DETERMINANTS OF DISABILITY MAINSTREAMING AMONG PUBLIC INFRASTRUCTURE PROJECT DESIGNS IN KISUMU MUNICIPALITY-KENYA

BY

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DECLARATION

This research project is my original work and has never been presented to this university or any other institution for any academic award.

Sign:……Date:……..

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This research project is submitted for examination with our approval as the university supervisors.

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DEDICATION

This research report is dedicated to all my family members.

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ABBREVIATIONS AND ACRONYMS

DIVSMS	Divisional Subject Matter Specialist
DSMS	District Subject Matter Specialist
FAO	Food and Agricultural Organization
FEO	Frontline Extension Officer/Worker
FGDs	Focus Group Discussions
GDP	Gross Domestic Product
GOK	Government of Kenya
IFLA	International Federation of Library Associations
KNBS	Kenya National Bureau of Statistics
MDG	Millennium Development Goal
NCPWDs	National Council for People with Disabilities
NGOs	Non-Governmental Organization
PWD	Persons with Disabilities
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization
UN	United Nations

ABSTRACT

This research project was a study on Determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality Kenya. Factors hindering accessibility are of concern all over the world. Improvement of accessibility may make persons with disability to be active participants in the economy. The study was guided by research objectives and questions. The objectives of the study included; To establish the extent to which the level of awareness determines the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality, To examine how the status of physical accessibility to support infrastructure determines the integration of disability mainstreaming in Kisumu Municipality, to assess the extent to which information dissemination determines the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality, to establish the extent to which appropriate technology transfer determines the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality. The researcher reviewed literature from Developed and Developing countries in order to obtain the global, regional and National perspective to the Kenyan situation with specific focus on kisumu municipality. The study was conducted through the use of both quantitative and qualitative research designs guided by cross sectional survey design, where the researcher investigated the population of Kisumu Municipality by selecting samples to discover and analyze the factors influencing disability mainstreaming among public infrastructure projects/facilities in the area. The study included the Municipal technocrats, the disabled persons and civil engineers. The study sample consisted of 108 respondents selected from the people living in Kisumu Municipality. Out of the 108 respondents, 30 were municipal technocrats, 38 disabled persons and 40 civil engineers concerned with the construction of infrastructures. The study used the questionnaire, interview and observation to collect the data, for reliability of study, a pilot study was adequately conducted in two field stations whose data formed part of the final study analysis. All the completed questionnaires and interview guides were edited for completeness and consistency. The data collected were both quantitative and qualitative in nature. Quantitative data were analyzed according to the research questions by the use of descriptive statistics. This involved coding of data, for responses to the closed-ended questions and analyzing the data using the Statistical Package for Social Sciences (SPSS) program to yield frequencies and percentages. SPSS program further assisted in organizing and summarizing the data by the use of tables. The data generated from open-ended questions were then analyzed by comparing and combining the responses from interview guide and the questionnaire. Correlation analysis was done on both dependent and independent variables. Summary of the main findings revealed that Awareness and disability mainstreaming in Extension Services,74.1% of the respondents sampled did do not understand meaning of the term "disability mainstreaming". Implying that it would be challenging to implement policies by the staff given that a majority of them did not understand its basis or foundation, observations made for Physical Accessibility and Disability Mainstreaming during the study showed that none of the service provision charters had entitlements for persons with disability as confirmed by a cumulative 94.3% of respondents, Most respondents (91.7%) confirmed that the disabled did not enjoy equal opportunity to access technical guidance like all other able bodied people. The Information packaging and Dissemination towards Disability Mainstreaming was very poor as 100% of respondents confirmed that there is no provision for disseminating information to their clients in Braille or sign language. For Technology Development and Transfer, the development of appropriate technologies by the constructors of public infrastructures in Kisumu Municipality as confirmed by the 96.3% of the respondents is low. The findings indicate that people with disability may not immediately benefit from specific appropriate technologies, since none of these had already been developed specifically targeting them. The ministry of public works in Kenya should therefore look at different ways of ensuring that awareness, physical access, information dissemination and information transfer is improved to ensure commendable integration of disability mainstreaming in all infrastructure project designs.

CHAPTER ONE:

INTRODUCTION

1.1. Background of the Study

Globally, It is estimated that about 15% of the world population that accounts for 650 million people, suffers one or more forms of disability which continues to impede their equal full participation in society like others (WHO & World Bank, 2011). This has slowed down empowerment efforts for people with disability through community based interventions since many of them experience social and economic exclusion resulting from their disability. Steele, (2006) asserts that most initiatives undertaken in support of people with disability are piecemeal and short-term; representing small investments made on behalf of a handful of recipients over a limited period of time.

Worldwide, according to European Union Disability strategy (2010) Persons with disabilities have been ignored and highly perceived as beggars and non productive, however, the Eauropean Union discourages discrimination and highly encourage persons with disability to participate in the economy with support from society. There shall be mainstreaming in order to address the needs of disadvantaged people in terms of policy design and implementation such that they are taken care of by the state in terms of employment and accessibility of infrastructures. During the implementation of Disability mainstreaming for social inclusion and protection, it is important to approach it holistically in all stages and processes i.e design, preparation, implementation, Monitoring and Evaluation. For that matter, The EU is monitoring and evaluating the impact of Mainstreaming and indicators of the situation of the disadvantaged people. There is also a promotion of "Citizens concept of Disability" this enables people with disability to make their own choices and live like non-disabled ones. This therefore means that the Design of policies is to take care of interests of the disabled and enhance care and delivery of services to them as per the (European disability action plan, 2007)

In regard to the European Disability forum (EDF) (2006) among many European Countries such as Portugal there has been much discrimination with less access to rights among the disabled, in order to address discrimination the policies are focusing on enhancing access of services and

integration of labour market in enabling disabled people participation. Pertaining the transport sector, in European countries such as Ireland, there is a principle on mainstreaming of transport and infrastructure accessibility for persons with disabilities. Disabled persons groups participate in design, preparation, implementation and monitoring the policy through Public Transport Accessibility committee in partnership with representatives of disabled persons. Persons with disability in Nigeria are affected by poverty and low social status, they face challenges in terms of mobility and accessibility to infrastructure is highly problematic. The public service vehicles are the least mainstreamed in handling persons with disability since they hardly attend to them even when they have sufficient transport fee. The disadvantaged persons view this as a way of dis empowering and isolate them. The disabled view this as a perceived apathy, discrimination and marginalization which manifest in access to social facilities, infrastructure and transportation services, this therefore make them feel like the environment is deliberately hostile. There has been plans to address problems faced in accessibility of infrastructure and transportation by the government of Nigeria though implementation of it has been faced with challenges, integration of disabled and other sectors of the economy will ensure the perceived injustices and marginalization is well addressed (L.S Bombom, I.Abdullahi, 2015)

IFAD (2014) has reported that people with disability in Sub-Sahara Africa still stand the greatest risk of poverty where infrastructural services are not easily accessible. This study therefore draws its rationale from the need to provide for the social economic rights of the disabled, given that various studies on disability issues have not directly considered the integration of disability mainstreaming in infrastructural development. We are all illegible candidates of disability and may acquire disability at any stage of life be it a child, a person may break a leg, a parent may get a pram, an elderly person may acquire a disability due to old age too. We have permanent and temporary disabilities and those who remain healthy and able-bodied all their lives are few. We should all work towards making the environment barrier free to remove disability by environment for example a stair case causes infrastructure to be inaccessible to a wheel chair user and a ramp makes him access the infrastructure and so a stair case is causing disability, Environments should be barrier free and adapted to fulfill the needs of all people equally.

Needs of PWD coincide with those of the majority who have no disability. Subsequently, the

general population has no problem accommodating and interacting with disabled people. Thus planning for the majority simply implies planning for the general population which incorporates people with disability. An accessibility design plan must therefore incorporate the needs of both people with and without disability. Consequently infrastructure accessibility design plan for people with disability is essential as it provides accessibility blueprint for architects and designers. The blueprint provides primary information and critical data required for an environment devoid of bottlenecks, establishment of standards and recommendations that will influence development, renovation and national significance. The findings of this research shall augment the available research data on the subject and hence act as a precursor to the establishment and enactment of accessibility planning legislation that will cater for the needs of the disabled people.

As stipulated in the Constitution of the Republic of Kenya, "Persons with disabilities have a right to respect and human dignity and the State and society shall take appropriate measures to ensure that they realize their full mental and physical potential." This implies that disability issues in Kenya have reached a level where they are part and parcel of the country's general concerns that are to be addressed in national policies and programmes. A number of legal provisions, such as the Traffic and Road safety Act 1998 also attempt to address the needs of disabled people. Each of these pieces of legislation mainstreams disability and provides regulations aimed at improving accessibility of disabled people to service delivery.

However, disability mainstreaming among public infrastructure projects/facilities in Kenya is still a big problem. This leads to vicious cycle of poverty among the disabled. Disability can be caused by poverty and it may trap people in a life of poverty. Among the world's poorest people 20% of of them are said to be disabled. Qualitative studies in Kenya and uganda have also shown that PWDs and families headed by PWDs are likely to be poorer (Lwanga-Ntale, 2003; MOFPED). Yet the republic of Kenya has given various provisions to persons with disabilities whereby, a person with disabilities act of 2003 was established and it brought into existence the National council for persons with disabilities (NCPWD) which is charged with the overseeing of disability mainstreaming in all forms of social, cultural, economic and political development. For this matter, public infrastructure is put into consideration as provided in Section 23 of the Persons with Disabilities Act of 2003, which was passed in December 2009, accessibility to

buildings by persons with disabilities should be made possible by all stakeholders of the construction industry as per the act.

All these problems are not different from what disabled persons are facing in Kisumu Municipality in Kenya. Previous studies conducted on disability mainstreaming have been mostly done in the developed world which embraced the medical and charity models of disability mainstreaming. However, many studies on disability mainstreaming have not directly considered disability in public infrastructure. The social component of this study is to provide recommendations on how people with disability can be integrated in the society. Their integration would enable them to participate in national building and lead a normal life. To be active, a disabled person should be able to commute between home, work and other destinations. The technical aim of the research is to provide a barrier-free environment for the independence, convenience and safety of all people with disabilities. This study therefore sought to examine and critically analyze the determinants of disability mainstreaming among public infrastructure projects/facilities in Kisumu Municipality-Kenya.

1.2. Statement of the Problem

In Kenya, the infrastructures being constructed are currently being implemented within specific projects embedded in programmes that are partially or wholly funded by the government and other investors in the development sector. The projects' activities form the bulk of the national development initiative that aim at improving the social wellbeing, income generation and wealth creation. However, people with disability in Kisumu municipality are still faced with the challenges of accessing public infrastructures. There is an urgent need to help people with disability by including them into mainstream projects in infrastructure, income generation and create employment opportunities for their own benefit. In addition, efforts to improve infrastructure accessibility and social welfare of persons with disability continue from government agencies, NGOs and others through other social services and no public infrastructures but the demand far exceeds available resources (Olubandwa et al, 2011).

Kenya is experiencing a high growth rate in the development of education for the disabled, technology and the right to inclusion, employment and provision of all other privileges, PWDs have come to be in the front line in demanding for their rights of which little attention had been

put in the infrastructural sector that is very critical to the entire society. Therefore there is need to focus on disability friendly infrastructure in order to create a convenient environment for all to ease operation and accessibility (Ochieng, Onyango, Oracha, 2010). People with disability are not involved in making infrastructural designs and therefore we end up having infrastructural facilities that are not disability friendly in accessing them for social services,seek employment or even do business as they lack ramps, lifts or escalaters, this increases disability by environment making it more complex (Braithwaite and Mont, 2009).

The accessibility model should incorporate disability specific traffic infrastructure, new building designs, renovation and readjustment of the existing infrastructure and buildings as per the infrastructure re-adjustment order. This therefore calls for a disability-inclusive and responsive development even as the world attempts to achieve the Millennium Development Goals so that people with disability do not continue to suffer from discrimination based on society's prejudice and ignorance. It is based on the identified research gap that the researcher took an interest to study Determinants of disability mainstreaming among public infrastructure projects designs in Kisumu Municipality-Kenya.

1.3. Purpose of the study

The main purpose of the study was to examine the determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya.

1.4. Objectives of the study

i. To establish the extent which level of awareness determines integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality.
ii. To examine how the status of physical accessibility to support infrastructure determines the integration of disability mainstreaming in Kisumu Municipality.
iii. To assess the extent to which information dissemination determines the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality.
iv. To establish the extent to which appropriate technology transfer determines the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality.

1.5. Research Questions

i. What is the extent which level of awareness determines integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality?
ii. How is the status physical accessibility to support infrastructure determines the integration of disability mainstreaming in Kisumu Municipality?
iii. Which is the extent to which information dissemination determine the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality?
iv. To what extent does appropriate technology transfer determine the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality?

1.6. Significance of the Study

This study will help the people in Kisumu Municipality to realize the need to support persons with disability to access public infrastructures like other people without disability.

The study may guide policy makers in drawing policies that support disabled person's rights in Kenya as a whole.

This study may also form a basis of literature for other researchers who will be carrying out research in the similar field.

The research can be helpful to the local government disabled person's representative to the council in developing initiatives targeting disabled persons in Kisumu Municipality.

This study can equally be important in the development context to contribute pertinent information to governments, international organizations, organizations of people with disability and civil society for consideration in their efforts towards achieving equality for people with disabilities.

1.7. Basic assumptions of the study

The assumption of the study is that respondents were comparative and gave accurate information that was reliable data. The sample size used represented the entire municipality. There was no external interference during the research.

The government technocrats, civil engineers and their collaborators gave adequate information

on the current state of affairs within their institution with regard to the integration of disability mainstreaming in relation to their work.

1.8 Limitations of the study

The study was limited by the misconception by some respondents and key informants who thought the researcher was representing the government, donors, NGOs or any other agencies, thus they exaggerated some information in anticipation of something from the researcher and also demanded for monetary incentives from the researcher.

The researcher also faced the challenge of transport to and from the field to meet the respondents and its related financial constraints as cost for transport is high in the area due to poor roads network in Kisumu Municipality.

Another limitation was scheduling meetings with respondents because the technocrats and civil engineers were so busy with their work in their offices and it was difficult to meet them.

Inadequate and expensive typing facilities was also another limitation, since there was unreliable power supply in Kisumu Municipality and this made editing from the field very difficult.

Insecurity at the Nandi-Kisumu boarders due to tribal clashes was a problem too but the researcher employed service of the local administration as informants, the researcher also establish rapport with the local residents.

The study was faced with various limitations such as the impassable roads due to heavy rains, financial constraints and many others.

1.9 Delimitation of the study

The study was conducted in Kisumu Municipality in Kenya. The Municipality has a population of about 2 million (Kisumu Municipal Planning Unit, 2010). The study focused on Determinants of disability mainstreaming among public infrastructure projects designs in Kisumu Municipality-Kenya. As solutions to the mentioned limitations of the study, the researcher did the following:

The researcher did overcome the limitation of misconception by providing the respondents with adequate and satisfactory explanation of the study objectives, and that the study was for

academic purpose.

To overcome the problem of poor roads and rains, the researcher used meteorological department for guidance and volunteer data collectors to overcome financial burden.

To avoid the problem of limited time, as the researcher is engaged in other professional commitments, the researcher engaged volunteers in data collection.

1.10. Definitions of significant terms

This section provides definition of significant terms that are used in this study.

Accessibility: Refers to the extent to which goods, services and environment is easily available and within reach to people with disabilities without struggle.

Awareness: Is the human ability to perceive, to feel or their cognitive reaction to the condition of disability.

Disability: Visible physical and sensory impairments that limit activity and restrict participation of an individual.

Disability mainstreaming: Is the way of awareness creation on disability, assessing the implementations for disabled people of any planned actions, legislation, policies and programmes in all areas of national development in achieving disability equality.

Information packaging and dissemination: Is the way the final message is constructed and medium used in passing it to the targeted users.

Person with disabilities: Refers to anyone challenged by visible physical and sensory impairments, which limit his/her activity and restrict participation in personal development and welfare.

1.11 Organization of the study

This research report is formed in five chapters. Chapter one is about general background of the study. It also spells out the objectives of the study with specific questions to be answered. These objectives and questions developed provide an overview that facilitates better understanding and requisite linkages to the importance of the study.

The second chapter explores and critically reflects on existing previous related works and literature done on disability mainstreaming by scholars who have studied and or documented pertinent issues on the study subject in different contexts. It also provides a conceptual framework which outlines the relationship between the dependent and independent variables identified as relevant to the study.

The third chapter composes of the study design, area of study, study population, sample size, sample procedure, data collection methods, procedures to be followed, ethical consideration, data processing and analysis and anticipated limitations.

The fourth chapter describes the data collected and presentation, analysis and further interpretation. The analysis, presentation and interpretation of data in this chapter is focused on the findings on the extent to which awareness, accessibility, information dissemination and technology transfer have determined integration of disability in infrastructure.

The fifth chapter of this study summarizes the findings and presents the final conclusions, recommendations and suggestions for further research on the determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya. The final part presents the list of references and appendices of relevant documents used in the study.

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

This chapter reviews available literature on the concept of disability and its relationship to mainstreaming in the developing world to bring forth findings of previous studies. It explores and critically reflects on existing previous related works and literature done on disability mainstreaming by scholars who have studied and or documented pertinent issues on the study subject in different contexts. The focus of the review begins by examining theories of disability and associated models, then highlights the importance of public infrastructures and finally interrogates the concept of disability mainstreaming from a development perspective.

In theory, the concept of disability has been defined by many scholars from different points of view, but the most common one is medically defined as a functional impairment. According to Sherry (2007), impairment is a form of biological, cognitive, sensory or psychological diversity that has a medical dimension whereas disability is defined as a negative social reaction to these diversities (Sherry, 2007).

2.2 Awareness and Disability Mainstreaming

Lang and Murangira (2009) found that awareness affects disability mainstreaming efforts as illustrated by majority of the civil servants who work with various ministries have little knowledge on disability issues as it pertains their human rights approach and thus end up with little knowledge and appreciation of disabled. Their study was a survey which focused more on the socio economic situation of the disabled people with not much to say about the people who are on the field to implement the proposed strategies. It also gave little attention to collaborating service providers who are actively involved with their support activities for the disabled people in Kenya. The researchers in this study therefore introduce a stakeholder approach to addressing disability mainstreaming in the infrastructural development sector, acknowledging that each stakeholder in extension has a unique service or product to offer for the benefit of people with disabilities in their area of work (Lang & Murangira, 2009).

In effect this supports the need for awareness and training as key ingredients towards achieving

total disability mainstreaming. Jones and Webster (2006) in their analysis of case studies on disability mainstreaming in Asia state that "The lives of people with disability will not only improve by creation of awareness but rather proper implementation of the available policies with emphasis will give hope and better expectations". It is important to set up a mainstreaming work plan in an organization with its budget set aside for supporting the infrastructure mainstreaming exercise for readjustment to suit the disabled people. Many authors only look at sensitization at the workplace and assume that raising awareness is an end in itself. This may not hold true because there must be some action beyond awareness creation within an organization. The handbook as an operational guide to disability mainstreaming raises a good argument that commitment and involvement of staff in mainstreaming takes more than just training and therefore there is high chance of success when personal experience reinforces awareness (Jones and Webster, 2006) .

A Kenyan Survey on Persons with Disabilities (PWD) conducted in 2008 suggested that disability awareness affects disability mainstreaming and inclined its approach towards the medical model of disability. The socio-economic and cultural aspect of the survey only captured education and health information with brief mention of formal employment. To comprehensively address income generation, the researcher in this study strongly feels that infrastructural sector as a potential place of employment essential services for persons with disabilities cannot be overlooked, hence the need for disability mainstreaming in the sector.

According to Katsui (2008), the progress and stagnation of disability mainstreaming among infrastructural designs is affected by personal or individual factors. The researcher states that only after the first proponents of disability mainstreaming in Japan came face to face with challenges resulting from their own situation did action on the same became a priority. This therefore brings into focus the issue of awareness before action. These initial proponents did not actually see a lot about their physical disabilities until they attended a conference where there was no facility to assist them easily move around the conference venue. The personal factors mentioned were a clear indication of the need for awareness in disability mainstreaming efforts in building and construction sector. Inadequate awareness makes most of the disabled people shy away from visiting government facilities except a few who do so while trying to access their pensions and free ration cards (Mohapatra, 2012). The research used qualitative interviews and

quantitative data from secondary sources to assess determinants of disability mainstreaming among public infrastructure project designs in Kisumu municipality-Kenya.

Nyagudi (2012), a practitioner from the Kenya National Council for Persons with Disabilities in charge of mainstreaming disability issues, in her presentation on behalf of the disability fraternity during the accessibility workshop for people with disabilities at Laico Regency, Nairobi observed that among the challenges facing disability mainstreaming is low awareness and education on disability which results in low attitudinal change. In the study to establish a way in which awareness on disability together with training and counseling has impacted on counselors in their day to day practice with a better perspective, Kline (2012) established that there is much variability in on exposure to awareness on disability issues with varying levels in discussing disability issues with a client.

Umalsova et al (2009) in the study of mainstreaming disability into disaster risk reduction in Nepal found that awareness raising on disability issues and the importance of mainstreaming requires actors to provide appropriate training and technical support and also accept greater accountability for using resources effectively for the whole population. The human rights based approach was used in the study and its conclusions allude to existence of attitudinal barriers within government employees that limit their active involvement in disability mainstreaming efforts by enhancing knowledge on how to work with PWDs. It is often difficult to identify people with disabilities in any given community especially if stigma exists about disability or it is believed to be caused by past wrongs or the work of evil spirits. In Nepal the government employees were facing challenges working with PWDs due to the people continuously accepting their disability and to associate with disabled. Researchers concluded that employees under study did not have adequate skills to adequately communicate to PWD thus limiting their interaction to further explore areas of mutual concern to enable practical and sustainable disability mainstreaming.

According to Maya and Dalal (2008), to enhance active participation by project staff in disability mainstreaming programmes there is need to find out the expectations and perceptions of persons with disabilities. Proper orientation on the project team should be done on the perspective building, giving a hint, networking with relevant institutions and disabled persons organizations.

Through the Use of social model of mainstreaming, social workers are better off placed to understand issues through awareness to encourage PWDs participate in community development through positive attitudes. The researcher views awareness as a starting point for Infrastructure mainstreaming initiative.

Daly et al (2007) after exploring the education of students with physical disabilities he found out that in order to successfully mainstream disability in schools, the administration must be able to admit students with disability and accept to support them in terms of providing a disability friendly environment in terms of infrastructure and reading materials. There should be provision of information on disability to help in mainstreaming disability and involve them in various school activities, develop peer education and have persons with disabilities talk to teachers and students directly where they will tell their success stories, this way they will mainstream education activities.

2.3 Physical Accessibility and Disability Mainstreaming

Komana (2006) used descriptive survey to undertake an evaluation of the employment strategies of persons with disabilities in South Africa and found that accessibility affected disability mainstreaming in the department of Agriculture of Limpopo University. The researcher reckons that persons with disabilities require to be given opportunity of access to buildings, special training that may involve the use of friendly machineries. The researcher recommends that the responsibility of initiating disability mainstreaming among infrastructural project designs should lie with the administration heads as the people to lead the process to success in an organizational setup. These findings and recommendations reinforce the need to have disability mainstreaming in all government services especially the ministry of public works which deals with infrastructural development and designing.

Eide and Instand (2011) used disability case studies from developing countries in Asia and Africa to write the book, Disability and Poverty- A global Challenge. The book adopts the social model of disability and integrates the Millennium Development Goals especially goal number seven to highlight the importance of an accessibility environment to promote disabled peoples participation in economic and social activities. All the contributing writers in the case studies tend to agree that the issue of accessibility will continue to affect disability mainstreaming

efforts. The United Nations High Commission for Human Rights in its report of 2009 identifies accessibility as accessible environment to persons with disability in the realization of their rights to independence and proper participation in social, economic, cultural and political activities. Therefore states must take appropriate measures in implementing policies on accessibility of infrastructure, physical environment, transportation, technology and access to information.

"Schools need to be supported, not only in developing an ethos of inclusion but also to have the appropriate means to implement this in practice and thus realize the policy objective of mainstreaming," Daly et al (2007). The researchers propose that state departments needed to ensure that all necessary funding are promptly availed to schools' management boards in order to do infrastructure readjustment in school buildings, furniture, fittings and lighting, in such a way that is accommodative to students with disability. The study point out on the need of the state agency i.e NCPWD to take charge in the implementation of the infrastructure readjustment order in emphasizing on designs of schools and other infrastructures in making them accessible to PWDs, They should give a public guide to be adopted when a new building is being constructed or extensions are being put up.

Eklund (2008) critics the Kenyan Disability Act for only defining accessibility to be making of public buildings and Vehicles to be easily accessible to Persons with disability, yet accessibility is for both private and public infrastructure and all vehicles including services of interpreters and quides. The researcher views the establishment of universal infrastructure design that suit the disabled as barrier free such that every user will be safe at all circumstances.

2.4 Information packaging, Dissemination and Disability Mainstreaming.

Iwhiwhu (2008) defines packaging as the bundling of products and services to address specific needs and that it can be done by reformatting and synthesizing raw information, combining expertise or consulting on a subject with access to relevant information sources and providing training or assistance to a user in accessing an information product.

Chisita (2011) in the study to document infrastructural project designs information in Zimbabwe argues that Community Development officers are critical in facilitating access to information on best infrastructural designs that suit all the people and accommodate the disabled.

Okore et al (2009) state that developing countries are endowed with a lot of indigenous knowledge but access to such knowledge is hindered by lack of an environment that permits free flow of ideas amongst members of the community. Therefore the information generated to educate a non-technical person on a subject of importance must be packaged and disseminated to give a complete, concise picture of the subject for ease of understanding and comprehension by everyone.

In addition, Okore et al (2009) further contend that parties entrusted to manage indigenous knowledge e.g. Libraries, should not view themselves as owners of such knowledge but as custodians who are freely available to dialogue with members of the community, through creating social spaces for communities to learn from each other. For the interests of all infrastructural design stakeholders, dissemination of information is perceived by the researcher to commendably contribute to successful disability mainstreaming in the building and construction industry.

Information Communication Technology offers a sense of information access, independent of physical mobility that in turn enables participation in government decision making and independent access to information" (Stadler, 2006). It follows that having the right information helps to make the right choices in decision-making processes and, therefore, people who access useful information at the right time are advantaged. The writer alludes to the fact that information must be packaged and disseminated in a manner that is not discriminatory to persons with disabilities for any meaningful change in society.

Waddington (2008), in the working paper on using European Commission Law to establish an internal market in disability accessible goods and services asserts that different groups of people with disabilities require information to be provided in alternative formats for effective communication with them to prevail. While mainstreaming disability in development; it is important that from the designing stage, needs of clients with disability who will seek goods and services have to be considered and incorporated before disseminating information to them.

Information and communication form part of policies, spaces, and objects for technology design or the design of support products to incorporate values and meanings to all products and services. Oodally (2006), states that the driving force therefore, is to conceive and put in place

communicative dimensions in suitable and accessible terms in relation to the specific needs women with disabilities or any other users have. It is therefore important to recognize the unique differences and skills of people with a disability as each person can respond to their disability differently and requirements of disability groups will vary.

2.5 Technology Development and Transfer and Disability Mainstreaming

Li-Hua (2006) in the study of effectiveness of technology transfer in China indicates that technology will not occur without knowledge transfer, since knowledge is the fundamental to control technology. The researcher acknowledges that appropriate technology has been practiced for many years and is being adopted to tackle community development issues. Therefore by various definitions, it useful for the transfer of ideas, information, methodology, procedures, techniques, tools and technology from the developer to other people in need.

Vergragt (2006) says that appropriate technology has been developed as a solution for development related problems, it has gained support too as a good direction towards sustainable technologies. The employment of appropriate technological transfer builds on skills, resources and creates jobs to raise on the production capacity of any community (Vergragt, 2006).

According to Akubue (2000), appropriate technology should promote positive change and make a country to progress well with good development and eventually only environmental sustainability will hasten the eradication of abject poverty, unemployment and inequality.

In the book "The Future of Disability in America", Field and Jette (2007) explain the use of assistive and mainstream technologies for people with disabilities from a medical perspective. They contend that the development of such technologies is dependent on research as proposed by policy at national level, to become usable and accessible to people with different disabilities. The writers clearly present the need for appropriate technology development and transfer for effective disability mainstreaming. It therefore suggests that technology transfer will markedly affect the outcome of any disability mainstreaming programme.

According to Hanko & Polman (2006) people with disability are recommended to work through their own solutions to the task required (with due respect to hazards, safety, etc.) If this is to succeed, then it follows that the technologies used for the infrastructural development should

match the capabilities of the disabled workers involved where the use of mechanical aids, trolleys, access to electrical power, associated tools, etc. are preferred to manual work.

Albu (2005) described the importance of linking education, technical ability and knowledge with the capability of the worker. When training community developers in Ethiopia, Hanko (2006) emphasized the importance of educational level, and how this took priority over disability as a constraint on the capability of the specific disabled person. The underlying principle is one of addressing the abilities, needs and preferences of the people or person concerned and only where practical, technology is used to satisfy these needs. For example, physically disabled people working at the same interface as non-physically disabled persons may have difficulties when standing, seated, lifting, turning round etc, according to the extent of disability. It therefore calls for the technologies being promoted for use by people with disability should be those adapting to people, and not the other way around that will guarantee safety, accessibility, reliability and affordability. Consideration must be made to accommodate the variations in the stature of non-disabled people to ensure that most if not all are able to interface with the structures, equipment, vehicles and tools with which society is familiar.

All these studies tend to give a rough generic guide towards full implementation of disability mainstreaming. It is therefore of importance to ascertain how this is being done within the field of infrastructural development since appropriate technology is currently being widely used to solve technological problems throughout the world. The researcher in this study views the use of technology as an important consideration in disability mainstreaming in the infrastructure project designs. This is to be on a long-term basis for the community to benefit from distinct advantages like suitable employment opportunities, improved health and safety and training. In as much as all the benefits mentioned may not come immediately as one whole package, the disseminated technological solutions must be consistent with the culture(s) of the targeted beneficiaries as active participants, use local resources and skills for successful application. People with disability are not always able to work in conventional fashion as the result of their disability, but they are quick to adapt when required.

2.6 Theoretical Framework

This research is based on the social model of disability which suggests that society has failed to make adequate allowance for people with disabilities to enter the mainstream of the society. Carson (2009) argues that it is not impairment that causes disability but the way in which society has disregarded to include people with disabilities in all spheres of development. This model of disability is further defined in the study as a form of social oppression because it focuses on attitude, environmental and organizational barriers which hinder persons with disability from enjoying equal opportunity in accessing education, employment opportunities, accessible infrastructure, accessible transport facilities and recreational facilities that are user friendly to them etc. Through this ideology, people with disabilities are supposed to be given the opportunity to maximize their potentials by promoting their participation and productive involvement in the society.

Mor (2011), argues that disability studies focuses on the complex ways that economic relations, cultural meanings, social practices, and institutional settings participate in the disablement of persons. The rationale behind this reasoning is that disability studies is a socially constructed category, rather than an inherent, objective or fixed trait that resides in the disabled person. Goodley (2010) states that disability affects all humanity, overstepping class, nation and wealth and that many people will at some point become disabled.

The WHO International Classification of Functioning model of 2001 views disability as an inclusive term for considering the interaction of impairment, body functions and structure, activity, participation against the wider context of personal and environmental factors.

Peter et al, (2008) estimate that around 800 million people will suffer one or more forms of disability by the year 2015. In their description of the relationship of impairment to limitation, these views distinctly suggest the emergence of two perspectives that further culminate to four opposing models i.e. the charity, medical, social and the rights based models of disability.

According to Monk et al (2009) the charity model views disability as a problem inherent in the person and that such people are regarded as „unfortunate", „dependent" or „helpless" . Due to their impairments they are assumed to be unable to contribute to society or support themselves and are instead long-term recipients of welfare and support provided by specialist organizations

and not mainstream development. This argument perpetuates the idea of viewing disabled people as a separate group.

In contrast, the social model defines disability as a relation between an individual and their social environment: the exclusion of people with certain physical and mental characteristics from major domains of social life (Eklund, 2008). Their exclusion is manifested not only in deliberate segregation, but in a built environment and organized social activity that preclude or restrict the participation of people seen or labeled as having disabilities (Wasserman et al, 2011). In this study, Wasserman et al (2011) further argues that these models play a complementary role towards comprehensive disability mainstreaming because either can easily be a consequence of the other. It is therefore arguable that the different models favour different responses to disability.

All these models seem to be anchored on the human rights principles that advocate for no exclusion or discrimination, hence the need for appropriate social response to mainstreaming disability in society. This study therefore adopts the right based model of disability since the ultimate goal of disability mainstreaming is to have everyone equally participate in sustainable personal and national development within their ability, with no discrimination.

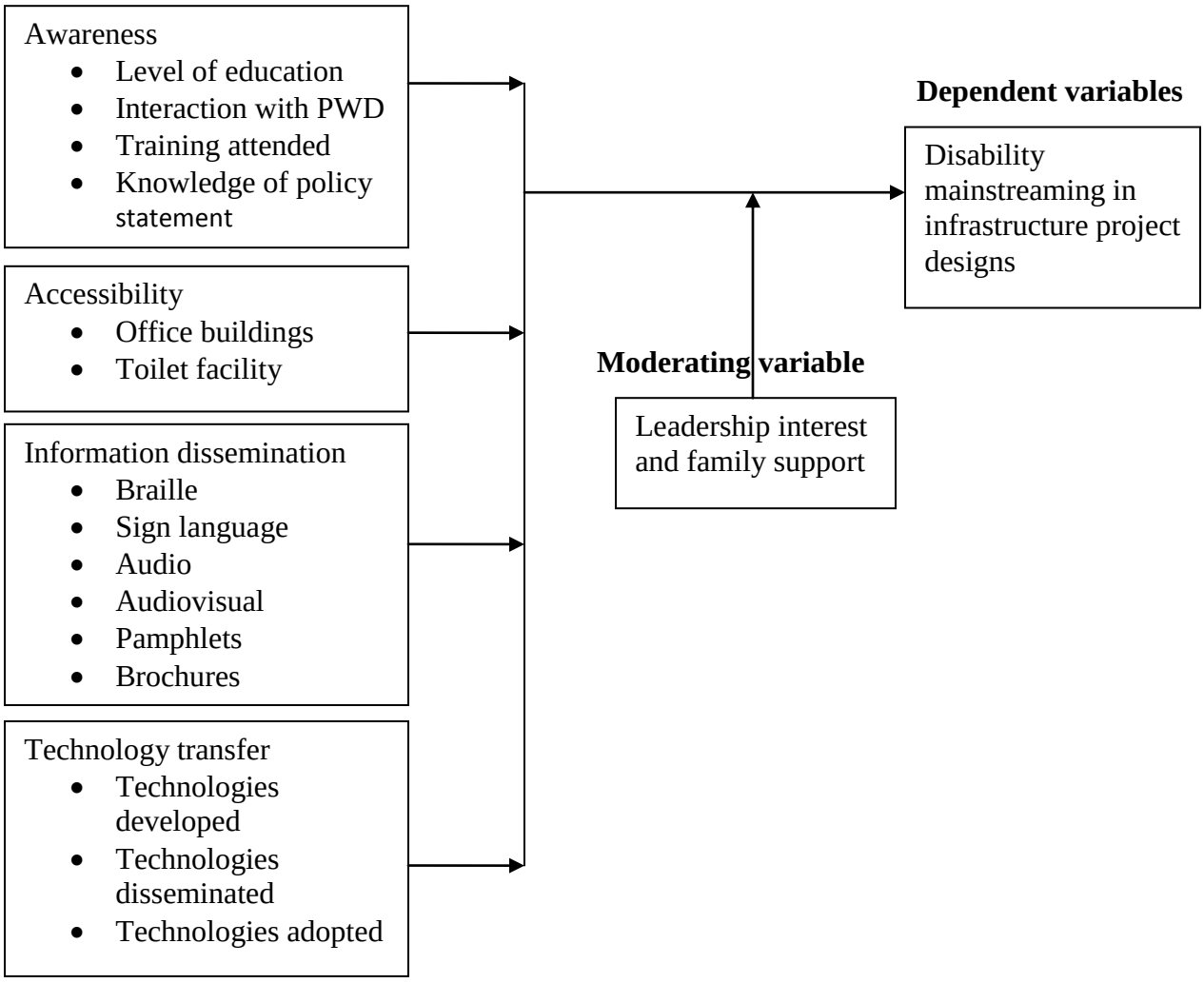
2.7 Conceptual Framework

A conceptual framework refers to a process of conceptualization through which a researcher is able to determine the interplay between variables in the study and shows the relationship graphically or diagrammatically. The purpose of a conceptual model is to help the reader to quickly see the proposed relationship.

In this study the conceptual framework incorporated the dependent variable, four independent variables, and a moderating variable. The framework sought to establish the relationship of awareness, accessibility, information dissemination and technology transfer to disability mainstreaming as being affected by leadership interest and support. Taking into consideration that the independent variables and dependent variable in the conceptual framework are supposed to hold true, it is nevertheless dependent on the leadership interest and level of support given by the disability mainstreaming organization (ministry of works and housing) in this study. The conceptual framework adopted for this study is shown in figure 1:

Fig.1: Conceptual framework

Independent variables



The conceptual framework shows interrelationship between the variables of the study.

2.8 Summary of Literature review

This chapter has reviewed existing literature on Determinants of disability mainstreaming among public infrastructure project design as presented by various researchers in relation to infrastructural development and empowerment of people with disability. The literature presents the theoretical perspective of disability and its associated models, highlighting mainstreaming from a development perspective while justifying the rationale for including people with a disability for all development aspects.

CHAPTER THREE:

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the researcher took an effort to put forward instructions that was followed in the investigating process so as to collect relevant data for the research. This section composes of the study design, area of study, study population, sample size, sample procedure, data collection methods, procedures to be followed, ethical consideration, data processing and analysis and anticipated limitations.

3.2 Research Design

This study was conducted through the use of both quantitative and qualitative research designs guided by cross sectional survey design, where the researcher investigated the population of Kisumu Municipality by selecting samples to discover and analyze determinants of disability mainstreaming among public infrastructure projects designs in the area. This is because of the limited time within which this study was scheduled be conducted and the limited resources like money and labour as it ensured rapid data collection. To validate these findings, the study was compared with other ideas in the literature review.

3.3 Target Population

Target population is simply all the items under consideration in a field of inquiry constitute a 'universe' or 'population' (Kothari, 2004). Mugenda and Mugenda (2003) describe a target population as the population to which a researcher seeks to generalize the results obtained from the inquiry. The target population in this study was 540 people from Kisumu municipality who are in one way or another concerned with the infrastructural designs.

3.4 Sample size and sampling procedure

Sekaran (2008) states that sampling is the way of selecting significant number of elements of study from a population for the purpose of determining their properties, characteristics and generalizing the findings to the whole population.

3.4.1 Sample size

According to Gay and Hilton (1995) a sample of 10% of the population is considered minimum while 20% of the total population is required for smaller population. The researcher adopted this for the purpose of this study. Considering a total population of 540 people concerned with infrastructural designs in Kisumu municipality. The 20% gave a sample of 108 respondents.

The sample consisted of 108 respondents selected from the people living in Kisumu Municipality. Out of the 108 respondents, 30 were municipal technocrats, 38 disabled persons and 40 civil engineers concerned with the construction of infrastructures in Kisumu Municipality. The breakdown of the sample size used in the study was summarised as indicated in Table 3.1:

Table 3.1 Respondents category

Category of respondents	Number to be selected	Method of data collection
Municipal technocrats	30	Questionnaire question
The disabled persons	38	Interview/ observation
Civil Engineers	40	Questionnaires
Total	**108**	

According to Harrie (2010), a qualitative sample should be representative of the entire population, diversity or phenomenon under study within the target population. In as much as it can be achieved by a large random sample, this cannot be efficient to guarantee accurate reliable results. It was therefore logical and more efficient to purposively select a diversity sample with the aim to cover all existing relevant varieties of the phenomenon depending on the type and degree of diversity that is judged relevant.

3.4.2 Sampling Procedure

The researcher used simple random sampling technique for selection of the respondents to avoid wastage of time within which this study was to be conducted and to ensure that each member of the target population had equal chance of being included in the sample. The researcher also believed that by use of simple random sampling technique, collection of biased data would be

avoided since the people selected also adequately represented others. Purposive sampling was applied in the selection of key respondents which consisted of the municipal technocrats and civil engineers. This was based on their duties, expertise, experience, wealth of knowledge and recommendation by the community and other resourceful persons.

3.5 Research Instruments

The study used the questionnaire, interview and observation to collect the data. A questionnaire is commonly used to obtain important information about the population. The structured questionnaires were delivered to the respondents by hand at their respective work stations during working hours and filled immediately. The interview guides were also filled therein during the interview with respondents. Each item in both the questionnaire and interview guide sought to address a specific objective or research questions of the study. Section A of the questionnaire collected background information of the respondent, their level of seniority in the system and years involved in extension service delivery. Section B focused on staff awareness to issues of disability, their involvement in mainstreaming process and policy position as given by their parent ministry. Section C sought information on physical accessibility and the respondents perceive requisites to successful disability mainstreaming. Section D gave information on how the construction staffs have disseminated information to people with disability in relation to formats, quality and actual documentations. The final section of the questionnaire and interview guide sought information on how various technologies have been developed, disseminated and adopted for use by people with disability.

The observation was employed concurrently during the interview with the disabled persons as the researcher stayed for six days in each selected sub-counties. This is where the researcher used all his senses to perceive and understand the experiences and therefore examine the determinants of disability mainstreaming among public infrastructure projects/facilities in Kisumu Municipality.

3.5.1. Pilot Testing

To ensure consistency of questions in the research instruments, a pilot testing was conducted by the researcher in two stations deliberately chosen. From the two selected stations, a sample of two technocrats and civil engineers were chosen. The selected participants were then asked to

interpret each question in their own words and then required to give their thoughts, questions and ideas about the questionnaire. Simultaneously, the researcher was observing the interviewer and interviewee relationship. Any inconsistencies in the questionnaire and interviews were rectified immediately during the questionnaire piloting exercise. The researcher used services of other experts too to help shape the questionnaire and plan adequately for data collection together with the help of best approaches. This will help in making of the content valid (Mitchell, 1996) in order to make necessary amendments.

3.5.2. Validity of research instruments

Mugenda and Mugenda (1999) defines validity as the measure or degree based on which an empirical measure or several conceptual measures measure the variables under study. The research determined validity of the research instruments using context validity. Expert opinion was also appropriately sought from two respondents already handling disability mainstreaming issues from the Kenya National Council for Persons with Disabilities and they were also disabled persons. In the study, triangulation was also used to improve the internal validity of the research using the various data sources. The survey started with open-ended questions and followed up with increasingly narrow questions that directly called for elaboration and explanation. To restrict the respondents in the study from trying to give answers that they think are being sought, the researcher did not emphasize the need for implementing disability mainstreaming as a conformity requirement by Kenya national policy.

3.5.3. Reliability of research instruments

Reliability of the research instruments was determined using a pilot study in two separate field stations, where the data collected was excluded from the primary research data that informed the final study analysis. Data collected in the pilot studies was only used to conduct a reliability test for the questionnaire that served as the primary research instrument. Additionally, the pilot study data was used to guide the study interviews. The pilot studies were pivotal in the determination of inadequacies, inconsistencies and weaknesses in the research instruments and hence corrections were timely effected prior to the field administration in diverse target field stations.

This was achieved by changing the wording of the response alternatives but without changing the meaning in the questionnaire or interview guide. In some instances, the order of questions was deliberately changed as situations demanded. Individual bias were addressed by using the three trained research assistants to administer the questionnaires who were also helpful observations during the data collection stage of study.

3.6 Data Collection Procedure

Upon approval of this proposal, an introductory letter was issued to the researcher by the University for permission to conduct research. The researcher therefore introduced himself to relevant authorities of Kisumu Municipality and sought their permission to access the research area to meet the informants in time. The researcher then scheduled well planned appointments with the respondents or key informants in time in order to ensure time management. The researcher solely kept in contact with his academic supervisor to guide each stage in the research process, and to seek guidance on issues related to this research.

3.7 Data Analysis Techniques

All the completed questionnaires and interview guides were edited for completeness and consistency. The data collected were both quantitative and qualitative in nature. Quantitative research data were analyzed according to the research questions. The research data was analyzed using descriptive statistics technique. This involved coding of data, for responses to the closed-ended questions and analyzing the data using the Statistical Package for Social Sciences (SPSS) program to yield frequencies and percentages. SPSS program further assisted in organizing and summarizing the data by the use of tables. The data generated from open-ended questions were then analyzed by comparing and combining the responses from interview guide and the questionnaire. These largely formed the qualitative data and were organized, categorized and reported in emergent themes by use of tables accompanied by explanations and general statements about the relationships among the categories of data. Data generated from observation were presented in content form and it helped the researcher to explain further what was not expressed well in the interview and questionnaires.

3.8. Ethical considerations

During this study, "disability" was viewed in social and economic terms as to only relating to inclusion barriers in the mainstream of society, rather than in individual deficit. Appropriate consent to participate in research was sought from all respondents and measures put in place to ensure confidentiality of their responses. The researcher and assistants also strived to maintain high standard of professional behavior in line with national regulations and organizational policies that are practiced by the University of Nairobi and endeavored not to bring the academic profession into disrepute through any omission or commission.

3.9. Operational definition of variables

This study used both quantitative and qualitative indicators to measure the relation between the dependent and independent variables. The analysis of the relationship using the identified indicators was done as outlined in the table 3.2:

Table 3.2: Operationalizing Study Variables

Objective	Variable	Indicators	Measurement
To establish the extent to which the level of awareness determines the integration of disability mainstreaming among public infrastructure projects	Independent Variable Awareness • Level of education • Interaction with PWD • Training attended • Knowledge of policy statement	• Knowledge of policy statement • Interaction with PWD • Sensitization trainings attended • Any officer(s) assigned to handle PWD • Funding for PWD in projects • Inventory of PWD • Entitlements of PWD in service delivery charter	• Yes • No
To examine how the status of physical accessibility to support infrastructure determines the integration of disability mainstreaming	Independent Variable Accessibility • Office buildings • Toilet facility • Reading area/library	• Existing ramps • Number of customized toilet facility for PWD • Availability of adequate office space to ease free movement of PWD • Accessibility to public infrastructures	• Strongly disagree • Disagree • Neutral • Agree • Strongly agree
To assess the extent to which information dissemination determines the integration of disability mainstreaming among public infrastructure projects	Independent Variable Information packaging and dissemination • Braille • Sign language	• Format of information in Braille being used • Proof of sign language use • Existence of specifically packaged information for use by PWD • Collaborators in construction department • Existence of disability specific data collection and statistics	• Strongly disagree • Disagree • Neutral • Agree • Strongly agree
To establish the extent to which appropriate technology transfer determines the integration of disability mainstreaming among public infrastructure projects	Independent Variable Technology development and transfer • Technologies developed • Technologies disseminated • Technologies adopted	• Existing appropriate technologies developed for PWD • Number of research workshops attended by PWD on technology development • Participating in experiments that introduce new technologies • Percentage of PWD in the stakeholders‟ forum at all administrative levels • Participation of PWD in the review and updating of existing infrastructures	• Yes • No • Discrete figure

CHAPTER FOUR:

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 Introduction

In this chapter the data collected on the determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya are presented, analyzed and interpreted. The analysis, presentation and interpretation of data is focused on the findings on the extent to which awareness, accessibility, information dissemination and technology transfer determines the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality.

4.1 Questionnaires Return Rate

A total of 108 respondents comprising of 30 municipal technocrats, 38 disabled persons and40 civil engineers were given questionnaires and some interviewed. The entire targeted sample responded promptly and gave responses that on evaluation were considered adequate for the study and therefore achieving a response rate of 100% as shown in Table 4.1. The success of the response rate was attributed to continuous follow up by the research team and eagerness from the respondents to participate in a study that would benefit them in disability mainstreaming.

Table 4.1: Response Rate

Category	Sample Size	Responses	Percentage
Municipal technocrats	30	30	27.7
The disabled persons	38	38	35.2
Civil Engineers	40	40	37.1
Total	**108**	**108**	**100**

4.2 Respondents Characteristics

This section of the study sought to establish the characteristics of the respondents in terms of their level of education and years of experience in their work. The findings of the study are

presented in Table 4.2.

Distribution by level of education

Respondents were asked to indicate their level of education and the results of the study are as presented on table.

Table 4.2: Distribution by Education Level

Category	Certificate	Diploma	1st Degree	Masters
Managers	0	0	7	1
DSMS	0	0	22	2
DVSMS	0	27	11	0
FEO	26	12	0	0
Total	**26**	**39**	**40**	**3**

The results show that most of the respondents (40) are first degree holders who constitute 37% of the total respondents. This is followed by Diploma holders (39) which constitute 36.1 %, Certificate holders (26), translating to 24.1% and the least are masters degree holders (3) which represents 2.8%. In general terms, this indicates that the current composition of the respondents had adequate education to interpret policy statements for prompt implementation. Furthermore, the population is in a better position to answer questions and give a technical opinion on the subject of the study.

Years of experience in working with the government of Kenya

The respondents were asked to state their years of service in working while directly rendering technical services in the infrastructural project design and programmes. The results are shown in Table 4.3;

Table 4.3: Work Experience

Years worked	Staff	Percentage	Cumulative percent
3	7	6.5	6.5
5	9	8.3	14.8
6	4	3.7	18.5
7	8	7.4	25.9
15	11	10.2	36.1
16	1	0.9	37.0
17	6	5.6	42.6
18	1	0.9	43.5
20	3	2.8	46.3
21	1	0.9	47.2
25	2	1.9	49.1
26	2	1.9	50.9
28	17	15.7	66.7
29	21	19.4	86.1
30	14	13.0	99.1
31	1	0.9	100.0
Total	**108**	**100.0**	

The study shows that majority of the respondents have working experience of between 3 and 31 years, with the total average being 20 years of service and representing 46.3% of the whole sample. Most staff sampled had worked for at least 29 years. The number of years of work shows that most respondents have commendable experience in infrastructure which is necessary in

implementing a national policy on behalf of government in Kisumu Municipality. Their experience levels were found useful for this study because they have adequate information about the nature of the problem being investigated.

4.3 Awareness of disability mainstreaming

In this section the study sought to establish the extent to which the level of awareness determines disability mainstreaming among public infrastructure project designs. The findings of the study are presented in Table 4.4.

4.3.1 Understanding the meaning of the term 'disability mainstreaming'

The respondents were asked to indicate whether or not they understood the meaning of the term "disability mainstreaming". The outcome of the study is as shown in the table 4.4

Table 4.4: Understanding "Disability Mainstreaming"

Category	Frequency	Percentage
No	80	74.1
Yes	28	25.9
Total	**108**	**100.0**

From the total population sampled (n=108), 74.1% of the respondents (80 staff) were not aware of the meaning of a term "disability mainstreaming". The 25.9% (28 respondents) who understood the meaning of the term were mainly officers who had a first degree or masters in their areas of study together with two diploma holders and two certificate holders who had worked in the ministry for more than 17 years. Employees with a first degree and masters had worked in the ministry for at least five years within infrastructural work. The 25.9% of the respondents who did not understand the meaning of disability mainstreaming were mainly those officers who had a certificate or diploma and had worked for between six and thirty years.

Therefore, it is evident as established by Lang and Murangira (2009) that awareness affects disability mainstreaming efforts as illustrated by majority civil servants who work with various ministries had little knowledge on disability issues as it pertains their human rights approach and thus end up with little knowledge and appreciation of the disabled.

4.3.2 Knowledge of the National Policy on Disability Mainstreaming

Only 12% of the officers acknowledged that they knew about the existence of a national policy on disability mainstreaming but none of them could clearly state what it says. These officers were mainly the station heads and District subject matter specialists whose work were concerned with infrastructural development. However, none of the respondents knew the ministerial policy on disability mainstreaming and could only speculate that it does not exist. This is illustrated in table 4.5.

Table 4.5 – Knowledge of National Policy on Disability Mainstreaming

Category	Frequency	Percentage
No	95	88
Yes	13	12
Total	**108**	**100**

The 88% of the extension staff who did not know the national policy. In terms of policy implementation, the extension staff in the field are the ones relied upon by the Kenyan government. The civil engineers and municipal technocrats seem to lack in knowledge of the existing policy on disability mainstreaming, further confirming what Katsui (2009) found out in Japan, that the progress and stagnation of disability mainstreaming is affected by personal or individual factors.

The senior civil engineers in charge of the infrastructure construction had more initiative to know what the policy states while the same had not adequately been cascaded down to the to the disabled persons in Kisumu Municipality. In this study it was observed by the researcher that disability mainstreaming only appeared to the staff in the field after coming face to face with questions about it from outside their offices. The personal drive to seek more information,

especially on emerging policy issues were found to be generally lacking in (88%) of the extension workers. The survey shows that those with a comparatively lower education (certificate and diploma versus degree and masters level) had least information on disability mainstreaming as a requirement in national or even ministerial policy.

The same findings were established by umalsova et al (2009) in the study of mainstreaming disability into disaster risks reduction. Awareness raising on disability issues and the importance of mainstreaming requires actors to provide appropriate training and technical support and also accept greater accountability for using resources effectively for the whole population.

4.3.3 Sensitization on Disability Mainstreaming

Only 2.8 % of the officers sampled had been trained or sensitized on disability mainstreaming and these were the civil engineers. "I attended a workshop on disability mainstreaming through a public infrastructure project funded by the World Bank two years ago", said one of the civil engineers. It was also observed that there were no office inventories on people with disability despite the construction staff acknowledging that they knew where some people with disability resided in the Municipality. In terms of contact and interaction, only 9.3% admitted to have met with disabled persons during the course of drafting the infrastructural development projects.

The same findings were established by Maya and Dalal (2008) in that to enhance active participation by project staff in disability mainstreaming programmes there is need to find out the expectations and perceptions of persons with disabilities. Proper orientation on the project team should be done on the perspective building, giving a hint, networking with relevant institutions and disabled persons organizations. Through positive attitude the disabled will participate in community development. The researcher views awareness as a starting point for infrastructure mainstreaming initiative.

4.4 Accessibility to supportive and physical infrastructure

In this section the study sought to assess the extent to which the status of physical accessibility to support infrastructure determines disability mainstreaming in public buildings.

4.4.1 Entitlements of PWD in Service Delivery Charter

The respondents were asked to rank their level of agreement with the status of entitlements of the people with disability in their infrastructure service Delivery Charters. The results are as shown in table 4.6.

Table 4.6: Entitlement in Service Delivery Charter

Category	Frequency	Percentage
Strongly Disagree	65	60.2
Disagree	37	34.3
Neutral	5	4.6
Agree	1	0.9
Strongly Agree	0	0
Total	**108**	**100**

During the surveys it was observed that all the service charters in all the offices in the District and Divisional level did not have any clearly spelt out entitlement provisions for persons with disability. This was further confirmed by 60.2 % of the staff who strongly disagreed that people with disability have clear entitlements in the various service delivery charters prepared by the ministry of Housing. Another 34.3% of the staff disagreed on the same. One of the respondents studied said that "even our total quality management manual does not have any procedure of serving a client with disability, so that is still neither here nor there". Only 0.9% felt there was adequate provision for such entitlements in the service charter as provided by their office. However, 4.6% were none committal on whether it exists or not. "I don't even know what the charter says about these people (PWD)", said one of the respondents.

The findings is supported by the united nations high commission for human rights report of 2009 identifies accessibility as accessible environment to PWDs in realization of their rights to independence and proper participation in social, economic, cultural and political activities. Therefore states must take appropriate measures in implementing policies on accessibility of infrastructure, physical environment, transformation, technology and access to information.

4.4.2 Provision of Ramps in the Office design

In order to see how easy people with disability could physically access the office buildings, the respondents were asked to rank their level of agreement with the current status of their office buildings in relation to ramps. The results were as presented in Table 4.7.

Table 4.7: Provision of Ramps and customized toilets in Buildings

Category	Frequency	Percentage
Strongly Disagree	105	97.2
Disagree	2	1.9
Neutral	1	0.9
Agree	0	0
Strongly Agree	0	0
Total	**108**	**100**

Of all the offices visited only one had a ramp for use by people with disability. 97.2% of the staff also strongly disagreed that their offices design had provision for ramps and also supported by another 1.9% of their colleagues who also disagreed on the same. In one of the stations the manger said that the building was an old one of the colonial times, and that no white man working there was disabled then. Another respondent said, "You know, this disability thing is a new thing to us; it has really found us unprepared". In all the stations only one new office that was still under construction had a customized toilet facility for use by people with disability, the rest were either pit latrines or none customized for use by PWD.

The findings are supported by Daly et al (2007) saying that state departments need to ensure that all necessary funding is availed to management boards in order to do infrastructure re-adjustment in buildings, furniture, fittings and lighting in order to accommodate people with disability.

4.4.3 Equal accessibility to technical guidance

During the study the respondents were asked to rank their opinions on whether or not PWD had been equally accessing technical guidance like able bodied people in their areas of work. Table 4.8 shows the results on the status of accessibility to technical guidance by PWD.

Table 4.8: Accessibility to technical guidance

Category	Frequency	Percentage
Strongly Disagree	3	2.8
Disagree	99	91.7
Neutral	3	2.8
Agree	3	2.8
Strongly Agree	0	0
Total	**108**	**100**

It was found out that 91.7% respondents felt that people with disability did not have equal access to technical guidance like all other able bodied people. Only 2.8% of the staff either agreed or were not sure about the situation. Most buildings in Kisumu municipality are built in the old style that was not disability sensitive and therefore there is need to put in force the infrastructural re-adjustment order for people with disabilities to be accommodated by use of Lifts, ramps, escalaters and proper assistive devices.

This is supported by Komana (2006) who establishes that persons with disabilities require to be given opportunity of access to buildings, special training that may involve the use of friendly machinery. The researcher views that the responsibility of initiating mainstreaming among infrastructural project designs should lie with administration heads in order to realize success.

4.5 Information Packaging and Dissemination

In this section the study sought to determine the extent to which extension information packaging and dissemination to people with disability determines disability mainstreaming in infrastructural development.

4.5.1 Information packaging and dissemination in Braille

The respondents were asked to rank their opinions on whether or not they package and disseminate information to people with disability in form of Braille presentations. Table 4.9 shows the results

Table 4.9: Information packaging and dissemination in Braille

Category	Frequency	Percentage
Strongly Disagree	98	90.7
Disagree	10	9.3
Neutral	0	0
Agree	0	0
Strongly Agree	0	0
Total	**108**	**100**

Majority (90.7%) of the respondents strongly disagreed that information dissemination in their stations is also provided in Braille and the rest (9.3%) also disagreed. Therefore all the respondents confirmed that there is no provision for disseminating information to their clients in Braille. Some respondents unanimously agreed that producing reports in Braille "was not a requirement even at the national level due to lack of capacity to do so". Others even asked, " How can you produce what you cannot even read yourself?" All the respondents acknowledged that to achieve the production of reports in Braille form would take quite a long period of time and requires adequate training. They suggested that it is one of the areas that the ministry as a whole had not invested in, even through collaboration with those who have the expertise. Information should therefore be offered to suit people of all forms of disability since it is relevant too for them as a basis for people's contribution into how they wish to be supported through their participation and input.

The findings is supported by Ihwiwhu (2008) who defines packaging as the bundling of products and services to address specific needs and that it can be done by reformatting and synthesizing raw information, combining expertise or consulting on a subject with access to relevant

information sources and providing training or assistance to a user in accessing an information product.

4.5.2 Sign language interpretation as a requirement

All the extension workers who participated in the study at all levels disagreed that sign language interpretation is a requirement during provision of extension services as shown by 80.6% strongly disagreeing and 19.4% also disagreeing. They argued that sign language is a specialist skill that they did not have at that moment in time. Sign language is fundamental and key in that it enhances communication, knowledge and direction for the hearing impaired, for any development initiative everybody in the community must be taken care off via proper transmission of information in order to also give room for their input, therefore there should not be discrimination by language barrier.

The findings are supported by Stadler (2006) stating that having the right information helps to make the right choice in decision making process and therefore people who access the right information at the right time are advantaged. The writer alludes to the fact that information must be packaged and disseminated in a manner that is not discriminatory to persons with disabilities for any meaningful change in society.

4.5.3 Information dissemination (Audio, Visual)

Table 4.10: Information dissemination (Audio, Visual)

Category	Frequency	Percentage
Strongly Disagree	101	93.5
Disagree	6	8.6
Neutral	1	0.9
Agree	0	0
Strongly Agree	0	0
Total	**108**	**100**

From the table 4.10, 99.1% of the extension workers disagreed that they disseminate

information to their clients various forms that includes audio and visual presentations. The respondents also indicated that none of them packaged and presented infrastructure projects or construction information in pamphlets and brochures for specific use by people with disability in the extension units.

The findings that the disabled have a right to information access which is denied is supported by Waddington (2008) in the working paper on using European commission law to establish an internal market in disability accessible goods and services asserts that different groups of people with disability require information to be provided in alternative formats for effective communication to prevail.

4.5.4 Information provision to PWD by Collaborators

The respondents in the study were asked to rank their level of agreement with the status of their collaborators in the construction department in providing information to people with disability on where to get assistance. The results are as shown in Table 4.11

Table 4.11: Opinion ranking on Information provision to PWD by Collaborators

Category	Frequency	Percentage
Strongly Disagree	74	68.5
Disagree	29	26.9
Neutral	3	2.8
Agree	2	1.9
Strongly Agree	0	0
Total	**108**	**100**

Cumulatively about 95.4 % of the respondents disagreed that their collaborators in the construction department usually provides information about extension services accessible to people with disabilities. Only 1.9% of the respondents agreed while 2.8% of them were neutral on the issue. The respondents of a neutral opinion said that was very difficult for them to tell whether or not, the collaborators give this information because they do not regularly report to the

ministry of Housing on their activities.

The results suggest that PWDs are not included in infrastructural project designs in that information is not relayed to them timely or at all, this therefore leads to poor designing of infrastructure to suit the disabled. Proper communication dimensions should therefore be put in place which is supported by Oodally (2006) stating that the driving force therefore is to conceive and put in place communication dimensions in suitable and accessible terms in relation to specific terms people with disabilities have. It is therefore important to recognize the unique differences and skills of people with disabilities as each person can respond to their disability differently and requirements for disability groups will vary.

4.6 Technology Development and Transfer

In this section the study sought to assess the extent to which specific appropriate technologies developed and transferred for use by people with disability determines disability mainstreaming in infrastructure projects in Kisumu Municipality. The results were as follows:

4.6.1 Appropriate technologies developed

The civil servants to infrastructural development projects and programmes were asked to give the number of appropriate technologies they had specifically developed for use by people with disability. The table 4.12 shows the results;

Table 4.12: Technologies Developed

Category	Frequency	Percentage
No	104	96.3
Yes	4	3.7
Total	**108**	**100**

About 96.3% of the extension staff indicated that there were no appropriate technologies developed by their office specifically for use by people with disability while 3.7% of them affirmed the existence of such technologies. There were no records in all the stations that indicated any researchable topics identified or discussed for review under disability

mainstreaming. The respondents also reported that no addition technologies for easy access of disabled persons to public infrastructures had been identified and documented for use by the ministry of Housing.

The findings are supported In the book "The future of disability in America" Field and Jette (2007) explains the use of assistive and mainstream technology for people with disability from a medical perspective. They content that the development of such technologies is dependent on research in order to become usable to people with different disabilities. The writer clearly presents the need for research for appropriate technology development and transfer for effective disability mainstreaming. It therefore suggests that technology transfer will markedly affect the outcome of any disability mainstreaming programme.

4.6.2 Appropriate Technologies Disseminated

It was also observed that no respondent had attended research dissemination workshops that included people with disability. The people with disability in Kisumu Municipality had not participated in the review and update of the respective construction project designs.

4.6.3 Appropriate Technologies Adopted

96.3% of the respondents indicated that there were no people with disability participating in the building experiments that introduce new techniques for easy access to public buildings. Only 3.7% of the respondents affirmed that people with disability have participated in such. However, there were no records that new technologies in the infrastructure design development had been adopted by the people with disability in Kisumu Municipality.

People with disabilities therefore need to put an emphasis through disabled persons organizations and department of social services in order to push for technological compliance in order to be accommodated in the physical environment. The same is supported by Hanko and Polman (2006) in that people with disability are recommended to work through their own solutions for the task required (with due respect to accessibility). The technologies used for the infrastructural development should therefore match the capabilities of persons with disabilities.

CHAPTER FIVE:

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter the findings of the study are summarized, with the final conclusion and recommendations being made on the determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya

5.2 Summary of Findings

In this section the summary of findings are presented according to the themes constituting the independent variables of the study.

5.2.1 Awareness and disability mainstreaming in public infrastructure project designs

Despite adequate awareness creation at the national level on policy issues, very limited and inadequate information was cascaded to the lower levels of the ministry to facilitate faster disability mainstreaming of extension services within the public infrastructure project designs in Kisumu Municipality as rolled out by the national office. Most of the respondents including civil engineers in the municipality did not understand the term "disability mainstreaming" and usually found it quite challenging to implement disability mainstreaming policies given that they could not also understand its foundation. There were varying levels of comfort with discussing disability related issues with clients by the respondents and this was further compounded by lack of adequate sensitization and training on disability mainstreaming from the part of the project/programme coordinators. Therefore one of the greatest challenges facing integration of disability mainstreaming in among public infrastructure project designs in Kisumu Municipality-Kenya was low awareness and education on disability mainstreaming issues which finally resulted in low attitudinal change among the staff.

5.2.2 Status of physical accessibility to support infrastructure

The structural make up of all old office buildings made it impossible for ramps to be constructed to assist ease of access by people with disability going to public offices. Although the national policy on disability mainstreaming advocates for equal opportunity to government rendered services, none of the service delivery charters in all the infrastructural projects at all levels of Kisumu Municipality had any clearly spelt out entitlement provisions for persons with disability. In the ranking of their opinions, most of the people interviewed confirmed that disabled people did not enjoy equal opportunity of access to technical guidance like all other able bodied people in the municipality.

It was relatively easier to identify people physical disability than it was to identify the other types of disabilities and as such many programmes towards mainstreaming disability focus more on physical disability only and not the other types of disabilities. Even with such knowledge, offices of the Ministry of Works in their current states cannot adequately provide for essential services to suit the physical needs of people with disability.

5.2.3 Extension information packaging and dissemination

The study established that there was no provision for disseminating information to their clients in Braille by most technical workers who design infrastructural projects in Kisumu Municipality. None of them had the knowledge or expertise to produce reports in Braille format for use by people with visual disability or has sought the same services from professionals. Most of the infrastructure project implementers largely employs the use of text based learning materials as the primary modality of teaching thus inhibiting personalized learning and the provision of alternate formats when required by people with disability. The civil engineers were not collaborating with other state departments with adequate capacity to provide different media and interaction modes of learning that is suitable for persons with disabilities.

5.2.4 Appropriate technologies development and transfer

The study established that the development of appropriate technologies by municipal technocrats was inadequate in Kisumu Municipality and that people with disability may not immediately benefit despite their unique varied needs. There were no researchable topics identified or discussed for review under disability mainstreaming in the infrastructure project designs in Kisumu Municipality. Identification and documentation of technologies for improved infrastructure designs for use by persons with disability were lacking, leading to considerably static promotion and dissemination of the same. No people with disability were participating in designing of the infrastructure projects in Kisumu Municipality as even fewer participated in stakeholder fora meetings to discuss infrastructure projects.

5.3 Discussion

This section presents the discussion of the research findings and is subsequently presented according to the themes constituting the independent variables.

5.3.1 Awareness and disability mainstreaming in infrastructural design development

The study shows that the current composition of civil engineers in Kisumu municipality have adequate education to interpret policy statements for prompt implementation. However, some technical workers at the Divisional and Location levels seem not to be actively involved in the interpretation but implementation part, only after their bosses make the initiative. It follows that despite adequate awareness creation at the national level on policy issues, very limited and inadequate information is cascaded to the lower levels of the ministry to facilitate faster disability mainstreaming within the public infrastructure projects or development programmes and projects as rolled out by the national office.

This is illustrated by the fact that 74.1% of the respondents (80 staff) sampled admit that they do not understand the meaning of the term "disability mainstreaming". This further suggests that it would be quite challenging to implement disability mainstreaming policies by the staff given that a majority of them do not understand its basis or foundation. These findings affirm the ideas of Lang and Murangira (2009) who found that majority civil servants working within development line ministries have very little appreciation and understanding of disability mainstreaming issues. The lack of adequate awareness is a considerable drawback to

disability mainstreaming in infrastructure project designs and development programmes aimed to empower all citizens, able or disabled. The study also showed some civil engineers who did not know the national policy on disability mainstreaming yet they are always at the first level of contact with the project beneficiaries on a day to day basis and provide services to projects and programmes and are often relied upon by the Kenyan government to implement policy. They seem to lack in knowledge of the existing policy on disability mainstreaming, further confirming what Katsui (2008) found out in Japan, that the progress and stagnation of disability mainstreaming is affected by personal or individual factors. The senior civil servants in charge of the municipality were found to have more initiative in knowing what the policy on disability mainstreaming states while the same could not be established at the Division and Location level.

The researcher in this study further observed that disability mainstreaming only appeared to the civil engineers in the field after coming face to face with questions about it from outside their offices for work. The personal drive to seek more information, especially on emerging policy issues were found to be generally lacking in (88%) of the construction workers. The survey shows that those with a comparatively lower education (certificate and diploma versus degree and masters level) had least information on "disability mainstreaming as a requirement" in national or even ministerial policy on infrastructure development programme/projects implementation countrywide. It confirms observations by Nyagudi (2012), who found that among the challenges facing disability mainstreaming is low awareness and education on disability which results in low attitudinal change. Therefore sensitization within an organization needs to be wholesome and given a clear, practical and resourced follow-up action as proposed by Jones and Webster (2006) to not only improve the lives of disabled people but ease planning for development programmes to mainstream disability specific actions that can foster commitment and involvement of staff in mainstreaming.

Due to lack of internal awareness and knowledge of disability issues in the lower level administrations (Divisions and Locations) unlike the higher Municipality level, there is an urgent need for human resource development and management to rapidly change the current state of affairs within the organizational hierarchy of construction workers in Kisumu Municipality.

It was also observed that there was no office inventories on people with disability despite the staff acknowledging that they knew where some disabled persons resided in their district. It shows that most respondents thought information on the disabled was only important at times of emergencies and relief food provision. From an administrative point of view, there is lack of proactive registration of all people with disability to make informed data for infrastructure project designs in Kisumu Municipality. In as much as most offices had service delivery charters, there was no clear illustration on them as to how people with disability would be expressly catered for, within the infrastructure construction plans.

Raising awareness on disability mainstreaming issues can firmly facilitate extension practitioners within infrastructure development projects or programmes to acquire and disseminate appropriate training and technical support to the whole population and also practice greater accountability for using resources effectively as postulated by Umalsova et al (2009). In the case of the construction workers in Kisumu Municipality, it would be difficult to immediately execute the disability mainstreaming component of any infrastructure development project or programme given the low appreciation of mainstreaming from the largest population of the policy implementers on the ground. As to whether awareness affects disability mainstreaming in the infrastructure project designs, the study established that personal perspectives on interactions with the disabled creates a considerable variability in exposure to disability awareness issues from the general opinions of majority of the respondents. There was also an illustration of varying levels of comfort with discussing disability related issues with clients by the ministry of works, an issue supported by the findings of Kline (2012) and further shown by lack of adequate sensitization and training on disability mainstreaming.

5.3.2 Physical Accessibility and Disability Mainstreaming

Observations made by the researcher during the study showed that none of the service provision charters in all the offices at all levels did not have any clearly spelt out entitlement provisions for persons with disability as further confirmed by a cumulative 94.3% of the staff. However, 4.6% were none committal on whether it exists or not. This shows that some senior government officers had some fear in commenting on the level of disability mainstreaming in their work place and preferred to only give a general impression of compliance.

Of all the public offices visited only one had a ramp for use by people with disability with only one new office that was still under construction having a customized toilet facility for use by people with disability. The situation with the office buildings shows that there was lack of preparedness to meet the needs of people with disability. It is also suggestive that the infrastructure project implementers overlook the probability of having to host a physically disabled client in such office premises. Furthermore, the structural make up of some old buildings makes it impossible for ramps to be constructed and any other customization to meet the needs of people with disability is also compounded by lack of adequate space for expansion.

The researcher also learnt that the Ministry of Housing in Kenya has drafted various legislations that are currently in the approval process, for providing access by PWDs e.g. buildings designed to accommodate PWDs, convenient entry into buildings, provision of parking facilities, ramps etc. In as much as this is expected to work directly to ease accessibility of PWDs to buildings and housing, very little is being done to correct the current situation by state departments. For example, the researcher observed that only two office buildings belonging to the Ministry of Finance have embraced the concept of a universal design which takes into consideration an inclusive approach to designing buildings. Therefore the key stakeholders identified to ensure the compliance to such standards that include the government, developers, consultants and contractors appear not to be working well in partnership for the realization of total disability mainstreaming in physical infrastructure. The hardest part is that the engineers who are usually contracted to build government offices appear to be the foremost culprits of non-compliance, as shown by obvious design challenges facing the latest office being built in Kisumu municipality.

In the ranking of their opinions most respondents (91.7%) confirmed that the disabled did not enjoy equal opportunity of access technical guidance like all other able bodied people. The United Nations High Commission for Human Rights in 2009 during a study on ways of enhancing awareness together with understanding of the Convention on the Rights of Persons with Disabilities recognizes accessibility in terms of accessible environment to be instrumental in the realization of the rights of persons with disabilities to independent living and full participation in all areas of life. The absence of such support structures in modern times and

at a time when national policy implementation is being audited shows very slow progress in realizing full disability mainstreaming. As a government department, the offices of the ministry of Housing cannot, in their current states adequately provide for essential services to suit the physical needs of people with disability.

5.3.3 Information packaging and Dissemination towards Disability Mainstreaming

The respondents in the study ranked their opinions on whether or not they package and disseminate information to people with disability in form of Braille presentations. All the respondents confirmed that there is no provision for disseminating information to their clients in Braille. It emerged that none of them had the knowledge or expertise to produce reports in Braille format for use by people with visual disability. There was no illustration of any efforts to do so by the ministry of Housing. As currently operational within the services provided, the strict practice of using written learning materials as the main modality of transmitting knowledge inhibits learning and hence there is need to provide alternatives for people with disability.

All the respondents felt that sign language interpretation was not a requirement during implementation of infrastructure projects. Their argument that sign language is a specialist skill that they did not have at that moment in time is well grounded in logic. The recognition by Oodally (2006) that the unique differences and skills of people with a disability determine the kind of response to their disability also requires that systems are put in place to meet these specific information needs.

5.3.4 Technology Development and Transfer

The Convention on the rights for People with disability (2008) expressly provided for consideration, accessible information to persons with disabilities about mobility aids, devices and assistive technologies, including new technologies, as well as other forms of assistance, support services and facilities (Lang, 2009). The primary objective is to enhance training of professionals and staff working with persons with disabilities with the aim of providing better assistance and services guaranteed by those rights. However, the development of appropriate technologies by the constructors of public infrastructures in Kisumu Municipality as confirmed by the 96.3% of the respondents is low. The findings indicate that people with disability may not immediately benefit from specific appropriate technologies, since none of these had

already been developed specifically targeting them.

The current situation therefore does not support conditions that facilitate sustainable technologies as suggested by Vergragt (2006). The opportunity to incorporate appropriate technology and solutions in infrastructure project design may be missed in order to solve urban development problems. This potentially has the effect of denying people with disability opportunity to create and get jobs quality. It will also undermine efforts to use the variety of existing skills and resources possessed by people with disability that would have otherwise been channeled towards raising their productive capacity as proposed by (Vergragt, 2006).

The study also established that there were no researchable topics identified or discussed for review under disability mainstreaming by the civil engineers in the Municipality. This therefore means that in Kisumu Municipality, appropriate technology development is considerably static and the promotion of the same is also stagnating.

Findings of this study also show that appropriate technologies dissemination is considerably slow and inadequate as confirmed by the situation where no construction worker had attended Research dissemination workshops that included people with disability. Furthermore, it was confirmed that the people with disability had not participated in the review and update of the respective drawing of the infrastructure project designs. This illustrates that the interests of people with disability may not fully be incorporated in the long run. Under the circumstances that no people with disability were participating in the project designs shows that a lot is missed out by them. To embark on or encourage research and development of universally designed goods, services, equipment and facilities, requires the minimum possible adaptation and the least cost to meet the specific needs of a person with disabilities (Rothman, 2010).

The study established that the promotion and use of appropriate technologies resulting from research is fundamental to providing universal access as agreeable by most respondents. However, infrastructural designs they continue to offer cannot adequately demonstrate realistic adoption and use of standards and guidelines for disability mainstreaming as provided for in the Convention on the rights of persons with disability (2008). The minimal participation of people with disability in infrastructural stakeholder for a meetings (less than 10%) further

shows lack of adequate inclusion. There being no record of these people adopting new technologies further complicates their already difficult situation. In as much as the Convention on rights of the rights of persons with disability, recognizes the valued existing and potential contributions made by persons with disabilities to the overall well-being and diversity of their communities, this appears not to be the case in Kisumu Municipality. Consequently, low participation by persons with disabilities will result in their reduced sense of belonging and in effect significantly reduce their chances of progress in the human, social and economic development of society. Additionally, low participation would also hinder their accessibility to public infrastructures.

5.4 Conclusions

The study established that the civil engineers implementing infrastructure projects in Kisumu municipality have not adequately integrated disability mainstreaming in their work as required by the Kenya government since 2009 and proposed by the Convention on the rights of persons with disability (2008).

5.4.1 Level of Awareness

The respondents' level of awareness on the requirement to integrate disability mainstreaming in extension services as stipulated in policy was found to be very low. This therefore ensured that they also unsatisfactorily sensitized their colleagues on the same at the lower levels of administration, largely due to limited and inadequate information from the municipal programmes and projects coordinators. This was further illustrated by the fact that no disability mainstreaming policies required to mainstream disability in building and construction programmes were clearly recognized by the civil engineers as being implemented by the Ministry of Housing in Kisumu Municipality at the time of this study. Furthermore, no baseline surveys on disability mainstreaming had been carried out that recommend the training needs for the civil engineers implementing infrastructure projects and programmes to enable them construct effective infrastructure for persons with disabilities.

5.4.2 Physical Accessibility

In terms of physical accessibility to support infrastructure, the current status in the municipal administrative and service buildings do not support the accessibility needs of that persons with disability. Therefore this can discourage such people from seeking services offered by civil servants within the office setup. Non compliance levels of up to 94% with the physical accessibility requirements of the guidelines given by the Convention on the Rights of People with Disability (2008), shows that to a great extent the integration of disability mainstreaming is not guaranteed in the current state.

5.4.3 Information Dissemination

The infrastructure information packaging and dissemination to people with disability was found to be inadequate as compared to the proposed guidelines in the ministerial strategy to address disability issues in public infrastructures. The overall outcome was that the integration of disability mainstreaming in infrastructure projects in Kisumu Municipality could not be regarded as meeting the set standards by the Convention on the rights of persons with disability (2008). Therefore the overall situation depicts that information packaging and dissemination largely determines the extent to which disability mainstreaming can be integrated in government provided services like public infrastructures.

5.4.4 Appropriate Technology Transfer

The study established that the government had not developed any appropriate technologies and subsequently not transferred any for use by people with disability in Kisumu Municipality. It therefore follows that substantial integration of disability mainstreaming in infrastructure projects cannot be achieved in Kisumu Municipality under the current situation. Therefore the integration of disability mainstreaming in the infrastructure project designs will commendably be dependent on the technologies developed and taken up for adoption by PWDs.

Finally, if adequate awareness is created on disability mainstreaming, physical environment improved; information is appropriately packaged and disseminated in order to transfer suitable technologies for use by people with disabilities. In as much as disability mainstreaming is a globally accepted strategy for promoting equality and equity, the full implementation of existing policy on the same at all levels and at all stages by all stakeholders is

an urgent need to empower people with disability to develop all citizens. This will require prudent planning, resource allocation, implementation and monitoring of programs and projects related to infrastructure development to ensure disability mainstreaming is totally integrated in all government services.

5.5 Contribution to the Subject and Body of Knowledge

The primary objective of the study was to examine determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya. The expected contribution to the existing body of knowledge is not only enormous, but also extensive in scope. Research findings based on the survey responses does answer the research questions and thus it's anticipated that the study will make the following contributions to the existing body of knowledge:

Table 5.1 contribution to body of knowledge

NO:	Objective	Contribution to body of knowledge
i.	To establish the extent which level of awareness determines integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality.	Awareness affects disability mainstreaming in the infrastructure project designs, the study established that personal perspectives on interactions with the disabled creates a considerable variability in exposure to disability awareness issues from the general opinions of majority of the respondents.
ii.	To examine how the status of physical accessibility to support infrastructure determines the integration of disability mainstreaming in Kisumu Municipality	The disabled do not enjoy equal opportunity of access technical guidance like all other able bodied people. PWDs need accessible environment to be instrumental in the realization of the rights of persons with disabilities to independent living and full participation in all areas of life.
iii.	To assess the extent to which information dissemination determines the integration of disability mainstreaming among public infrastructure projects in Kisumu municipality	The unique differences and skills of people with a disability determine the kind of response to their disability also requires that systems are put in place to meet these specific information needs
iv.	To establish the extent to which appropriate technology transfer determines the integration of disability mainstreaming among public infrastructure projects in Kisumu Municipality.	In order to realize appropriate technology, research and development of universally designed goods, services, equipment and facilities, requires the minimum possible adaptation and the least cost to meet the specific needs of a person with disabilities .

5.5.1 Scholarly point of reference for researchers pursuing similar studies

The study provides new knowledge on the subject of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya. Although other local and international scholars have made significant contributions to the existing knowledge base as

discussed in the literature review, the research makes specific unique contribution by bridging the existing knowledge gap by focusing on Kisumu Municipality-Kenya. This is a premier research on the subject conducted in Kisumu Municipality, and Kisumu County as a whole. It thus lays a solid scholarly foundation for future similar studies in the vast Nyanza region. The study is significant as it focuses on the determinants of disability mainstreaming while available literature suggests a dearth of literature on the subject. Therefore future researchers focusing on disability mainstreaming among public infrastructure project designs within the republic of Kenya will find the findings of this research quintessential in guiding their research. The study will serve as a scholarly point of reference from which other researchers can infer, refer and draw knowledge that would guide similar studies.

The study provides a framework for intellectual discussion on the subject of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya.

It provides a research model which can be relied upon for developing an
Integrated approach for the study of disability mainstreaming among public infrastructure project designs in Kisumu County-Kenya

5.6 Recommendations

In line with the findings of the study, the researcher recommends that the ministry of Works in Kenya should look at different ways of ensuring that awareness, physical access, information dissemination and technology transfer are improved to ensure commendable integration of disability mainstreaming in all infrastructure project designs.

1. To improve on policy awareness, knowledge and skills among its technical staff, the leadership for infrastructure projects/programmes need to provide trainings on disability awareness, organization disability policy, and the inclusion of persons with disabilities in construction programs. Local disabled people's organizations can be invited to facilitate during such trainings in order to provide consultation and share information on disability adjustments and on accessibility standards. In terms of making infrastructure projects designs inclusive, the adoption of a written organization policy, Disability Action Plan with goals and strategies to achieve inclusive development within

and by the organization on inclusion of persons with disabilities can be adopted. A well trained staff member can be appointed as a Disability Focal Point Person to promote, facilitate and monitor the implementation of the Action Plan within the infrastructure projects. This person will in turn incorporate inclusion of people with disabilities into project monitoring and evaluation, and also target women and girls with disabilities as a strategy for achieving gender equity and disability inclusive infrastructural development in Kisumu municipality.

2. To ensure physical accessibility to persons with disabilities, the municipal officials must disapprove all infrastructure project designs or support infrastructure plans that do not take into account access needs for people with disabilities. The national government on its part should also ensure all other buildings housing government offices are responsive to the needs of persons with disabilities and alternatives must be provided relating to buildings whose current structural make-up cannot immediately accommodate major adjustments. To adequately achieve the making of these offices and facilities accessible, the ministry of works needs to consider using disability technical experts to review the accessibility of public office buildings and facilities and so as to recommend on how to increase accessibility through a thorough disability audit.

3. In order to make public infrastructures more useful to all clients, all organization-sponsored meetings, trainings and conferences need to be held in accessible venues and with materials provided in alternative formats including Braille, large print and/or electronically, with professional sign language interpreters being involved as needed. Further to that, the ministry of Works must ensure that their communication is accessible at all times and that information on their website is periodically reviewed to ensure it meets accessibility standards. It will also be the role of the civil engineers to ensure that the information they provide is indeed useful and meets requisite access standards to all clients, including people with disability.

4. There is great potential for the development of simple and cheap technologies that would assist in integrating people with disability into mainstream in infrastructure projects. This can be achieved by making visible the state's commitment to inclusive

development through documentation and sharing of success stories of including persons with disabilities in the infrastructure projects through materials, presentations, reporting and networking. In addition, the inclusion of disability disaggregated programmes data in reporting, presentations, and success stories can help in presenting the need for partnerships with other stakeholders to design new and improve on any other existing infrastructure projects to be disseminated through development projects and programmes for people with disabilities.

5. Finally, the ministry of public works in Kenya may need to review existing infrastructure projects and programmes to accommodate the needs of people with disabilities and where appropriate, additional resources can be mobilized to fund for disability-related adjustments that will subsequently enable the project implementers to better practice inclusive development. To achieve this, the civil engineers working in projects and programmes will therefore need to identify possible barriers to participation of persons with disabilities in terms of organizational policies, technical support and financial requirements that could limit accessibility (physical access, information and opportunities) in order to guarantee integration of disability mainstreaming in the infrastructural designs developed in Kisumu Municipality.

5.6 Suggestions for Further Research

The results of the study indicated infrastructure project designs and programmes in Kisumu Municipality have not adequately integrated disability mainstreaming in their work. The study therefore recommends that further research be carried out to assess the determinants of integration of disability mainstreaming in infrastructural design development, using the people with disability alone while applying the human rights based model.

In this study it was established that not so much information was available on technology development and transfer in relation to the integration of disability mainstreaming in infrastructure project designs. The study therefore recommends that further research be carried out to determine other factors affecting researchers on appropriate technologies for integrating people with disabilities into mainstream society

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APPENDICES

APPENDIX I: QUESTIONNAIRE

This survey instrument was developed to capture data on the determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya. The data obtained from this exercise will be used solely for a dissertation for fulfillment of the requirements for the Award of the Degree of Master Of Arts in Project Planning and Management of the University of Nairobi. You have been identified as a key respondent in this study. In this regard, you are kindly requested to participate in this survey by providing answers to enable the researcher fulfill the research objectives. Appropriate measures are in place to ensure confidentiality of your responses in this questionnaire.

Section A: General Information

1. Name of District ……
2. Designation of respondent ……
3. Current Deployment of respondent ……
4. Gender Male ( ) Female ( )
5. Level of education achieved? Diploma ( ) Undergraduate ( ) Masters ( )
   Others (please specify) ----------
6. Years you have been working with the ministry?

Below 5 years ( ) 6 – 10 years ( ) 11 – 15 years ( ) 16 – 20 years ( )

Section B: Awareness

Please tick the most appropriate option using the guide provided

1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Awareness		1	2	3	4	5
7	I understand the meaning of the term disability mainstreaming					
8	I have interacted with persons with disability in the course of my work					
9	There are staff with disability in my work station					
10	I know the national policy statement on disability mainstreaming					
11	There is a ministerial policy statement on disability for your ministry					
12	Sensitization has been made on how to handle clients with					

	disability					
13	There is an inventory of clients with disability in my work station					

Section C: Accessibility

Please tick the most appropriate option using the scale provided

1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Accessibility		1	2	3	4	5
14.	People with disability have a clearly stated entitlement in my work station's service delivery charter					
15.	Our office buildings have provision for ramps in their design					
16.	There is at least one customized toilet facility for use by people with disability in our office building					
17.	Persons with disabilities have access to general infrastructure facilities and technical guidance training on equal terms with others in my work station.					

Section D: Information packaging and dissemination

Please tick the most appropriate option using the scale provided

1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Information packaging and dissemination		1	2	3	4	5
18	There is specifically packaged information for use by people with disability in our station					
19	Printed information is in format that is readily available					
20	Information disseminated from our office has been presented Braille forms to our clients					
21	Information disseminated from our office has been presented Audio forms to our clients					
22	Information disseminated from our office has been presented Audio Visual forms to our clients					

23	In our infrastructural projects there is a requirement to provide sign language interpretation					
24	Our collaborators in the construction department have provided information about accessibility of infrastructures to people with disabilities.					

Section E: Technology transfer

Please tick the most appropriate option using the scale provided

1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Technology transfer		1	2	3	4	5
25	There is appropriate technology developed by our office for use by people with disability					
26	There is researchable topic under disability mainstreaming in our office inventory					
27	Research dissemination workshops have been organized that include people with disability					
28	Technologies for easy access to public infrastructures have been identified and documented for use by persons with disability					
29	People with disability in your work area have participated in the review and update of the building plan					

Section F: Disability Mainstreaming

Please tick the most appropriate option using the scale provided

1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Disability Mainstreaming		1	2	3	4	5
30	Our office usually includes disability specific components when getting data and statistics to make infrastructural project design.					
31	Our office often measures and monitors resources concerning people with disabilities					
32	Our department provides information to persons with					

	disabilities and their families on diagnosis, rights and available services and accessible programmes					
33	Disability mainstreaming without clear, practical and resource follow-up action will not improve the lives of disabled people					
34	There is commitment and involvement of staff in disability mainstreaming					
35	The needs of persons with disability are taken into consideration when designing public infrastructure projects					

Section G: Leadership Interest and Family

Please tick the most appropriate option using the scale provided

1- Strongly disagree, 2- Disagree, 3- Neutral, 4 – Agree, 5 – Strongly agree

Disability Mainstreaming	1	2	3	4	5
Leaders offer support to person with disability					
Person with disability are considered to work in public infrastructure projects					
Families encourage persons with disability to pursue their careers					
Families do not discriminate persons with disabilities in mainstreaming					

Thank You Very Much

APPENDIX II: INTERVIEW GUIDES TO STUDY RESPONDENTS

This survey instrument was developed to capture data on the determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality-Kenya. The data obtained from this exercise will be used solely for a dissertation for fulfillment of the requirements for the Award of the Degree of Master Of Arts in Project Planning and Management of the University of Nairobi. You have been identified as a key respondent in this study. In this regard, you are kindly requested to participate in this survey by providing answers to enable the researcher fulfill the research objectives. Appropriate measures are in place to ensure confidentiality of your responses in this questionnaire.

Section A: Awareness

Please tick the most appropriate option using the guide provided

1. Understanding disability mainstreaming_____

2. Understanding the national policy statement on disability _____

_____

3. Sensitized on how to handle clients with disability_____

4. Where do you get support for people with disability in your work station? _____

_____

Section B: Accessibility

5. Are there any factors that you consider important to enable people with disability to access all infrastructural facilities in your work location? (Please specify) _____

_____

Section C: Information packaging and dissemination

6. Information disseminated from our office has been presented in various forms to our clients

a) Braille
b) Audio
c) Audio visual

7. How have you been making information and documentation accessible to;

a) Persons with hearing and impairment (deaf)?

_____

_____

b) Persons with intellectual disabilities?

_____

_____

c) Persons with reading and writing difficulties?

_____

_____

Section E: Technology transfer

8. How many technologies for easy access to public infrastructures have been identified and documented for use by persons with disability?

_____

_____

9. People with disability in your work area have participated in the review and update of the building plan.

_____

_____

29. How many disabled persons have you ever seen using any of the technologies mentioned above?

_____

_____

Thank You Very Much

THIS IS TO CERTIFY THAT:
MR. FRANCIS MAKWATA MUSYOKI
of UNIVERSITY OF NAIROBI, 0-800
Nairobi,has been permitted to conduct
research in *Kisumu County*

on the topic: *DETERMINANTS OF DISABILITY MAINSTREAMING AMONG PUBLIC INFRASTRUCTURE PROJECT DESIGNS IN KISUMU MUNICIPALITY*

for the period ending:
27th June,2017

.....
Applicant's Signature

Permit No : NACOSTI/P/16/39560/11345
Date Of Issue : 27th June,2016
Fee Recieved :Ksh 1000

Director General
National Commission for Science, Technology & Innovation

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 9760

CONDITIONS: see back page

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

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NAIROBI-KENYA

Ref: No. **NACOSTI/P/16/39560/11345**

Date: **27th June, 2016**

Francis Makwata Musyoki
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Determinants of disability mainstreaming among public infrastructure project designs in Kisumu Municipality,"*** I am pleased to inform you that you have been authorized to undertake research in **Kisumu County** for the period ending **27th June, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Kisumu County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kisumu County.

The County Director of Education
Kisumu County.