs are seen as people on the periphery who do not possess any other skills and abilities. Retrogressive cultures also hide PWDs with beliefs and myths that it is a curse or punishment for wrongdoing. Convincing such people to make accommodation for PWDs proves to be hard.

A further 57% mentioned overlook by clients and developers in the provision of accessible components in the built environment. Developers do not see the need to make these provisions majorly because of lacking enforcement by authorities, they

also do not want to incur any additional costs and they majorly want to maximize on the space available, hence accessibility is disregarded. Finally, 43% of the respondents said that unqualified personnel contracted to do construction works contribute to the lack of accessibility incorporation. Failure to involve qualified persons especially at the initial stages of designing and planning leads to neglect of incorporation of these features.

4.6 Measures that can be taken to improve accessibility incorporation in the built environment

To improve and increase the inclusion of accessible components in the built environment, the following measures presented in table 10 were suggested by respondents.

Table 10:Measures to improve accessibility incorporation

Measure	**Percentage**
a) Revision and passing of laws that enforce adherence to policies, regulations and requirements for accessibility provision	100%
b) Promotion of accessibility awareness	100%
c) Employment of professionals and qualified personnel for construction works	86%

Source: (Author, 2021)

As illustrated in the table above, 100% of the respondents recommended the revision of the legal framework that provides for inclusion of accessibility in the built environment to make it enforceable and as such, those that fail to comply have legal actions taken against them. 100% of them also agreed that with more awareness, people will see the need to incorporate accessibility not just to make the lives of PWRM easier but also for the general user-friendliness of the built environment. The Association of persons with Disability in Kenya and NCPWD should do more advocacy and conduct awareness training of construction participants. Another 86% suggested the involvement of professionals and qualified personnel for construction

works. This will ensure that accessibility is included in the design stage which may significantly reduce costs as compared to retrofitting later on.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Introduction

The research study is summarized in this chapter through an overview of the research findings, recommendations based on the findings, and suggestions for future research.

5.1 Conclusion on Research Findings.

5.1.1 Assessment of buildings and pedestrian walkways

This study's primary objective was to evaluate the accessibility of the built environment to PWRM in Narok town. Ten purposely selected public buildings and ten pedestrian walkways were assessed to determine the accessibility level of the town's built environment. In addition, the research attempts to ascertain the hindrances to the incorporation of accessibility features as well as possible measures that can be taken to improve the incorporation of accessibility in the built environment in Narok town. This was achieved by conducting interviews with purposely selected key-informants. The response rate was 100%.

Results from assessment of buildings revealed that the built environment in Narok town is not sufficiently accessible to PWRM. It was characterized by fairly accessible routes of travel with a 97.5% score. The entrances had ramps as alternatives for stairs. However, parking and drop-off areas were not accessible to PWRM as they lacked signage and an additional space required by a wheelchair user to alight from a vehicle and onto the wheelchair.

Results further showed that accessibility for horizontal circulation was fairly available at 77.5% but vertical circulation was not possible in most buildings with only 40% of them having accessibility to all public spaces. Rooms and spaces were sufficiently accessible with wide doors and had maneuvering spaces for persons using mobility assistive devices. Signage for goods and services was available however none of the buildings had the same signage in braille for visually disabled

persons. Stairs also lacked extension of handrails beyond the last step while others lacked the provision of handrails on both sides of stairs.

Usability of washrooms was also a big challenge for PWRM as most buildings and facilities did not provide accessible washrooms i.e. with wide openings, grab rails, soap dispensers and hand dryers within reach for a person using a wheelchair. They lacked the universal signage for accessibility to guide PWDs as well.

Pedestrian walkways scored poorly with 31.7%. They were used for multiple purposes such as hawking, preventing effortless use by pedestrians. They also lacked street furniture to be used for resting by PWRM before continuing with their journey and crossing of roads was difficult for them as vehicles often failed to stop to let them cross.

5.1.2 Hindrances to incorporation of accessibility in the built environment in Narok town

There are explanations for the possible causes of lack of inclusion of accessibility components in the built environment which included;

a) Lack of enforcement of policies and regulations
b) Lack of awareness
c) Cost implications/space available
d) Negative social and cultural attitudes
e) Overlook by developers/clients
f) Unqualified personnel hired for the job

5.1.3 Measures that can be taken to improve accessibility inclusion in the built environment in Narok town

Research findings showed that the key informants agree that if the following measures are implemented and adhered to, they can increase or improve the compliance of accessibility inclusion by developers, clients and constructors in the built environment in Narok town.

a) Revision and passing of laws that enforce adherence to policies, regulations and requirements for accessibility provision. This includes ensuring that accessible componets are included in the design of structures to be constructed as it saves of cost.

b) Promotion of accessibility awareness through traditional and online media platforms as well as conducting trainings on the necessity of an accessible built environment.
c) Employment of professionals and qualified personnel for construction works

5.3 Recommendations

The built environment is significant in enabling persons with reduced mobility. It should be designed and built to provide a high degree of flexibility to allow use by all people regardless of their physical abilities.

This study has shed light on the degree to which Narok Town's built environment is accessible and recommends that;

1. The national and county governments should develop policies and regulations detailed with specifications in regard to provision of accessibility in the built environment that must be adhered to by all construction participants.
2. Before issuance permits and approval of construction plans and designs, developers and clients should have designs for provision of accessibility in the said structures that enable PWRM to use the built environment with ease and dignity.
3. Legal action to be taken against developers who fail to comply with the requirement for accessibility provision in constructed constructions such as buildings
4. It is necessary to raise awareness of the significance and need for provision of a barrier-free built environment for the benefit of all through traditional and online media platforms and through training of construction professionals.
5. Retrofitting where possible existing inaccessible built structures
6. Banning all forms of hawking and especially those that obstruct pedestrian pathways

5.3 Areas for future research

Further study can be conducted to learn more on the impact of an accessible built environment to the economic, social and emotional well-being of persons with disability.

Studies can also be done to determine accessibility incorporation in the built environment in other towns/cities such as Nairobi, Nakuru, Kisumu

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Appendix I: Accessibility Checklist for Existing Facilities version 2.1

Priority 1: Accessible Approach/Entrance

The same freedom should apply for everyone to access the site, approach the building, and enter as does for people with impairments. Everyone, including those with disabilities, should be able to access and safely use at least one method of transport.

1.1 Route of Travel

- Is there a path that can be taken without using stairs?
- Is the path of travel secure, sturdy, and non-slip?
- Is the path a minimum of 36 inches wide?
- Can a person notice everything obtruding into the circulation paths? with a visual disability using a cane? (*In order to be detected using a cane, an object must be within 27 inches of the ground. Objects hanging or mounted overhead must be higher than 80 inches to provide clear head room.)*
- Do curbs on the route have curb cuts at drives, parking, and drop-offs?

1.2 Ramps

- Are ramp slopes limited to a 1:12 ratio? (*Slope is expressed as a proportion of height to length. The ratio of 1:12 indicates that the height rises by one inch for every 12 inches along the ramp's base. At least one foot of ramp length is required for every inch of height for a maximum slope of 1:12*.)
- Do railings on both sides of all ramps longer than 6 feet exist?
- Are the rails strong and 34 to 38 inches high?
- Is there at least 36 inches between railings or curbs?
- Are ramps slip-free?
- Are there 5-foot-long level landings at the top and bottom of ramps, at switchbacks, and every 30 feet of horizontal ramp length?
- Does the ramp's elevation between landings not exceed 30 inches?

1.3 Parking and Drop-Off Areas

- Are there enough spots (8 feet wide for a car plus a 5-foot access aisle) for people with disabilities?

- Are there accessible aisles leading to the accessible entrance?
- Are the accessible areas located closest to the entrance that is accessible?
- Are locations that are accessible denoted by the International Symbol of Accessibility?
- Is there a process for enforcing that only people who truly need it utilize the accessible parking?

1.4 Entrance

- Is there a ramp, a lift, or another accessible entry if there are steps at the main entrance?
- Do all doors that are inaccessible have signage pointing to the closest entry that is?
- Is the alternative accessible entrance self-contained?
- Does the entrance door have at least a 32-inch clear opening (or at least one 32-inch leaf for a double door)?
- Does the wall space on the door's draw side adjacent to the handle measure at least 18 inches? (A person in a wheelchair or using crutches requires this room to maneuver near enough to the door.)
- Is the door handle reachable with a closed fist and no higher than 48 inches?
- Can doors be opened easily enough??

Priority 2: Access to products and Services

The design of the facility should ideally make it possible for people with disabilities to access goods or services on their own.

2.1 Horizontal Circulation

- Is there direct access to the main level, lobby, or elevator from the accessible entrance?
- Are there accessible routes to all public areas?
- Are all public spaces accessible via a path that is at least 36 inches wide?
- Is there a 5-foot circle or a T-shaped area where a wheelchair user can turn around?

2.2 Doors

- Do entrance doors to public areas have a minimum clear opening of 32 inches?
- Is there at least 18 inches of free wall space on the pull side of doors, adjacent to the handle, to allow a person in a wheelchair or using crutches to approach and open the door?
- Can doors be opened with only a moderate amount of force (up to 5 lbf for inside doors)?
- Are doorknobs 48 inches or shorter in height and reachable with a closed fist?

2.3 Rooms and Spaces

- Are there at least 36-inch-wide aisles and access points to goods and services?
- Is there a complete 5-foot circle or T-shaped turning area for wheelchairs?
- All barriers in circulation routes across public spaces are cane-detectable (located within 27 inches of the floor or higher than 80 inches, or protruding less than 4 inches from the wall)?

2.4 Emergency Egress

- Do emergency systems have both flashing lights and auditory signals if they are available??

2.5 Signage for Goods and Services

If offered, do signs and room numbers identifying permanent rooms and areas where goods and services are offered adhere to the necessary specifications for such signage?

- signs that are 60 inches from the ground at the middle.
- mounted on the closest possible wall to the door's latch side.
- High contrast, raised characters between 5/8 and 2 inches tall (for room numbers, rest rooms, exits).
- The same information in braille.
- If a pictogram is utilized, braille and raised characters must also be included.

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2.6 Controls

- Are all publicly visible controls—including those that are electrical, mechanical, cabinet, gaming, and self-service—located at a height that is accessible? (Reach horizons: For a side reach, the maximum height is 54 inches; for a forward reach, it is 48 inches. For a front approach, the minimum accessible height is 15 inches, and for a side approach, it is 9 inches.)
- Can you use them with your closed fist??

2.7 Vertical Circulation

- Are all public levels accessible by ramps, lifts, or elevators?
- Is there an accessible alternate route on each level if there are steps between the entrance and/or elevator and important public areas?

2.8 Stairs

If there are stairs between levels that are not served by an elevator, ramp, or lift, the following questions apply.

- Are the treads made of non-slip material?
- Do staircases have continuous side rails that extend over the top and bottom steps??

Priority 3: Bathroom Usability

When public restrooms are available, they ought to be accessible to those with impairments.

3.1 Getting to the Rest Rooms

- If there are public restrooms, is at least one of them (either a gender-neutral restroom or one for each sex) fully accessible?
- Do inaccessible restrooms have signage directing users to accessible ones?

3.2 Doorways and Passages

- Do bathrooms have tactile signs identifying them? Install signs in accordance with the guidelines for permanent signage on the wall, on the side facing the latch of the door. (*Avoid identifying restrooms with ambiguous symbols rather than language*.)

- Are there any pictograms or symbols used to designate bathrooms, and if so, are braille and raised characters placed below them?
- The entryway must be at least 32 inches wide.
- Are doors 48 inches high or less, with accessible knobs that can be operated with a closed fist?
- Are doors simple to open? (5 lbf maximum force)?
- Is there enough room for a wheelchair user to navigate in the entry configuration? *(A person in a wheelchair needs a space that is 36 inches wide to move forward and a space that is 5 feet in diameter or fashioned like a T for turning. An entering vestibule must have at least 48 inches between its two doors to allow for door swing clearance*.)
- Is the path to each fixture 36 inches wide??

3.3 Lavatories

- Does one restroom have a clear front space that measures 30 inches wide by 48 inches deep?
- Is the toilet rim not more than 34 inches high?
- Is there a minimum distance of 29 inches (excluding pipes) from the floor to the bottom of the toilet apron?
- Can you turn on the faucet with a closed fist?
- Are hand dryers, soap dispensers, and other amenities easily accessible and useable with a closed fist?
- Is the bottom edge of the reflecting surface of the mirror positioned at 40 inches or lower?

Appendix II: Pedestrian walkway checklist

Street / Road component	Score	Percentage
i) Curb cuts		
ii) Street furniture		
iii) Required width		
iv) Even surface		
v) Road crossing		
vi) Free of other uses		
Total		
Average		

Appendix III: Interview Questions

Narok County Disability Services officer

Age 20-30 31-40 41-50 51-60 61 and above

Gender F M

Highest level of education

1. When did you start working as a disability services officer in Narok?
2. What role does the disability services office play when it comes to accessibility in the public built environment in Narok town?
3. Would you say that the built environment is sufficiently accessible to persons with reduced mobility?
4. In your opinion, what hinders/obstructs the incorporation of accessibility in Narok's public built environment?
5. What measures or what can be done by your office to improve compliance to provision of accessibility in the public built environment?

County Planning Officer

Age 20-30 31-40 41-50 51-60 61 and above

Gender F M

Highest level of education

1. When did you start working as a county planning officer in Narok?
2. What role does the county planning office play with regards to public accessibility of the built environment in Narok town?
3. Would you say that the built environment is sufficiently accessible to persons with reduced mobility?
4. In your opinion, what hinders/obstructs the incorporation of accessibility in Narok's public built environment?
5. What measures or what can be done by the county government to improve compliance to provision of accessibility in the public built environment?

NCA officer

Age 20-30 31-40 41-50 51-60 61 and above

Gender F M

Highest level of education

1. How long have you worked in NCA in Narok?
2. What role does NCA play when it comes to public accessibility of the built environment in Narok town?
3. Would you say that the built environment is sufficiently accessible to persons with reduced mobility?
4. In your opinion, what hinders/obstructs the incorporation of accessibility in Narok's public built environment?
5. What measures can be put in place or what can be done by NCA to improve compliance to provision of accessibility in the public built environment?

Appendix IV: Research Authorization

UNIVERSITY OF NAIROBI
DEPARTMENT OF REAL ESTATE & CONSTRUCTION MANAGEMENT & QUANTITY SURVEYING
P.O. Box 30197, 00100 Nairobi, KENYA, ***Tel: No. +254-020-491 3531/2***
E-mail: *dept-cmqs@uonbi.ac.ke*

Ref: B53/34860/2019 **Date:** 31st August, 2021

To Whom It May Concern

Dear Sir/Madam,

RE: RESEARCH LETTER – MWANIK LINET NAMUNYAK

This is to confirm that the above named is a student in the Department of Real Estate, Construction Management & Quantity Surveying pursuing a course leading to the degree of M.A. Construction Management.

He is carrying out a research *entitled "**Assessing the Accessibility of the Built Environment to Persons with Reduced Mobility. A case of Narok town**"* in partial fulfillment of the requirements for the degree programme.

The purpose of this letter is to request you to allow her access to any kind of material she may require to complete her research. The information will be used for research purposes only.

CHAIRMAN
DEPARTMENT OF CONSTRUCTION MANAGEMENT AND QUANTITY SURVEYING
UNIVERSITY OF NAIROBI

Isabella N. Wachira-Towey, (PhD)
Chair & Senior Lecturer,
Department of Real Estate, Construction Management & Quantity Surveying.