

**ACCESS TO AND UTILIZATION OF HOUSING CONSTRUCTION
INFORMATION BY PROFESSIONALS IN SELECTED PUBLIC
INSTITUTIONS IN NAIROBI COUNTY, KENYA**

BY

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**THIS THESIS IS SUBMITTED IN PARTIAL FULFILLMENT OF THE
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ELDORET, KENYA**

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DECLARATION

DECLARATION BY CANDIDATE

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DEDICATION

This Thesis Is Dedicated To My Parents:

Firstly to my late father *Habakkuk Ogol Ogutu*, who instilled in me the value of knowledge and whose words inspired me to continue long after he went to be with the Almighty God.

“... Daughter you shall read and be successful.”

AND

To

My late mother Helen Akinyi Ogutu who for 24 years after the demise of my father, mentored me to be who I am.

I love you my parents

ABSTRACT

Housing construction is a technical process by which a house project is put together till a complete dwelling is realized. The housing industry development is driven by cumulative information and subsequent knowledge that is used by housing construction professionals. Housing information exists in wide range and types. Although the information is needed and used by housing construction professionals constantly, in Kenya, this information is scattered and not easily accessible. The environment of scattered information makes the consumer waste valuable time causing unnecessary delays in solving work related tasks. The aim of the study was to investigate Access to and Utilization of Housing Construction Information in Public Institutions in Nairobi, Kenya with the view of proposing a frame work for improvement. The objectives of the study were to: identify information needs and seeking methods and behaviours of key professionals in the housing construction sector in public institutions in Nairobi County, establish the role played by key professionals in the housing sector that warrants them to use information in the sector, establish the types and range of information that exists in the surveyed institutions, examine the extent to which the professionals in the sector use and are aware of the existing information of the sector, Determine the level of application of ICTs in managing and accessing housing construction information in studied institutions, identify factors hindering access to housing construction information in the institutions surveyed and to suggest a framework for improving information access in these institutions. This study was guided by Dervine's Sense Making theory on information seeking and Maslow's Motivational Needs model. Qualitative method using case study approach was employed to conduct the research. Semi structured interview schedule was used to gather data from 74 professionals in the public institutions with important roles in championing housing construction. Purposive sampling was used to select categories of respondents. Grounded theory method gave an insight in data analysis. Data was mainly presented in qualitative explanations. The findings revealed that; majority (97.2%) of the interviewed professionals needed and used information for work tasks. Access problems were found to be instigated by poor information systems and lax attitude on information management in the surveyed institutions. The study concluded that the problem of access and utilization of information in housing construction industry can be addressed by accumulation of relevant information in individual institutions to cater for professionals' information pegged on their information needs. Information should be organized, preserved and managed in user oriented systems. There is need to apply information management including proper records keeping. The study recommended creation of housing information data banks in the surveyed institutions and establishing of central database access point at the Ministry of Housing to enhance access and use of housing construction information.

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LIST OF ABBREVIATIONS AND ACRONYMS

AUTOCAD	Automatic Computer Aided Design
BYGGDOK	The Swedish Institute of Building Documentation Centre.
CBD	Central Business District
CCN	City Council of Nairobi
CD-ROM	Compact Disk Read only Memory
CIB	Construction Industry Board (UK) International Council for Building Research and Documentation
DVD	Digital Video Disk
GIS	Geographical Information System
GoK	Government of Kenya
GT	Grounded Theory
HRDU	Housing Research and Development Unit of the University of Nairobi
ICT	Information Communication Technology
JBC (K)	Joint Building Council (of Kenya)
KBC	Kenya Broadcasting Corporation
KBS	Kenya Bureau of Statistics
LAN	Local Area Network
LIS	Library and Information Sciences
MoH	Ministry of Housing (enjoined with Min. of Lands and Urban Development April2013)
NHC	National Housing Corporation
SMS	Short Messaging Service
SPSS	Statistical Package for Social Scientists
ICTs	Information Communication Technologies
UN-CHS	United Nations Centre for Human Settlements
USA	United States of America
WAN	Wide Area Network

Kiswahili Words Used in the Work

Hii ni mambo ya kanju: This is the work of the City Council.

Askari: Policeman

Wananchi: Citizens or the public in general

Makuti: Truss roofing material made of coconut tree leaves used mainly at the coastal area of Kenya

Photographs:

All photographs used in the work and placed in appendix are true field data information.

City Hall scenes were taken with permission

Kibera scenes taken in the presence of researcher and copies given by the MoH with permission

All the narrations (prose) were real and formed the basic answers from respondents which guided the study.

All tables and figures used were constructed from the field data by the author

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CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

The construction sector, which includes the housing sub-sector, needs information to support the works of multifaceted professionals who oversee the processes involved in the building of houses. The knowledge in this sector is vital, and stems from relevant accumulated information acquired by the professionals on the subject of housing.

Housing as a subject embraces many topical issues that comprise and not limited to, building materials and construction equipment, construction labour, social economic planning, land use, space design and environmental impact assessment. It generates variant types of information used by varied professional categories that serve and consume the sector's information (Abonyo, 2002).

The public sector institutions that deal with housing matters engage different categories of professionals who possess relevant skills and knowledge applicable to housing construction. In order for them to make informed decisions and stay afloat, these professionals require abundant, timely and accurate information to aid their course in the production of housing in which they face challenges that compel them to seek the appropriate information to support decision-making. It is also worth noting that mass housing productions is associated with cities where the demand for shelter is unrelenting; hence, from the point of view of information specialists, this information needs to be harnessed and categorically organized to facilitate an easy to access information environment for the benefit of users. This study investigated access to and utilization of

information by key professionals in public sector institutions, and highlighted information as an important ingredient for supporting decision-making in organizational activities.

Access to relevant, timely and abundant information is considered important in managing organizations' development. This can be likened to the way food is vital for building the body because in organizations, information is needed virtually at all times to control the day-to-day running of an organization (Opara, 2003). Olowu (2004) says that, information entails such aspects as data, facts, ideas, opinions, cultural values, imaginations and creativity. The transaction of information focuses from data to information, and information to knowledge, whereby knowledge can be conveyed via written paper, speech, observable action and networks (Nissen, 2002). Oguolu (2002) perceives information as the message of human experience. Oyedepo (2010) believes that information is the handbook for personal drive, because it is used by human being at all times.

1.1.1 Housing Construction in General

Housing construction is a technical process by which a housing project is put together till a completeness of a dwelling is realized. It requires the understanding of building processes, which starts from technical design preparations, site preparations, and building up the structure till roofing of a house is done. These stages, together with the necessary finishes, leave the structure of a building in an acceptable form ready for occupation.

Construction of dwellings started in the early stages of human evolution and has been improving all through human development. It has passed through many stages of

transformation as evident from the various human developmental stages and the consequent civilization says Bayer, (1958) an early scholar of Housing studies. As has been observe by this author, today's modern processes of housing construction worldwide need to be redirected by knowledgeable persons, trained to understand the associated activities of house building, because these persons have the skills that would help housing project owners evade losses as observed by Abonyo (2013).

1.1.2 Backgrounds to the Study

Housing Construction in Nairobi City

Construction of housing in Nairobi has grown along with the inception of the City since, according to Rader (1966), was in 1900. Nairobi being the capital city has developed over time and has the largest number of dwellings than any other urban centre in Kenya. These dwellings are of mixed typologies, ranging from shacks to palatial. Despite the continuous housing development in Nairobi and other urban towns, there is always a deficit as the supply cannot match the demand for decent housing for the ever growing urban population. Thus, the institutions that are responsible for housing construction have to work under duress in trying to meet the required number of accommodation units in the urban set-ups.

The City of Nairobi was established, with the coming of the Uganda railways. At the time, the total population of Nairobi was less than 8,000 inhabitants comprising a mix of Europeans and immigrant Asian majority, as well as indigenous Africans (Rader, 1966). Majority of the population, which consisted of the poor, lived in temporary shelters made of mud and wattle. The Kenyan government then did not have an official housing

programme for the city, especially for the African population. What was later used to guide housing was the zoning document of 1926. “In” (Nairobi Master Plan, 1948). This planning document, which also depicted the types of housing, was based on racial segregation as follows: Pangani area was left for the Asian community, Westland area was for Europeans, and to the East was reserved for the Africans.

In 1942, the Central Housing Board (CHB) was established to co-ordinate the production of habitable housing for Africans. This was meant for male migrant workers only. Exclusive locations set aside for accommodating African workers were known as the African location which presently forms the expansive Eastland area. Thus, the action of alienating racial groups enshrined the colonial segregation of Nairobi residential neighborhoods, Ogilvie (1946).

The municipal engineer, recognized that Nairobi had a serious housing problem. This inadequacy was mentioned to the imperial government, which saw the need to emphasized improvement of both the quality of accommodation and the volume of housing. Some of the views and opinions of foreign engineers sent to the imperial government to sanction more housing quotes as follows:

“It has not been possible to meet normal housing needs during the War years as neither man nor materials were available for building work that was essential to the war efforts. While the need for increased housing for members of all races in Kenya is pressing, the demand of African town-dwellers is most urgent.”

...it is now generally recognized that it is in the interest of both the Colony and the African worker himself that, he be accompanied with his family and the present policy is to provide family housing to meet and encourage this. “In”, The Nairobi Municipal Council’s African Housing scheme” (Ogilvie, 1946,).

In 1939, the Nairobi Municipal Native Affairs Office realized that more houses were needed for African natives due to overcrowding. Many sketch designs were prepared by Fletcher, These were later implemented in the Nairobi Municipal African housing schemes. With the erection of the prototypes, other designs followed for the development of other housing estates in African location (Ogilvie *ibid*) Permanent construction of African housing began with Ziwani housing scheme in 1941. Henceforth Makongeni, Kaloleni and Starehe schemes were built. After independence in 1963, new housing schemes were developed by the Nairobi City Council in collaboration with external agencies. In Eastland alone, there were Makadara, Ofafa Maringo and Jericho. During the 1970s, there was the construction of Buruburu and Umoja estates and thereafter the Dandora Site and Services Scheme. The latter was meant for the very low-income brackets.

In the recent past, more estates have come up in Eastland including estates such as Komarock and Kayole, Suzchermeyer refers to them as tenement types. (Suzchermeyer, 2011). There are housing constructions in Nairobi West, which include Madaraka and Nairobi South, and plenty of others in Embakasi (tenements types). Certain areas of Nairobi such as Karen, Lovington, Loreto, Kileleswa, Muthaiga and Kasarani have been mainly developed by private entities. They later form the richer Nairobi individuals' housing estates. Notably, there are also slum areas that are left for the poor, which include Mathare, Kibera and Mukuru kwa-Njenga. Kibera, being the largest of the slums in Nairobi, and also one of the largest and famous in Sub-Saharan Africa as referred to in many documents of the UN-Habitat.

According to Sessional Paper no.3, on “National housing policy for Kenya 2004, Kenya still has a shortfall of 1,500 units per annum in urban cities according. This is due to the government’s failure to construct enough dwelling units in the major urbanised towns. Mostly affected are the poor as the government has found it difficult to supply decent housing for low-income earners by itself. Therefore, opportunities for developing decent housing for the population across the economic divide have been left to private developers. Consequently, the Nairobi City continues to experience the mushrooming of pent/town housing on one hand and an increase of slums on the other.

The problem of inadequate housing supply is attributed to amongst other factors; acute shortage of government funding, inability of majority of individuals to raise finances for private development, scarcity of land, and irregular land use in urban centers. In addition, there are stringent housing/building bylaws that do not favour the low-income. (Planning and Building draft bill, (RoK, 2009).

Housing is essential to human lives and can be likened to food for human health. As shelter it is a protector from harsh conditions of weather and un-wanted elements. It also provides privacy for human dignity. As commodity, it is wealth, as a construction project, it provides labour for wages to families. Being such a vital commodity for human life, and hence human well-being, the researcher’s perception is that the housing sector must be accorded the emphasis it deserves by any nation. It should be planned and financed by all players and driven by the right policies. It must also be sustained by professionals who access and use information related to the sector. Proper management of housing information is therefore vital for the benefits of all the consumers of the sector.

1.1.3 Overview on Housing Information

Information on housing construction is vital for the development of housing industry worldwide. It serves the needs of key players by providing cumulative knowledge that backs their work as professionals and for boosting their roles in many activities in the industry. Just as housing construction professionals' exits in various categories, so is the existence of varied information types and ranges pertaining to the many needs of the specialists in the construction sector. The types of information consumed by professionals was found to include, but not limited to, social, technical, economic and political spheres. These are embedded in the range of information on building materials, material markets, building technologies, design and aesthetics, by-laws and standards that governs the built environment and engineering, socio-economic information that is related to the consumers' needs and job offers in the construction profession.

Housing construction activities such as building and selling of dwelling units, selling of building materials and labour matrix in this industry are used as social economic indicators of development in many countries and the information in these subject areas is published to inform key players in the industry. In the United States of America (USA), for example, housing statistics is used to indicate the housing supplies (US, Embassy Kenya 2009). In developing nations, housing information and data is used to understand the general housing problems of a given country. In Kenya, the information is needed to propel the activities of the consumers and sustain the development of the construction industry (Abonyo, 2002). Further, the information is harnessed and is included as vital information in government planning documents (Kakumu, 2006), which include national development plans, annual statistical surveys, the population census surveys and, more

recently, in the housing policy *blue prints* documents and the Kenya Vision 2030 blue print.

Locally generated housing information is scarce in many developing nations. In Africa for example and Kenya in particular, one of the factors contributing to the scarcity is that: the varied professionals who comprise major users of this information, attained their training in developed countries in the 1960s and 1970s. This has left a vacuum in localized research which could have generated more information and new knowledge in this field. Local training in this industry is only beginning to uphold and the thrust can only be backdated to the 1980s, Schlyter and Schlyter (1980). The delay in local training has contributed to too little information materials generated in the past. The housing-sector has hence suffered a set-back on information accumulation and sufficient documentation to facilitate easy accessibility.

Despite the dire need to use housing information, there is little accumulation to resolve the myriad problems facing the housing sub-sector industry. However, the information that is available is useful in projecting development plans and formulating policy issues. The information generated from the sector activities counts as an important asset for national development as it is used by a wide range of professionals.

The investigation on users needs of this information, supported by adequate materials in guiding the professionals to appropriately locate the required information is necessary.

Better still, there is need for good management skills for knowledge workers such as librarians, and documentlists for achieving information development for the industry to prosper. Consequently for the institutions that keep related housing information, there is

need for effective information management. This can relay great effect for information use by the professionals for efficient services to the public.

Despite the fact that information is the driving engine of growth in any sector in general, it is especially in public institutions where the public servants are expected to be transparent and accountable to the people they serve and in the use of public resources that there is need for such relevant information. Often public institutions in many developing countries neglect the role information plays in management, accountability and transparency (Wamukoya, 2009). Consequently, appropriate information in the housing industry should be offered with access methods that are appropriate and easily adaptable by the professionals. Information in this sector, just like in other sectors, must be harnessed, organized, processed and availed to the key consumers.

For the public sector to succeed in their challenges and mandate of providing housing, it is imperative that executives and managers be aware of the important fact that, their professionals serving in the housing sector should work with the necessary information to and avoid the negative impact of housing collapses and failures; These institutions must device means of accessing a wide range of available information, to boost capabilities of professionals for matching the world of competition on housing standards and building better homogeneous cities which are devoid of social economic classes where some live in well-constructed houses and others live in slums under deplorable conditions, This divisive phenomenon has been stated in several UN-Habitat reports, the recent one being on State of the World Cities, Bridging the Urban Divide (UN, report, 2010/2011).

Different professionals involved in the sector should have access to this information, through favourable means, which can give them choices according to their needs that are based on multi-faceted professionals. These key professionals are: architects, quantity surveyors/building economists, land surveyors or land economists, engineers (of various branches), planners (both physical and economic), environmentalists, building and public health inspectors, and others whose services may be needed in the industry. They all require up-to-date information to effectively discharge their duties and roles.

Furthermore, it has been realized that in developing countries, the number of trained personnel in important occupations is less compared to the jobs at hand. Likewise the gap on training has also impacted negatively on the process of harnessing and managing indigenous knowledge that is useful for understanding local problems in the housing sector. It has, for example, hampered important researches on indigenous building materials that are cheap and readily available for use by those who cannot afford modern and expensive materials in the housing sector. Observed is that, there are fewer trained knowledge workers in Africa compared to professionals in other disciplines including lawyers and nurses.

The above problem can be ascertained if one takes an example of the workforce in housing organizations in Kenya where in most instances the ratio of information workers to that of other professionals is small. At the department of Housing under the new Ministry of Lands Housing Urban development in Kenya, for instance, it was discovered in 2010 by the researcher that there existed an approximate workforce of 350 personnel. Out of this, there were about 100 professionals, but there is still no professional librarian or a documentalist to manage the information that is required for the professional groups,

making the ratio 100:0 (Survey data, 2010). This is a similar trend with most public institutions, where purchasing information materials to support the professionals on knowledge acquisition is not a priority in planning for operations, which deprives the professionals of relevant information supply. This is in contrast with developed countries, as observed by the researcher. In the case of Scandinavian countries, for example, there are fewer difficulties in accessing appropriate information in the industry compared to less developed countries of Africa and Asia. Information through library networks, the information communication channels such as the Internet and professional organizations is fairly advanced. The favourable conditions put less pressure on users by saving on time in accessing information sources and locating the needed resources as observed at the Byggdok institute in 1992 by the researcher.

1.1.4 Choice of the Study Area

In order to understand the phenomena of access and utilization of housing construction information, the researcher found it necessary to investigate an environment in which housing construction activities are undertaken and where information pertaining to the phenomena is generated and used. These presumptions necessitated the study of public institutions that have important roles and responsibilities on housing matters that affect the urban population in Nairobi. The following public institutions were identified for the study: the National Housing Corporation, the Ministry of Housing, and the City Council of Nairobi. All the three institutions are located within the central business district (CBD) of the Nairobi County, which made it more convenient for the researcher to conduct the study.

1.1.4.1 The City of Nairobi

Nairobi is the capital of Kenya and a fast growing city in Eastern Africa with a population estimated to be close to 3 million (Wikipedia accessed 28th June,2013). This makes the pressure of housing a large population inevitable, especially when involving differentiated income levels. The city is also a unique city in the world scenario, known for its elaborate slum areas and informal housing development which put the study of housing at juxtapose; the need to understand housing problems in African cities put the study of Nairobi at juxtaposition because the world leaders and housing professionals are advocating better and improved urban outlook. This means cleaner environment and, better living standards where housing design and construction is attractive and tolerable, where there is no urban divide demonstrated by the types of shelter and housing, where the poorest of the poor can be studied to find formulae on how to plan and manage *cities without slums*, where tenement housing is shaping accommodation for low-income as escapism from slums, and where information is needed to support these courses.

There are several reasons why Nairobi was chosen for the study. First it was foreseen that Nairobi is the spot where variant information on housing would exist. City havocs such as slum life generate the study of city sociology, which involves the study of urban poverty, housing the urban poor, the commercialization of squatter settlements, and good urban planning and management policies. These study materials form some of the bulk of Human Settlement information in which housing construction information is embedded.

Secondly, is the rural-urban migration, which is occurring at an alarming rate (6% per annum National Housing Policy 2004). The upsurge of the population need to be accommodated, yet the huge housing deficit cannot be met. There is also the issue of land

for city housing that has shrunk. Furthermore, the fame of Nairobi slums itself has attracted journalists and reporters of world recognition and the presidents of powerful countries who want just to set their eyes on Kibera, whose upgrading issues hit the news headlines more often.

Thirdly, is the fact that Nairobi hosts the UN-Habitat headquarters whose concerns are with human settlement issues and whose mandate is to advise and work with the government on housing matters. Ban-Ki Moon, the United Nation Secretary General, was himself a visitor to the Kibera slum in 2008. More distinctly, Nairobi is home to many government offices whose standard performances, including the tasks on urban housing, are being watched by the public it serves.

Fourthly in Nairobi exists information centers of different categories; such as archives, documentation centers, libraries of various categories and other centers where, information of any nature can be sourced. For these reasons it became apparent that Nairobi City was the best choice to base this study.

1.1.4.2 The History and Description of Nairobi

The history of Nairobi is synonymous with the history of housing development in Kenya. According to Rader (1966) Nairobi was founded by British railway engineers, notably Captain Ellis, who saw it as the most suitable place to build shunting yards and workshop headquarters as well as a place for rest before proceeding west towards Lake Victoria and Uganda. Captain Ellis is considered the founder and the first foreign resident of Nairobi (Rader, 1966) The word *Nairobi* originates from the Masaai language *enkare-nyorobi*, meaning “the place of cool waters”. It is the British who anglicised the name into

Nairobi. (Waithera,2012), ” How Nairobi was born” (In DN2 Thursday October18, Daily Nation,2012). Having found suitable place to rest, the railway engineers moved their administrative headquarter from Machakos town to this place of cool waters. Henceforth, Nairobi has developed to its present level of a cosmopolitan city and an expanding metropolis.

Geographically, Nairobi is positioned on the plains off the steep escapements of the Great Rift Valley; it lies between plains and hills and on a varying elevation of 4800 to 6500 feet above sea level. It is situated approximately (driving distance) 484, kilometers from Mombasa, a coastal town along the Indian Ocean, and gateway to the hinterland. The city is also about 350 kilometers to Kisumu, another city on Lake Victoria. Nairobi has a mixed soil of black cotton and red volcanic (lateral) soils and, despite its name (cool waters), It is situated in dry area and generally lacks plenty of rain, (Rader, 1966). During the colonial times, city planners recommended that the industrial zone be situated to the southern direction of Nairobi due to terrain and drainage.

The boundaries set for the city in 1926 remain the same embracing 32.4 square miles for which there is intention by the government to expand; hence the formation of the Ministry of Metropolitan. This is because the present Nairobi is overly populated, and the infrastructure is outstretched.

There are several small rivers surrounding the city –Nairobi River, Mathari River, Musongari River and Ngong River. Drainage is poor, making public transportation and septic tanks building imperatively expensive (Rader, 1966).

In 1926, Nairobi was zoned to provide suitable housing distribution for the mixed racial population. The zoning boundaries have since increased due to political activities of the city. However, the central business district (CBD) boundaries have remained more or less the same. CBD consists of the commercial area with seven through roads (old and new names) namely, 1) Dalamere Avenue (now Kenyatta Avenue), 2) Bazaar Street (now Biashara Street), 3) Queensway (now Mama Ngina Street), 4) Government Road (now Moi Avenue), 5) Victoria Street (now Tom Mboya Street), 6) Duke Street (now Ronald Ngala Street), and 7) Sadler Street (now Koinange Street) (source Author).

The city square consists of City Hall, the Parliament, and the government buildings. In the same locale is the National Housing Corporation building. There are landmarks such as the National Museums headquarters, and the Kenya National Theatre and conservatory of music. Adjacent to it is the first media station – Kenya Broadcasting Corporation (KBC) opposite of which is the Norfolk Hotel – one of the oldest hotels in Kenya. Opposite Norfolk Hotel is the first university in Kenya – the University of Nairobi.

On the eastern side of Nairobi hill (Upper Hill) lie the All Saints Cathedral, the extended business district, and the Kenyatta National Referral Hospital formerly known as King George VI hospital. To date the emerging housing estates have taken a big portion of this area to provide accommodation for the ever expanding business and housing needs. This is also the site for the National Library Services headquarters. Opposite the Library is the headquarters for the Ministry of Housing and Lands (Ardhi House).

1.1.5 The Study Setting and Organizational Structures

The study was centered in three public institutions, namely 1) the City Council of Nairobi (CCN) now Nairobi County hall, 2) the National Housing Corporation (NHC), and 3) the Ministry in charge of housing - the Ministry of Lands, Housing and Urban Development.

1.1.5.1 The National Housing Corporation

The National Housing Corporation brochure (2006), states that (NHC) was established in 1953 as the Central Housing Board (NHC, 2009). The board became NHC through an Act of Parliament in 1967 under the Housing Act Cap 117 of the Laws of Kenya. Currently, The Corporate plan is developed with the Kenya Vision 2030 in mind, stressing the need to *adequately and decently house the nation in a sustainable environment*. Its aim is to increase the annual production of housing units from 35,000 to 200,000 (NHC, 2009). The main mandate is to develop decent and affordable housing, facilitate rural housing development, and mobilize local and international finance for housing development.

NHC provides the following services to customers: 1) houses for direct sale; 2) tenant purchase housing schemes; 3) rental housing units, 4) rural and Peri-urban housing loans; 5) site and services schemes; and, 6) home improvement loans. In addition, it undertakes some research in building material production such as timber. The corporation has assisted many Kenyans and local authorities to build or purchase decent and affordable houses through various schemes. In Nairobi City, it has provided close to 200,000 houses.

Within its administration unit, NHC nurtures a small resource unit that serves the organizational users' needs with housing documents. With the mandate to construct housing, the corporation deploys key professionals who consume housing information. In order to understand their information access methods, and information behaviour in the institution, their information needs were studied, the result of which were used for suggesting changes, first at the intuitional level and then at the national level. This was, in order to better the housing construction industry in Kenya.

1.1.5.2 The City Council of Nairobi (Nairobi County Hall)

The City Council of Nairobi is considered the watch dog of the City of Nairobi. It functions semi-autonomously. It prided itself for being the largest municipal council in Kenya, (now the largest county) so large that it is like a ministry in itself. The County held 15 departments headed by the town clerk (now headed by Governor) the visited department for this research were: 1) Administration Department, 2) City Treasury Department, 3) City Planning Department, 4) Department of Investigation and Information Analysis, 5) Public Health Department, 6) Social Service and Housing Department, 7) Human Resource and Management Department, 8) City Inspectorate Department, 9) Department of Legal Affairs, 10) City Engineer's Department, 11) Department of Environment. CCN is charged with the provision of a wide range of services. What is related to housing include solid waste management, water supply and sewerage maintenance, social housing, urban roads construction and maintenance, rain water drainage, markets, primary education, municipal health services and social services (welfare), town planning development control, regulation and control of urban public transport, street lighting, and beautification of the city (Channa and Mbugua, 1996).Some

of the council's concerns are infrastructures, housing construction and social housing administration, city land administration, city planning, building and housing by laws reinforcement, managing city environmental pollution and overseeing and managing the entire built environment of the city including beautification. Virtually all the information generated concerning city life, city accommodation, and city land records is of paramount interest to urban dwellers.

A separate department on housing and development (HDD) still exists. This department deals with social housing. Information and knowledge management makes a good study in this institution. Hence, the wide range of subjects covered in city services is necessary for understanding urban issues.

When the council was headed by a Mayor he had a team of councilors in charge of political wards. The town clerk headed the policy implementation wing. This wing included professionals whose services were in the construction sectors and therefore dealt with housing matters. The County runs a city library that contains information on the past history of the city. (It is important to note that since the devolution government, which came to power on March, 2013, it made Nairobi become county, the new order of staff is yet to be spelt out clearly).

1.1.5.3 The Ministry of Housing (now joined with Ministry of Lands and Urban Development)

The Ministry was created in 2005 and was in charge of policy formulation on housing. With the devolved government it will now share the docket with former ministries of Lands and Urban development as a single ministry. However, the housing portfolio

remains and is mandated to provide leadership in facilitating Kenyans with descent housing. The Ministry's core functions include:

1. Coordination of the implementation of housing policy
2. Housing development in conjunction with NHC
3. Shelter and slum improvement
4. Housing for civil servants and the disciplined forces
5. Management of government housing office holders
6. Resolving rent and other disputes in the housing sector, controlling and regulating rent for low-income earners.

The Ministry had a vision which states: "*Excellent, affordable, adequate and quality housing for all Kenyans*". It has a role as the secretariat for Human Settlements. According to its strategic plan for 2006-2011, it envisaged housing as a key priority to government commitment. It also recognizes that housing is a basic human need that gives dignity, security and privacy to individuals and the nation as a whole. Currently, the Ministry tackles the challenges of slums upgrading and has contracted agencies to build a decanting site which so far has accommodated over 1000 slum dwellers pending their permanent housing solution.

Elsewhere, to facilitate the production of housing, the Ministry has managed to produce 800,000 urban housing units, develop and manage 42,000 housing units for civil servants, supported NHC in the production of 43,000 housing units, and successfully established various programmes including the civil servant housing schemes (CSHS), appropriate building technologies (ABTs) and, most significant so far, the slum upgrading

programme (KENSUP) in collaboration with UN- Habitat. Generally the Ministry has revitalized the housing sector in Kenya.

In summary all the three institutions that were studied are instrumental in housing construction in the country and are key users of the information related to housing. Their information needs should be understood. Stemming from the views given by the researched and information derived from documentations it is argued that information needs of key professionals, and their information seeking habits that is derived from access methods forms a major study in this research. The choice of the public institutions dealing with housing information was appropriate due to the following reasons:

They are public institutions sited in Nairobi, the capital city of Kenya.

- 1) Most large housing construction take place in the capital city – Nairobi for which most of the professionals employed in the above institutions participate in the activities of the construction processes. By their nature of work these professionals share information to enhance their roles and increase their knowledge as professionals and as key players in the sector.

1.2 Statement of the Problem

Planning for better housing to improve living standards for Kenyans always occupies a central place in the government. This is revealed in several policy documents emanating from public institutions that have important roles in housing construction, the major ones being the National Housing Corporation, the City Council of Nairobi and the Ministry of Housing Lands and Urban Development. The challenge of housing the urban population needs adequate and relevant information to enable policy makers provide informed

decisions. One of the attributed causes is lack of well-organized and accessible information as observed by the researcher during interviews. Knowledge itself is the information, understanding and skills that one gains through education or experiences; or the state of knowing about a particular fact or a situation. The professionals under this study need knowledge and skills to help advise the government on housing issues. They demonstrate this by accessing and using the right information for their work tasks.

Currently, the information available is scattered, and some of it is in private firms, professional bodies and locally based international organizations such as the UN-Habitat.

The users of information spend more time on accessing and locating relevant, but scattered information. This makes their tasks difficult and their work delivery lag behind as observed by (Aligula, 1995; Abonyo, 2002). The exact range of existing information is not exactly easy to know due to the many emerging issues that are realized in the built environment where housing forms a bigger component. The redefinition of the kind of information used can only be known if there is investigation on what the professionals in this industry need and use in solving their tasks (user needs studies). Generating housing construction information, in many related areas such as housing statistics to depict the seriousness of housing shortage, has only began, yet housing problems have always persisted in urban centers. This has resulted to unplanned settlements and therefore creating planning problems for relevant professionals. There is little effort from the Nairobi county authorities to organize and avail accessible information on building plans, building standards and regulating by-laws. This adds up to the problem of accessibility.

There is shortage of the required information professionals such as librarians, document lists, and records and knowledge managers who have understudied information behaviour and user needs of the sector. The existing housing institutions possess scanty information that does not satisfy the many needs of the professionals. Besides, the institutions concerned have failed in harnessing tacit knowledge from the sector professionals, and consequently build information databases. Since this is not a priority task, it leaves a vacuum in availing easy to access information on housing construction. A user study in this area is lacking culminating in many grey areas on information needs, provision, access and use.

Redefined guidelines on National Information Policy are also lacking in Kenya; for instance, there is need to formulate appropriate information policy to govern information provisions that offer better services for enhancing information uses for specific user groups in the country. The status quo has greatly hampered access to information in sub-sectors such as housing. Yet, as reiterated by Odini (1995),” For information systems and services to be accessible and satisfy the information need of a particular user group, they must take into account the characteristics of the needs of the user groups”.

Lack of user education and not meeting user needs in relation to relevance, availability and timeliness of delivery of information required, is a big setback for a country’s development such as Kenya. It is apparent that, information systems that are poorly managed, not understood by users, and are under-resourced remain paralyzed and may not sustain information needs for given institutions. Moreover, public institutions tend to neglect knowledge management, but they are now being obligated by the adoption of ICTs. It is then evident that there is tremendous need to improve the information

environment for Kenya and specifically in the housing sector where shelter provision for majority poor is, wanting and putting pressure on professionals in the sub-sector. This is challenging their information needs to support them in their day to-day tasks.

With the above reasons, and the foregoing circumstances, this study aimed at investigating the phenomenon of access to housing construction information and utilization in the selected housing construction public sector institutions.

1.3 Aim of the Study

The aim of the study was to investigate access to and utilization of housing construction information by key professionals in selected public institutions in Nairobi County, in order to identify problems that hinder information access and use, with a view to propose a model for improvement.

1.4 Objectives of the Study

The specific objectives of the study were to:

- (i) Identify information access methods, human seeking behaviours and use of information by key construction professionals in the housing construction sector in public institutions in Nairobi.
- (ii) Establish the role of key professionals in the housing construction sector.
- (iii) Establish the types and ranges of housing construction information that exist in the public institutions in Nairobi.

- (iv) Examine the extent to which key professionals in the housing construction sector in public institutions use the existing housing construction information.
- (v) Determine the level of use of ICT tools in accessing and use of information in the studied institutions.
- (vi) Identify factors hindering access to and utilization of information in housing construction institutions in the public sector.
- (vii) Suggest a model for improving access to and utilization of housing construction information in public institutions in Kenya.

1.5 Research Questions

The study was guided by the following research questions:

1. What information types and ranges exist in public sector housing institutions?
2. Which professional categories consume housing construction information that exists in public institutions in Nairobi housing sector?
3. What are the access methods and utilization of information of the housing construction professionals in the studied institutions?
4. To what extent does the information available in the public institutions meet the needs of key housing construction professionals?
5. What problems hinder access to information resources in the studied institutions?
6. What information technologies are useful in enhancing the access to and use of housing construction information?

7. What measures could be taken to improve access and use of housing construction information in public institutions in Kenya?

1.6 Assumptions of the Study

A number of assumptions were made in this study. Themes that were explored in the case studies were geared towards proving or disapproving these assumptions. It was assumed that:

- (i) There is a considerable amount of information that exists in the housing construction sector. The nature of this information is that it exists in a wide range and is scattered in the country.
- (ii) The information in the housing construction sector may not be easily accessible due to information systems that are not pegged on the information needs of the professionals.
- (iii) Poor information flow in public institutions that have stakes in the housing sector hinder access by professionals who need this information for their daily tasks.
- (iv) If information in the public sector institutions concerned with housing is harnessed, well-organized and professionally managed, it would be possible to make it more accessible by the professionals.

1.7 The Significance of the Study

The study is important to the information discipline and the housing sector. It singles out the importance of information as major ingredient that steers development in organizations. For Kenya, the study has been taken at a time when housing the urban

poor is a big challenge to the government. The Ministry of Housing is currently working on modalities of eradicating slums and informal settlements in the cities and to moving towards good policies formulations on housing improvement. This was seen in the revision of building regulations in 2009 (on Planning and Building Regulation Draft Bill, 2009), As has been witnessed in the transport sector (roads and railways) it has also been observed that the real estate developers of both local and foreign origins have shown their interests and need to work with the government in developing affordable housing .For this foreseeable circumstance, there is need to systematize and channel information to back up better decision-making on policy issues, educate the key players in attaining professional acumen, and also increase research activities and technological advancement for the development on housing construction. The study will therefore enlighten policy makers and housing, construction information consumer. These are the public, the students of the construction sector institutions of learning and the professionals in practices.

1.7.1 New Knowledge

It is believed that the study findings will add new knowledge in the housing sector and to the information science discipline. The new knowledge generated will contribute to useful ideas for key professionals in the public sectors in Kenya, and specifically to the entire construction sector that uses information from national and international levels.

1.7.2 Improvement on Information Access and Provision

The findings in the study contributes facts for the way forward that can help effect the improvement of existing challenges on information provision and make access methods better through the use of information communication technologies (ICTs) and skills

training on ICTs. In this way more knowledge will be cumulated in the studied institutions by creating data bases that will contain relevant supporting information which can be used to minimize recurring challenges of building collapses and failures in the country as observed by Otieno (2006).

The gaps left in the study form a basis for further investigations by future research scholars.

1.8 Scope of the Study

- (i) The study scope is derived from the information science discipline background and the investigation was on access to and utilization of the information phenomenon.
- (ii) Access to information and use investigation was directed to professionals engaged in three selected public organizations that deal with housing matters and, therefore, using housing information.
- (iii) The research was limited to three selected government departments situated in Nairobi County. The study was focused on construction industry and narrowed to housing sub-sector in the department of National Housing Corporation, the Nairobi County Hall and the Department of housing in the Ministry of lands, Housing and urban development which was then the Ministry of Housing.

1.9 Limitations of the Study

From the experience of the researcher, this area of study is relatively new in Kenya both in the discipline of information sciences and the construction sector. Therefore, there was

lack of publications and relevant literature available locally that tackled access to and utilization of information in the housing construction sub-sector.

There were also other challenges that were experienced during data gathering processes some of which were:

- 1) The study assumed objectivity on the part of the respondents, that the highly educated professionals could internalized the questions directed to them and would give more detailed responses to the research questions. However, this was not true in all cases. Some few respondents did not take time to fully study the questionnaires so as to provide the researcher with the in-depth information as expected. Therefore some responses were shallower than anticipated and therefore did not enrich the data. However, efforts were made to ask the same question to a professional with the same background in the same work environment to fill in the gaps and to verify these gaps from informants. This situation distorted the researchers work plan as data collection time experienced draw back.
- 2) The researcher hopes that the recommendation of the study will be implemented but there is no guarantee on this.

1.10 Dissemination of the Research Findings

The study findings will be disseminated in appropriate professional conferences and seminars and may be published in refereed journals and media such as the Internet and the print media. The dissemination may also be done through teaching and discussions with professionals in the housing sector. It can be used in consultancy and will be placed in the libraries for academic readership purposes.

1.11 Motivation of the Study

It is said that experience is the best teacher, but the researcher adds that, *for which one has the authority to explain/or narrate the experiences on the experienced*". The undertaking of this research has been inspired by the researcher's experiences while working with some of the professionals serving in the construction sector. Although it has been a long journey, it has enabled the researcher to experience and appreciate the way professionals in the housing construction sub-sector access and use information. The journey offered the researcher the opportunity to discover the types of information that exists in the sector, and how it is handled in the public sector institutions that have important roles in housing matters and are directly answerable to the needs of the public who depend on the information to advise on issues entailed in the lives of city dwellers.

The inspiration and motivation came from several areas: *Firstly* the inspiration came from the interaction with the literature in the field of housing, sharing in some of the discourses of the experiences of the researchers and professionals in this field. *Secondly* motivation arose after the researcher took the challenge of constantly reading issues affecting the City of Nairobi and taking keen interest in social economic issues affecting the city dwellers. The predominant issue identified was that of accommodation and the environment surrounding housing estates. With long experience as a research librarian at the Housing Research and Development Unit (HRDU) of the University of Nairobi, a passion surfaced about the literature on housing. Perhaps this was a latent realization that housing is a crucial social and economic issue to human beings. Its development and construction entails interesting and complicated phenomena. In a city such as Nairobi, housing affects all economic classes; the poor and the rich alike. It dawned on the

researcher that the issues of housing should be studied. The contribution of a librarian, of which this researcher is, should be to study the way professionals in the housing sector should be helped to get access to housing information in order to enhance the use of the information to benefit the sector.

1.12 Operational Definitions of Terms and Concepts

Accessibility (or just access) – Ability to reach what is desired in terms of goods, services, activities or destinations (opportunities); A library, telephone and Internet provide access to various types of information.

Access - What most researchers or information users require in order to gain access to information that may meet their information want/need. This is what was revealed by those who were researched in the study.

Adequate shelter - A term used to mean physical space of two habitable rooms constructed of permanent materials with adequate spaced kitchen and basic sanitary facilities, providing physical comfort and within reach to basic infrastructure such as electricity, and facilities such as schools, hospitals, markets and recreational places (term is accepted by UN-Habitat).

Ardhi - A Kiswahili word for land: The headquarters for the Lands Ministry is at *Ardhi House*, Nairobi.

Democratization of information – The art of free access to information using administrative structures to facilitate this process. In Kenya, it counter plays the old administrative system where the public was denied free

access to information especially in the civil service where certain information was classified as secret.

Informal settlements – Settlements that are provided outside the formal system, usually occupying other people's land, roads, rail and riparian reserves. Most developers of informal settlements comprise poor people who often lack any ownership rights to the space they occupy. Informal settlements are characterized by poor housing and lack of infrastructure and other services, congestion and severe crime. In Nairobi informal settlements are also slum areas.

Information - Anything that can change by enriching a person's knowledge; it is an object in the world of what is transferred from people to person's cognitive system as the component of internal knowledge in people minds. Information is also processed data that is useful to the recipient. It is organized fragmented data that makes meaning to an individual.

Information seeking - Human search for information; it is a process in which humans purposefully engage in order to change their state of knowledge. The term may also be used to mean information retrieval because it is more human-oriented and open ended.

Information seeking behaviour –The acquisition of information from knowledge sources or any activity carried out by persons or a group of persons in pursuit of information to satisfy a perceives need (Jarvelin & Ingwersen, 2004).

Information search - This is used to mean behavioural manifestation of human engagement in information seeking. It is also a process undertaken through computers to match and display information objects.

Housing construction –A technical process of land use for the purpose of putting up dwelling units using available building materials and engaging human labour to build shelter and/or construct houses.

Housing construction sub-sect industry – In Kenya, this is the section of construction industry that deals with the construction of houses and infrastructure.

Kibera – Adapted from a Nubian word for ‘forest’ (*kibra*) and is now used as a name of the largest slum in Nairobi City and one of the largest in sub-Saharan Africa.

Local authorities –These are custodians of urban space and play a fundamental role in urban governance and management. Their role is to sustain urban development.

Ministry of Housing in Kenya – This is a full-fledged government ministry put in charge of the shelter sector. It deals with national policy issues on shelter provision. A new ministry was formed and changed to Ministry of Lands, Housing and Urban Development on 18 April, 2013 after the research was concluded. In the report the old order of reference - the Ministry of Housing – is retained.

City Council of Nairobi – This was previously an urban authority under the then Ministry of Local Government before devolution. One of its mandates is to construct and maintain good housing standards and the built environment in order to enhance better living conditions for the urban dwellers in municipal areas.

NACHU (National Cooperative Housing Union) – This is a cooperative union that deals with housing cooperatives that help improve shelter and quality of life for poor communities throughout Kenya. It supports over 250,000 members.

National Housing Policy (Kenya) – This is the document that contains the principle statements of governments' views, which guide the housing sector in Kenya. The policy contains the proposals of the comprehensive housing act, with appropriate legal framework for coordination, guidance, regulations, monitoring and evaluation of the housing sector.

National Housing Corporation (NHC) - This is an institution appended to the then Ministry of Housing, but was semi-autonomous in its main mandate of carrying out affordable housing construction for the benefit of Kenyans. It has a stipulated mandate by an Act of Parliament and therefore an important institution in the construction industry.

Social housing – This is housing for rental that is governed by the state through local authority. In Kenya, social housing was developed by the City Council of Nairobi in conjunction with private developer's between 1948 and 1969, to provide housing for low-income people, specifically the poor African

population who came to look for work in the city during the colonial era. The initiative was to help construct shelter that may allow them to live with their families. The Council still manages these houses which are located to the east of Nairobi (popularly known as Eastland). Such estates are Jericho, Jerusalem and Mbotela. To date the Council manages about 22,680 units of housing, which are a major source of council revenue in terms of rent.

Tacit knowledge - This is knowledge that is understood rather than said in words from an individual; it is knowledge contained in the mind, it is implicit knowledge.

Tenement - This is a large building divided into many flats. The housing development in Nairobi has taken this trend especially in the Eastland areas, where landlords maximize on use of space to develop as many flats as possible for rental purposes in the hope of reaping from poor tenants. This trend is the guise of new slum development in terms of housing the urban poor in Nairobi.

Vision 2030 (Blue print) - This is the Government of Kenya's document / prototype that contains strategic outlook of economic planning projections and suggestions for the operations in the long term. The vision is based on three pillars, namely the economic pillar, the political pillar and the social pillar. The final version was launched in 2008. The housing sector falls in the social pillar.

Ziwani—A name of one of the oldest African housing estates in the City of Nairobi; it is also a Kiswahili word meaning ‘inside an island’ or in the swamp.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature relevant in the housing construction industry. It also discussed the theoretical frameworks that guided the study and topical issues considered to contribute to cumulative information on housing construction inherent in many subject areas.

The subject of housing is wide and involves understanding many issues (Bayer, 1958 Abonyo2002), which have been discussed since scholarly work on housing emerged. On the part of theorists, theories give an insight into the researcher's philosophical argument that merits the study. Mugenda (2008) argues that literature review is founded on the premise that, knowledge is cumulative and a researcher should gain insight into what is already known in an area then build upon it. It extends the opportunities for a researcher to gain new ideas on a topical issue and helps the researcher to legitimize their arguments and understand more insightfully the discipline in which investigation is being undertaken. The literature discussed in this study is considered as information that is useful to the professionals both in the information science sector and the construction sector. It helps them understand their field of specialization. In addition, the literature guides professionals to talk with authority while rendering services to the public.

2.2 Theoretical Framework

Theoretical framework is a collection of ideas based on theories. Scholars use theories and consider them as abstract knowledge of reasoning. The significant multipliers effect of a theory is to predict a general yet wider variety of phenomena in order to simplify a variety of unwieldy data which are complex. Several scholars, including Weber (“in Burrell and Morgan, 1979”) agree that, having a theory is regarded as the mark for research seriousness and respectability. According to the philosophy of science furthered by several authors including Burrell and Morgan (1979), the use of theory by a scholar in their research is a hallmark of their discipline’s academic maturity. Pettigrew and Makechnie (2001), reiterate that if fields such as information science are to delineate their disciplinary boundaries and build a central body of knowledge, then they require their own theoretical bases for framing research problems and for building arguments and interpreting empirical results.

Out of this scholarly undertaking, many models on information science theories have been studied. They include Taylor’s *Information Need*, Wilson’s *Situational Relevance*, Ellis’s *Information Seeking*, Dervin’s *Sense-making*, Ingwersen’s *Cognitive in Information Retrieval Model*, and Kuhlthau’s *Information Seeking Process (ISP)*. Issues of information science theories have been documented and discussed well enough by Pettigrew and Mackechnie “in” the *Journal of American Society for Information Science and Technology* 52 (1):62-73,2001, to give the current situational analysis as argued and ascertained. The duo came to a conclusion that in this field (LIS) theories that are well developed are scarce; that some emerging theories are still underdeveloped to match the threshold of scientific arguments. However, efforts are now ways ahead to strengthen

some theories to help gain ground in making information science a discipline strong in scientific arguments to give researchers a competitive advantage in social science research, as lack of refined theories has made many information science scholars use borrowed theories from other social science disciplines or use conceptual frameworks to argue out their philosophical thinking.

This study has come up with the conclusion that users of information predefine their own information environment directed by their information needs and dictated by the kind of tasks they want to solve in their daily encounter with problems at hand and usually at work. Further, the theoretical frames applied in this study advance the concept that information plays a critical role in problem-solving and developmental issues. In particular, the housing industry plays a significant developmental role in the Kenyan economy. Therefore, the information behaviour and user phenomena of the industry should be subjected to scientific investigations as observed by the researcher.

The processes of accessing useful information have its many challenges. This is attributed to new emerging trends in information environment coupled with new information communication technologies (ICTs). It is worth noting that ICT has changed the way information is acquired, processed, distributed and retrieved. In their research, Ray and Day (1998) found out that 83 per cent of respondents surveyed felt that using ICT resources saved time and is an easy to use method of accessing information. On the information front, it is about the information behaviour itself and correlated seeking behaviours and access methods of users. Therefore, how users approach information systems in retrieving the needed information is a subject of discussion by many renowned

scholars including Wilson (1999), Kuhlthau (1981-1994), Dervine (1998), (Buscha and Harter (1980), amongst others.

2.2.1 Sense -Making Theory

This theory is the brain child of Brenda Dervine since the 1980s. Its connotation is experienced in sense making of users interest in knowledge seeking and use. It suggests that designing information systems never focuses on arriving at the right answers or best knowledge; rather it suggests that it is under those circumstances where accuracy and fact-finding are the important aspects. Professionals in the construction sector need, search and access information for their use in their work tasks. However, they do not go in these processes blindly. Instead they must understand the circumstances that surround them and which lead them to actions. This theory contributes to this research in the sense that it can argue that, the world we live in is dynamic and so is information (there is plenty of information in the housing sector) but we can only be cognizant of what we need, what we do and why we do things. Information seeking and eventual retrieval need cognitive approaches that can make us use available time more meaningfully and make better use of information that we seek and find, in the most fulfilling manner. This translates that, we can only engage in what makes sense to us in our surrounds thus being cognizant of our needs. Information access and use by key professionals in the housing sector can only make sense to them if their tasks are resolved by that information they seek and access. This theory was used in explain the reason *why* professionals sought and accessed only credible sources that made sense to them. Theory of need is next discussed

2.2.2 The Philosophy of Needs as it Relates to Housing

Bayer (1958) argues that human shelter was simple in the days of the cave man. However, after many centuries of human development this became increasingly complex. The complexity of modern society and the tremendous advancement in science and technology not only permits, but also requires that shelter becomes more than just something to secure against cruel elements. He continues to say that, today human shelter has to satisfy economic and physiological needs, (Bayer, *ibid*).

The housing sector relies on different information needs that compliment other human needs. It combines information on various subject areas that together forms the complex subject of *housing* and the immediate *built environment* sometimes referred to as *human habitat* and collectively termed as *human settlements*, which entail wider discussions championed by United Nation Center for Human Settlements (UN-Habitat).

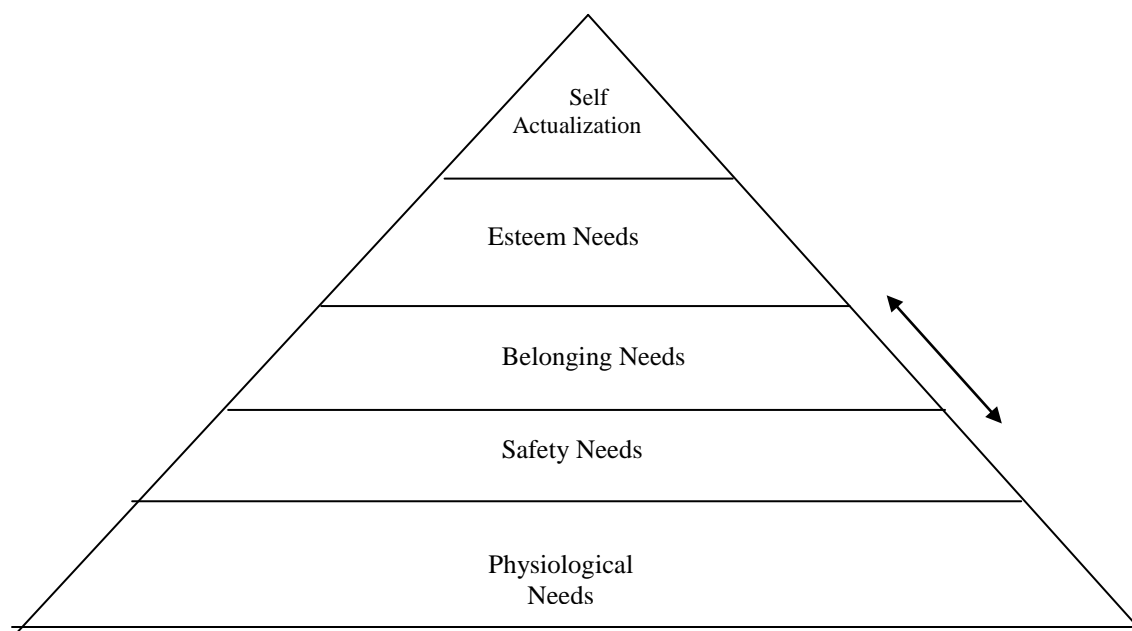
Accessing information on human settlements issues was deemed problematic in the wake of the 1980s. In the mid-1980s, the then Director of UN–Habitat, A. Ramachandra, found it necessary to facilitate information access by preparing a special type of information reference: *A Guide to Information Sources*. Subsequently, UN–Habitat expertise took the opportunity to come up with a series of several guides, which were published 1983. They covered the areas of building and construction, settlements planning and housing amongst others. This is an indication that the professionals in the housing sector *need* a variety of information relating to their training backgrounds and professional practices. *Information need* is in itself a study in the information science discipline (Wilson, 2001).

2.2.2.1 The Needs Theory:

Maslow's Need theory (1960) and CIB Adaptation (1980)

The general theory on human needs (sometimes referred to as motivational theory of 1943) was first developed by Maslow. In 1960 its popularity as *the hierarchy of needs philosophy* gained wide currency and popularity amongst social scientists and was used for theoretical bases for explanation of choice of research projects. A amongst those that found this theory suitable were the researchers of the International Council and Building Research and Documentation (CIB) organization in 1980. The CIB experts used this theory dwelling on the issue of *needs* in relation to human requirements in their CIB 69 working report. Their argument depicts the requirement on housing as a need. They reiterate that some human requirements of basic needs relating to family and national resources are presumably linked with Maslow's needs model: "*In brief, the model implies that while it is true that man strives to satisfy his needs; action must be taken first...*" Further, it reiterates that "man does not fulfill his needs so haphazardly"; that the needs assume a defined order forming a hierarchy as follows:

1. Physiological need (*food, water, warmth*)
2. Safety needs (*security*)
3. Love needs (*friends, relationship*)
4. Esteemed needs (*feeling accomplished*)
5. Needs of self-actualization (*full potential*)



***Figure 2.1: Maslow's model of hierarchy of needs (A Motivational Theory)
Model adopted from Mugenda (2008)***

Maslow's philosophy of needs theory in the 1960 may be used in many arguments and is used here to explain the researcher's argument on the professionals' *need* for information to solve their daily tasks issues (self-fulfillment). This is pinpointed as one of the research findings proof that, 97.2 per cent of the professionals interviewed said they needed information to do their professional work. It also fulfils the research objective, on information access and seeking, the information needs of the key professionals in the three public institutions investigated, and answers the research question on *the types and ranges of information* needed and used by professionals in the housing sector.

According to Maslow's theory, for a particular type of need to be satisfied, the need for love, self-esteem and self-actualization must be fulfilled first.

Several critics of this theory have argued that the theory could be applied in social sciences because it relates to humanity and is easy to apply on human-activity related issues. Amongst the critics were Guntveldt and Helland (1980), who argued that its approach could be predominant in issues such as physical planning and housing design; that is, in architectural functionalism. They also argued that the theory could be applied in the life of a dwelling or residential area, which according to them can be broken down into many parts (Guntvedt and Helland, 1980). The two authors further critiqued the theory by saying that, “Some other authors found the argument behind the philosophy of needs to be too mechanical and individualistic when applied on the societal perspective, because *certain phenomena are disregarded*”. They argued further that; “... Any layman with social ambitions will have their views on what they have to fit in the model in so far as order of priority is concerned”.

The needs theory complements this study as the researcher argues that the needs of an individual are best prioritized by the individuals themselves. Relating the *need phenomenon* to this research, the researcher further explains that, if a house or shelter becomes a basic need as has been mentioned earlier in this report, then the quality of it will be dictated by what an individual will put as his or her order of need in a hierarchical priority. Lack of finances or its inadequacy will dictate the quality of a dwelling type that one would then have. Most information scientists who practice information services or system management, study information needs for guidance on work operations in order to identify user needs (Wilson, 2004).

2.2.2.2. Information Access and Use

Several scholars have written on emerging trend of user's access and use of information as being influenced by information needs. Some of them include Wilson, (1980, 1983). He argues that contact with potential information brings out latent or unrecognized information needs in users. However, several other writers recognize that the available information sources and services are some of the factors affecting information needs of users. But Lin and Lee (2004) observe that information needs can be stimulated simply by knowledge of what facilities and material available. But in general recognized users' needs can vary with alternative information sources available to them. Devadason and Pratap (1997) remind us that the range of available information sources are amongst the factors that may influence information needs of a user. But as reiterated by Rusbridge and Royan (2002), the real world in which information professionals struggle to provide high quality services is not the simple world that we presume. It is characterized by complexity and diversity in almost all aspects of information access chain. Dealing with diversity is the real problem for providers interested in offering quality services to users is accessing relevant sources to answers their information problems. Such is the nature of information services for housing construction industry where several key players whose information interests are diverse. Satisfying their diverse needs is the problem of information providers and handlers in the industry.

Access to and utilization can collectively imply one's own power to exploit effectively and use of something of a benefit. Relatively information can be accessed to make practical use for purpose, Ingwersen (1999). In this research information has been viewed

for the purpose of constructing houses. Hitherto people's access method may have been influenced by knowledge of the subject topics, information needs.

2.3. Information Science models Applied in this Study

Information sciences theories were also used to support this study. They included the issues of *phenomenology*, a philosophy that is concerned with the question of how people make sense of the world around them. Though not fully developed as recognized by Niedzwiedzka (2003), other distinguished authors such as Kuhlthau (1989), Wilson (1980, 83), and Ellis and Limberg (1999) came up with theories relating to *user studies and information needs*.

Niedzwiedzka (2003) emphasizes on human seeking behavior and says that, when faced with the information need, most senior executives do not actually go out to seek information themselves instead they use their juniors to search information for them.

Limberg (1999) stresses her theories on *information seeking and use*. Her concept dwells on the idea that information use is driven by exploration of information by people who need information to perform tasks and in the process of exploring the people think about *relevance*. He emphasizes this by saying, "*What people think about relevance, is fundamental to phenomenograph*". In this study, the idea of relevance is discussed in the subsequent chapters.

The summary of models as discussed by Wilson is reviewed in information behaviour and seeking behaviour that appear in some of his publications in 2000 and after 2006. They were the works on models with: Dervin (1986, 1998, 1999), Ellis (1993), Kuhlthau (1991), information searching or retrieval (Ingwersen, 1996; Belkin, 1995; Spinks, 1997),

and later in 1999, Jervelin expounding on information seeking and retrieval models. These models that explain eight points, including Ellis model of information retrieval, as follows: *Starting, chaining, browsing, differentiating, monitoring extracting, verifying and ending*, referred to as *Ellis's model*. For this chain Ellis says, “it is the interrelation and interactions which will depend on unique circumstances of information seeking activities of a person at a particular point”, and that there is a process of information seeking whose dictating factors include the environment in which the person works; what the person does determines their needs and probably the means and sources they use to seek and make them access relevant information. The process involves scrutiny.

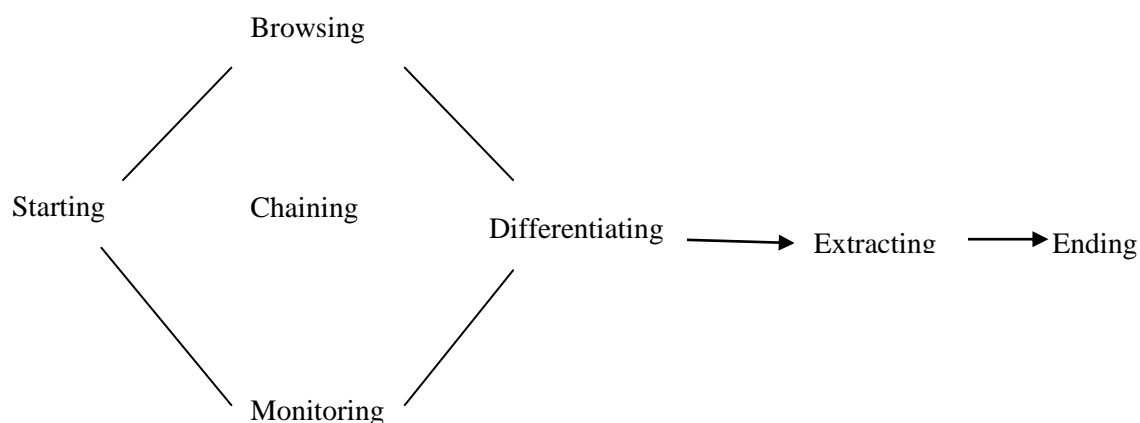


Figure 2.1: Ellis model of information retrieval (1989)

Source: Retrieved from the Internet, (10th July, 2008)

Source: <http://information.net/tdw/publ/paper 1999JDoc/html>

A process version of Ellis behavioural framework explains that a person in some role may be shown to engage in more or less work tasks and loads than others. This may lead to examination of factors that cause the difference in the way they behave. Thus, a person's information seeking pattern needs and access methods depends on the

circumstances in which they are in and the demand and need of the information they are looking for.

2.3.1 Information Retrieval Model (Ingwersen's 1996 Model)

Wilson also looked at Ingwersen's model on information retrieval (IR). This model is based on the fact that users have their own models of their tasks, which dictate information needs and the user's ability to perceive their issues on tasks (cognitive space). He suggests that the environmental space at work determines how information system will function. The researcher concludes that information retrieval must be designed with users in mind including authors and information retrieval designers for it to be an inclusive information system, this makes an environment of information an *information triangle*.

On (providers, managers and designers) as perceived by the researcher to show how the information providers, managers and designers work together to make an "information system" that can satisfy the users.

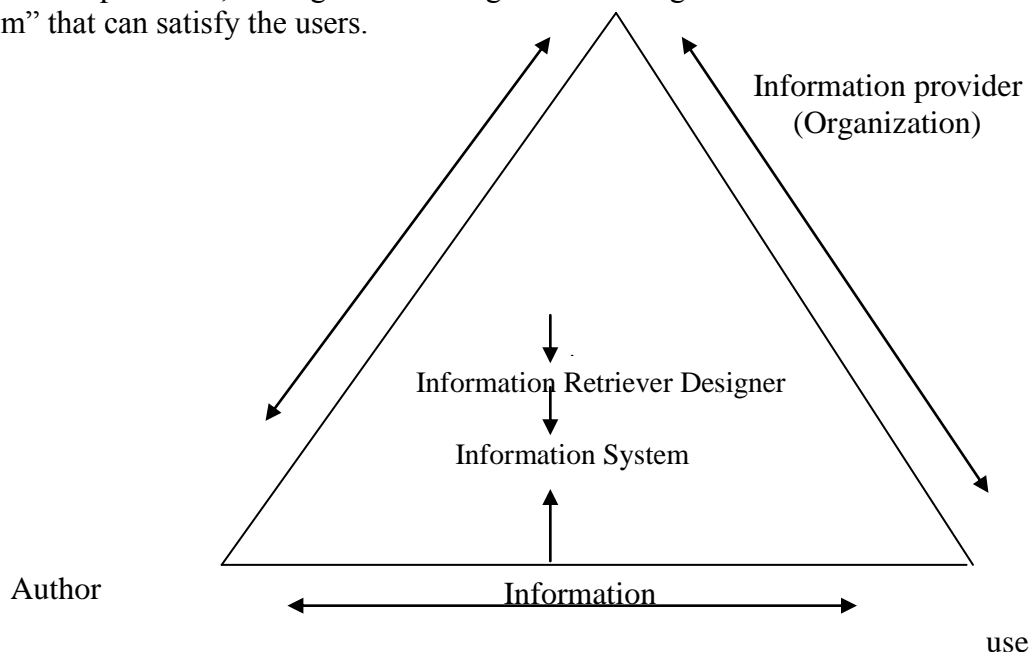


Figure 2.3: The Information Triangle

Source: researcher

Jervelin, Bystrom and Vakkari (1998, 1999) worked on models of *tasks complexity*, which concerns the information retrieval systems and human information use. They explain that tasks exist for workers in small or large sizes, for which they need to retrieve information on. “Each task has a beginning and end. Tasks are identified by workers...” this is truest in the construction sector where professionals such as architect or engineers identify housing projects which they pursue, although they do this as a team of construction professionals with the rest of the required construction team, the project must be come to a conclusion or what the construction professionals call project closeout.(Gitau 2014,)(Retrieved form the internet sept,2014)

All these models complete the circle of access and use of information, which proves the relevance of this study.

2.3.2 Wilson’s Contribution

Wilson’s (2000) later works on a model that explains human behaviours. It also classified different aspects involving information and human behaviour as follows:

- a) Information behaviour
- b) Information searching behaviour
- c) Information seeking behaviour.
- d) Information use behaviour

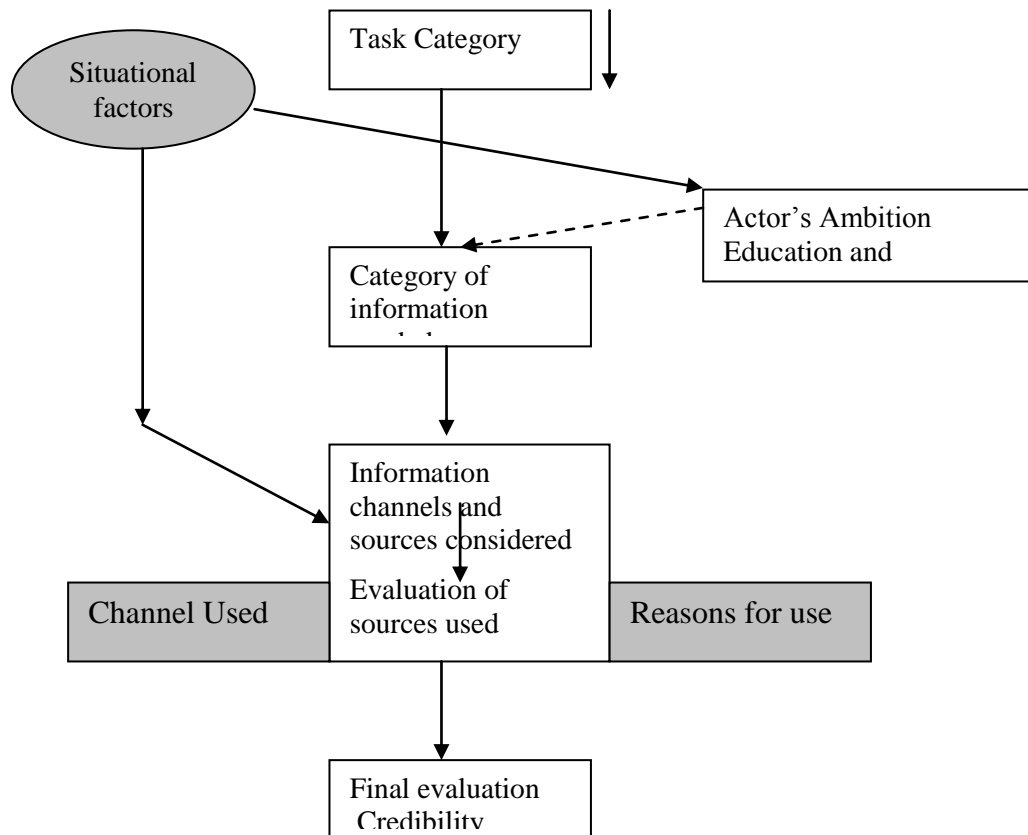


Figure 2.4: The work chart structure

Source: Adopted from Bystrom and Jarvelin, (1995), available "in" information research vol.9 no1 October,2003, p.14 (: accessed in July, 2008;file://E on conceptual model for information seeking and tretreaval research htm)

In this classification Wilson (2000) concludes that the four processes concern themselves with use of information systems and human information use. Together they form human information seeking behaviours, accessing method and use of information, with which this study is concerned.

The uses of information science models found avenues of exploring other disciplines on information seeking. Wilson and Walsh (1996) looked at other fields in exploring information seeking behaviours and worked with several authors. Evidently the fields that were explored consist of the study of personality in psychology, the study of consumer behaviour, innovation research, health communication studies, organizational decision-making, and information requirement in information systems design.

Information seeking behaviour was explored by Wilson (1981) who later re-explored it in contributing to general models on areas of information behaviour research. Wilson (1981) here dwelt on concepts such as those pertaining to behaviour of an individual faced with information need and therefore seeking information. Need here is the central argument. Just as it is exhibited through research, the need to know is carried out in questioning respondents in search of underlying information needs. Wilson (1981) gives the reasoning of carter 'in' Chew (1994) and suggests that, "when an individual is driven to seek information as a result of needing to know, three modes of questioning behaviour are exhibited": question to *check* that the person is on the right track (reorientation), questions to form an *opinion* or/ and questions to *solve* a problem (construction).The problem solving warrant access to relevant sources of information for tasks complexity.

2.3.3 Information Need Consideration in Information System Design

Wilson's research on the information need and system design topics revealed that system designers are not so much concerned with how information is processed, but how computers are used; that is, how to provide the users with effective means of navigating the designed system. This is purely technical and does not apply to an information need,

rather it could contribute to exploration of information sources that are available on information storing gadgets that are electronic and which are manipulated by humans.

Coping and information use have relations with information seeking behaviours which may relate to accessing credible information sources. Folkman (1984) noted that coping has two major functions: the regulation of emotions or distress, thus emotion focused coping, and the management of the problem that is causing the distress problem. Wilson (1981) and Klebiber et al. (1995) were of the opinions that problem-focused coping consists of efforts to change the actual circumstances of adaptation encounter, whereas emotion-focused coping involves cognitive activities that do not change the relationship with environment but do alter the way in which the person-environment relationship is perceived. They quote van Zuuren and Wolfs's (1991) views that information seeking correlates highly with problem-focused coping. Stress and coping are dealt with in health information in Wilson and Walsh (1996). Information need was one of the variables in this study and Wilson contributed works on this phenomenon substantially.

2.3.4 Wilson and Walsh

Wilson and Walsh's (1991) were of the views that, "the root of information seeking behaviour is the concept of information need, that need is the subjective experience which occurs only in the mind of a person in need... The experience of need can only be discovered by deduction from behaviour or through the reports of the person in need."

The Need model was explored in Maslow's theory of need. Although the model came earlier, it became popular in the mid 1980s to the extent that the Council for international Building researchers (CIB) used it to depict aspects of housing as basic human need. Housing need is depicted in this research.

2.3.5 Information Need

Information needs is usually aroused by an immediate problem to solve, which makes the person in need to look for that precise information. The information need has been studied by a number of information science scholars including Wilson (1980s and beyond 2000) and Jervelin and Bystrom (1995). The author contribute that, need may lead the drive to access for use.

2.3.6 Information Behaviour Studies

Wilson(1999b) and his colleague Walsh (1996) worked on the theme of *information and information seeking* and dwelt on several factors that contribute to information behaviour. First, Wilson (1996) condescends that there is so much information existing that human beings have to come into contact with. But there are varied factors that necessitate the behaviour with which it is accessed and consumed. Just as this research found out, it has been realized that information on housing entails many issues, so this study proves here that the myriad of information existing is accessed and used for different reasons and in different manner to satisfy the user's quest for information relating to housing issues.

Moreover, it is believed that certain environments influence information seeking behaviours. According to the Wilson 1999 and Walsh (1996) who generally perceived views that, some of the influencing factors include the areas of knowledge that a person may wish to seek information on, depending on the impact that the information will have on them. Information on housing may be intertwined with health and housing, construction labour, building materials science, and house design, and will be accessed for these purposes. However, seekers tend to device their own methods, to look for the sources and channels and devote time for access to credible sources depending on the

pressure of need. Wilson (1999) and Walsh (1996), concur that information handling should then be improvised by using updated tools for handling to help ease the pressure on getting the information. The wake of devising information technology tools is currently the answer to the question of human contact with information and human behaviour in accessing information.

Information science deals with information handling and human behaviour with regards to information. All human beings use information in various fields for various needs including those who are not in the field of information science. They are unconscious of how information behaves yet they handle information passively. This research was about information science and was supported by the assertion of information science authors that information seeking behaviour which instigates accessing relevant sources of information lies in the study of amongst others psychology.

Wilson suggests that models of information sciences may be revisited and revised with other disciplines on the basis of what may contribute to information science discipline. They gave examples on various areas of disciplines after review of several pieces of literature on intervening variables on information seeking behaviour, which is relatively portrayed in the information environment. In this research, the main concentration is the *needs* variable. Some needs could become preconditioning in certain environments. just as there is need for information for professionals in the construction sector. Likewise, information needs are usually a must in the work environment to facilitate for the need to excel and motivate promotion or self-actualization, and the privilege to own knowledge. *Needs* therefore predetermines information behaviour.

Information is usually needed to solve a need and a pressing problem. However, there are barriers or impediments that emanate from situations from needs being informed and hence the activation of a search for information. Wilson and Walsh reiterate that., “Given a situation of need may be affected by the environments within which the role is performed or within which the inter-personal activist is played out, it is also possible that environment may be imposed of an economic, political, geographical or nature. (Available on internet at http://papersR.net/tdw/pls_papers/2005_SIGUSEhtml)

The intervening variables were further studied by others revealing that, certain categories of dependents variables on personal characteristics are sources that gave examples to seeking behaviours. The variables include personal characteristics and emotional, educational, demographic and environmental sources all of which influence information seeking. These straits are evident in the research where professionals settled for credible sources for obtaining information that they needed irrespective of how they went about the searches thus information access methods.

PART 2 OF LITERATURE REVIEW CONCENTRATES ON:

2.4 Topical Subjects Relating to Housing Construction Information

This part was necessary as a due process in understanding the types of information that key professionals in the housing subsector may access and use in their endeavour to accomplish housing construction. It therefore reviews literature on topical subjects relating to the subject and study of housing. Information in each of identified subjects is useful to the professionals who access and use it for their understanding of housing construction matters, and also for guidance so as to have authority in the services

rendered to the public. Information discussed emanates from what various authors have written and relatively stems from housing construction related issues.

2.4.1 Access to Housing Information

Information in the housing sector is largely scattered and is not easily accessible. The precarious condition is more apparent in developing countries where its provision and access points are scarce and the quantity is inadequate. Abonyo (2002) reiterates this on the Kenyan situation and argues that the little research done on housing contributes to the scarcity and poor understanding of the information by information professionals, which leave little room for better information management coupled with identified access to credible sources in the sector. These can deter information use more widely.

2.4.2 Technology Use

Information technology use has emerged as one of the most significant development in the current centurion developments. Egberongbe (2011) reiterates that; it is the sweeping change that has caught up with information specialists in libraries and documentation centers since it has brought about the change from use of print medium to that of electronic resources (e-books and e-journals) and open accesses systems. IT is used for information processing and services it is also applicable on information access as a tool for gaining required information in the format that is desirable, which has made the use of information more acceptable to scholars. Construction professionals need and use information, and appreciate the application of IT in their organizations. This is emphasized in their visions in recommending that IT usage could improve information services as discovered in this research.

2.4.3 Types and Range of Information in the Housing Sector

The study of housing is considerably wide, as it includes many key housing construction related areas of specialized subjects (Abonyo, 2002). Besides, the housing sector development in itself is intertwined with the subject of human settlements; world cities generate abundant information that includes housing, which Smith (1978) and Bayer (1958) recognize in their works on housing.

When cities generate housing information, the information includes issues on urbanization which carries several topical issues such as planning, housing, environment, land and its usage others. This information is mostly available in institutions of learning where scholarly information may be found. International institutions such Un-Habitat and NGO also house topical information as well as the ministries concerned. In the recent past, some publications from the concerned ministries are now channeling some related information such as on slums upgrading, informal settlements up scaling and by-laws. This information covers most areas of housing development.

Information concerning housing construction can generally be classified as social, economic, political and technical since housing relates to human well being. It is associated with wealth, on ownership, its production relay of technical construction undertaking, that involves human labour and land use which involve decisions from state on land management. This is mostly specific on urban land use.

The ICONDA construction database (1986) is one of the great sources of housing information since it accumulate bibliographic information on building material used for construction, construction technology literature, social economic issues dealing with

Human Settlements.(Choguill and Silver Roberts ,1992). These together form literatures of varied subjects gained from formal educational researches done on issues that are embraced by many scholars. However, in developing countries such as Kenya, the formal schooling and research that has been done on housing was delayed due to lack of renowned scholars to train others in the area. Despite the delays, the 1980s saw the onset of forward movement on training of construction professionals locally and the beginning of a generation of sector information. But the indigenous Knowledge is still not sufficiently studied to warrant substantial authority. Chisenga, (2002) says that the African continent produces only 0.004 per cent of localized information in world databases with South Africa leading in contribution. This means that there is scarcity of information generated from research in the African continent. The local Housing literature is inclusive in the bracket of those that are scarce.

2.5 The Meaning and Description of Housing

The subject housing is explained in many ways. *The Advance Oxford English Dictionary* (2004) explains housing as “flats, houses for people to live in and so forth”. The Kenya Population Report (2002) provides that a house "is a dwelling unit or a place of bode with private entrance occupied by one or more households. A place of bode can then be perceived as a decent shelter or residential structure occupied by one or more for the purpose of normal human activities and living. It is a space for household operations such as entertainment, eating and sleeping, which provides security, comfort and seclusion for a household to feel they belong to that particular dwelling.

A house differs from other building types such as offices, granaries, garages or bars (Bayer, 1958). Housing construction itself is the process of building in readiness for

occupancy, security and for the protection of human life. The housing sector as it were, brings a set of issues into other focuses. Housing is an imperative basic human requirement, and as an aggregation of the dwellings in urban settlements, it plays strong social forces (Smith, 1971).

2.5.1 Smith's Contribution to Information on Housing

Smith (1971) recognizes that housing is a widespread phenomenon and he authoritatively elaborates on it as a technical and social subject for discussion.

On technical aspects; housing refers to the process of production. The output devoted to housing construction is often segregated from other types of constructions such as office, factory and public buildings (e.g., halls, schools, hospital, others). Much of what is understood of the term 'real estate', in the context of the development of land, construction of buildings and exchange of properties that applies to offices and factories, applies also to housing so that in describing the housing sector, one inevitably gets involved in matters of wide interest"(Smith, 1971). Though housing is a necessity and for a lay man may mean simply a unit of dwelling, its production involves more resources to facilitate the process of its production The housing sector is a sub-sector within the category of private investment or construction which appears in national publications of economic statistics in many countries. As observed by Abonyo, in this research (2010) during surveys and literature reading, Kenya housing production is depicted and viewed in areas of: approved plans for construction, building repairs and renovation and the volume of building materials sold. Although these sound statistical, they also count of what went on technically.

2.5.1.1 Quantitative Aspect of Housing

Smith (1971) further gives an insight that housing has so many quantitative dimensions; hence the statistics of housing do exist in abundance. This is also agreed by Kakumu (2006). The study of housing construction may deal variously in terms of numbers of housing units or the number of floor spaces or the aggregate cost of construction of new dwellings. This may exclude or include the value of land.

The business of housing may cover the statistics of the profitability of owning buying, selling, leasing, refinancing or even renovating of houses Jorgensen, (2013). The developed worlds' government agencies and Census Bureaus produce the most reliable statistical information about housing. Sometimes this information has to be inferred from reports dealing with other issues such as population growth or movement and total national investment. In Kenya the last two census reports (1999, 2009) and other government reports such as Statistical surveys depict the same.

Local governments for example through their planning agencies are likely to keep closer watch on certain aspects of their immediate housing situation such as the volume of kind of building activities, real estate business. (Smith, *ibid*). This is true on numbers of approved building plans in Kenya.

2.5.1.2 Social Aspects

The social sides of housing are not always considered important, yet they are vital in the study of housing. These are the area where data on racial, age, or occupational groups are of interest to developers. For instance, the characteristics of a household moving into an area are important to schools, public officials and merchants as well as property owners.

The description of housing generates information on technical or social studies which is needed for informing students and professionals in the construction sector. The information makes the differentiated meaning between housing construction and other construction types.

2.6 Shelter Sector and the Nature of Housing

Almost all cities in the world face housing problems. From the Northern continents' cities of Europe to across Asia, and the Southern continents' cities of Africa, the tales of housing problems are similar. Key professionals, the social reformers and ordinary city dwellers have raised protests against housing conditions. This universal problem has always persisted. What most people ask is: *what is meant by housing and how much of it is needed by communities?*

Housing is often referred to as shelter; therefore, shelter is a part of what is meant by housing. ; *Shelter and housing* are synonymous and most of the times they are used interchangeably and depending on the degree of expectation. In developed countries, for example, housing is viewed as a permanent structure with required amenities, while in less developed countries it is a structure that offers a roof over the heads of families irrespective of how it is constructed. The term 'housing' is therefore more complex, as it means different things to different people (Smith. 1971).

In most nations, the housing sector forms a significant portion of the economic systems which is concerned with the production, the management and the distribution of housing. This blend of private and government activities vary from one country to another.

However, the role of a government remains substantial, even in countries where the government allows free housing market.

2.6.1 Development and Demand for Housing

Generally the demand for housing by citizens of any country is a constraint to a sitting government (Abonyo,2002). In the United States of America (USA), housing demand still surpasses government plans, leaving the gap to be fulfilled by private developers and local communities. There are foundations that volunteer to help poor communities build their shelter such the Jimmy Carter foundation on Habitat for Humanity (Habitat for Humanity - an occasional journal produced by the foundation) The US President, Barack Obama, worked and lived amongst the local black community of South Chicago at Atgeld Gardens in Illinois with a mission “to listen to the complaints on housing conditions and try and solve housing problems by arguing for the government officials to look into the plight of the people of South Chicago” (Obama, 2004).

Nevertheless, the effect of housing demand is more felt in developing countries’ economies such as Eastern Europe, Africa and Asia whose housing stocks are inadequate compared to the demands. This emanates from factors such as underdeveloped industries and non-performing economies. UN-Habitat observes, (1996) that some of these countries have faced lengthy war periods such as in Afghanistan, Pakistan and some parts of India and Sri-Lanka. In the African continent, lack of industrial development in Africa south of Sahara (except South Africa), where majority of the population are deprived of decent living in the rural areas and therefore migrate to capital cities to try their lack on securing jobs are some of the reasons. The upsurge of the population has put pressure on

the government and their city authorities to construct more affordable housing for low-income earners (UN Habitat, 1996).

Planning for housing is still a challenge to many governments in both developed and underdeveloped countries. In developing nations housing the urban poor is still a tall order, as housing supplies by the government fall far below the expected number resulting in the development of slums such as in *Marrakech* in Morocco (North Africa), *Soweto* in South Africa, and Kibera in East Africa's Nairobi. The slums situation has been extensively researched on and reported in many academic thesis one of the famous one is Amis thesis on kibera in 1983. UN- Habitat also do substantial work on reporting slum issues this is evident in a UN-Habitat report entitled *Cities without Slums* (UN-Habitat, 1996).

The study of institutions that deal with housing related issued was done by amongst others Muraguri (1991). Other publications, such as national development plans, statistical abstracts and economic surveys comment on housing development in Kenya annually and indicate that the country suffers acute housing inadequacy. These documents reveal that, there is a shortfall of 150,000 housing units per annum in the urbanized towns. (KNBS 2008)

2.6.2 Golland and Blake

Housing development entails housing supplies in terms of the right type, right numbers, in the right location and at the time of demand. This makes it a complex issue. Planning for housing provision therefore is still a major challenge worldwide to date.

Golland and Blake (ed,2004) are of the opinion that, as recent as 2004, the British construction industry workers recognized that housing development was a multi-faceted process in which virtually all aspects of everyday life had some input. In some countries, social economic factors which are both global and domestic have affected housing supplies; for example, as a result of globalization, building materials and manufacturing have been reflected by regional inequality. This has emphasized the regional inequality resulting in the closure of large factories and institutions. Also, the advent of information technology as the basis of new employment has made it less necessary for working communities to migrate from one region to another; for example, coal mining and steel making employees with efficient and reliable transport systems coupled with easier communication systems have made it unnecessary for families to change their residential areas. This directly affects the function of housing development (Golland and Blake, 2004).

Shelter, house or home is the expression of a term used for a place of one's own in a city. A home is viewed as self-respect and security, and brings a sense of belonging which forms the basis of better living. The urban poor often live in desperate shelter situations with deplorable social, physical and environmental conditions in many cities, which many a times results in slum conditions. Lack of durable housing, sufficient living area, access to clean water and proper sanitation are amongst many challenges facing the cities of the world today and bringing with it the challenges in social segregation termed in many forums as the *urban divide*.

2.7 UN- Habitat on World Cities

The organization restructured this studied in several reports covering global situations of housing demands and development this in terms of numbers have been reported in world development reports including the World Bank reports, the UN Economic Commission of Africa that reported elaborately on Human Settlements in their report on “the role of Housing and building. Distinctively is the UN- Habitat reports covering various countries and their housing problems. These studies were intense as earlier as 1980’s and continued till today. Some of these reports based on various aspects of housing; including the study of building materials in 1995 and building and health 1997.

The world is urbanizing rapidly; the United Nations had projected that, by the year 2007, half of the world population would be living in urban areas (Habitat Debate, 2005). While the urban areas are attracting rural to urban migration, thereby creating overpopulated cities, they are hubs which offer residents chances for innovation and make it difficult to stop the rural exodus. This makes the world cities face huge challenges with housing being one of them.

World cities have been discussed extensively by UN- Habitat in its regular document on the state of “*World Cities*” (UN- Habitat, 2010). In the recent past, a new perspective has embarked on defining the outlook of African cities in terms of housing. Notable is the release, in the new millennium, of such perspective by Huchzermeyer (2011). She specifically used the trend in discussing housing by looking at the way the City of Nairobi was taking a new trend of solving housing shortage by the development of the construction of ‘tenement.’ This is a housing typology that is believed to solve housing

for low in-come city dwellers. Although better than slums, tenements also pose overcrowding and soon will be unsuitable housing for many.

Today, there is a great body of literature that specifically relates to the study of housing included and not limited to the following issues: appropriate technology, building material research, environmental issues of both scientific and social and decent housing affordability and others.

2.8 Housing as Economic Indicator

Housing information in Kenya is factored in many government policy documents, which indicate that the economic indicators for development in Kenya include the construction sector which embraces the housing sub-sector. The various indicators are summarized in economic surveys and statistical abstracts as well as development plans. The documents indicate whether peoples' living conditions have improved by mere construction or renovations of a number of houses, and infrastructure development such as an improvement of roads, access to clean water, garbage-collection and other construction activities that contribute to cleanliness in the human habitat.

According to the Kenya's *Development Plan 2002/2008*, the performance of the housing sector improved by a larger percentage compared to the previous years. This indicates that the labour market in the construction industry also improved in terms of economic performance. The number of houses constructed adds up to the improvement of better living standard and well-being of the population and the city outlook.

In recognition of the importance of the shelter sector, the Kenyan Government created a full Ministry of Housing (MoH, 2005) unlike in the past when the ministry was merged

with other ministries (e.g. with Ministries of Works, Lands and Settlements, etc) or was only a section of the mother Ministry. Today there is evidence that, with full mandate and independence, the Ministry has worked tirelessly to formulate favourable policies; for example, the Building and Planning draft bill of 2009 will contribute to the guidelines on housing development, which are expected to be adhered to by key professionals and home builders. The result is hoped to improve on the betterment of housing conditions in Nairobi and alleviate slum pandemic in the Kenyan cities. The improvement will have fulfilled the UN-Habitat's mandate of having *cities without slums*. This will mediate the current condition of the City of Nairobi, which has persistently been a city with slums (Huchzermeyer, 2011).

2.8.1 Housing Statistics Information

The subject of housing is so large that no digest of statistical information can be sufficiently offered in a discourse of the nature of the housing sector. This however does not mean that numerical information is of minor value in this field.

According to Smith (1971), in the early times in the USA, the decennial census of housing provided detailed information of high quality concerning the nature of housing stock, its occupancy, price and financing. The annual report on housing of the department of housing and urban development contained information of many housing programmes in which the Federal Government was involved. Still today the bureau of labour statistics collects and publishes current data on construction activity and housing costs (USA housing document, 2008 accessed at the US embassy library, Nairobi, 2009).

In Kenya as in many developing countries, housing statistics has not *specifically* been numerated in details. This makes the study of housing provision a difficult subject to deal with (Kakumu, 2006). In the recent past, attempts have been made to numerate housing statistics in various interim government reports such as economic surveys and statistical abstracts. This has also been noted in the last Kenyas two population census reports of 1999 and 2009.

2.9 Housing and Health Information

Housing and health is an important subject for those dealing with housing provision. Housing conditions and its environs determine a great deal on the well-being of the occupiers. Hardoy, Cairncross and Satterthwaite (1990), in their contribution in *Housing and Health*, lament that the very poor people die young and one of the causes of young people's deaths is lack of adequate and good housing. Regarding poor housing conditions they say that:

...it makes hundreds of millions of people in third world countries live in overcrowded houses with no safe water, no sewer and no health care. There are no garbage collection services or drainage to prevent flooding. For the injured there is no professional help and no ambulance to get them to hospital; even if they got there they would lack the money to get their admittance, the result is an unprecedented scale of ill- health and premature deaths.(Hardoy, Cairncross and Satterthwaite, 1990).

It is vital for the public to understand the repercussion of poor health as it relates to housing. Technically the housing and health issue is in terms of space occupancy and the

environment in which dwellings are constructed. The role of the government is therefore to come up with policy regulations for guiding technocrats and professionals on building by-laws. The regulations back the professionals' knowledge in providing excellent services to the public and easing their decision-making as they serve the taxpayers, with ample knowledge. Poor housing conditions are apparent in many urban centers in Kenya. In Nairobi especially, residential areas were originally zoned to emphasize accommodation of cultural differences which also depicted the way the respective residents understood hygiene. Hence, differentiation of residential areas is associated with class (Rader, 1966; Nairobi Metropolis, 1948). The western part of Nairobi (Westland) was zoned to accommodate the whites and after the majority left the country following independence in 1963, the area came to house the middle and high income lots who were better placed to afford good living.

On the side of Nairobi, (Eastland) the area was physically zoned to accommodate low-income urban dwellers who barely survived economically with most of them in a state of lowest measures of well-being. Their dwellings/housings are situated in areas prone to poorly constructed housing and environments that pose health hazards. Nairobi has, in the recent past, experienced rapid population growth estimated at 3.9 per cent (KNBS, 2009), but without the expansion of public services and provisions such sanitation, garbage disposal, clean drinking water, as well as ample space to accommodate the occupiers. The element of good housing emanates from design with enough ventilation built with non-hazardous building materials.

Kamau (2000) observes that though public and private sectors have made efforts to increase the supply of adequate and affordable housing, there is still an overwhelming

need for housing. Those who cannot afford decent housing resort to living in slums and unplanned settlements which are characterized by poor living conditions such as inadequate sanitation and overcrowding, Kamau (2000) continues to further observe that a onetime well planned middle income housing estates in Nairobi such as Jericho, Umoja, Madaraka, Karioko and Kaloleni are characterized by deteriorating housing conditions. Even the estates once secluded for middle-income such as Eastleigh have now experienced high population density and illegal expansions without proper sanitation. These have high potentials of morbidity due to overcrowding and filthy environment. Some low-income settlements such as Dandora are built near solid waste dumping, while others are situated near industrial area such as Mukuru and Embakasi where they experience the effect of industrial waste's stench and noise from flying airplanes. These easily cause various diseases that stem from environmental conditions.

Studies have shown that, living in poor housing and deplorable residential environment have higher mortality rate than living in good quality housing and cleaner residential environment (Hardoy, Cairncross and Satterthwaite, 1990). There is also the danger of inferno incidents as was experienced at Sinai slums in Nairobi in September, 2011. Cleaner environment is devoid of such disease as mental illness, infectious diseases and criminal activities (rape, defilement of minors, etc).

Information concerning housing and health is essential to public health inspectors whose tasks are related to building inspections. Supervision plays a significant part in housing construction and the environment in which the construction takes place. Public institutions mandated to supervise building construction such as the selected studied institutions in this research need to access information on housing and health in order to

use it in advising the relevant professionals accordingly. CCN needs this information more since it is in charge of the capital city whose population is composed of populations with different levels of income some of whom cannot afford the same health care facilities yet they all need to live in healthy conditions.

2.10 Housing Construction and Labour Information

Mittula and Wachira (2003) foresaw the importance of the labour market in the construction sector as it contributes to the construction performance in economic development. Construction is the art of building by using both hands and machines and is the section within the housing production process as well as the physical facilities surrounding the built environment and used for services in terms of roads, bridges, drainage, water dams that are useful to human beings. In the housing sector, construction enhances the art of production by providing skilled and semi-skilled labour because the actual building itself is labour-intensive. Mitulla and Wachira (2003) emphasize that the construction industry in Kenya involves a large work force of formal and informal employment. The labour force also plays a significant role in determining the quality of houses that are produced in housing projects (Waliaula, 1992).

In the construction sector, there is need to understand the building material types and the markets involved. This information enables the effective integration of constructors operations which are often spread over large geographical areas (Harris et al., 2001) Construction organizations have to rely on information from various sources.

Masu (2006), states that the sources of construction information, including housing construction information, can be grouped in two categories, namely internal and external

information. Internal information covers both the informal and formal reporting mechanism employed by construction companies. These mechanisms range from documents that are company derived to those that address specific projects or other issues. External information addresses the interaction between a construction company and its business environment such as companies, manufacturers and consultants and these resources may include books written by experts or brochures with details on a particular product. Since housing construction is prevalent in large towns such as the City of Nairobi, this study justifies the importance of understanding the information on housing sub-sector of the construction industry.

Wachira (2008) recognized the need to contribute knowledge by adding literature on construction labour vide a thesis on this phenomenon. Otieno (2006) elaborated the point by identifying key construction professionals listed as architects, quantity surveyors, land developers, engineers of various categories, planners, and health and building inspectors. Otieno's contribution is based on the understanding of the roles played by these professionals.

2.11 Laws and Regulatory Information in Housing Construction Industry

The environment in which any accommodation is built should be designed and constructed for safety and healthy living purposes. In the built environment sometimes this is lacking especially in urban cities where land is expensive and scarce and appropriate building materials are unaffordable for the majority poor. Badly designed, poorly constructed building and unethical work at construction time may shorten the life of a building; buildings that are shoddily done have a tendency of quick rot, decay and eventual collapse. They may be also being expensive to maintain. It is important to

observe the regulations concerning housing construction; hence they must be documented as is the case for Kenya.

2.11.1 The Building Standards and Regulations

When land is not enough to accommodate many households, and when the dwelling still has to be constructed, there is need to provide guidelines on space standards. This helps to avoid poor housing designs, unhealthy living environment and construction of buildings that are disaster prone in case they are irregularly built. The relevant institutions concerned with housing research and development need frequent consultation to review by-laws and regulations that affect planning, development and monitoring in the building sector including housing. Consultation of organizations in the housing construction sector happens world-wide. For example, in Britain, they include the efforts by the British institutions coming up with building standards (e.g., B.S. 4046 on Specification for Compressed Straw Building Slabs, etc.). In Kenya, those who take part in reviewing the by-laws are the City Council of Nairobi, the related ministries, and individual experts in building regulations. They have been producing documents that exist on building regulations since the colonial times. These documents include as the following: The City Council of Nairobi Building By-laws (1949); The Public Health Act (1961); Building By-laws and Planning Regulation (1993) - popularly known as Code 95; Review of Building Codes and Regulations by Housing Research and Development Unit by Yahya (1987); and Kenya Low-income Housing By-laws by Agevi (1986).

In 2009, a team of experts from the relevant ministries, the City Council of Nairobi, NHC, universities and individuals converged to revise and propose a new legislation, which became Building and Planning Bill (2009). The subsequent legislation would

become a reference document for guiding the professionals in their daily tasks, and hence form part of literature embracing local content. Such information is appropriate for teaching the prospective professionals, especially in the construction sector. In addition the knowledge would be relevant for informing the ordinary Kenyans, including home owners, construction companies, as well as tenants. It would also act as a hand book for understanding the regulatory and government measures that control the housing construction sub-sector. They form literature that can be popularly accessed and made use of by key construction professionals.

There are research thematic subjects that discuss different topics on housing. One of the major issues frequently featured in the media and is discussed amongst construction professionals, but which also concerns all Kenyan citizens, is the issue of building failures and collapses. The topics on these issues have been reviewed by Otieno (2006) who blames slackness in observing the building regulations, especially on design and negligence during the construction process.

Currently there is frequent reporting in the press on the issue of collapsing of buildings. This is a phenomenon that is of public interest and the media provides a conducive forum for the exchange of ideas and opinions. The varied opinions and views are a good source of information, which brings in the experts in the construction sector sometimes in defense of their profession. Among the professionals is the Architectural Association of Kenya (AAK) that has come up to explain building failure. Therefore, information on regulations is important to direct the ethics of building construction and if keenly followed the country can rid itself of building failure and protect the house owners and even tenants.

2.11.2 The National Housing Policy Documents in Kenya

The housing sector is governed by several policy and legislative documents such as the Housing Act (1972) Cap 177 of Laws of Kenya, National Housing Policy (2003), and the National Housing Corporation Act (1968 revised in 1996). Also, there is the *Sessional Paper No. 5 of 1966/67*, which led to the creation of a government ministry specifically to deal with housing issues. The Paper also led to the conversion of the Central Housing Board into National Housing Corporation (NHC); the latter was to become the main agency for developing affordable housing by utilizing government and other agencies' funds. Other developments from the Sessional Paper include the creation of Housing Research and Development Unit (HRDU) in 1967, the establishment of Housing Finance Company of Kenya (HFCK) to promote home ownership through mortgage schemes and cooperatives such as NACHU. East Africa Building Society (EABS), a privately owned institution, was also founded as result of the Sessional Paper. Thus the paper formed the foundation on which all subsequent plans relating to housing were anchored.

Kenya Vision 2030 addresses the pertinent issues relating to housing delivery in the country and proposes the measures that will tackle the housing problems generally. Its main context is the argument that the government alone cannot construct and provide adequate housing to its needy citizens. It suggests that, for the country to realize the expected output of housing stocks estimated to be 150, 000 units in urban areas and 350,000 units in the rural areas per annum, the government will have to rally all actors in both public and private sectors. It recommends a combination of factors contributing to housing production embracing finance, land, research and institutional arrangement as the basis for the preparation of housing development programmes in the country (Kenya,

2006). While the policy documents provide guidelines on issues of housing in the country, they constitute a valuable handbook to researchers for carrying out housing research.

2.12 Land Information and Housing

Generally, land is a given foundation of all human activities. Humans depend on it for obtaining essentials such as food, space for work and shelter. Land is also an asset which can be used for commercial purposes. As observed by Binns (1988), land is the most valuable resource; it is the means of life. More intensive use of land and the need to take care of it has raised global concern on careful stewardship. Housing itself sits on land; hence, those concerned with housing construction should understand the intricacies of land issues.

The study of land has led to re-evaluation of the need for information pertaining to land and programmes that may provide information about it. Increasingly, it has been recognized that, policy makers, planners, land administrators as well as individual citizens all have a need for information about land. Binns (Macloughling, 1988) continues to remark that, “Accurate knowledge of natural resources (of which land is one) and descriptions and records of such knowledge are essentials to human use and conservation.” This therefore includes knowledge about land.

The value of any information and its effectiveness can be experienced based on the impact on decision-making. This is also true on the issue of land information. As a base for human activities, a system of land records has great importance for public administration. Thus, it is effective in land planning and land development and

transaction. This situation is particularly true in developing countries where the rapid population growth has caused an increasing pressure on land while massive migration to cities and towns has led to uncontrolled growth of urban centers, infringing on the size of city land. Information reduces uncertainty by helping to identify and analyze problems and the strategies to overcome problems. In relation to land, the information is requisite for making decisions related to land investment, development and management.

According to Dale and McLaughlin (1988) many governments in developed nations spend a lot of money on collection and management of spatial related information. In Kenya today (2013-4), the experience is tot amounting as observed in this research.

It is presumed that larger countries (China, USA and Russia) could be spending billions of dollars (equivalents) on five-year plans on spatial data collection and management. While many developed countries started dealing with land issues/ problems earlier, their land management is more or less controlled and has helped their migration systems to avoid pressure of settling foreigners while occupying their land. Land information system and management has proven to be very costly for developing nations (Dale and McLaughlin, 1988).

2.12.1 Land Information in Kenya

As with the case of other resources, land information needs to be carefully managed to maximize its potential and benefits. In Africa, especially in South Africa and Zimbabwe, land plays a big role on politics of nationalization. In Kenya, the Mau-Mau upheaval of the 1952s was an indicator of African protest against colonial settlers claiming their ancestral land. To Kenyans, like many other countries, land is central resource upon

which every facet of development is hinged. Since it is a valuable asset, many people are dependent on it and need its information. For these reasons several Kenyan authors have attempted to give information about land, in the last two decade several other scholars have attempted to discuss issues of land and its development. They include Syagga (2009), whose contribution is on informal land management and property rights, and the late Professor Okoth-Ogendo (1999) who highlighted issues on land policy and development not only on Kenya, but also on the wider Eastern Africa and became a renowned consultant on land matters.

2.12.2 Land Information System: Land Policy in Kenya

Information on land forms the basis on which housing information must be included. In Kenya, the main hindrance on housing development is scarcity of adequate urban land allocation for housing development.

The issue of land ownership has always been intriguing and is still an intricate one in the country. This has brought several arguments by the public, especially the politicians, thereby generating debate in parliament. In the beginning of the millennium the government saw it fit to investigate land use and allocation to understand the issues that have bogged economic development. As a result, the Ndung'u Commission was formed to investigate land ownership. In June, 2004, that Commission came up with the *Ndung'u* report, which has become a good reference on local content and reference on land information for Kenyans.

Land matters have also affected human settlements, especially in the Rift valley in Kenya. Many people have lost their habitat which they have occupied for decades.

Coupled with the outcome of election violence which saw many people displaced in 2008, this has been a lesson to Kenyans that if not handled professionally, land issues can be a detriment to human settlements and development. The information on land should therefore be treated with utmost concern by the government so as to avoid land conflicts. Good land information system and good record keeping is the key answer to land systems management. It will also serve well those who wish to construct their houses in none or less disputed land.

2.12.3 Land Tenure and Housing Information

Land forms a major resource when considering construction projects. Housing construction is therefore dependent on availability of land. In urban centers where the population keeps increasing, land for housing development can be scarce causing intriguing problems for shelter development. It may result in systems where poor people who cannot afford land squat on other people's lands. Thus, when it comes to urban or social housing, the issues of land must be well defined to allow inclusion of informal settlers in wider cities. In Kenya today land where informal settlements exist, such as Kibera slum, land debates on this settlement causes intensive debates both through the publics and the politicians. Despite such debates there has been no proper solution for dealing with slum land in the country.

As mentioned earlier, land for housing is an acute problem in developing countries than developed countries because it adversely affects lower income groups who cannot afford to purchase own land. Studies have shown that land tenure is more adverse in developing countries than in the developed ones. Cases of land tenure problems are more evident in South America, especially during slum upgrading programmes; when slum upgrading is

being considered in any city of the world, land tenure becomes a constraint. Florencia-Almansi (2009) recounts on the problem of regularizing land tenure within upgrading programmes in Argentina and describes it in the case of Promeba and Rosario as “a complex process of getting land title”. Securing land tenure is part of any comprehensive approach to addressing housing needs and environmental issues (Florencia-Almansi, *Environment and Urbanization April, 2009*)

Studies on social and economic conditions for households living with insecure tenure shows that urban poverty, land tenure and living conditions are strongly related. This is recognized by Durand-Deserve and Royston and Royston (2002). According to the latter, tenure insecurity hinders any attempt to upgrade housing conditions for the urban poor, it undermines long-term planning, and it distorts land services prices. Also, it has a direct impact on basic urban services. This is because residents in specific land areas, who believe that they will soon be evicted, have no incentive to improve their homes or neighborhood infrastructure.

Scholars have theorized about the difficulties of considering private property titles as assets that can contribute to the reduction of inequalities and urban poverty; for example, buying units of flats. These approaches do consider land tenure as social political and economic structures. A study from Bogotá in Columbia on land markets (Royston and Royston (2002), shows that, in the choice of home location, one of the influencing factors includes social economic networks, proximity to relatives and friends. Another point raised in the same study shows that, existence of public and other urban services and the investment made in house overtime are considered to enhance property value.

A study in Peru by Rio Frio (2009), “in” (The journal of the Built Environment, April, 2009) reveals that it is one thing to provide urban land, but another to provide only title. Land tenure security is a relief from eviction risks especially among the squatters. Hence, over the years, UN- Habitat has advocated the improvement of life for the household residing in precarious settlements. The tenure concept claim raised by non-governmental organization such as Habitat International Coalition advocates the right to housing all over the world (Rio Frio, 2009)”

2.13 Summary

In summary, the above literature recounts some of topical issues that key professionals in housing construction sector could access information on to enlighten them on relevant issues on housing construction. As seen in the literature reviewed, the information covering the housing construction sub-section is grounded in many unfolding subjects. The need to have an easy access to the wide range of information by professionals and use it for manipulating and propelling the development of housing sector is emphasized in this research. The study also forms the basis of bridging the gap on user study and information access.

The basic account of access and utilization of the housing construction information related theories were the theory of needs and the need to make sense in the right choice of information. These were explored in models of user studies and information needs theories models developed by Wilson et al. Dervin’s theory on sense-making was also drawn in the literature discussion. These studies contributed in enriching the discussion on theories of information science.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the research method used to carry out the study. The chapter is introduced and further discussions proceeds in the research design and strategy, the target population, the sampling method, data collection instruments and data analysis techniques, the ethical considerations and ends up with the summary on the chapter.

Research methodology is the ultimate procedure for undertaking of a research task. Nachmias (1996) call methodology a system of rules and procedures upon which researcher is based in order to yield the pre perceived results.

Nyandemo (2007), describes the research methodology as the process that requires principles to follow and be used in a procedure to guide the researcher when conducting the proposed area of a study. Mugenda (1999, 2003) dwells on research method and says that the methods are of procedures and techniques that have to be followed while doing research. But rules and procedures are subject to change as human mind construe new ideas.

This research followed a process and a method to investigate information access and utilization of housing construction information, with the aim of understanding information needs, access methods and habits of key professionals of the building industry in public sector in Kenya. Needs and habits are intuitive human natural characteristics which can be best measured by qualification of explaining *why* rather than quantification of how much or how many (Yin, 2003).

3.2 Research Design

According to Bennet “in”: Smith and Dainty (1991) “Research is a process of inquiry that adds knowledge of phenomenon. He explains the meaning of research as systematic, careful inquiry or examination to discover new information or relationship, and expound or verify existing knowledge for some specific purposes. Undertaking research remains a scientific process and the gist of it is concerned with problem solving and investigating relationship amongst the variables identified in the main research question. Through the process of investigation, a body of knowledge is built and a new discovery is arrived at. In this research which is stemmed from information science study, the main inquiry is to investigate in order to understand Access to and Utilization of information by a particular group of users (the professionals in the construction sector).

Smith and Dainty (1991) hold the views that; in undertaking a particular research the researcher must understand the assumption surrounding the research framework. The research perspective is the assumptions, values, paradigms underlying the research. Consequently in order to reach a successful value of the research outcome, the researcher must understand the strength and weaknesses of the undertaken and base them on one approach either as qualitative or/and qualitative inquiry but this depend on the research query, value and belief about the world through philosophical studies and depending on the researcher’s own world views. And so in the past, scientific research has always generated arguments on what method a particular researcher should use for investigating research questions and hypotheses. This has been centered on a two paradigmatic arguments on whether to follow the Positivism or Interpretivism orientations (Harris, 1998) or even to combine both. There has never been a consensus in this debate since no

single approach has shown to guarantee the best result. The decision has therefore always relied on the nature of the study and the choices of the researchers, basing the choices of the scientific arguments on the objective of their studies. In analyzing briefly the two paradigms, the two scientific approaches are distinguished as follows: the philosophical arguments of Positivism and Interpretivism.

3.2.1 The Positivists Perspective

The positivists believe that they can reach a full understanding in their research through experiments and close observations. Ryan (2007),“In” Odi (2010) reiterates that, concepts and knowledge are held to the production of straightforward experience, interpreted through rational deduction. To the positivist the purpose of science is to stick to what can be measured and be explained quantitatively. They depend on the survey method of data collection or experimental observation to measure the scientific phenomenon. Often the result is reported in statistical account which is devoid of any opinions of the researched.

This study does not seek a pure mathematical explanation or a closely watched and an observed experiment in a laboratory. Rather it sought to the opinions expressed from the minds of the observed which can best be explained using words. This study was therefore based on the interpretive paradigm, using a case study approach and conducted in selected three public institutions in Nairobi, Kenya. According to Busha and Hater (1980), case studies have been done in many areas including organizations and /or institutions including information centers such as libraries. This research is an investigation of institutions and therefore fits in the category where a case study may be applied (Yin,2003).

3.2.2 Interpretivism Perspective

Interpretivism is the study subjected to a natural environment and requires firsthand knowledge (Myers, 1997). Interpretive ideology is concerned with *meaning*. According to Flick (2002) the interpretive research seeks to understand social member's definition of meaning. The systematic analysis of social meaningful action through observation of people in their natural settings can bring out how people make sense of their social lives. This offers the understanding on how individuals or groups view and try to understand the world around them by constructing meaning out of their experiences (Hopefl, 1997). Interpretivists believe that human behaviour is not always predictable. It is highly individualistic and that one has the freedom to take the path they desire. One does this by expressing in their language and interpreting symbols. Only through these expressions can we make sense of their meaning. In the interpretive paradigm of Burrell and Morgan, Hassard writes:

“...the word is not a concrete form but rather is, the result of Inter- subjective experiences. The researcher's goal is to understand the process whereby shared reality is maintained...”

Based on interpretive paradigm, the researcher opted to study professionals' information seeking habits and access methods in their natural settings that is in their (organizations), on a case study approach. This was done by qualitative investigation using interviews to extract meaning and interpret them through qualitative analysis in order to understand through an insight of own expressions (language). It allowed the researcher to construct meaning out of expressed experiences from the researched (*make sense*). The main characteristic of Interpretivism approach is the qualitative investigation through inductive method and theory generation.

3.3 Qualitative Research Method

The research took an interpretive philosophical paradigm, which furthers the argument on the interpretation of meaning derived from behavioural studies on human action. Human action is intrigued by search for understanding on why things happen the way they do.

Qualitative research has its roots in social sciences and mainly used in anthropology, Sociology and philosophy. Its history dated way back from 1920. It has grown more steadily and attracted more focus in the 1960s with the discovery of grounded theory method of investigations and data analysis of Glaser and Strauss,(1967).

Qualitative research focuses on live experience, interaction and language of human beings.

Qualitative research as its own qualities such as:

- 1) *Primacy of data*- Researcher usually approach people with the aim of finding about them.
- 2) Research usually immerses themselves in the natural setting of the people whose thoughts and feelings they wish to explore. The researchers focus on views of people involved in the research to find out their perceptions and meaning
- 3) Qualitative Researchers tend to analyse, describe and interpret
- 4) The relationship between the researcher and researched is close and based on a position of quality of human being thus listening and be listened to
- 5) More uniquely data collection and analysis generally proceed together and in some form of qualitative research they interact

3.3.1 Qualitative Research as Applied in this Research

Many contemporary researchers including Newman and Yin (1994), argue that, human actions are presumably best measured qualitatively and not seeking to know cumulatively how much and how many, which is statistical and devoid of people opinions and therefore quantitative. This research was based on qualitative approach method which has become popular with current researcher. This is for its flexibility and conduciveness for resolving many types of research problems and therefore appropriate for different research questions.

Chosen for this research, qualitative research method was viewed as the suitable method that is flexible since it allows a researcher to incorporate various methods of analysis. This makes it possible to tie well with other techniques of analysis. Dey, (1993) connotes that:

“...Qualitative data is data that is analyzed as they are collected through the process of coding and enable the researcher to work simultaneously with both the process and the product...”

This system embeds well with the grounded theory steps of analysis. Such elements is seen in the way qualitative analysis has room for rigorous consideration of data in order to identify themes and concepts that attribute to understanding social phenomenon being investigated.

For suitability of this research, the following was considered in choosing the qualitative method:

- 1) Qualitative research gives room to accommodate human experiences under the philosophy of language used and meaning of actions relating to the broad research purpose. Tesch (1990) “in”: *Qualitative data analysis* Mile and Huberman (1994)
- 2) Qualitative researchers are not divorced from the phenomenon of study; instead the researcher must be flexible on their part by taking their own position in the settings and situations because the researcher is the main tool in investigation.
- 3) The qualitative method deals with human feelings, but humans do not always act predictably or logically; so as qualitative investigators, they turn to human participants for guidance, control and direction throughout the research.
- 4) Qualitative investigation is context bound.

More considered is drawn from Weber’s (1884-1920) opinion that:

“... As researchers, we should treat the people we study as if we were human beings and try to gain insight to their experiences and perceptions. This we do by listening to them and by observing them ...”

Qualitative approach is inductive in the sense that it requires the abstract constructs such as hypotheses, models and theories to be developed during the study (Odini1995). This avoids pre-conceived conclusions. For this reason, the method of enquiry and the abstract construct dynamically evolve as the study progresses as seen in grounded theory technique used in analyzing the collected data. During data analysis which is done simultaneously at the collection stage, there is production of clustering together of some aspects of data. This allows new concepts to emerge as analysis progresses. This process

also incorporates the development of theory. Newman (2006), reiterate that: “...*the only way to answer research questions and to interpret the findings is the use of theory*”.

Development of theories on information seeking behaviour of construction professionals was conducted on the repetitive enquiries and observations of the processes used for accessing information in the natural settings. During this time, parts of the theories had to be carefully described as they came to play for ensuring that the used theories were conceptually dense and valid. This is agreeable with Oding (1995).

In this research the use of qualitative research was done using interviews. Semi structured interview schedule was design to facilitate open- ended questions and a face to face approach was used for responding to the questions. The approach gave room to the respondents on freedom of expression of the mind and allowed dialectic data collection. Notes from the data were reviewed and compared continuously searching for perceptions and themes on a constant comparison basis. The arrived resultant of themes were then coded using Microsoft Excel to organize the data then transferred to rich text Word Document to differentiate the themes to help in finding similarities and differences between concepts and categories. These were done by answering the research questions posed for this study.

3.4 Research Strategy

The outcome of this study was intended to recommend a model; the kind of a framework for improving access and utilization of information by a particular user groups. The group was identified as construction professionals. The possibility of investigating such as a case was seen where housing construction information is generated, needed and used.

The case study was therefore strategically chosen to investigate the public sector institutions that have important roles in housing construction and therefore engage various categories of construction professionals.

3.4.1 The Case Study Approach

The case study approach was seen as appropriate for this particular study because it enabled the researcher to concentrate on specific instances or situations that permitted observation of information access processes and uses that professionals experienced in their work environments in the researched organizations. This could have not been clear in a larger scale survey where numbers and not opinions would have been the outcome of the research. Case studies involve a careful and complete observation of a social unit of a phenomenon. This enables a better understanding on a social phenomenon being investigated (Tellis, 1998).

3.4.2 Case Study Design

The various types of designs with which cases can be directed depend on the phenomenon to be studied Yin (1984, 1994, 2003). This study used a multiple case design which can apply in a situation where the investigator has access to situation previously inaccessible and where the researcher intends to reveal the case by descriptive information Yin, (2003). In this study the researcher described the information offered by respondents in revealing their mental constructs to information access phenomenon. A single case may be analyzed through an embedded design or holistic design. A single case study is appropriate where the study presents one single critical case and following a well formulated theory. This research used an interpretive theoretical argument.

A holistic design is applied when the researcher uses a single unit of analysis, while embedded design applies when multiple units are analyzed. In this study, for instance while investigating on phenomenon in a public institution in Kenya the analysis might include the outcome from several similar institutions doing the same thing. This would then be called embedded as opposed to single global unit referred to as holistic (Yin *ibid*). The phenomenon investigated in this research was *Access to and utilization of housing construction information in public institutions in Nairobi* replicated in a similar way in three public institutions using interpretive theory.

3.4.3 Rationale for Case Study Choice

The researcher found it appropriate to choose Public institutions namely: the National Housing Corporation, the Ministry of Housing and Lands, the City Council of Nairobi to be the cases of intended research for the following reasons:

- 1) In this research the subject choice is the people (key professionals) tasked with housing construction and so need information to support their cause. This gave ground for investigating information needs, uses and the seeking patterns, and allowed examination of groups of professionals through a detailed, in-depth study of research questions that were already identified.
- 2) The main characteristic of case study is that it focuses on the thing to be investigated. This allowed the researcher to delve into a more detailed manner in studying the phenomena as applied in the institutions' technical, administrative and information departments and professional category groups dealing with housing sub-sector in these institutions.

3) The value of the case study is that it offers the opportunity to explain *why* certain outcomes might happen. In this study it offered the opportunity to explain why an architect for instance looks for more information from a client (client brief) than a quantity surveyor whose information is based on cost analysis, rather than the idea of design. A land economist has to survey land and its environs before an architect can plan the use of space in that designated land and so forth, yet these professionals are working towards the same goal- that of *housing construction*.

Yin (1994) emphasizes that “...*The case is a natural occurring phenomenon.., it exists prior to a research project and is hoped to continue to exist once the research has finished...*” In relation to this argument, the organizations which were investigated were chosen as appropriate environments that have employed various categories of professionals playing in the housing construction industry. The activities of the organizations are mostly in Nairobi (although they extend, in lesser scale to other towns). Their businesses on housing construction are generated because of the continuous heavy demand for decent housing for large population residing in the city. Relating this to the aim of the study which was to investigate information needs and seeking pattern used by key professionals in the three organizations, the justification are in the following factors:

- a) The three organizations have existed before independence (1963), they have historical information to offer for the case studies. This is based on accumulated documentary evidences.
- b) The study offered an *in situ* condition, thus in original places in the organizations.

- c) The study was meant to seek the understanding of the types of information available in the institutions and *how* the seekers find and use the information.
- d) *Why* the professionals use the information they have at hand.

The study result provided an understanding of human behaviour in the information-seeking processes. The rationale for choosing multiple the case study and single design type is that it is derived from the researcher's understanding of literal and theoretical replications.

3.4.4 The Replica Logic

Yin (1984), reiterates that, in a replica logic it is imperative that there is a rich theoretical framework under which a particular phenomenon is to be found and if a theoretical replication is not found then literal replication is used. Replication logic is distinguished from sampling logic in that, in sampling logic there is demand for numeric explanation of potential respondents and statistical procedures. This study was not for documenting poor information management but for investigating factors that hinder or contribute to access to information in public institutions. The definition of units of analysis was done by logically looking at close relationship with the way initial research questions were formulated. According to Yin (2003), and Kothari (2004), the units of analysis can be an individual, a group of individuals or organizations. First the study was a case study in which the multiple organizations were the cases. Units of analysis were key professionals accessing and using housing construction information within respective organizations.

Second, the professionals had similar interest which was in housing construction issues, for which they required information. Third the three organizations all played a role in an important economic sector- the housing sector. Fourth the professionals usually interact with the public for which they are obligated to give honest pieces of advice and make informed decisions about the issues presented to them. This is why the researcher chose to investigate these public institutions in order to depict their cases as a unified case for the purpose of formulating policy guide lines on access to information, which can be beneficial to these organizations. The institutions investigated provided the natural settings while the researcher tried to provide the answer for suggested theories that supported what was intended of the research.

The case study method used involved collecting relevant informational data from institutional historical documents in several departments including McMillan Library, Human resource departments, document stores, (*building plans, and revenue collection records* department), registries, publications' department, data processing centers and so forth.

Others who also gave their information on information seeking and communication behaviours in the institutions included: librarians, ICT managers, registry personnel, field workers, executives and clerks, technicians and draftsmen social workers and secretaries. Their provided views and opinions was additional information that was also used to support the eventual findings through cross checking. They are referred to in this study as informants.

3.5 The Study Population

Following a research protocol, the first step in research is to identify the study population. The population identified for the study was construction professionals in Kenya. The target population was that portion which became a representative of the study population. They were derived from the construction sector professionals and selected in the studied institutions. The purpose for studying them was to maximize theoretical understanding through insightful views from their own words that could contribute to generalization of construction professionals' position on access to and utilization of housing construction information. The obtained views would be used to make inferences for the entire housing construction professionals.

Information was derived from key professionals whose jobs in the institutions studied are associated with construction work. The accessible population was drawn from the staff lists obtained from human resource sections of the institutions. The groups were purposively selected due to their core functions in the construction sector, and as trained and practicing professionals. What was also considered was their crucial experiences and knowledge they held of the industry and as workers of the public sector. In that sense they held some similar characteristics of which the entire construction professionals' population holds.

3.5.1 Sampling Procedures

It is impossible for a researcher to study the entire population therefore a researcher must draw a sample size from a target population. A sample is a finite part of a statistical population whose properties are studied to gain information about the whole population

(Bailey, 1994). A researcher should work out a portion to represent as a sample of total population that is being studied. Sampling involves selecting a population having similar features of the same elements of a studied population. This population is referred to as accessible population. It is from which the researcher can apply their conclusion as representative of the total population so as to make certain observations of the elements of the study and make conclusion regarding the entire population.

The purpose of sampling is to use a relatively small number of cases to find out about a reasonably larger number and get a representative sample from that larger population for the study and be able to produce accurate generalizations about the larger population Gorard (2001) and Mugo (2005). This means that when the results have been collected from the studied sample they may then be generalized to a whole population.

3.5.2 The Sample Size

The study had no sample frame to justify the working population in selected the institutions. The researcher used non probability sampling. Sampling involved selecting a population having similar futures of the same elements Kothari (2003). This was skewed to target public sector institutions situated in Nairobi.⁷⁴ housing construction professionals drawn from the three institutions were willing respondents and availed themselves for the interviews. This made the sample purposive. They gave their opinions and views on access to and utilization of housing construction information in their institutions. In addition, the researcher sought views from 50 informants for the purpose of cross-checking views form key respondents (professionals). The skewed selection of the three institutions was done on the following premise and considerations:

1) Although the three institutions had their administrative mandates differ slightly, they had a homogeneous characteristic in that they play important roles in housing construction in the country and in Nairobi in particular.

2) The institutions engage key construction professionals and despite the difference in number which made it difficult to define sample frame, they had one similarity in that, construction professionals categories engaged in each institution cut across the target group of: engineers, architects, quantity surveyors and planners trained and practicing that were needed for inclusion in the study.

The skewing was done using the employers' lists. It is from these lists that the researcher purposively chose the types and category of respondents. Included were all categories of professionals. The appropriate sampling size could not be predetermined since each institution had different numbers in category sizes. Some categories such as public health and sanitation professionals, environmentalist were only engaged at city hall. But they inspected houses built by all institutions. The Ministries of Housing and Lands once formed one ministry. They sometimes share the services and consult each other and are still sharing the same building (*Ardhi house*). The element of consultation brought out clearly the issue of sharing information in the study.

There were also 50 key informants that were consulted for their opinions on Access to and Utilization of Housing Construction Information. This category were found to have used or handled housing information by the fact that their jobs required them to work closely with the professionals in one way or another The category included; technicians, sociologists, technologists, secretaries, administrators and executives, librarians, records

managers of the selected institutions. The informants were important in the study because they influenced the information seeking habits and communication channels used in dissemination of information in the organizations. The main reasons for including them were their role in providing assistance to key professionals. This situation compelled them to use or handle the information on housing construction.

They were distributed as Follows:

Population sampling is the process of taking a subset of the subject for the study and must be selected proportionally with the targeted population. In this research however, this was not feasible due to the fact that the researcher deliberate chose the individual institutions and justified it to participate in the study. The study was not based on hypothetical development (quantitative methodology) but a qualitative one where the researcher qualifies the phenomenon. The researcher used non probability sampling. Baker (1999) observed that qualitative inquiry specifically focuses on-depth of a relatively small sample where even a single case may suffice. Kothari (2004) argue that there is no rule in sample size in qualitative inquiry and that sample size depends on: what one wants to do, the purpose and goal of inquiry, what will have credibility and what can be done with available time and resources. These views were noted and considered in this study and consequently only a small sample was required to do a detailed inquiry. There are various reasons for choosing respondents in qualitative research.

Variously they are listed by Slater (1990) that: the choice of the selection of respondents in qualitative research depends upon the research objective and the research budget. Slater (ibid) further explains that, qualitative research is interested in in-depth and details rather than breadth, and adds that because of time and cost, the researcher can interview

in depth and detail a limited number of individual respondents as the number will depend on financial and time constraints. Further it is said that useful qualitative work can be done with as few as 20 interviews. It is argued that, size of sample can be influenced by purpose, the population size and so forth, as long as one gets the needed information. This means that if the items under investigation is homogeneous, a small sample can serve the purpose Kothari (2004), Mugo (2005 including Marshall (1996), an appropriate sample size is one that adequately answers the research questions. The distribution of the size of categories tuned out as shown in table 4.1.

The categorical distribution was:

Eight Architects, 11 Engineers, 20 Quantity surveyors, 17 Land economists, 13 planners 2 Lawyers and an environmentalist and 2 building inspectors. These were not in a predetermined frame but were the ones available during the research process.

It was however noted that City Council of Nairobi had a bigger represented sample of planners while National Housing Corporation shared physical planners with city hall and did not engage physical planners except one economic planner.

3.5.3 Sampling Technique

Different sampling techniques were used to investigate access and utilization of information by key construction professionals. These included stratified and purposive sampling methods. The stratified method was used to select 74 professionals in the three selected institutions for the study. The justifying reason was to ensure that all category units in the institutions were presented. This gave the professionals in all the organizations equal chances of inclusion in the sample except where they did not exist. The study also utilized a non- probability sampling method to ensure that different groups

were represented so as to increase the level of accuracy. Stratification involves dividing the population into separate stratum. It ensured that all categories of professionals were represented. The first stage involves stratifying the three organizations: the CCN, the NHC and the MoH. The second stage involved deciding which elements within the cluster to use. The main category was decided to be professionals. The professional category consisted of Architects, engineers, the Quantity surveyors, land economists, the planners, others including lawyers, health or building inspectors and environmentalists distributed as shown below:

Table 3.1 Illustrates the category was distributed

(N=74)

Category of professionals	City Council of Nairobi	National Housing Corporation	The Ministry of Housing	Total
Architect	3	4	1	8
Engineers	7	3	1	11
Quantity surveyors	4	2	14	20
Land economists	10	4	3	17
Planners	12	1	0	13
Others including : environmentalists, building inspectors	3	0	0	3
Lawyers	1	1	0	2
Total	40	15	19	74

Field data replicated in page 133 as table 4. 2

Informants

During the course of a study a researcher may meet people whose knowledge and cultural scene proves to be valuable for achieving research objectives. These people are referred to as informants. Informants are important set of groups in research study because they have rich information, skills and insightful knowledge in the subject being evaluated. They inform the researcher about key feature and processes of the scene. According to Lindolf and Taylor (2005), people who make the best informants display one or more such characteristics stated below:

- a) They have long experiences in the scene by having risen through the ranks, so they are a reliable source of information.
- b) They have served the scene in many different roles and have the institutional memory.
- c) They can speak knowledgeably about peoples' responsibilities and roles in their organizations.
- d) They understand the organizational cultures and can debrief the researcher on contextualized issues and meaning. In short the informants are savvy social actors.

On the part of the researcher; if one is likable, trustworthy and eager about the organization they are researching, it is not difficult to find willing informants. On these considerations, the researcher opted to interview substantial number of technicians, sociologists, librarians and junior field officers. Included too were; managers and directors in areas of specializations so that ample information could be obtained about their work.

In this study the group of informants were found to work closely with the key professionals and therefore held useful information that assisted the researcher in the investigation. To enrich the study therefore, additional information was obtained from the 50 informants drawn from various sections of the organizations. The departments visited were: environment, social housing, public health and inspectorate, technical departments, libraries, registries, administration sections. Purposive sampling is a form of non probability sampling which is characterized by the use of judgment and deliberate effort to obtain representative samples. Various authors including Frankel and Wallen (1993 and Hoepfl (1997) observe that purposive sampling enable the researcher to choose samples he or she believes would provide the data required and argue that the method is the dominant strategy in qualitative research. The researcher therefore chose this method to select key informants in the said departments to enable the researcher to deduce more information which may have been hidden during the interviews with professionals. Information was also useful for verification purposes with the information elicited from key respondents. The informant's information was not analysed but used for cross checking the answers of the key professionals. This is supported by the reasoning that qualitative investigation is not based on how many in number is investigated to yield a good out-come of the research but on how rich in depth are the answers.

The distribution of informants as were interviewed in respective institutions is reflected in the following table.

**Table 3.2 The Category of Informants Interviewed
(N=50)**

	Categories of informants	City Hall	MOH	NHC	Total
1.	Technical field assistants (Sanitation and repairs)	8	1	0	9
2.	Architectural design Draft men/ women	1	0	5	6
3.	GIS Mapping and topographic assistants	3	0	0	3
4.	Librarians	1	0	1	2
5.	ICT Technologist	1	2	1	4
6.	Assistant librarians	2	0	0	2
7.	Library clerks	1	1	1	3
8.	Sociologist	2	2	-	4
9.	QS- Field officers	4	2	2	8
10.	Assistant Health and Building Inspectors	2	0	0	2
11.	Environmental impact assessors field assistants	3	0	0	3
12.	Secretaries	3	0	1	4
	TOTAL	31	8	11	50

Source: Field data 2010

At city hall there were two different offices to visit.

One is in the CBD area and another one at Dandora where the department of housing development department (HDD) was housed.

3.6 Data Collection Methods

Data collection procedure was qualitative approach of questions and answers redesigned on interview schedule, critical questions and observation list. The results were constantly compared to fit in with the grounded theory style and method of data collection which reorient on theory formulation as data is analyzed. Critical questions were administered to some key respondents, purposively selected because they held responsible positions and were deemed to have appropriate facts to the required answers.

3.6.1 Data Collection Instruments

There were several instruments used to collect data. This included: two Interview schedules, one observation checklist and document reviews. A large interview schedule was prepared for collecting data from all respondents including the informants. Another separate list of critical questions was drawn for probing some professionals deemed to have appropriate answers because of the position they held. This was to provide an opportunity for respondents giving answers to what was considered critical issues that would produce reality of their situations on how they accessed information and the problems they encountered when faced with a difficult task instantly. A case in point was *Mavoko* controversial land deal that took some professionals unawares on who had the information or where would one source the needed information immediately. More issues that came about were the decanting site at Soweto East in *Kibera* and some issues of NHC house sales.

Observation

In qualitative research, observation is one of the key techniques of gathering data. It implies that the researcher immerses in the research setting and passively observes certain events in organization's systems, instruments used including human behaviours so that there is experience of first hand range. In this study the researcher concentrated in observing activities in organizations understudy in order to verify what was pre positioned and counter check with information given by respondents. See appendix on check list. Kothari (1994), states that observation is scientific method of data collection that is systematically planned and recorded through an established check and control. According to Hancock (1998), observation is useful in validating collected data through

other means such as interviews and experiments. It is a means that gives the state of affairs of what is going on in the activities in the scene giving an account of actual state of affairs. In this study observation was made in office settings and construction site visits.

a) **Office Settings**

In this study; use of ICT facilities, telephone types (land line, cellophanes) and other ICT connections of LAN, WAN, availability of other media gadgets was observed.

In addition there was inspection of libraries, registries, stores and other spaces where information could have been stored. An observation list was used impassively to check tools and equipment used in these institutions for the professionals to gain access to information. The instruments in questions included. Media communication gadgets such as radio and Tele vision sets, others included the presence of news papers. The presence and use of ICT gadgets; such as computers, modems, flash disk and others. Also observed were: communication systems such intranet. Visited were McMillan library net work in city center and Eastland (*Kaloleni and Makadara* branches).

Site Visits

In the city, field observation was made where professionals participate such as building sites Observation was made on housing typologies (Slums, tenements, site and service flats, Maisonettes, Bungalows built for civil servants and for sales to the public) The sites observed were: *Kibera* slums, site and service scheme in *Dandora*, flats in Karioko and *Madaraka*, other typologies built in Eastland such as tenements in *Embakasi* and single

rooms in *Makadara*. *Kileleshwa* was visited to observe bungalows and so was Adams Arcade's Woodley estate.

The general environment in which people lived in a city situation was also observed. This was to understand the responsibilities and roles of environmentalist, building inspectors and planners. A site such as Dandora dump site was observed to complete the verification of the polluted built environment scenario. Site visits provided room to observe unplanned housing construction, filthy estates, Un-collected garbage and polluted rivers at Dandora. While observing such areas, the researcher was able to interact with the public and get information on house designs which were not in accordance with building regulations. The views of the communities was blaming the unprofessional way some of the building came up (*Si hii ni mambo ya kanju*: this is the issue of council officers who do not practice professionally).

By these observations it made the researcher develop the theory of Sense making in information access vis a-vis (*looking for it from the source*) information need (*looking for what I want*). By capturing field activities, human actions or behaviours, it was possible for the researcher to interpret conversations through interaction with members of the public and professionals, thus observable human experience. In this way the researcher was able to understand the difference between information from face to face encounter with respondents and those drawn from observation in the offices as observed by Patton (2005). This undertaking provided the steps to developing grounded theory data analysis and developing theoretical perception from data collection processes.

The researcher used the observation method because of inherent advantage in the study nature. The study phenomenon was observable by the fact that housing construction is a practical venture. Housing in the city is observable by available housing estates, building processes in construction sites. There was opportunity for witnessing of information sharing and consultation of different categories of professionals. In a building site it is possible to find an architect, aQS, a development control officer and possibly a lawyer arguing their case on the fate of the development site. This situation is where the construction professionals share information relating to one project. In addition documentary materials were examined to give more insightful information on the study.

Secondary and Primary Documents Analysis

In qualitative approach selected reading from primary and secondary sources support the inquiry. They are used to explain aspects of data and theoretical observation. According to Busha and Hater (1980), primary documents include: official documents, personal documents, sates publications, contemporary articles, news papers, personal papers, theses, these are firsthand information. In this research firsthand documents analyzed were used to explain the findings. These consisted of: reports, institutional memo, project files, house plans and building construction designs, maps produced from GIS, brochures; rent registers, revenue receipts and others primary documents.

Secondary information are; books, journals, magazines, government documents others. These are considered information driven from second opinions. As secondary information in this research consisted of: News papers (these formed weekly news on housing (home and away magazine in the standard news paper), housing journals, theses,

Nairobi maps, Government publications such as economic surveys, development plans, vision papers, housing bylaws others. Also included were theses, UN-Habitat publications and books on housing. These formed major readings. Consulted also was information obtained from information science articles and books, some sourced from the internet. These literatures were useful in supporting the endeavored researcher with the necessary information and insightful knowledge on the topic of research.

Interviews

The main method for collecting data in this study remained interviews.

The purpose of a qualitative interview is to predict the truth from a person being interviewed by trying to understand the interviewees experience and perspective on the situation in question. Interview serves various purposes amongst others:

- a) Verifying, validating or commenting on the information obtained from other sources.
- b) Testing hypotheses developed or the questions the researcher wants answered in the field.
- c) Achieving efficiency in data collection as observed by Taylor (2002)” In” qualitative communication research methods (T.R.Lindolf and B. Taylor, 2002).

To achieve these points the researcher should prepare and pretest the set of questions that predict the direction of the research. In this sense the research prepares a list of questions or a schedule to guide the research. An interview schedule or a guide is a list of questions or topics that an interviewer intend to explore during the process of interviewing. According to Patton,(1990) one way to provide more structures in a unstructured,

informal conversational interview while maintaining a relatively high degree of flexibility is to use the interview guide strategy.

In qualitative studies interviews are regarded as the most important instruments in data collection. It has an advantage in that it allows interaction between the researcher and respondents, creates an atmosphere of probing to elicit hidden answers that would not come out in a quantitative survey. The conversation between the participants yields more data which is truly confirmable Yin (2009). The purpose of respondent interviews is to elicit open ended responses. The role of the researcher in the interview is to understand these responses and interpret them correctly or to larger degree of truest meaning in order to clarify meanings of common concept and to determine what influences a person to form an opinion or to act in a certain way.

In this study the interview schedule was used to ensure good use of usually limited interview time. It made easy interviewing the professionals and informants because it was a way of following a more systematic and comprehensive method of eliciting data and it helped to keep interaction focused and amicable atmosphere between the researcher and the respondents.

An interview schedule with open ended questions was administered on a face to face basis and used for simultaneously gathering data in line with grounded theory style. The interview method used in this research was semi structured interview schedule. A broad set of standardized questions was used to guide the interviewing processes and was administered to both the key respondents and the informants. Baker (1999) recommends the interview method as the most effective method of gathering information in so far as

social research is concerned. Hussey and Collis (2003), observe that interviews can enhance data collection from participants who are asked questions to find out what they think or feel about a phenomenon in question and why they did things in a certain way. Interviews conducted properly can yield more information Kerlinger (2000).

Contrarily it is reiterated that, if interviews are too rigid, they can lead to short responses that lack the depth of information that may bring out critical issues. In this research interviews helped and enabled respondents to frankly express their perceptions about the critical issues on information access problems in their work environment. It also ensured the uniformity and consistency in asking question in details. And by probing the respondents, it helped deducing the answers from all directions of the questions under investigation while the respondents gave their views in own words. Regarded is that the information given through the interview is more likely to be accurate as the researcher who is present can clear up the seemingly in accurate or irrelevant answers. By explaining the question to respondents the interviewer is able to attentively check and rectify the responses to the direction they want best in attaining the desired data. The first part of the interview schedule comprised of personal information on bio data of respondents. The next parts sought information on information need, purpose for seeking information, information systems in the institutions, accessibility of information sources, information use and constraints experienced.

Interviewing

The questions emphatically asked to informants included; their roles and responsibilities, and the departments they worked for. The researcher wanted to establish from the

respondents whether the interviewed professionals obtained the needed information from those in charge with taking care of the institutional information such as directors and information managers, (IT, Librarian) and whether needs and wants, and types of information were met by the institutions through managers of information.

Interviews were done in various departments of the organizations (*as listed in the appendix*). Note books were mainly used to record the interviews. The interviews lasted between 45 minutes and 2 hours. The answers from the interviews and other noted information from observations were quickly cleaned, edited and systematically coded for comparisons. This was done for every interview taken and as it guided in following the grounded research. In the process of interviewing professionals, the researcher was able to identify the problems encountered in providing information to the professionals and what in their views should be done to improve information access and use. The set of questions on critical incidents for probing key respondents was used to elicit more detailed information in line with the grounded theory method.

3.6.2 Interviewing Using Critical Incident Technique

As discussed earlier in this chapter, qualitative research methodology using grounded research method was argued as the framework to answer the research questions. To gain the expected answers from the interviews, certain critical questions must be asked to give the mental model that people construct in their minds about how the world works around them. (Odini,1995, Bryman,2004) To discover the critical issue, data was collected by interviewing. One of the main purposes of interviewing on such aspect is to surface the critical issues of concern. The results from the interviews by probing are the foundation

of showing a real situation. On the part of the researcher it was therefore important to make the interviewees feel important and that they were making a valuable contribution on the subject of discussion. The critical challenge for the interviewer is to listen or be accepted as a listener. To achieve efficiency in data collection the researcher usually selects persons to interview if their experience is central to the research problem in some way. What is considered is that the respondent may be expertise in a skill or discipline or the role they play is crucial in the scene being researched. The interviewee may occupy certain status or social category for example in seniority, expertise, skills or discipline. These qualities may contribute to the needed elements for getting the solicited information as observed by Lindolf and Taylor (2005).

On the other hand to attain the maximum answers the interviewer must be attentive and ask questions to direct the search for appropriate data. There must be interaction for successful interview. In addition it is important to assure the interviewee that all information will be kept confidential.

The interview was conducted on the basis of who was available and willing to participate. Other factors that precipitated included; skills, expertise, knowledge and discipline which cut across the respondents characteristics. By using semi-structured interview, a broad set standardized questionnaire was used to guide the interview.

The notes taken from interviews were used for provisional analysis. They were used as a guide during more interviews in comparing the replies. The interviews were coded for preliminary analysis of data. As the interviews continued more and more data was

generated and were codified depicting grounded theory method of research and data analysis.

3.7 Method of Analysis

The research method adopted for this research was modified grounded theory approach. This method of analysis has become popular with social science researchers.

3.7.1 Grounded Theory as Applied in this Research

Grounded theory was developed by Glaser and Strauss (191978, 1987) out of research experiences. The two were concerned with outlining an inductive method of qualitative research. A social phenomenon such as behavioural phenomenon is a complex phenomenon that requires a conceptually dense theory that is capable of accommodating a large variation of phenomena that unearth during the study. Odini (1995), reiterated that several other researchers whom he listed have pursued grounded theory technique of data analysis. Included are: Ellis (1987), Brown, (1990), Soto (1992), Strauss and Corbin (1994) in information science studies. In the later years, in various disciplines using it on information seeking behaviour were Denzin (2003) in health studies, Corbin (2008), Bryman (2008) in information science. Fazakerley (2005), for example used it on the study of organization's critical issues on future planning. These researchers have contributed useful knowledge and admirable comments on the grounded theory style of qualitative analysis.

Grounded theory is defined by Bryman (2008), as the theory that is derived from data systematically gathered and analyzed throughout the research process. The researcher develops theory about a phenomenon by systematically gathering and analyzing relevant

data. The aim of this type of research method is building theory and not testing theory. Data collecting, analysis and eventual theory development stand in closer relationship to one another.

The development of theory out of data makes the approach interactive or recursive Oding (2009). This research method does not test or verify any preconceived hypothesis. Instead the processes of analysis develop new theories based on systematic collected evidences. The dense theory development mechanism makes the grounded theory method of data analysis suited for analyzing a social complex phenomenon such as information seeking behaviour which is a social human phenomenon.

Noticeably therefore, whereas other forms of qualitative analysis may legitimately stop at levels of descriptions of simple interpretations, the uniqueness of grounded theory is the theoretical development drawn from new concepts that keep emerging till saturation is reached.

Grounded theory is sometimes referred to as a process and technique that specifically includes elements of qualitative interpretations of human thinking and senses made out of that thinking. This is recognizable in the use of language (*Verstehen*) expressed in the thinking. Sense making theory advanced by Dervin (1983, 1986), in information seeking is another theory that was pursued in the study. This was complimented by the theory of need relating to the need for specific information for task solving.

The methodology and techniques followed in the process of analyzing data, justified the use of grounded theory method of analysis in this study. It provided a set of procedures

for coding and analyzing data. This suited the interpretive approach followed in the study since it kept the analysis closer to the data and provided inductive discoveries of issues on information needs, seeking patterns and human behaviours in a situation of need for information in work environment. In line with this approach, the researcher's interpretation of events and situations involving key professionals actors provided the building block for theory construction. The study developed the theory which demonstrated sense making in information seeking, the need to synchronize information sources and resource used by professionals in search for the information needed. Grounded theory method of analysis is based on several premises in that:

GT is a methodical undertaking to process data while analysis takes in the due process of data analysis, theory development becomes the central concern in data handling and analytical development, *"making theory at various levels of generality to be indispensable for deeper knowledge of social phenomena"* Odim (1995). Odim (ibid), reiterate that;

"-.....The analysis involves grounding in data making the results not speculative.

While following the GT methodology, what is emphasized is the development of many concepts and their linkages in order to deal substantially with the central phenomena studied during a particular research project. It is by raising the generative questions in the research projects that, distinct comparisons of data yields concepts, hypothesis and their relationships. These factors come out of examinations and thinking through the data often in conjunction with the experiential data as later alluded by (Fazakerley, 2005).

Through the process of analysis, the researcher explores many concepts and their linkages. This continues until the coding yields conceptually closely related *dense* theory as more and more linkages are suggested and formulated. And while answering the provisional questions, the theory is not just discovered but also verified. Strauss and Corbin (1987), and Lace and Luff (2000), recommend the following stages in the process of doing grounded theory of analysis.

Open coding which is initial familiarization with data

1. Delineation of emergent concepts
2. Refinement of conceptual coding schemes
3. Clustering of categories
4. Searching for core categories
5. Core categories leading to identification of theory.

The above stages were not linear stages in this study. Rather the process of grounded theory was cumulative and involved frequent visit of data in the new analytical ideas that emerged as data collection and analysis progressed. Attempts were made to apply theoretical sensitivity; that is to see the research situation and its associated data in new ways and

3.8 Analysis Procedure

Data was analyzed using Grounded theory style. Grounded theory method blends well with qualitative data collection.

3.8.1 Grounded Theory Method of Data and Analysis

Data was analyzed as they were collected through the process of coding. The three stages of coding: open coding, axial coding and selective coding were followed. At the primary stage of coding (open coding) common themes of everyday activities were identified and examined in relation to the context, meanings and circumstances on access or lack of access to information by professionals. Interviews were coded by conceptualizing underlying patterns in data. There was more focused data collection, leading to further conceptualization and refinement of the coding schemes. As part of coding, similarities and differences about codes were clustered together to create categories. Conceptual saturation was reached when new categories were not generated.

For instance, generation of categories can follow the steps shown below:

Open coding:

1. * Information access

Axial coding

2. * Access methods:

.2.1 electronic accesses,

.2.2 manual accesses

.2.3 Oral accesses

3. **Selective coding** (saturation level)

.3.1* Electronic: Radio and television= (media)/short message service/e-mail=(internet)

.3.2. * Print based: *book/ journals/ magazine/ newspapers*

.3.3.*Oral communication: **discussions: - formal**= organizational meetings, workshops

Conferences

- **Informal** = discussion at personal levels.

The process of coding generated concepts in broader terms and perceptions that conformed of narrower codes until no more codes could be generated. Coding was done in three stages already mentioned: open coding, axial coding and selective coding. At the first stage of coding (open coding) the concepts that contained transcriptions of the interviews with professionals was made general. No priority of category was imposed on the data. But the interviews were carefully analyzed to obtain provisional codes that could organize the data. The categories identified were:

Open coding phase;

- *Information on respondents
- * Information needs
- * Accessing Information
- * Access channels
- *Access constraints.
- * Information Technology use
- * Information flow
- * Barrier to flow
- * Suggestions

At the second stage of coding each of the main categories was analyzed to discover the various subsequent codes (axial coding). As shown:

Axial Coding Phase

1. Information on respondent category

- *Characteristic of respondents* Length of service *Level of education

2. Information need Category

- * Information use*Types used*Ranges available

3. Information Accessibility Category

- * Information systems* services

4. Access constraints

- * Poor information services * Information scarcity

5. Access Channels Category

- * Internal*external*Oral*Written*electronic

6 Information technology use Category

- * Technology use* Skills training* Equipment and gadgets* Preferences

7. Information flow Category

- * Information supply *Information distribution

8. Barrier to information flow Category

- * Poor information management

9. Suggestion Category

- * Information system design

3.9 Pilot Study

After obtaining clearance and the research permit granted by the Ministry of Education Science and Technology, the researcher proceeded to visit the selected institutions to seek permission to embark on data collection. With the authority letter from the said Ministry, and the cooperation of human resource managers in studied institutions, it was possible to access professionals for interviews. A pilot study was done to test the instruments validity and reliability in six organizations. This was to verify the validity and to

ascertain the reliability of the instruments used. Appropriate corrections were done to clean the errors before embarking on the actual data collection. The study used interview schedules, an observation check list and documents review to collect data. Data analysis was done using grounded theory style.

3.9.1 Validity and Reliability

Validity and reliability are issues of concerns in a given research. They are the yard sticks of measuring the accuracy of the research findings.

Validity refers to measures on how well an instrument may measure the accuracy of what is suppose to measure. It is determined by specifics of purpose for which phenomenon understudy is evaluated, investigated and examined by a given measure. In the study the researcher intended to assess the opinions of respondents their attitudes, feelings and understanding of what they were being subjected to on the topic of Access and Utilization of Information in their institutions. In referring to the methods used to collect data for this study which included interviews, observation notes and open ended questionnaires on a face to face approach, these instruments were used for hypothetical verification measures. Out of the information gathered, the views were tallied with the supporting literature to verify aims, of the study by assessing the answers that were given verbatim in order to validate if the outcome anticipated was arrived at.

Reliability

Reliability tests the consistency of measures which in this study tested if the method of inquiry produced the same answers driven from different respondents on the same question thus testing and retesting the instrument used; for example reliability was tested

when professionals were asked the reasons for which they needed information at work places. Varied answers were noted such as: *I need information to improve my work performance; I need information for career advancement and obtaining an advanced degree.* The researcher noted that the answer did not aim at what was being tested.- *Information for work.* Noted was that; although an advanced degree would be beneficial to a respondent, it was not for solving work problem at that particular time. During data gathering reliability was also tested on biased answers. Such was detected when some respondents were asked if the organization provided IT equipments. Some of the answers that were obtained were bias: *City hall does not provide computers to us. The organization is not IT compliant...*

If one relied on such answers it would appear that City Hall has never provided computers to any employee. The truth is; although City Hall has not provided computers to all staff, but there were computers in departments of planning, although not many, there were computers in revenue collection department, and secretarial sections. Such answers checked reliability on the way the interview schedule was structured and so made the researcher to rephrase the question. *Do you access a computer for official work in your department?*

Also checking the reliability of the instrument was during the pilot study time. In this study the actual data collection was preceded by a pilot study. According to Wiersma and Jurs (2005), a pilot study is when initial draft of questionnaires and interview questions are tried out with a pilot run. A pilot run should be done with a limited number of participants usually between five to ten identified respondents. These participants are the

people who would assist the researcher in answering the questionnaires and interviews so that the researcher would be able to identify the errors in the research instruments before proceeding to the field to collect data. The research instruments was piloted with eight professionals composed of 3 architects, 2 quantity surveyors, an engineer and two planners in construction practices in Nairobi. They helped in identifying ambiguous and poorly worded questions in the interview schedules.

The pilot study was carried to establish the reliability of data collection instruments and to ensure that all collected data at this stage was relevant. It also tested the suitability and adequacy of the data collection instrument. The responses to the interviews were checked for consistency and content validity. The pilot study was thus useful because it helped to determine the reliability and validity of the research instruments and the information collected. Kerlinger (2000) sees reliability as the accuracy or precision of measuring instruments, and with this in mind, it was after testing the critical incident questions, that it was found that, the use of critical incident questions alone did not allow the collection of broad range of information and that the information gathered from the set of question was restrictive and narrowly focused. A decision was then made to introduce some adjustment to the interview schedule so that critical incident approach was not used alone. By such correction the instrument for research was polished and then become reliable and valid use in searching for data and eventual analysis. In addition the executives who have the authority in decision making were interviewed to ascertain some findings already recorded during analysis. Such was confirmation on; lack of computers for all in the organization, poor library facilities, in adequate budget allocation to establish libraries, lack of space to accommodate libraries and so forth. In recording the

views of executive, noting what was said by professionals and observations made by the researcher, the findings were more reliable.

3.10 Ethical Consideration

For any academic research in Kenya, there are protocols to be followed. These emanates from the institution the research is associated with and the national protocol. This researcher adhered to the regulations and guidelines prescribed by the Moi University for preparation of theses and dissertations and the University's information policy which concerns itself with the maintenance of ethical standard including the protection of human resource subjects.

Following these guidelines, the researcher sought the necessary consent to conduct research from the Ministry concerned. The Ministry ascertained that, it was satisfied that the study was ethically sound as stated in the section of ethical considerations section in the proposal. There was sensitivity about the category of respondents - (Professionals) in the Housing construction and the institutions selected for investigation; that these were highly placed people working in core government departments, dealing with sensitive issue – *housing*. The respondents were told about the auspices and purpose of the study. The condition on which data would be published (academic forums) and that the anonymity of individual and data sets would be kept confidential and safeguarded.

The view of Bulmer (2001) is that, norms of science advocate the search for the truth as the driving force behind the creation of knowledge. This view predisposes the main objective of sociology which should be to search for the truth. Truth was therefore, sort by way of cooperating with informants, establish trust and create empathy between the

researcher and the searched (subject). The study was guided by the principle of informed consent. The respondents were therefore interviewed on the account of their consent and not forced mentality approach in avoiding imposed beliefs.

3.11 Problems Encountered During Data Collection

Various problems were encountered during data collection period. The major one was tracking respondents, particularly the key professionals who found to spend most of their time at construction sites. To even get an appointment to record an interview, the researcher had to be in their offices as early as 6.30a.m. A considerable amount of time was spent on waiting for those who would not make times that early by rescheduling not just other times but other days. This was particular with engineers. The time spent on waiting was a set- back on period allocated for field work. There was also the challenge of traveling to City Council of Nairobi offices in Eastland (Libraries and *Dandora* and *Kayole* offices and halls to get hold of some officers (surveyors and engineers). The main impediment here was time spent on traveling on the road due to traffic jam. This experience was on both side of the researcher and the researched. Data from the Ministry of Housing was difficult to collect due to absence of officers who were either meeting outside Nairobi or working on *kibera* decanting site. Compared to last two institutions, the researcher had a better experience with the National Housing Corporation respondents.

3.12 Summary

This chapter is an over view of the methodology followed in the study. The nature of the study influenced the choice of the research methodology. The study was an investigation

of: *Access to utilization of housing construction information in the selected three public institutions in Nairobi*. The study was based on qualitative paradigm. The philosophical paradigm that guided the researcher's argument was based on the Interpretivism and enjoined with the theories of sense-making. It gave ample details of descriptive nature with few tables to explain the findings where necessary. Interviews, indirect observation notes and scientific literature comprised the main tools for data gathering. A grounded theory technique was used to analyze the data, with the views that, there was higher chance of yielding the descriptive details for qualitative results required to complete the study.

Grounded theory research as adopted in this study took the following trend:

The research method used for this study was a modified grounded theory, adopted from Glaser and Strauss (1967) Strauss and Corbin (1990). In the spirit of grounded theory, data was collected by interviewing and engaging with respective people in selected public institutions. Data was coded, analyzed as the results were being obtained. The development of theories was observed as they emerged from the data in stages of analysis. The theories that were developed included the theory of needs and sense-making as the two permeated in the information seeking habits and needs for information use in solving tasks. In the information science studies, theories can be adapted from other social science disciplines, because it includes user studies. The user study phenomenon relates to human thinking, habits and needs.

The characteristics such as needs, habits and thinking are associated with behavioural studies. Human needs can change with the conditions or situations experienced. A

pressing need can be prioritized leaving other needs to be satisfied later depending on the conditional need that is pressing. To satisfy the pressing need is by way of sense making. The theories developed for this research are in part, on factors about accessing information and use by professionals. To make choices out of many information sources and to select the needed information from these choices needs sense-making.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

The main objective of this chapter is to present the research findings; what respondents said about information access in the housing construction sub-sector, the challenges and issues that faced the information environment and information behaviour in the studied organizations. The findings are presented first as category concepts followed by the researcher's comments. Quotes from the interview transcriptions allow the respondents to speak for themselves. Quotes are identified by the indents, italics and so forth.

While the main research objectives was to unearth information access and utilization of by key professionals in the housing sector public institutions, there are important issues that were discovered to have effects on information flow and provide uncertainty of smooth information access. Several questions were asked about these issues and are referred to later in the chapter.

4.1.1 About the Categories

The categories and concepts identified provided some useful insights in the organization on data that was deduced from the study. It strengthens the thoughts and facts that the researcher came across during the analysis of data. It is also a reflection on some reading of Wilson (1979) and Bryson (1990) on categorization of professionals.

Table 4.1 Categories and Concepts

	Open coding (Categories)	Axial coding (Concepts)
1	*Information on respondents: Response rate	Characteristics of respondents Category distribution Education level Length of service
2	*Information needs	Information use Types used Range available
3	* Information accessibility	Information systems, Services,
4	* Access channels	Oral, written, Electronic
5	*Access constraints	Scanty information, poor systems
6	*Information Technology use	Technology use Skills training, equipments and gadgets Preference
7	*Information flow	Information supplies information distribution
8	*Barrier to information flow	Poor information systems
9	*Suggested views	Information system design

These categories were defined as fundamental issues or topics concerning the information access and utilization by key professionals. The categories were subdivided into themes (open coding) and sub topics (axial coding). In total there were nine categories as explained below:

4.2 Information on Respondents (Response Rate)

Seventy four key construction professionals serving in construction sector in the public institutions were interviewed. The researcher also obtained information from fifty informants. The researcher's main target and concentration was the key professionals. The researcher found that, they were the main users of construction information in the investigated institutions. This was due to their training backgrounds, and the entailing tasks they undertook on housing construction.

The informants' information was not analyzed since their contribution was to produce generalized information to crosscheck the key views obtained from key professionals who were the main respondents. Although they were interviewed using the open ended questionnaire, designed for also interviewing key professionals their responses were used confirming and noted for verification or cross checking on what the professionals said in the entire interview schedule. Therefore though the schedule for collecting data was the same, some of the questions that were probing were not administered to the informants.

There caliber consisted of: field assistant officers, the sociologists, librarians, the library assistant's, junior environmental impact assessors, secretaries and others who were not construction technocrats.

This caliber was found not take part in housing construction design and implementations as chief overseers. Their jobs were to get instruction from the professionals. Therefore, their information use or handling were more passive that active in terms of construction projects.

A case in point is narrated in Dandora site where the engineer sends sociologist to find out urban poverty cases so that rent defaulters culprits' cases can be decided upon by the executives and or directors who are considered professionals. In the same stance for Librarians, registry officers, these only handled the services of producing information for a professional to use but not the exercise of overseeing house building processes. The field officers/ draftsmen and junior technicians were instructed by the professionals for their undertaking, so they were not decision makers. However, the researcher needed thought, to find out information environment, verify the types and wide range of information they handled to give to their bosses. Their answers were only for verifications and had no in-depth analysis to warrant serious presentation in the research process. Theirs were recorded in note books to cross check the questionnaires that were administered to professionals..

4.2.1 Category Distribution of Housing Construction Professionals

The categories of key professionals and the numbered interviewed were: 8 architects, eleven engineers, 21 quantity surveyors, 17 land economist, 13 planners. These are the main technical team whose knowledge on house building makes major inputs in construction projects. Others who were included in the team of professionals are: One environmentalist, one public-health or building inspector and two lawyers. The role of the later categories: (lawyers, environmental impact assessors, public health/building inspectors) are considerably important as professionals in the housing construction sector since without them, a smooth beginning, advancement on construction processes until occupancy stage cannot be optimized. Their jobs take them to the construction sites to verify, ascertain the suitability of living environments and the legality of the built assets.

The 50 informants whose opinions were sought included: building technicians, records managers and librarians, ICT personnel, draftsmen and women, administration and executive staff. The informants' opinions were sought due to the close working relationship with key professionals binding them to handle and sometimes use housing construction information, but not as the chief decision maker.

The informants' views and opinions were additional information that was noted and thus enriched the findings in the research (see the distribution table on informants).

Table 4.2: Distribution of Professionals According to their Professional Affiliations (N=74)

Category of professionals	City Council of Nairobi	National Housing Corporation	The Ministry of Housing	Total
Architect	3	4	1	8
Engineers	7	3	1	11
Quantity surveyors	4	2	14	20
Land economists	10	4	3	17
Planners	12	0	1	13
Others including : environmental assessors, building inspectors	3	0	0	3
Lawyers	1	1	0	2
Total	40	14	20	74

Research data (2010)

4.2.2 Levels of Education of Professionals

One of probing questions asked to the respondents was the level of education one had.

This was to guide the researcher on knowing the intellectual levels and to find out what

kind of information such a person would want or need. The table below shows the education levels across the interviewed professionals that responded.

Table 4.3: Levels of Education. (N=74)

Level of education scale	Number of people	Frequencies in Percentage
Higher Diploma	6	8.2
Bachelor holders	43	58.6
Masters holders	23	32.0
No response	2	1.2
	74	100

From the findings, the interviewed were educated to higher levels. The highest were at Masters Level. The Bachelors level formed the majority, while the Diploma level composed of the fewest in number. There were one or two respondents who did not respond to this question.

4.2.3 Years of Experiences

The definition of a professional is described variously but the ultimate meaning the researcher adapted was on what implies in this research that connotes that: a professional is a person whose experiences and level of education is intensified in a particular area of discipline, the person has overtime accumulated enough knowledge and skills to allow them to undertake tasks associated with their specialty with ease. The table below illustrates length of service of respondents. The time served manifests, in the experience a

professional had in the industry and accumulation of knowledge and skills attained including formal education and trainings.

Table 4.4 shows: Length of Service of Professionals N=74

N. of years served as a professional	Frequency	Percentage
0-4	11	14.9
5-10	23	31.0
11-15	6	8.1
16-20	17	22.9
21-25	4	5.4
26-30	9	12.2
System	4	5.2
	74	100

The finding indicates that the majority of interviewed key professionals had substantial years of work experience, notably were between 5- 10 years, forming the highest and followed by 16- 20 years which takes 22.9 %, those who had experience of 21 – 25 years formed the smallest number.

4.2.4 The Professionals Hierarchical and Functional Roles

While all the 74 interviewees who participated in the interviews were considered as professionals, some of them hierarchically occupied different positions. These positions consisted of directors, managers and technicians, technical field officers and high ranking

support staff and their assistants; each individual needed information for his/ her area of work.

The positions of directorship, their assistants and those of managerial ranks were not separated for a different analysis. They were considered as professionals despite their extra additional information for positional work their need for extra information is presented below. Examples were:

4.2.4.1 Directors

These were the people in charge of large sections of operations.

Found as directors were:

At NHC- Directors of technical department, Human Resource and so forth.

At the MoH were:

Directors of housing, Slum upgrading (KENSUP) and so forth.

At the C CN there were directors of:

Urban and City planning, City treasury, Social services including housing, Engineering, and Environmental assessment.

The researcher deemed that there was no need to present the number of directors separately as they formed part of what was considered professionals in relation to this thesis.

4.2.4.1.1 First Line Directors were Complimented by Assistant Directors

Several specialists worked under these directors. All directors were specialized in their own areas and owned professional qualifications.

Directors' information needs were in technical areas, management areas, and professional areas. The numbers interviewed are not separated from the working population. Part of their views are in architectural work, engineering, quantity surveying, land economics planning environmental impact assessing, and building and health inspection, Law-reinforcing on building and land use to mention some. There were directors to oversee architectural work, SQ, property valuation of institutional assets, Planning and social housing, real estate business and others. These professionals had their professional careers attained through formal education although in their service lines they held other responsibilities such as directing their departments' interests in the organizational functions.

They worked as leaders in the institutions apart from professional works. They directed their departments in management of staff and overseeing the functions and facilities that warranted their inputs. They acted also as delegators of work in projects. For instance if an architect was a director, he could delegate another architect in that department to work on architectural project of a client. But he could also be part of that project, so when interviewing you get both sides of his responsibilities and as a professional. This trend of work arrangement cut across the institutions in most professionals undertakings. It was for example prevalent in engineering department, QS departments, and Real estate and valuations departments in these institutions as was observed by the researcher. Due to their responsibilities, they only had additional information on management of resources; they managed other professionals under them and gave instructions in their departments as observed by the researchers at City hall and NHC. Some of them were known by the title chiefs: chief engineer, chief architect, chief valuer, chief housing officer and more.

The NHC lawyer was a resident lawyer at the Corporation, he handled housing construction and related cases, therefore he was deemed as one of their professionals that used their information for work purposes; for example he handled files on land issues that affected the corporation housing development, deals and sales of houses, clients' issues others. He was a director of legal department. Although his profession was law, he practiced law in a housing construction institution.

4.2.4.1.2 Managers

Managers were placed in strategic positions and managed all sorts of functions. Such were: revenue collection manager, equipment and instruments manager, managers in charge of accounting sections, sales department, data collection and records keeping of projects, and so forth. They were senior professionals who had wide experiences and knowledge and were answerable to the directors of the divisions. Their main work entailed management of activities in the departments. They dealt with personnel matters in construction projects, accounting matters and organizational procedures. They got their information from various sections of the organizations. For instance, they needed information on organizational planning, policy formulation, decision making, resource allocation and administrative functions. Much of their information were obtained from divisional or sectional heads and were in the form of memos, reports, on written, oral, electronic (SMS), e-mails, And standard procedures (organizational forms filled for specific data inquires). They were professionals in their own standing managed their sections and were answerable to their directors. For example the department of physical planning at city hall had an overall director but there were managers in the planning and

reinforcement sections, research section ,physical planning, others. The reinforcement director for instance went to the field to verify cases on site development. In the same department the officer in charge of research thus the manger of research was a planner by profession.

Just as it is in the teaching in a university environment, you for instance, get managerial positions such as those of principles, the deans and heads or chairmen and women of sections in a particular institutions or college. These seniors take additional responsibilities called management although they have their specific areas of specializations or professions. Their jobs entail handling routines in organizational functions while they still remain in their professional lines. For these reasons the word professional is used here to mean that staffs that were technocrats of the housing sector. The reasons for separating them as directors and managers when discussing their information needs was due to additional information they needed for work purposes. Also the reason was that the mandate of their organization as depicted in the research's aim directed as access to and use of information by key professionals in housing construction institutions. Manager and director positions were ranks, but their main-stays were included as construction professionals. They therefore played double roles with only additional information for the nature of that additional work. The additional information that they needed is presented. But the number of professionals is not alerted

4.2.4.1.3 Technical Specialists

These positions were occupied by sub-category of each profession. Their work involved coordination of various technical functions for respective departments. Such position as

coordination of information technology (IT), coordination of architectural or engineering drawings, maps and geo-surveys, coordination of the built environment maintenance, health inspection and so forth. They were the people who handled the heavy works in projects. They functioned between the fields and the offices. Their information needs were of social /technical and economical nature and practiced and implemented their professionals know-how more authentically. They implemented the design drawings and checked the construction processes from the drawing to the completions of projects. They practiced architecture, engineering, QS surveying, land and real estate development, information technology, planning, environmental impact assessment. They were the engineers on ground. They were bidder for projects, supervised the buildings ,calculated the costs estimates of the projects, evaluated estates, sourced the building materials supervised wiring and many more technical works. These professionals at the same time specialists were very valuable to their organizations.

4.2.4.1.4 Field Officers

There were several positions for field workers in the areas of engineering, architectural work, revenue collection, surveys and mapping and maintenance. Such officers gathered information in the fields and conveyed them to their superiors. Their jobs entailed finding out the conditions on sites and progresses of work that goes on in the fields. They reported on any intrusions, material availability and changes on sites such as encroachments on boundaries, deterioration of buildings, infrastructure damages and so forth. Field workers obtain information on site conditions and liaised with general the public to give them valid information on the built environment. Their works were as also

controlled by technical specialists. They dealt more with the public directly than the technical specialists.

4.3 Information Needs

On this concept the critical question asked to professionals was:

Were there situations when the professionals were ever faced with a need for information to accomplish work tasks?

The result on investigation indicates that a large majority (over 90%) confirmed that they needed and used information at all times in a work environment.

It was explained earlier in the study that information forms a key ingredient that propels activities of an organization (Abonyo, 2002). It is needed all the time by the users in a work environment. The construction sector has a wide range of professionals that need and use information; this corresponds with the functional roles the professionals hold.

The study discovered that all categories of the respondents said that they needed information to aid them resolve their work tasks. Information needs was also pegged on the relevant position of the organizational functions in line with their roles in the construction sector. The two variables; organizational and professional information needs can be differentiated at some stage in that; while the information needs of an organization is the need on general performance of the sector, the need for professionals is context bound and apply to the relevance of specific tasks.

The findings indicated that the information needs for organizations were classified as: social / economic and technical information, while the information needs of professionals were classified with the needs to solve problems associated with a particular professional

line. Some examples which were noted from an architect's and an engineer's responses are quoted below. Further, the researcher listed the ranges of information for all categories of professionals who participated in the interviews, from the transcribed notes and a summarized finding are also shown in table below on Table 4.5:

4.3.1 Types of Information Needed

The study discovered the varied of information types and ranges were needed by different categories of professionals. The construction sector is a complex one that deals with wide array of activities, and serves the interest of all levels of social classes. The institutions that deal with this sector's interest are involved with heavy responsibilities of social economic and technical issues. These sets of issues depict the type of information the institutions may need in order to carry out their mandate in the sector. The organizational information needs were classified as social/ economic, technical and legal types of information that professionals used in carrying their daily tasks.

4.3.1.1 Technical information

The technical information was discovered to deal with material research and knowledge on construction equipment, drawing and design of buildings, cartographic information mapping and GIS and infrastructure development, including information technologies, to mention some.

4.3.1.2 Social Information

Social information that was used comprised of information on various issues such as: information on the lives of the population including basic needs such as housing, health

and infrastructures to provide livable environment and prevent ill health. This is especially not surprising in the urban set ups. This includes the affordability of these basics; income, wages and the welfare of the population.

4.3.1.3 Economic Information

The economic information can be placed as the population growth, income levels of the urban population, social and physical planning, and the developmental issues affecting the lives of the people in the urbanized towns.

4.3.1.4 The Legal and Political Information

This information related to what professional would use in responding to the queries presented by the citizens of urban publics.

Information includes the right to the city, their safety and ownership of their properties and freedom, the ability to translate bylaws that govern the construction sector. This set of information was discovered to manifest in the information needs of key professionals that serve the construction sector in public institutions and was used by the wide range of professionals.

Political information included: Governance, their rights and role as citizens.

From the information gathered from professionals and notes taken on the interviews schedule, the researcher listed the information needed in each profession and came up with the ranges a particular profession need. This is in accordance to the revelations of various professionals. The finding is listed accordingly. and when segmented according to each professional line, the range is wide so the researcher made a list indicted in table

4.5 below:

Table 4.5 Range of Information Needed by key Professionals

Profession	Some of the ranges of information that is needed by categories of construction professionals revealed during interview:
1. Architects:	Information given by the clients: Clients brief, design and, esthetics of buildings, cost of materials, building regulations and bylaws, population trend in housing affordability, status of land and site information, slum conditions and political issues. We need relevant computer packages: Archi-CAD, Auto- CAD, Adobe packages
2. Engineers a) <i>Civil</i> :	Engineering information on; environment, land terrain or Grid, construction of bridges, Building material types and their strength, material costs, traffic data and road networks in the city, rainfall pattern and storm water, drainage and water harvesting and so forth. -----
b) <i>Mechanical</i> ;	Type of equipment used in construction and the mechanical elements, cost of equipments, designing of equipments used on projects, hydrological data and technical information on structural work. -----
c) <i>Electrical</i> :	Information on issues to do with electric and magnetic phenomenon; magnetic and electromagnetic equipments such as: lifts, electricity, wiring technology, energy and relevant computer packages: technological information.
3 Quantity surveyors:	Costing of construction materials, material markets, construction by laws, building project types, labor laws, consulting skills, Risk management, and investment, on real properties, financial management, and urban economics, relevant spatial data for properties, evaluation of estimates fluctuations, related computer packages.
4. Land economists:	Real estate development including housing, building repairs and maintenance, policy issues relating to housing and housing finance, land laws, law of contracts, building technologies, land economics and, taxation, property management, infrastructure development, valuation, building materials and finishes, rent control, Survey plans, maps, sales of assets, and Relevant computer packages.
5. Construction lawyers:	Land laws, Contractual law, planning by laws, rent control, legal cases relating to conveyance
6 Physical planners:	Planning by laws, City zoning and planning regulations, security and crime prevention, design of land and land use, survey plans, maps, geog information.
7 Environmentalists (and impact assessors):	Information on pollution in both scientific and social context, use of space including interferences, industrial pollution affecting cities.
8. Building inspectors:	Building safety, building material types, space use, long term repercussion on use of space including buildings, space standards, hygiene

Source; field data

In order to get the gist on the needed information, a general probing on an architect and an engineer was done. Stated below are inquiry from the researcher and responses made by these professionals.

Researcher: *What type of information do you need for the kind of work you do in your profession?*

An Architect's response:

"..I need information to understand what clients want in the sense that, what I want to do for them is in tandem with their perceptions of what I can do for them esthetically. I therefore, listen carefully to understand what a client tells me". My information needs therefore relates to: Client briefs on issues to do with the type of buildings a client wants. I must also understand money implication as to how much a client is willing to invest on a project. When dealing with land issue on where a client wants to put up a house, I need to know the legal status and location of that piece of land, whether the land is situated on the right location designated for housing and does not interfere with road reserve or a river. In this way, I know that my client's house will be safe."

A City hall's engineer's narration:

"... I and my partners need information on: population that we serve while building roads and bridges that pass around the estates (Grid). Here in Dandora, I need to know the population size living around here. On the construction point of view I need to have information on building materials we use on these roads and those that are used on housing constructions. We must also understand the movement pattern of these people; how they access markets and transport. The transport system must take and adhere to planning for people. Besides, we need to know City Council regulations and what the Government wants. We work with surveyors, to survey the areas and confirm the title deeds.

An executive at Dandora who was also an engineer

"... While working in this area, there is the population we serve. Some of these people are so poor and as City hall employees we need to collect rent for which we need to know who we can exempt from rent areas penalty, so that we can help the poorest. In such cases we send our sociologist to get for us information on urban poverty."

4.4 Information Use

All the professionals who participated in this study revealed that they use information in their work environment. Different professionals used different types of information to do different construction tasks. This is in accordance with training backgrounds and information they need at a given time. *Use* is also in relation to ones individual initiative tasks and not necessarily that of the organization one is working for. It connotes that use of information by a professional in his/her role as an individual as well. The information may be used for work related to helping the society like any other citizen who may do professional work voluntarily, or as a private engagement for which they are paid (consultancy).

When the researcher gave a probing question to the professionals on what major reasons they sought information and how they used that information, the research discovered some of the activities professionals used their information and knowledge on. These are indicated in responses given by respondents.

Researcher: *What are the major reasons for seeking information and how do you put to use the information and knowledge you have in the construction industry, a part from official work tasks?*

Professionals:

Planner... I prepare work on policy formulation which you need correct information for. I also advice the public on planning issues in this organization

QS... A part from the work I do in our organization at City Hall, I help our church when they have construction work with preparing the bills of quantity on building projects.

An Engineer... When members of my family want to put up houses, I support them with scrutinizing the engineering aspect and preparing the house plan. I also identify other professional colleagues that I know and

are good in their work and who will charge minimal fees. In that way, I help them reduce cost of building.

An architect... " Sometimes I use my knowledge in the community where I come from in the rural area". When there is a construction project such as building classrooms in our village. I design the type of classrooms for them. This is giving back to my village where I started my junior schooling. To become an architect, my first step in this journey was started in our village school. Further, I do consultancy work with the knowledge I have.

Building inspector: Someone can hire me for a private job, not necessarily for the office where I work. I am a professional and my service in the industry does not have boundaries. If my skills are needed anywhere, I must provide it.

Environmental assessors: "I check construction site to see if they will have short or long time effect on the people living near the site.

These revelations were drawn from different professionals' views taken in note forms or diaries. It gives the roles of an architect, a QS and an engineer and a building inspector and environment assessors. Such similar responses were given by various professionals in their areas of specializations. It depicts their roles as useful citizens work for their organizations and also give back to their communities and families apart from the official work in their organizations. And therefore, all types of information (social, economic/ technical/ legal and political) were used in one way or another in professional works carried out.

4.5 Information Access by Construction Professionals

It was revealed by professionals that they needed to access timely, relevant and abundant information to allow them make informed and correct decisions at work and to carry out work which are supported with facts. Access to housing information is vital for making

the right decisions for professionals involved in the industry. An area of discipline and development needs abundant information to make it easier for those involved in the discipline to perform their work with ease, since information forms one of the most needed ingredient for decision making. Information access was therefore mandatory to the professionals for their daily activities.

The construction sector is one of the sectors that generate abundant information for various categories of professionals serving in the sector. Public institutions deploying these professionals are therefore expected to provide information systems that make information accessibility easier and user-oriented. This could make the users save time on information seeking and accessibility.

Generally, the importance of access to information by construction workers cannot be understated. The researcher observed that, in the recent past in Kenya, the provision of information to the construction workers that is tailored to their needs and to the consumers is one of the ways that can help improve the development of this industry. This has culminated from the recurring problems in the building sector and in particular that of housing where, lack of knowledge has caused innocent people to lose their homes or houses that costed some millions of shillings. The information of the sector is meant for professionals for accomplishing their work with dignity and clear consciousness and to help the public they deal with understand the complexity of the housing sector. The information is forever vital in giving them the power to make good judgment or informed decisions in serving the publics (*wanainchi*).

It was discovered in the study however that, access to housing construction information is not an easy ride and has several internal problems in the public sector institutions. Revelations from the respondents indicates that, access to information has constraints manifested on:

- a) Scarcity of information in the said organizations
- b) Lack of open access to the information resources for use by key professionals,
- c) Poor infrastructure put in place to provide good information services.
- d) Lack of planning and investment on information provision
- e) Lack of knowledge on information management.

When respondents were asked if their organizations provided the needed information for them, the majority of them said: ‘they were not satisfied with what their organizations offered in terms of information.’

Researcher: *Does your organization provide you with the necessary information you need in performing your task?*

Professionals

“...In this organization you fend for yourself in terms of information. The organization does not have a proper library to facilitate for information service. This creates the situation of scanty information since there is no properly trained librarian to handle the information issue. We have instead a library clerk who has limited knowledge to acquire the required information materials and manage the information services commensurable with the needs of professionals (NHC).

...The organization does not even provide suitable space for a library setting. The little information that is available is kept in a room which is used for different purposes such a meetings or storing old furniture that does not make reading materials...! (MoH).

The knowledge that is generated in this organization such as building plans and project reports are kept in a store and individual cupboards.

This does not make an open access to information. It creates hoarding of information ... We professionals have forwarded our sentiments on the need for a proper library which is fully stocked with relevant journals and books and reports kept in an orderly manner for easy accessibility and available in a computerized form. But nothing has for a long time happened. This renders us to source for information elsewhere outside our organization.” The McMillan library that is associated with the organization is not useful to professionals on housing information. It serves the public in a different capacity (CCN).

These were some of the complaints that were received from respondents in the three organizations and which form and make sense of the information situation and access constraints.

Construction professional in developing countries are more diverse in their social training, experiences and work setting (Schlyter and Schlyter 1980). These differences combined with lack of resources in many organizations contribute to complexity of construction information delivery. In Kenya the public sector deploy a wide array of key construction professionals who need to use diverse knowledge for generating social /technical and economic information. Lack of foresight on knowledge and information management complicates accessibility of the relevant construction information. These at times may affect the performance of construction professional workers but who are needed to put immense efforts to curb the desperate housing and infrastructures deficiency in the country.

The finding in this research indicates that, information access in the three public institutions as revealed by respondents was jeopardized by poor information systems that were in place resulting into lack of information accumulation. Lack of sufficient

information in their organizations rendered them to seek information with difficulties. Most of the professionals interviewed revealed that they had no options but to turn to seeking information outside their own organizations from reliable sources that provided for their choices of information.

In this regard two planners had this to say:

Planner 1

“Information is scarce, and so you at times try self information acquisition. We get some information but not enough information here that can help do our work... When I cannot source the information internally, I visit other organizations to gain access to the information I need. I go the University of Nairobi Library, to access books on planning and go to bookshops in town to buy my own books such as manuals, hand books and references that I need all the time. I also solicit for information from the UN whenever I have opportunities to be included in projects that need professionals dealing with city issues.

This organization does not cater for our information needs. The information system is below standard in servicing professionals' information needs, which is prone to regular information searches, need for specialized information and quest for more information. This puts us in situation of accessing information from external sources.

Planner 2

Modern means of access is lacking. A plan to provide a documentation centre or a fully fledged and computerized library has been discussed for many years and so far nothing substantial has been done...!

As seen in Kenya, construction work in the area of housing and infrastructure building has preoccupied not only the government concerns but also the individuals concerns for the developmental factors and the improvement of people's lives. The need for information to propel this area is paramount. Construction professionals do not only need information but demand information to make their work easy. They also need specialized information.

4.5.1 Quality Information Services

The information services were found to be poor. The respondents argued that services that were available regarding information were handled by personnel that had no matching understanding of information demanded by professionals. There were therefore no information materials such as journals, books, and data-bases stored for the use of these professionals. Besides, there was lack of proper space for keeping what was available. At City Hall, the records on clients' building plans that are regularly submitted were kept in disorderly manner and in stores where the heaps that have accumulated over a long time cannot be retrieved quickly. And so were the records of receipts on revenue collected. Lands records were separated and bundled in the registry. Though handled by a newly trained archivist, the process of properly documenting it had not begun at the time the researcher was investigating the organization. The Ministry of Housing had no library while the National Housing Corporation had a small space for storing Government publications and a few titles of journals that were not current.

4.5.2 Channels Used by Professionals to Access Information

Information seeking is a dynamic process and can be influenced by time; where and how it is sought to give the expected results. The methods used for access can also play a big part in getting information which is needed. The criteria used differ from individual to individual. Such factors make the phenomenon of information seeking a complex one (Odini, 1995). Another factor to consider and which is typified by public sector institutions is the environment from which the information is sought. Information environment were found to be less fulfilling and depicted information scarcity. This necessitated professionals to device their own methods of accessing information

elsewhere. This was connected with activities they undertook which influenced the types of information needed for use in tasks resolutions.

From collected data, it was found that, information seeking methods of all categories of professionals interviewed for this study were similar. There is a wide variety of information available in the construction sector as a whole which is needed for plenty of tasks solutions. These tasks solutions were necessary for understanding seeking behaviours of professionals in the public sector.

Information accessing methods were found to be ordinary in all studied institutions. Like any local organization, the means of getting information depended largely on the searchers themselves and with very little help from information handler as seen at NHC and almost non from CCN and MoH. The searchers relied on their mental capabilities and individual's own means to access professional related information outside their organizations. The study reveals that, the professionals used various channels to seek information. There were three channels of seeking information that were identified: These were: Oral, written and electronic channels.

4.5.2.1 Oral Channels

The oral channels were found to be informal and formal.

4.5.2.1.1 Informal

Frequently used channel of getting information was revealed to be discussing informally amongst colleagues, within the organizations. The informal discussions were revealed to cut across all levels of staff.

Most respondents said they did not choose any order of getting information so long as the discussions would bear fruits to an inquiry made and shared ideas deemed critical to feed a professionals with the necessary facts. When the researcher asked some of the professionals a question on:

What types of information they got to discuss with colleagues at work?

Some responses were:

From a respondent at MoH

“..I share all types of information with my colleagues I cannot discriminate who I share information informally with. We can discuss any issues that affect the lives of city dwellers. These issues affect us also as people living in the city. The information we discuss are to do with social/political and economic matters. Mostly these types of information will have something to do with the way people live in the city.... When there is inflation, we discuss about affordability of commodities, including rent, how harsh economic situation makes low income earners live horrendous lives in slum areas, where they experienced no clean and freely flowing water from a tap. We discuss the degraded environmental condition is slums. We notice like any other citizens such incidents of flying toilets, lack of roads and health care facilities and so forth. We as social people can discuss even about spiritual matters, as people in such poor living conditions turn to religion that is why there are many churches in the slums for consoling the dwellers. ...We discuss about insecurity or political issues. Any issue that may be current and perhaps one of us is willing to talk about can be discussed ...this, although may appear to be a general discussion, it regards city life...”

According to the researcher, this may mean that, the information related to housing is information that affects the public at large. It is information about the built environment where some of the workers in the studied organization live and experience life in different areas in the city. As citizens they are bound to discuss issues affecting them in the built environment. The housing factor comes in because their dwellings are in these environments.

4.5.2.1.2 Formal Discussions

Formal discussions with fellow professionals slightly deferred in the sense that they were directly related to work issues. From the Ministry of Housing, some respondents were able to list some of the issues discussed by colleagues. Included were issues of: land records, household information, (how people live economically) life in urban cities, professional issues, academic issues, policy issues, social/ political issues, legal issues, planning issues and so forth.

These issues are directly related to work matters. It made sense since the construction sector deals with a wide range of matters which also generated the same range if not more information. With this kind of diversity, people working on these issues need a wider range of information that can solve the problems they are dealing with in their work environment, and where there is need to use the information to solve work tasks on daily basis.

The formal discussions were said to be held during organizational formal meetings, discussing organizational projects that the professionals undertake. The meetings were found to sometimes involve not only internal professionals but at times included outsiders such as members of other organizations but who are also members of a shared project. This is quite common with construction professionals meetings, where team members discuss a project. These teams are usually composed of a mix of professionals such as engineers of different branches, architects, QSs, land economists, surveyors, planners, sociologists and so forth sitting together. According to one respondent, from the Ministry of Housing, they are referred to as *construction team of professionals*. Their information need is said to be varied according to individual professional needs and functional roles

that is taken during the construction process. The information of such teams' was revealed to be information that is related to policy issues affecting planning matters, legal and regulatory matters, management matters, construction materials types, and labour issues, sourcing of materials matters and technical matters on projects. In such discussions oral communication was found to be the dominant means used in meetings and applied to all categories of professionals irrespective of their functional roles.

4.5.2. 2 Written Channels

Reading amongst the construction professionals is a typical habit. This is due to the nature in which a lot of information is revised and deduced to bring an input in a construction project. Literature referral was the means used to source information for any project aspect that needed a substantial information material referencing. It was revealed from the respondents that substantial literature is used for references on construction projects. This included referencing on design aspect, standards, and Government information especially those regarding regulatory matters and statistics. Revealed by architects, a lot of references were said to come from information on esthetics for which manufactures' brochures and magazines were referred. Consulting mapping information and technical issues on understanding soils, and zoning matters, made GIS information quite useful. This was indicated mainly by planners, land economists and civil engineers. Cost estimates play a big role when considering a construction project. In this research quantity surveyors and electrical engineers said that they read literature on project costing and evaluation and sought information on cost indices compiled by the their professional bodies such Joint Building Council of Kenya (JBC).

The study found that construction professionals are also well educated and attended professionals and academic forums. For these types of functions, they read information from their professional lines of academic nature and used this information to write conference papers or do examination on professional studies. Literature of informal and formal nature which consisted of unpublished and published materials, technical reports on projects formed reading materials for professionals in their offices. Formal literature comprising of books and journals in the libraries were equally used amongst the professionals and formed channels of seeking written information.

4.5.2.3 Electronic Means

It was revealed that use of ICTs formed one of the methods constructional professionals used to gain access to information. Methods such as e-mailing, short messaging service (SMS) and faxing were in reasonable use by those professionals who had the necessary skills and gadgets. Engineers were found to use more of electronic means thus use of cell phones to contact suppliers, field assistants. They also used much of calculating gadgets to estimates figure of cost building projects that related to their undertaking and calculated measurements in building materials such as wiring materials, and enforcement steel, drainage and sanitary materials such as pipes, gutters and others.

Most professionals needed and used professional packages: such as programming soft - wares. However, certain professional programs were used very little due to lack of skills on relevant packages. Packages such as *Archi-CAD* and *Auto-CAD* were used by very few in all organizations yet it was necessary for designing and exchanging architectural and engineering drawings. At city hall where exchange on architectural drawings was pressing, it was used the list since most professionals still needed to acquire the packages

and computers for use in their offices and which was not authentically available from the organization, unless individuals had their private ones. At the time of investigation in 2009, other professionals used management programs that were suitable for doing their work *Sage Pastel* and *Quick Book* was mentioned for accounting while *Microsoft project* was mentioned for project management. When an inquiry was made on the use of ICTs,

The responses were as follows:

Respondent:

I know how to send an e-mail and I use it to communicate with my fellow colleagues within and outside our organization, but I lack the skills to fully practice to surf the internet and access the necessary information. Besides, I do not have a computer provided by the organization for this use. Some of my colleagues have bought own ones, but this is difficult to share full time in the office.

Those who owned computers had this to say:

I had to buy the gadget to bring to the office since our organization chooses only senior most to equip their offices with computers. These are very few machines. Most of us do not have office ones. Unless you buy yours, you will be left behind in using this technology yet, it is the current trend and a modern method being applied in communication by majority of people in offices (Intranet).

In regarding to professionals programs; since most of the professionals lacked office computers, communication gadgets including smart phones and necessary skills, they could not exchange information using electronic means. It made the institutions keep a lot of hard copies of reports, architectural drawings, and memos, that were not even organized in such a way that it was easy to retrieve and so was difficult to access. They could not exchange design drawing using *Archi-CAD* program at city hall, yet it is at city hall where all designs plan of building are deposited. This has changed since May 2013 when the researcher visited city hall to be updated. It was found that new design plans are

now being computerized, (see Appendix), however, old plans till 2011 are still being stored in the manual format and are heaped in department's stores.

The impediment on using ICTs made many professionals not to exploit library on-line access to information, most of them confessed that they did not have the skills to do their searches in order to get the necessary online journals, e- books, articles related to their work, or import data from other organizations into their own organization. This problem is also associated with lack of appropriate information system in these organizations. It made some professionals opt to go and use libraries outside their organizations, use cyber cafes or source information from colleagues.

4.5.2.4 Use of Intermediaries

Field officers and technical support staffs were deployed in strategic areas to get the necessary information as a feed back to professionals they assisted. Such information included statistical data sourced from Kenya Bureau of Statistics offices, or certain measurements and geo-information using aerial surveys and produced maps and photographic information. This kind of trend can be confirmed by Niedzwiedzka (2003) who says that executive do not directly drive physically information access, they send their juniors. To get their much needed information. (With ICTs prevailing the scenario is changing but in public sector it is still at a slow pace).

Whereas modern technology is now permeating organizations and is being used as means of communication procedures, the construction professionals in the studied institutions complained that they are still behind and are grappling with this issue. Most professionals revealed that due to insufficient knowledge on information technology, even lack of the

necessary gadgets to practice ICTs inhibited their full use of this means to access and distribute information on construction matter. It was also affecting the institutions' information and knowledge management, where records' sections were not computerized at City Hall in registries of land records, stores keeping receipts from revenue collections of parking fees, rent, and rates at city hall. At the ministry of Housing some project records such KESUP were digitized. At the NHC most project were in print form and kept by individual professionals therefore not accessible to all.

4.5.2.5 Using Telephones

This was the most used means amongst the professional to inquire about information. All the professionals interviewed owned cell phones. To them this was most convenient gadget for communication, easily available and a cheap way of communicating anywhere in: tracing professional colleagues, field workers and their bosses. Some offices were substituted with landlines for which they used the extensions for internal communication. Land lines were said to be still in use substantially as communication means in public institutions because the professionals did not have to incur expenses by using it. Informants confessed that they communicated through telephone to professionals when they had information for dealing with them from the publics on sites, from the department of reinforcement, when dealing with submission of design plans and wanted to consult across the departments for processing these plans.

4.6 Information Uses

The construction professionals not only use information that is created by others in various forms but as highly educated people they also create their original information by use of language and the technology. Construction professionals in technical areas produce

design, and model information while in social economic areas such as QS draw up bills of quantities. Those in academic pursuits produce new knowledge in the form of academic reports, theses and dissertations; some of them are involved in experiments such as soils and other building materials testing which they use in reports for technical analysis. This knowledge is not only used in a work environment, but for serving members of the public. It can also be used in consultancy for income-generating and educating students. This is a typical behaviour in the construction sector professionals.

4.6.1 Access Constraints

Problems that professionals face while accessing information come out strongly in the study. The construction professionals interviewed revealed that they faced numerous problems while in need to gather information for work tasks. Some of the constraints they experienced were:

a) Scarcity of information: Professionals complained of lack relevant information pertaining to their needs within their own organizations; they said that there was lack of data banks and data bases gathered and accrued on organizations' projects and activities on internally generated data. There was also lack of information materials such as books, periodicals, statistics and other knowledge stored for their use. This position of lack of information materials made information scares.

b). Poor Information Systems

This was typical in all the three studied institutions. Organizational neglects to put in place the user oriented information system made deficient information flow. This kind of environment impeded information use internally and made professional information seeking trend stretch out of their organizations. Most of the respondents complained that

they lacked a library or a documentation centre where they could source reading materials in an atmosphere where the information material is organized, catalogued or computerized; where subscribed journals on topical issues can be accessed, and where the information custodians are amply educated to offer service that can match the needs of professionals.

4.7 Use of Information and communication Technology on Accessing Information

In the present world, ICTs are ruling access to information process, and is seen as modern way of seeking and manipulating information. Currently many organizations are making efforts to implemented ICT systems to aid their employees get access to information easily. The government of Kenya has already embarked on e-Government where civil servants use the system to exchange information. This includes import and export of data from national and international arenas. It also allows exploring the internet in search of any needed and current information. This technology is much needed by professionals in any organization and is instrumental in facilitating an easy way of accessing professional information for accomplishing work tasks.

The cases of the three studied institutions was found to be different, the implementation of a full ICT systems particularly for seeking professional information were lacking. The level of adoption of ICT available was basic. Most professionals used it for word processing, e- mailing and cell phoning facilities. Little was used to Google on access to relevant data-bases that were necessary in giving professional information due to lack of searching and retrieving skills and the lack of adequate ICT infrastructure in the organizations.

When professionals were asked to respond on this issue as question by the Researcher, this is what they said:

Researcher: *what role does ICTs play in providing information in your organization?*

Several views were given by respondents on this issue. Some of which were:

From *An engineer:*

“It is a modern means and we should embrace it in our organization.
It helps me get access to the internet information very fast...
The information is accurate, plenty and easy to access...
It is free, you can down load from other data bases.
IT helps getting data transfer from one section to another.
I also use it for global connection.”

From *A Surveyor:*

“As a technologist, I need to use it to scan maps I seek from surveys of Kenya...This is the only way I can get to manipulate them to suit what I am looking for in old maps.”

From *a QS:*

“... I use the internet to search for latest literature on my professional line. I also use other IT facilities such as a calculator very often. It enables me to store data and process it later, especially complicated calculations that I want to concentrate on. This makes me save time when I get down to work.”

A Building Economist:

When I want to check indices from the professional office, I send an e-mail and get quick transfer of data from joint building council (JBC)

A probing question was asked to a number of professionals;

Researcher: *What difference does the use of ICT make for you in accessing information?*

Some of the answers that were captured appeared as follows:

An executive Professional:

There is wide choice of information in the internet. It is easier to communicate with others using the net. IT makes it easy to get facts on

decisions I want to make and the information is assured due to plenty of available data. ... Information is also easy to update, you can correct errors easily...One can communicate easily with many people...It is easy to carry data along in flash disks you can carry a lot of data and another person cannot detect...It is a way of protecting data that you have.

Such were some of the positive aspect of views gathered from responses from professionals on the impact of ICTs on accessing information. There were other negative responses regarding the use of ICT in the studied institutions, and how negativity impacted on the professional workers in their organizations. On this issue, the researcher aimed at finding out if there were impediments in using IT in the organizations. It was discovered in the research that *Impediments occurred due to lack of resources and the necessary training to boost the use of ICTs.*

ICT Infrastructure

Departments of ICT require robust infrastructure to be able to put in place the use of ICT and needs equipment, knowledge and continuous training to develop skills that can make the user practice hands on; and in the absence of such, full exploitation will be difficult. For public organizations to have ICT systems in place there is need to plan for providing these elements in order for an organization to implant the use of ICTs that can permeate in the working environment allowing the users to entrench on use and make the IT diffuse in the organization.. The participating professionals in this study had negative views on how the use of IT was handled in their work environment.

At City Hall the scenario was that; the organization was not ICT compliant. Most of the professionals either did without, or supplemented with their personal ones.

At the Ministry of Housing, most senior but not all professionals had IT facilities in their offices.

At the *NHC*, the use of ICTs was substantial and most professionals had the organization provide for it.

However, the use of ICTs was found to be accepted by all organizations, and there was an attempt to reinforce this idea.

But in general, what was lacking differed from institution to institution, as follows:

A) Computers

At City Hall the distribution of computers to professionals varied with seniority.

The senior most thus managers and heads of departments were provided with computers. Other ranks such as technicians, field officers and support staff shared computers. While at the Ministry of Housing, there was fair distribution of computers. If there was sharing it was because certain programs were loaded in selected computers and access to data meant that an individual sourced it where it was loaded.

At the NHC all professionals had their own sets and used them in their individual offices

In summary: All those who were considered professionals did not have equal access to computers. In the organizations studied

B) Radio and TV sets (Media)

There were other gadgets of IT that provide access to information such as in social media gadgets. The findings indicate that these were also not available in equal distribution in the three organizations. At *NHC* no professional had a TV or a radio in their offices.

At *CCN* no TVs were available for professionals' except in one director's office. There were personal radios sets, however in few offices.

At the Ministry of Housing; most senior officers had TV sets in their offices, again the distribution of these important gadgets was not uniform, and some officers lacked certain items and shared with others, or did not have the chance to even share them completely and therefore did not use them in the offices.

C) Wireless technology (calculators)

Most professionals used calculators and trained themselves on the gadget. Calculators are useful gadgets for construction professionals. It was indicated by professionals that; their field information and calculations on prices of goods made them need and use this gadgets substantially.

D) ICT Trainings

To use ICTs constant training ought to take place for users to familiarize with new technologies that keep changing. This is more so in the use of computer packages and new programs that keep getting invented a new.

Training was deficient in all organizations. At the NHC there was little training but not on professional programs. At the Ministry of Housing minimal training was available on the basics of using Internet but lack of it on relevant professionals programs.

At the CCN there was no official training that was in place to be enjoyed by professionals at the time the researcher was investigating; instead, the professional opted to self train where possible.

The Deficiency Impact

Due to lack of gadgets, equipments and little training that was available, the professionals were not quite the best users of ICTs, in these organizations. This made their information searches limited. On personal basis, they looked for help from other organizations. Further, lack of library skills impeded their use of current relevant data-bases and open access to information such as e- books and e-journals. When professionals were asked if they had impediments in using IT, the scenario revealed as indicated below:

Researcher:

Do you encounter any impediments on using ICT?

Professionals had these words to say:

Professionals:

At NHC; An engineer:

“ I have basic knowledge to using ICT. But, I am not competent in looking for data bases. Some of them have pass words that I cannot get access to. I need to be trained on such issues”.

At CCN a planner:

I wish our organization could put IT system in a much better position by getting more computers for us, so that we can have hands on, of many programmes.

This organization is not IT compliant; the IT centre lacks capable personnel. So we are not sufficiently trained in using certain professional packages such as GIS”

At the MoH A QS:

“We have computers alright, but we are always having power outage, when this happens. We get very frustrated..., because this makes us have system failures and we loose our data...”

A Land Economist from the same institution:

We have little knowledge using ICTs and we depend on our ICT manager for helping us out when we are stuck with IT problems. He is good and helps us with the basics but we cannot do complicated library searches that we need in sourcing relevant information on land matters. Information published elsewhere is difficult for them to handle. ...

On ICT managers

All the studied institutions had ICT managers that were expected to handle all ICT queries. As much as they were familiar with connectivity such LAN, WAN systems, they did not know issues relating to professional packages.

Researcher: *Does your ICT manager give you enough assistance in using ICT?*

A Professional at NHC had this to say:

We have two; the manager and the assistant. Yes they are well trained they could train us also ... But we never receive the necessary training design by them. We outsource when it come to professional packages.

A researcher in planning department at CCN:

They try but the organization should be ICT compliant to test their capabilities. It should also finance the IT section adequately.

Some professionals felt that their ICT personnel were not capable of handling all the ICT queries, they expected a lot from them including knowing how to do library searches and handle professional packages such as Archi-CAD, auto-CAD. This expectations turned out not to be the case. The professionals out-sourced information in institutions such as university libraries where information searches are assisted and where training on library use and training on information literacy for users is available. Such situations made professionals incompetent on information searches and they could not make good use on

searching techniques such as using Boolean logic in order to exploit access to relevant information quickly.

Although some professionals lacked good skills to use ICT gadgets and failure of organizations to facilitate suited ICT environment, most professionals preferred to access information through the use of ICT. In the findings, the majority expressed the views on preference of ICT usage in search for information. This was seen in their initiatives to self train and ability to pay for their trainings without the involvement of the organization.

Most of the respondents said they did not get the skills they have through organizational trainings. Only few said they had some training on the job. When asked how they got ICT skills, they responded in the following manner:

Researcher;

How did you learn to use the computer to enable you to access information in World Wide Web (www)?

Professional engineer at CCN:

“I took self initiative to learn some packages that were useful for my work...as an engineer, I needed training on: Archi-CAD and auto-CAD so I attended ICTs courses in town. There, I also learned statistical data manipulation. The CAD packages helps me to do my drawings better. With these kills, I can exchange information with my colleagues from within and outside our organization.

From QS at NHC:

“When I was at college, we learned some computer skills. I still find these useful. I can surf the net and download files from the internet and use Microsoft Excel and Access to store records and manipulate my working files. I am now attending classes on programming. I also want to understand what engineers do because we go to sites together to monitor housing projects. I want to understand the drawings...”

From a surveyor At City Hall

“I trained on GIS program at college but, I still take initiative to upgrade my skills on the same. There are skills that I use on searching or scanning maps, with the help of our IT officer...”

With these kinds of responses, it was evident that, most professionals used their own initiatives to train on the packages needed for work tasks. The researcher concluded that the organizations need to catch up with IT diffusion so that staff needing IT skills can be supported within their organizations. The first confronting task for the organization is to equip the organizations with enough ICT gadgets. In order to create an atmosphere for diffusing IT usage by practicing hands on.

4.7.1 Barrier to Information Flow

The researcher discovered that although the professionals wanted to use information in their respective organizations, and despite that there was some information that existed in these organizations, accessing the information had some barriers.

When the professionals were asked, if they received relevant, timely information on housing. The professionals had negative answers as follows:

Researcher: *Does your organization offer you relevant information on housing?*

-If YES, how relevant timely and adequate is the information

-If No, give reasons why there are hindrances.

The information seeking behaviours of professionals indicates that most professionals were dissatisfied with information provisions, management and poor systems that were existing in the organizations. In all organizations there were complaints of inadequate information, lack of resources and organization neglect on information and knowledge

management. The professionals were dissatisfied with the way information service was neglected yet it is the main component that supports organizational functional roles. Barrier to information flow was characterized by poor storage of available information, and lack of open accesses for use by all, poor services that were manned by incompetent staff amongst others.

1) Flow: There were no library facilities such as space, material acquisition and an open service system for professionals to easily find information.

2) Knowledge Management, Records Keeping:

Due to institutional neglect for harnessing and properly storing knowledge and records generated by professionals in their eservices to the public such as those found in project files, (NHC, MoH),building design, land title) generated data on social housing (CCN), professionals found it difficult to retrieve, with ease these records. Registries in City Hall needed weeding and properly systematized records keeping.

3) Lack of Library Space: Most professionals confessed that they lacked this facility where they could go and spend time reading in a nearby proximity. In their responses and in many suggestions, the professionals stressed the need to establish a well stocked and systematized information services. This could only come by way of establishing a library where they could go and find organized information systems making access easier for them. Due to poor information system, they spent more time in trying to locate credible sources. In their views these were said:

4) Time Consumption

Researcher: *What would you like to see improved on accessing housing construction information in your organization?*

Some of the Responses that were captured included:

“Our organization should establish a departmental or a documentation centre for our easy accessibility to information, and automate the available information, harness information and supply current books and journals..., so that we can save time on information searching! We spend time traveling to look for information in other organizations that we could be using on real time production in work for the organization, yet we need this information to accomplish our work...”

“Right now; we lack books, and other updated information. ...There is some information in the organization but this is scattered and not traceable for all of us to use when we desire....”

When we are pressed to get facts and the right information, we spend a lot of time looking for it in other libraries...Sometimes we are forced to buy information from the Government printers using money from our own pockets. This is expensive. The organization should do this. .. If there was a proper library service, the librarian could acquire the needed information through the central system for all of us to use...”

These views came from various professionals who were dissatisfied with information services in the studied organizations: who also believed that they spend valuable time for work in looking for information, some of it they believed could be stored in their own organization in hard copies or by way of importing data bases, for instance from bureau of statistics and scanned maps from surveys of Kenya.

4.8 Suggested Views

A question posed to the interviewed was on their suggested views on what could improve information access in the organizations studied. It formed one of the concepts the researcher wanted to find out from professions on what they would want to see improved on information access for their use.

Researcher: *What recommendations or suggestions would you give to be considered for improving information access in the housing construction sector in your organization?*

Responses:

“...As professionals in the construction sector, we solve many types of problems affecting people in the built environment. This information covers social/ economic, political and technical issues. The information in the organization is very scarce and cannot be sufficient to cover all the issues we deal with. For this reason, we need to harness more information to include in a stocked library...The best way I see can help the situation is to have the organization be ICT compliant to ensure sharing of information with others (CCN))

Let the organization improve the documentation centre (NHC),

Have good policy on information management and record keeping, (MoH)”

From the views of different respondents, utterances that were strongly emphasized by majority included:

Sensitize the officials within the organizations on the importance and crucial need of information systems that works well and is user oriented.

Establish a fully fledged library in our department. Computerize the information, so that it can be accessed in an open manner in a central place.

Install LAN, WAN for those in far off offices and implement e-Government so that we can exchange information...

...Subscribe for journals that will provide updated information.

Summary

Information is usually needed to solve a problem at hand, but there are barriers or impediments that emanate from situations. This is reiterated by Wilson, and Walsh (1996) in their research on information needs.

In summarizing this chapter, the researcher reiterates that in this research, information resources at City Hall were not accessible due to un-organized systems. Reference materials were kept individually by some officers and therefore not available openly for all, data concerning housing were only accessible to the department and hoarded for *their*

reach only. The registry that kept land information in City Hall could not be used by many professionals except on special request and even this meant that the officer in-charge of the registry was the only person allowed in the area making information flow difficult. Likewise was the information in planning department where building design plans were stored. Lack of open system hampered information flow. There is a lot of data in the department of planning which is in-accessible not only by some professionals but also by the public that originated these records. Despite their being deposited at the hall the depositors or clients occasionally refer to them when they need alteration for new developments such alterations of plans or extensions of houses. Tracing these kinds of plans can take a long time causing frustration to many clients.

The McMillan library lack relevant information to serve the interests of housing construction professionals as the professionals indicted.

At the MoH lack of library made the information flow amongst the professionals and the public non-existence if one wanted information you were referred to an individual. Yet a lot of information has been generated due to the study of slums and on land policy including planned program for civil servant housing schemes. At the NHC the need to get statistics and plans of new housing development should be accessible to enable buyers see them in computers rather than having to walk to the organization; or at least avail information on site development in the library and in the World Wide Web.

All these impediments can be summarized as poor information system design, where no formal information service takes place. Despite assumptions that there is information service existing, because there were attempts to have libraries, these were substandard; no

formal operations took place in giving regular information supplies and distribution to professionals. There was no knowledge management and professionalism in the operations to empower the employees and besides, the services were archaic.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter discusses the findings culminating from the three case studies. The study had sought to investigate access to and utilization of housing construction information by key construction professionals serving in three selected public institutions in Nairobi. From the onset of the study the guiding factors were driven from the: research questions, the objectives and the assumptions. It is also directed by the grounded theory coding methods used to conduct the research and therefore provided the findings. These factors have been used to guide the discussion. The main finding revealed that the investigated professionals accessed and used housing construction information for their work tasks. They faced several challenges in their information environment for which they suggested factors that, if implemented the information environment can be improved.

The findings included: the identification of professional categories, their education levels, information needs, methods they used to gain access to information, the IT factor on information access. It also unearthed that the professionals knew of the preferred information existing elsewhere outside their organizations. Through their opinions the professionals gave their views on the challenges they met during information access processes and therefore gave suggestions on what they would prefer to be implemented in order to improve information environment in their organizations.

It was earlier stated that, this research was methodically multiple case study but of a single design, meaning that the three cases' findings were combined to make general conclusions. This was presented as a study that affected the three studied housing construction public institutions similarly. The discussion presented here means that they applied to findings of the institutions' problems as a unifying factor depicting a common investigated problem. The study was not meant to produce quantified data, but to gather information on access to and utilization of information in public housing construction institutions by professionals and to unearth the hindrances manifested into information access phenomena

The discussion follows systematically the findings on categorical concepts and perceptions grounded in the research. The identified institutions for the study that employed housing construction professionals were: the City Council of Nairobi, the National Housing Corporation and the Ministry of Housing. These three institutions were chosen for their homogenous characteristics. They were found to have played important and useful roles in housing construction in the city of Nairobi and this can be generalized as the country problem in that; the institutions engaged key construction professionals who participated in housing construction matters and used housing information. They were all situated in the capital city where the demand for housing is immense, and where the study was rightfully targeted.

5.2 Categorization of Key Professionals in the Studied Institutions

In the context of this study, data analysis revealed that the categories of professionals engaged to solve tasks of housing constructions and serving in studied selected public

institutions are drawn from various specialties. This is supported by Otieno (2006) who says that; traditional professionals in the construction sector include the: Engineers, Architects, Quantity Surveyors and Land economists. The researcher discovered during the study that to a highly populated city such as Nairobi, with over 3 million people and where land use is planned and the built environment ought to be kept in acceptable standard for the protection of human health, and the general wellbeing of the population in the city, there was need to include physical planners, environmental assessors, construction lawyers, and public health inspectors as part of housing construction professionals. The later categories go to the site to ascertain that, land is legally acquired, and a construction process is not going to interfere with the living environment during, immediate and long term use, this is verified by environmental impact assessors, and building/health and sanitation professionals. The rule of law in the construction is followed by lawyers.

5.2.2 Education Levels and the Role Played By Professionals

The professionals' education levels were found to be composed of three levels. Hierarchically they ranged from diplomas at 8.2% these were the minority, Bachelors level who formed 58.6% and were the majority and Masters' levels who were 32% out of 74 investigated respondents interviewed as indicated in table 4.3. They were also distributed in each institution as indicated in table 4.2.

Roles The construction professionals investigated for this research may be described as well- trained and skilled practitioners serving in the public institutions, and dealing with housing construction matters. Due to their experiences and functional roles, they

participate in housing construction with ample skills and knowledge in serving the sector. According to their own revelations they were found to also use their knowledge in giving back to the communities by advising them or offering their skills in various capacities. This makes them occupy an important role in not only the institutions they worked for but also in a wider perspective in the society with the aim of improving the poor condition of the built environment. This was indicated, in the finding that, by use of their skills they permeated the services in communities, their family members, their friends, and to gain extra money in consultancies or businesses. Their professionalism is therefore far reaching and useful in the built environment.

Length of Service

The study revealed that professionals who were interviewed had served for a good number of years as seen in table 4.4. Marked as majority were those who had served between 5 to 10 years. Some professionals had served close to thirty years. Due to higher level of formal education and many years of service, they can be said to have acquired ample skills to serve as professionals. Some of them were also in top level service capacities as administrators, managers and high caliber specialists. From the point of view of this research, the researcher defined a professional as person of many years of experiences and skilled, have a good level of education that enables them to undertake tasks associated with their specialties with ease. The time served manifest in experience, accumulative knowledge and skills attained including formal education and other types of trainings.

5.3 Information Needs and Seeking Behaviours of Housing Construction Professionals

The study reveals that construction professionals needed various types and a wide range of information for their work tasks. By the nature of multiple tasks involving construction professionals they found themselves consulting a wide range of information materials. This was explicable in the way some professionals juggled roles between administration, the actual construction work which is technical, solved social economic problem and for some of them academics quest. For the dire needs of information, the professionals were found to use different ways on accessing and seeking information. These were differentiated as; 1) reading; books, journals articles reports and others).

2) online searchers, gaining access to electronic versions sourced from various access points such as in libraries, media, internet cafés discussions both with colleagues at work and also peers in various fields (either in meeting or consultations) The general observed way of professional information needs and the ways in which construction professionals sought their information to satisfy these needs were clear and was noted by the researcher as stated below:

a) The researcher discovered that, housing construction professionals' information need is vast and is linked to their functional roles. This culminates from the training backgrounds and the multiple tasks that faced these professionals. The different types of information were linked to training backgrounds and the functional role a particular professional undertook.

b) Information needed is the information that would further a job of research and would be recognized by the recipient. The issue of information need has been investigated by

various information professionals such as Wilson in his research in the 1990's. Earlier Lin (1969) and consequently Nicholas (1996) also connoted that information needs is the information that is needed when a person recognizes a gap in the state of knowledge and wishes to solve that anomaly. Arguable therefore it is the information that an individual ought to have to do their jobs effectively by solving problems or satisfying wants.

Justification of information needs is supported by the literature by Dervin, (1982, 1983, 1986) Bruce (1997), Bystrom(1999), (Khulthau, 1991) and Pettigrew (2001) among others. Odini (1995) warns the information handlers such as: the information providers who are the organizations who employ other categories of professionals, and information professionals dealing with the provision and service of information for particular group of users that; "it is important to know the information that is used by a group and the value of that information. This will make a better understanding of user needs." The question paused was:

Did the information provided by institutions meet needs of key professionals?

It was for instance discovered that the provided information in selected organizations for this study did not satisfy the information *needs* of the serving professionals. Noted was that the professionals had to extend their information searches beyond their institutions when they were challenged with institutional tasks for which they could not find the backing or supporting information within their own organizations. The need factor made them go beyond their own institutions to look widely for information in other libraries, in cybercafés surfing the internet, from other fellow professionals in the ministries and their professional colleagues whom they trusted to have the information. This made them

device their own access methods. The intuitiveness and self initiative coupled with mental capabilities and *need factor* made them extend their information searches beyond their work stations but inconveniencing their work schedules. The hierarchy of need theorized by Maslow (1945) was discussed earlier in the report.

When asked what inconveniences they had of externally seeking information, the remarks views that were captured included:

i) We spend a lot of time traveling out of town to other places looking for information. This includes going to Ruaraka (Map centre) to look for maps, visit other libraries (USIU), Jomo Kenyatta University Library and others.

ii) Time spent on information searching slows work in the following ways

- 1. Period of request to delivery not predictable*
- 2. Delayed feed back to customers*
- 3. Reports are delayed because of lack of timely, accurate and easily accessible Information*

From the literature reviewed, Maslow's (1960) views as a theorist on the philosophy on needs elaborates on human needs and indicates that; human-beings always have something they need. But there is priority put into these needs. The hierarchical explanation of needs depends on what would benefit and satisfy the immediate quest. The quest to solve demanding and urgent work tasks made the professionals leave their working environment which had insufficient information, making the search to be extended elsewhere. Maslow's critics on the issues of need indicate that:

People with Physiological needs will find how they put their order of priority in their own way. (Helland, 1980), "in": CIB, 1980 working report no. 69).

The order on priority in this study was identified by researcher as specific information needs that support the work- related tasks on housing construction.

5.3.1 Information Use

Information use is the information used to accomplish needs, wants and tasks. The study revealed that professionals needed to use information on various challenges confronting them at work and elsewhere. Some of the reasons which were found to make them use information were needs such as:

- a) Training the public
- b) Discussing projects with colleagues
- c) Doing community projects such as in churches, schools, self help groups
- d) Assisting members of families to build their houses professionally
- e) Writing papers for conferences, workshops or academics and so forth.

This was observed by the researcher.

5.3.2 Range and Types of Information Resources

Professionals revealed that they needed to *use* various types of information which could support them in solving confronting tasks, and to boost their knowledge. The various types of skills and professional trainings that the professionals possessed made them generate and at the same time need more and therefore use a wide range of different types of information. The types were indicated as: social political, economical and technical information. The ranges depended on a particular type of confronting tasks, the specialty of a respondent, or a background training of a professional. The list of the ranges was found to be vast and also emanated from the types as indicated in table 4.5.

Each professional needed his / her own information depending on the work tasks and the individual professional need. Such needs may have been to accomplish an official job, private work such as: furthering education level, a consultancy work or reading just to increase knowledge. Most of the professionals concurred that they needed information regularly either to work officially or to do other businesses. This was indicated by the following words from a respondent;

Executive:

“I need to use information to solve my work tasks on a daily basis... such as the need to prepare policies or advise the public or to make decisions in and for other private consultancies. This information should be precise and timely”

The housing sub-sector is proliferated with wide range of information. This is due to variant range of key professionals. These professionals are trained in different areas of knowledge and skills to work and serve in the sector. For this reason they were found to also use many types of information. For the purposes of this research the information that embraces the construction sector was generally classified as social economic, technical and political information as listed below. The ranges emanate from the types and covered information on:

a) **Scientific and Technical:** building materials science, construction knowledge, architectural design and drawing, surveying and mapping, engineering design, information on quantification of projects, project management, building maintenance and others.

b) **Social / economic information;**

These were found to include; human capital thus labor, population, housing statistics

Affordability, poverty, slums and unplanned settlements, upgrading, land information, clients, human behaviour and urbanization

c) Legal information

This information includes knowledge areas on mitigation, Building and planning bylaws building standards and specifications, Rent control, Land laws, and contractual laws others.

d) ICT information

All categories of professionals' interviewed said they needed information and knowledge on information communication technologies as a tool to support their information searches. As indicated in table 4.5.

5.4 Accessibility and Use of Housing Construction Information

Accessing information for professionals was found to be critical for daily use as information is considered the most important ingredient for decision making. Accessing information sourced was pegged on their credibility.

Due to their compelling work tasks and for their private ventures as this is common with the construction sector, the professionals needed to access timely, relevant and a wide range of information materials so as to support their decision makings. Some of these decisions are crucial on construction sites or for clients who provide jobs to the professionals.

The construction sector is one of the sectors that generate abundant information. This is subject to the needs of diverse specialties in the sector. When duty calls information must

begotten to help solve problems. To the professionals, the most important thing is to access it in order to get information for a variation of work tasks which can be for example to deliver an answer to a given task or client. This information should be supported with facts and figures where needed. Based on the findings, it was concluded that the public institutions, who hire professionals, need to provide information systems that are easily accessible and user oriented. This could save time on information seeking and accessibility for those with need.

Generally the importance of access to information by construction workers cannot be under-stated. This came to notice of the researcher that, in the recent past in Kenya, the provision of information to the construction sector that is tailored to the needs of professionals and other construction consumers is one of the ways that can help improve the development of the construction industry. This has culminated from examples of recurring problems in the building sector and exposing ignorance to those manning the failed constructions particular those of the housing sub-sector. Lack of knowledge has caused innocent people to lose their homes or houses that have costed them millions of shillings as was seen in The *Syokimau* in *Mavoko* County Council land cases and demolition of houses (2012).

Information for professionals is meant for accomplishing work tasks with dignity and clear consciousness and to help the public understand the complexity of the construction sector. The information is forever vital in giving the professionals, their clients and the public at large the power to make good judgment or informed decisions. It was however discovered that, access to information posed a lot of challenges to professionals due to

lack of proper information systems in the institutions they worked for. There was lack of information specialist to man the information and lack of plans to provide information in the three organizations studied.

Information accessibility can make great difference in the way information is used in the organization. Lack of proper channels to seek information can impede information use and lower the interest of the seekers if they experience too many hustles and huddles. It was discovered in the research that, information seeking channels used in public institutions by the professionals were both internal and external. The internal channels were associated with the communication systems, and processes such as correspondent through various means; in memos, bulletins, publications and discussions. These formed written and oral channels. The external channels can be associated with expert seeking information from knowledgeable colleagues and from information systems availability in other organizations for instance, the existing information and document collections where information is accumulated and easily available to users. These were referred to as credible sources.

Searching for information needs appropriate skills and favorable information environment. This study explored some of these issues depicting the way construction professionals accessed information. All categories of professionals exhibited a general tendency to select information sources which yielded fruits for their information needs and wants. Selection of the sources appears to be governed by the need and sense-making theories. The two theories emanate from social sciences theories.

Sense-making theory is grounded in the assumption that people search a pool of information and retrieve only what is nearest to their tasks solving needs. They make sense of their final search.

Arguable therefore is that people are interested in things that are beneficial to them. Professionals are therefore selective in what they peruse. (Information that is relevant). It can therefore be argued that, the construction professionals as social actors in the construction sector industry may want to gain access to information channels of their choices whether they exist internally or external.

The research findings concluded that professionals at some point were dissatisfied with the internal channels of information seeking. The ideal situation would have been to them; an environment that provide suitable information and therefore they would experience least efforts to look for information. They looked forward to satisfying information environment since their work is not to solve organizational housing construction tasks and not to solve information seeking tasks.

The study revealed that professionals faced the challenges of lack of information in their own organizations. Most of them said that their institution did not stock the relevant information they needed for daily use. If information existed in some way it was scanty; like in the case of NHC. The remaining two institutions thus MOH and the CCN hardly kept substantive information which is accessible to the professionals. Despite the CCN having the McMillan library, this library catered for different clientele rather the City council construction professionals. As a result of lack of relevant information in their own institutions, the professionals tended to seek outside credible sources to gain access to needed information.

Knowledge on available information elsewhere was revealed by professionals. The Professionals unearthed in the study that they knew where to find the needed information that is why they were seeking credible sources in other information environment. Literature on information environment by many authors has revealed that public institutions do not embrace better information services and tend to neglect designing information systems that have users in mind as agreed by Ocholla (1998) and Odini (1995). The neglect on service may be detrimental on information supplies. This research ascertained; scanty information situations in the investigated institutions. Given this kind of environment, that did not provide easily accessible information for the professionals, lack of adequate space to accommodate information materials, inadequate finances that would back up the planning and implementation of a suitable information environment. These neglects have culminated to poor image of information service in public institutions in the country as pointed by Wamukoya (2009).

5.4.1 Information Systems and Services

The inadequacy of information commodity necessitated the need to look for other information sources that were sufficient and easily accessible to professionals. The poor systems characterized by scarcity of information materials such as books, Journals, unpublished but important reports and so forth, that is pooled together for easy accessibility, coupled with good knowledge management and efficient professional information service, made the researcher conclude that public organizations neglect information provision, management, and services; a phenomenon or situation that is not convenient and not acceptable to the professionals.

Also revealed in the study was that there was lack of allocation of proper budget, space and human resource for establishing information services system to exist adequately. No evidence of planning for organizational informational functions was considered in all these organizations. The researcher believes that if the systems were in place, information access would have been better and faster and time would have been saved on information seeking. Stemming from the fact that the professionals' information conciseness was found to be quite high due to their education level, it throws the challenge back to the organizations to establish systems which will ensure that information can be harnessed especially the tacit; which should be captured, and used as widely as desirable by professionals. Further, the organizations should encourage and generate the social and epistemic need for housing information and making it fashionable for key users to own and use the social technical and political information as recognized by Odini (1995) and Abonyo (2002).

In real situation where things are favorable, information services systems is expected to reveal whether the related institutions provide relevant, adequate and timely information for the benefit of those who need to use the information. The information commodity should therefore be treated as important as any other organizational useful commodity and which supports functional systems. The British information consultants including Wilson (1989) and later Wilson et al (2001) observed that " *many organizations make too little use of available information.,, many see information as dispensable when savings have to be made*".

5.5 Access Channels

In the context of this research it was discovered that, housing construction professionals relied on various channels of accessing and communicating information. These existed in both the internal and external channels. The study revealed that the internal channels consisted mainly of oral and written systems. Telephone use formed the most extensive internal communication method; followed by meetings and discussions as the oral forum. To a large extent was also the written channel in the form of memos, publications and notices. The communication modes of; oral and written are the most used and typical of public institutions' ways of passing information to their employees of all categories.

Oral

The oral communication system allows public servants to hold several meetings as routine system for clarifying issues of organizational functions and management at all various levels of cadres in the form of discussions. Professionals were found to use this method effectively to pass and share information. Oral communication is also done through the use of telephone and forms a major communication method as was discovered in the findings. Regarding the oral communication method; talk on cell phone was found to be most useful to field workers for passing information to their bosses and for professional inquiries of information from their colleagues. The meetings and intranet telecommunication systems do not usually cost employees any personal monies apart from individual cell phones. Intranet; telephone, email, short messaging service (SMS) communication is popular with all cadres of employees. Professionals preferred the intranet system used internally.

However, not sufficing the intranet is just a quick way of communicating issues but not a way of articulating the gist of discussions for detailed projects which is typified by the huge construction projects as was said by professionals who served in Kenya Slum upgrading (KENSUP) projects at *kibera* and those at National Housing Corporation professionals who visit construction sites and tend to give details to clients who want to purchase the houses.

Oral also was seen as form of discussion and a method of accessing information. From the revelations by respondents; discussions were used extensively while dealing with publics, consultants and fellow professionals.

For mission oriented work more time for discussions is best done through substantive time allocation. Meetings therefore are preferred to be used for facilitating time and venue for more detailed discussions on prevailing issues at hand. A large number of professionals agreed that oral method such as discussions made better channels for communicating issues. It was found in two variations; informal discussions and formal. Informal permeated the internal forums for conveying or receiving information, while formal involved discussions with the public when they visited and inquired on issues concerning the mandates of organizations. This was particularly convenient during submitting house plans at city hall, or viewing house types and transacting house sells at NHC and visiting the decanting site by publics at the site with the MoH. The face to face approach is more convincing for exchange of information, probing and has room for clearing hidden issues that may need long time to explain, including any exhibits of maps, design plans and so forth.

The *Written* channel is more powerful where detailed communication is geared for public consumption and information within internal use. Spoken words may be forgotten after a short time but written word is secure for record keeping and accountability purposes. The written channel was one of the channels most preferred for seeking information and included publications such as: reports, project working files. Other types of publications for outreach for both internal and external communication were in the form of: brochures, flyers, special, annual and occasional reports and even organization calendars. As old tradition some of written memo files were still piling in the cupboards and at city hall corridors as records of meetings. The external channels compelled the professionals to seek by intuitions out of need. It meant referring to sources that had credibility in giving information that the professionals lacked from within their own systems.

“Credibility refers to perception of truth of a piece of Information; it is about multi dimensional concept that serves as means for the receiver of information and rate the source...” (Horland et al, 1953).

Credibility is an intuitive concept. Its study is manifested in marketing studies in business (Horland 1953, Eisend.1953, Fazio, 1990). Past research studies dwell on source credibility and concept specializations. Information source credibility has a wide range of all areas of interest. Some of credible sources that interested professionals in information seeking included: media sources, library sources, corporate credibility sources (Lee, 1978, Newell, 1993; Goldsmith, 1999; Newman and Goldsmith, 2001) and on organizational source credibility was Romana, and Harley (1997) in (Goldsmith et al).

The investigated professionals used external organizations, knowledgeable persons, libraries, and professional institutions that were credible channels and were trusted to giving the right information that they needed. These included literature in the form of journals, books, reports, maps, and tacit knowledge that sometimes professionals lacked but needed to solve work tasks on projects, yet these sources lacked in their organizations. Some of them needed literature to do assignments or statistical data to include in the reports they made to the Government, consultants, publics and so forth.

According to the findings of this studies, the professionals whose information needs were diverse and consulted a wide range of information did not seem to fuss on the form of documents in which the information was contained. They instead embraced any way in which information was repackaged in print form or in electronic forms through discussions they also relied on oral communication. This was attributed to their high level of training and appreciation of knowledge in profession, academic and technical. By the nature of their work in consultancy, technical social and academics, they were found to be flexible in using information in any format. Due to this flexibility the professionals information seeking was influenced by relevance which relied on sense-making out of intuitions. They consulted information sources that provided information that helped them solve their work tasks and useful to needs.

The sources the professionals consulted for information access were academic and special libraries, data centers such as bureau of statistics, map centers such as surveys of Kenya, Government press, bookshops, knowledgeable persons as colleagues and consultants, relevant Ministries. But used little of the McMillan library (though is a part

of City Hall), used little of the national and public libraries. This evidence makes the argument on two theories of *Dervin's (1983, 1998) sense-making* and hierarchy of Maslow's (1960s) *needs* theories that were appropriate and relevant to this study.

Electronic Channels

Electronic gadgets formed some of the channels that were used to get access to information. Professionals were found to use computers to gain internet access, media channels such as radio and TV sets, cell phones. Smart phones they said allowed flexibilities in getting and receiving messages. Although this was more of personal affairs where individual bought their owned handsets, to some extent the institutions pre-paid air time credit to senior professionals to use while tracking field officers and contacting professional colleagues. Despite the unavoidable demands to register the importance of entrenching the use of electronic means of communication in these institutions, there were a lot of complaints from the professionals. Such complaints included: Lack of enough computers and other electronic gadgets amongst the staff. This slowed the use of electronic means in communication. Lack of skills to exploit information access through the internet was also a major complaint coupled by frequent power outage. This impeded the use of computers which sometimes resulted to lose of data as expressed by some professionals.

Although there were complaints of lack of skills in the use of computers several professionals found the use of computers more convenient in the following ways:

- 1) Allowed them to exchange information at their working desks by corresponding through e-mails, access internet and searched on-line data (Googling).

2) Import and export data, scan information in the case of maps draw maps and designing engineering and architectural sketches

Other means of information technology used were in the electronic media of television and radio sets. And the aiding technological gadgets for storing and importing information include compact disk read only memory CD-ROM, Digital Video Disks, (DVD) for playing back images and Video cameras (video cam) for image sourcing (Photography). They however emphasized that the use of computers is no longer an organizational or cooperate affairs but has trickled down to individual homes (Smart homes). Likewise there is the ICT syndrome in cities. In Nairobi for example which was the selected study site, there are plenty of cybercafés from where individuals can access information at a cost if they do not have to their own resources. The fact remains therefore that people in both the public domain or in organizations use the ICT facilities whether personal, official, or commercial.

5.6 Access Constraints

It was revealed by a large number of interviewed construction professionals that there were access constraints in searching for information. This was indicated by time spent on search, the traveling factor (distance). These were due to scanty or unavailability of information in the parent organizations. From observations the findings indicated that, proper information systems simply did not exist in the sense that; there were no established libraries of significance to facilitate information acquisitions, organization, management and availability to the professionals. Due to the deficiencies of proper information services including library personnel to direct information services in the Ministry of Housing and City Hall, or if one existed like in the case of NHC, the priority

put on other aspects of organizational functions marred that of information service. This situation strained professional information access. Other factors that jeopardized information accesses were:

1) Time Factor

The professionals complained that they spent a lot of time searching; seeking and leaving their work stations to physically look for information or assign their juniors to look for information. While this was happening, there were negative repercussions in so far as time spent on search for information was concerned. The affects were realized on; lack of results and on timely output, lack of concretized decision making and frustration to the professionals. Such revelations were captured in some evidences as narrated by a surveyor:

” when I cannot source the information from my own organization, I look for it where I can find it. The complaint I have on this issue is time spent on information seeking....”

As already been mentioned the time spent on information seeking had an effect on real time production on the organizational result delivery and as confessed by the professionals themselves, time spent on information seeking had different repercussions some of which included slowing work and so making the period between the request to delivery not predictable, delayed feedback to customers, and reports being delayed because there was lack of access to precise information for backing up informed decisions being made on a particular report.

2) Information Environment

Information environment was not favorable to professionals. This type of scenario emphasizes on the need to have appropriate information resources available and appropriate information services in the nearest proximity for the benefit of users, and to particularly the professionals who use substantial written and tacit information. From the literature reviewed it was indicated that, many information consultants have made observations on the issues regarding many organizations that do not consider information as a valuable commodity that has a place for propelling organizational functional activities. It is evident for instance in public institutions in Kenya, that too little attention is paid to the information commodity acquisition and management Wamukoya (2009). This deprives the users from enjoying the knowledge created within the organization of which they have a right to, yet is not harnessed. The awkward situation negates on the image of Government information provision and knowledge management (Wamukoya, 2006). It was discovered in this research that, the factor relating to organizational environmental characteristics had some bearing implication on seeking behaviour of professionals. The situation that prevailed on the seeking patterns and behaviours meant that, with inadequate information environments, the users had to device means of getting credible information wherever it could be found even if it meant seeking it beyond the organizational premises. It then becomes apparent that the policy makers and information workers should not assume that professionals will discontinue their work if they did not benefit or get information within their own organizations. What happens in circumstances where information is not attainable in the nearest proximity is the delay in work accomplishment, but the search for the correct information prevails. With the presented

circumstances where information was lacking, the information users in these organization depended heavily on information they sought outside their organizations.

5.7 ICTs Factor on Information Access

In the study a large majority amongst the housing construction professionals in the studied organizations admitted that information technology use is not avoidable in this time and error and for this they demanded the ICT facilities. It is generally accepted that, Information Communication Technology (ICT) has revolutionized the way the world is handling information. It has made it easier for many information seekers to exploit the abundant information existing in the global world. The current developments of information communication systems have taken a leading role in providing avenues for information access. All the respondents including informants revealed that they preferred using IT to access information. Several examples were given by the professionals on the implementation of E- government that has not only provided an easier way to accessing information amongst the ministries and in the country as a whole but has also created an institution (The Ministry of Information and Communication) in itself and provided jobs for many. Most people now communicate by use of cell phones, through short message services (SMS). The cell phone is portable and a convenient communication device. The internet is a pool of information data bases, where people look for virtually any information they think of.

Since the information environment is changing fast, the use of ICTs is no longer a debatable matter. It has become prevalent that, either an organization provides by planning and budgeting for ICT systems or individuals take upon themselves to provide

for themselves so as to be at par with the rest of the world. The wish of most respondents was that they be facilitated with ICT systems that can allow them exploit the world of information.

It is also observed that Kenya is not left behind technologically in trying to implement ways of coordinating information accesses throughout the country. This is evident in the government project on E- Government, intended to unite the government departments in conveying and receiving information created, and which needs to be distributed to both the public and the government departments. Right now, the use of technologies is challenging to many organizations in the demands put on them by users of information to provide the necessary tools and gadgets that can leverage the access to electronic information.

In this study when the respondents were asked what means they used to access information, more than half the interviewed population admitted that they used and preferred ICTs tools for accessing information. In some vain in their own words some prevalent answers were:

- 1) ICTs played a significant role in easing access to information by enabling data to be accessed from other sources and areas of interest.
- 2) It is faster and allows quick communication,
- 3) It is cheaper and can be manipulated to give desirable results in technical areas such as GIS information, scanning of documents and accessing data bases in selected areas of interest.

This kind of flexibility enables professionals to want any skills to use in getting the information they need. The explanation on this issue strengthens what respondents were able to articulate saying that professionals can get detailed information, there is more information and is affordable, the internet is readily available. Soft copies are easy to handle and a lot of information can also be carried and handled undetected. Meaning the information is secure.

From the information handling point of view, the use of ICTs in developing countries is still minimal compared to that of developed countries. The developing countries are still not able to give full implementation of ICT systems in many organizations due to financial constraints, lack of acceptance that ICT is not avoidable in this error and time, and therefore lack of subjecting would be users' to full ICTs training and availability of equipment and soft- wares.

Although fading slowly and the gap between the ICT users and non users is narrowing, the earlier stance of not implementing ICTs has made many organizations lag behind in accessing electronic information for work tasks. This is typified in many departments in public institutions. This study revealed that all the organizations studied embraced the use of ICTs to some level. However, not all the facilities of ICTs were met, for example not all professionals had their computers and other gadgets provided by the institutions. Several of those who used ICTs in their offices did supplement by buying their own gadgets; (Flash disks, modems, CDs etc). Financial implications on individuals constrained them to buy all the necessary gadgets and therefore left a gap in ICT use.

Other impediments were also realized in skills acquisition for enabling these users to exploit the necessary sources and resource available.

5.7.1 Skills Training

The need of skills' training was one of the factors that the professionals who were interviewed articulated strongly on. Majority confessed that they were not able to do quick searches using phrases and vocabularies or what information specialists' term as *Boolean search* while searching for information. Due to lack of skills, the professionals were unable to exploit existing information data bases fully. They were not able to quickly formulate search strategies to access the precise information and this wasted their search time. Lack of skills on accessing information can hinder one from acquiring the necessary information.

Due to changing information environment, training needs have been articulated by several local authors such as: Odini (999), Ocholla, (2004), and much earlier on had been foreseen by Nyamulu, Abidi, and Rosenberg (1989) when the country had just been introduced to ICTs, the experiencing information glut and coupled with created training needs the invention of information technologies and their rapid trend of changes. This new information development on information access democratizes the access to information.

The change from paper information of books, journals and grey literature-has paved the way for access to online public catalogs (OPACs) and open access to institutional repositories particular so in higher learning institutions such as universities where some of the professionals train and source information. The advantages of these resources

make the users access a wide range of information and data bases electronically. In the construction sector, the ICONDA data base from International Council for Building Research Studies and Documentation (CIB), according to Choguill and Silver Roberts (1992) ICONDA went online in 1986. The data base serves the interests of various key players in the construction industry including the housing construction information and therefore useful to the housing construction professionals in Kenya. *“In”*: (ICONDA-report, accessed through internet, (September 2007).

Odini (1999) argues that, while there is lack of skills in information users, information services that are provided are also not based on users' information needs. This was evident in public housing institutions in Nairobi. User consideration was not a priority in providing even the very basic information; even what naturally existed was not taken care of like in the case of City Hall's housing/ building design plans. There was lack of space, machinery and personnel to repackaging this information and organize it in an easy to access manner. In many organizations in developing countries, most prevailing information systems have been designed without a proper analysis of user needs. A question may be posed here that yes, organizations provide information services to their staff as was seen in the case of NHC, in this study, but to what extent do such services satisfy the needs of those they serve with the information? In answering this question what can be said is public organizations is that they tend to neglect user needs while designing information services and that is why professionals in public institutions tended to seek information outside their organizations and opted for institutions such as libraries in the universities which have plenty of information resources, and where skilled

personnel is found to assist them in using all channels of access including online channels.

Generally the problem of information access lies in keeping track of what is available. What has been published or unpublished is so diverse for consumption. And so information seekers are overwhelmed with what has been released in the market. Accessing the right and precise information needs skills which must be developed through training in skills attainment. Due to changing information environment training need has been articulated by various authors; including Rosenberg (1989). Locally are Odini (1999), Ocholla (2004) and others who have come after. It has been therefore identified that; the need to define a new model for training information handlers to shift from theory to practical training where the handler can use skill to answer information queries faster.

5.7.2 Equipment and Gadgets

Equipments and gadgets are useful and necessary for use in enhancing information access. Any organization should therefore acquire and provide them to the users of information. However, they are expensive to buy and require financial and manpower planning. The situation in public sector revealed that they did put in place manpower to facilitate inter-organizational connectivity (LAN) and Websites for which they employed information technologist, but they failed to provide these tools to information specialist to facilitate information management. The right library software packages were not used for managing on-line information. This is not even debatable here, since the findings indicated that the organizations did not have substantive libraries leave alone putting up

information management systems. The need to have information science specialists to provide better information services and knowledge management should take place first before than information service, required gadgets and equipment can be acquired and used.

5.8 Information Flow

Many organizations lack the operational networks; LAN and WAN for the flow of information for their exchange in the local capacity that allows links between the offices of one organization. As reiterated earlier, public institutions are still not using ICTs in a full scale capacity to breach the gap on information flow Katonga (2006).

In this study LAN and WAN networks were not fully implemented in the investigated organizations. For instance there was lack of WAN in connecting between City Hall offices in the CBD and *Dandora* housing development department (HDD) in Eastland. Professional staff had to move physically within same town to exchange information, while at the NHC headquarters the network with other towns did not exist. At the Ministry of Housing it was the same story on WAN connection and application. Lack of connectivity may not only be a hindrance to exchange of information in the same organizations but may also hinge on those trying to access and submit information from beyond the country. One disadvantage is to fail in submitting local content.

According to Chisenga (2002), the African continent which Kenya falls in submits only 0.04 % to global content inclusive of South Africa. Without South Africa, housing construction information contributes to less than 0.02% local content to the global information gateways, which is negligible since construction sector industry is one of the

largest industry consuming a bigger national budgets in many countries and certainly in Kenya. Local content is vital in Kenya, since she shares in financial contribution by foreign investors in developing private housing for mass consumption. She also partners with local institutions to develop affordable housing. In this way foreigners may need to access information on the industry. The use of local content contains certain vernacular terminologies which may not be very familiar to foreigners but can be translated to aid them understand what they are looking for. (Google already has the Kiswahili language translations). The housing construction sector information on building materials, space standard, construction labor information, and cost indices may form local information which may be shared with new investors who may want to know about the country's housing situation through information. If the local content is harnessed and included into the international data- bases, users would benefit and the use of housing information would be enhanced by researchers, administrators and all levels and categories of construction professionals. What manifests in local content include language use. The language in search terminologies if translated may help researchers and professionals to understand the valuable information they are seeking.

The flow of information within the institutions through LAN is also significant in enabling professionals and other users to communicate conveniently in their organization and to avoid physical movement in passing information in offices. Through the use of intranet, emails, telephones and use of CD ROMs, flush disks, sharing of information through these gadgets becomes easier. Through information supplies and distribution the flow of information can be enhanced.

5.8.1 Stimulating the Use of Information

The construction professionals complained of lack of suitable information system that could stimulate information use. Access to information can be hindered due to lack of suitable information systems, language barrier and illiteracy and lack of skills where individuals lack the necessary training and expertise to acquire the information. Information experts such as Odingo (1995), Ochieng (2004) and Wamukoya (2009) recommend stimulating of information use in the country. They see the need for stimulation as valuable in paying more attention to user's needs of a given community and communication amongst each group of users. In the housing construction industry user community is larger and possesses people with varied training backgrounds. Included are professionals, technicians, researchers and the general public who depend on this type of information. Attention should be paid to their information needs so that their use of information is enhanced in demand and supplies.

5.9 Barrier to Information Flow

Distribution and Supplies

There are several factors that contribute to barring the flow of information. Abonyo (2002) reiterates that information sources available for use by the professionals in the construction sector, are not coordinated in Kenya. The professionals were not happy with the way information is distributed in the city, and therefore failure in supplying relevant information where it is needed. This is a question of lack of clear policy to compel information institutions with similar interest to cooperate and coordinate information services for their unique users. Other factors include scarcity of finances to facilitate the required gadgets, and other resources necessary for implementing better flow of

information. Through observation the researcher has also established that those institutions that possess the necessary information exist in isolation making access more difficult to users. Lack of coordinated information and cooperation of the existing housing construction institutions and awareness creation can make users not only miss to locate information sources and resources but also fail to know which existing source provides a specific information on given subject (Muraguri, 1992).

A large number of professionals were not satisfied by the way information was directly to flow. In their responses they were not able to tell why government institutions like The Kenya National Library Services (KNLS) did not take strong regulatory measures to make the government department establish libraries that serve the interest of the institutions and left them independent without even dealing with lack of qualified staff to direct information in these institutions and to consult with KNLS. Or by reinforcing networks with the institutions through the initiative of KNLS to enhance use.

By knowing where to find the needed information, through networked systems, the professionals said they would save time on information seeking and get on with real time tasks solving on housing construction. The researcher's opinion is that there is need to ease information retrieval to save time for users. And that the developing countries should borrow examples from developed countries. E-government is already setting the pace (Katonga (2006).

In this study the information retrieval based on Ingwensen's (1996) model discussed in chapter two may explain the user situation when it refers to cognitive space on information needs and the user ability to perceive their issues on tasks. This applies

when they need to: chain brows, differentiate, monitor and extract information depending on the activity of individual seeker (See the models).

According to Aligula (1995), the construction sector depends on appropriate and timely information for work to flow properly and for correct decision to take place. Lack of appropriate information causes delays and even poor work performance. Lack of information is attributed to be a major cause for poor and delayed results in the studied organizations seemingly therefore; poor information flow in all organizations and from individuals has an effect in delaying work processes.

It has been found that leveraging information retrieval was realized by the Scandinavian countries in the 1980s. As a result, there was need to network information resource access points such as libraries so that, the users can get their information much easier at a given point of access. The Scandinavian libraries networks are not isolated cases, such networks now exist in many types of libraries in many parts of world. In the construction sector for example, the creation of the construction information data-base at the Swedish Institute of Building Documentation (Byggdok) is a good example. Today the Byggdok Institute solicits information from the Scandinavian construction sectors and channels them to internal Byggdok data-bases (Budil) from where the seekers in the industry can access the needed information (Byggdok report, 1996).

Many developing countries have not succeeded in achieving information networks except in few libraries, professional firms, organizations and other information centers. This makes information flow slower generally because information exists in isolation and is therefore hidden. In the construction sector where the users need varied types and range

of information, searching for hidden information consumes a lot of time and can frustrate users. Such experiences were realized in the investigated institutions where most of the professionals sought information in isolated institutions; since the construction sector has no centralized data base except for the one at the ministry of works- the joint building centre(JBC). This centre does not cover all counties. This situation affects performance as was revealed by those interviewed. The public sector institutions therefore need to put their information in a pool where all can have easy accessibility. It was realized in this research that isolated information sources have different information types and ranges. Searching for appropriate information for given projects in which all types of information is needed can become tedious and a setback to work progress in an organization.

5.9.1 Poor information Systems and Management

Poor information management and services was the main hindrance to information flow. Harnessing, archiving and restoring tacit and explicit information was found not to be a practice in public institutions that were investigated. Lack of these practices made the seekers struggle in tracing the required information. This was not only evident but also reflected in instances when the public also sought information from respective institutions that needed advice from the public sector institutions. Poor information management in public institutions has been recently explored by Wamukoya (2009). He suggests that there is need to apply knowledge management including archiving of documents to lessen losses but increase preservation of important documents that are a benchmark. In the construction sector such information includes the history of development of housing in the country, lands information which has a rich history inherent from the colonial times and which affect housing construction since houses sit

on land, the bylaws and regulatory information on house design documents, cities and housing development and so forth. This bench-mark information is a major guide in the trend of housing construction and is used by planners, architects and law makers amongst others.

5.10 Suggestions on Improving Access and Utilization of Housing Construction Information

At the end of interviews professionals were asked to give views which they thought could enhance the information environment access and utilization in their institutions. Some of suggested views leaned on information system design.

5.10.1 Information System Design

The *suggestions category* was generally based on information systems design. The opinions given on this matter was drawn for the views given by the respondents. Elaborating on it further; the system design rests on the philosophy of design in which the needs, wants and limitation of the deigned products are given extensive attention at each stage. The designers' philosophy rests on the opinion that recommends that *a designer should analyze and foresee how users are likely to use the product and tests the validity of their consumption with regards to user behaviour.* (From the *Wikipedia: sourced March14th, 2012 in the internet*).

Regarding information system design, several factors should be put in consideration. Included should be who are the users of information and documents, what information do the users need and in what form do they need the documents? And finally what are the opinions of the users?

The suggestions made by the respondents centralized on the need to design information systems that is geared towards serving users' interests in public institutions.

Amongst other opinions that were given on this issue include:

- 1) Network the entire organization for easy communication by installing relevant facilities
- 2) Establish a resource centre where we can source centralized information in the organization.
- 3) Create awareness on the existing information through the internet.
- 4) Enhance training on ICTs
- 5) Plan and stock for organizational information for easy reach.

The trends in which these answers were given tend to emphasize that the professionals wanted an information system design that could be used by every-one of them and where information was centralized so that no information was hoarded. They wanted Open and centralized access to information. Such a system would embrace the entire organizational information and could be linked to other organizations making it easier to access information that is generated in public institutions regarding housing construction. With the necessary trainings the professionals would find it easier to communicate to one another electronically while requesting for and receiving information of any range from their colleagues; a task which they have faced and which they have decried the time consumption on seeking, searching for information.

Measures to improve access to information in organizations do not only rely squarely on improving information design systems that gives service to satisfy the needs of users alone. It also borders on the information behaviour of the organizations. Most

respondents expressed their dissatisfaction on information supply and detested lack of harnessing of information that is tacit and availing what is hoarded amongst the staff in the organizations. The position found in these organizations revealed that certain organizational information that formed the benchmark information or documents that existed and were held by members of staff who did not share them. Accessing such information meant; that either there was agreement between individuals to share the information a behaviour that is not beneficial to all staff or failing to use the information altogether, and sometimes even believing that the needed information does not exist. This reflects negatively on information behaviour of these organizations investigated.

Organizational information behaviour has been explored by Wilson (2001) who explains that formation initially set up as information acquisition mechanisms not only forms system set up and design to provide and manage internal flow using methods of communication for instance in memos, discussion meetings but also other systems in which libraries and documentation resources such as files, maps, reports project documents are harnessed and managed for access by all users who need them. The design systems are the systems in which information reach the organizations and in which information is disseminated. It is the system that users rely on. The discussion on information needs and services of organization is derived from the reviewed literature Sourced from the works of Huotori Meja-Leena and Wilson (2001). They reiterate that organizational information is that information which promotes the needs of the organization and not for individuals. It is was suggested by respondents that the needs of organization creates an enabling environment in identifying the types of information that may aid in organization on strategic, policy making and achievement of competitive

advantages. Failing to lay hands on organizational information can result into hindrances on information accessibility a phenomenon that deters certain decision making in that organization.

5.11 Summary

This thesis was developed on the basic grounds and perception that professionals in the housing sector need, pursue and use information of a wide range on; social technical, economic and political types. They spend time seeking the information from different and scattered sources. Some of the sources are within their organization, others outside their organizations. They interact with these different sources through various communication methods in attempts to locate and retrieve the right and precise information to satisfy their information needs.

Their interaction with the sources is influenced by quest for information to retain knowledge and their need to resolve immediate work challenges. The main influencing factor for seeking information vehemently is determined by the unfavorable information environment existing in the organizations in which they work. Additional influencing factors rely on the perceived nature of information need; on what the information is used for and the way it is accessed from the sources. The information source credibility is judged by the experiences the seekers have had with the sources, the degree of use and monopoly they have had with the source over a period of time. This is further determined by reliability of the information materials.

The findings on the research demonstrated in the debate is construed to have important implications for information professionals, and policy makers responsible for developing information systems on housing information in the public sector. The debate bring the attention on information: need, use, types and the sources that may be expected to be of interest to key professionals and the real information situation in the public sector housing institutions. The debate draws the attention on the kind of information seeking and communication behaviours that may be expected of the professionals in their work situations. The thesis argues that unless the factors on needs, the functional roles of key users, the information environmental factors that also determine credible sources and influences the information seeking behaviours are carefully considered, any pains taking to develop information systems at whatever cost may not be the determinant factor on high degree of full utilization of information by key professionals.

CHAPTER SIX

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The purpose of the chapter is to summarize the study findings related to research objectives. It gives concluding remarks and gives the proposed recommendations alluded for future use lest implemented. It is concluded by giving suggestions of further research areas.

The purpose of the study was to investigate access and utilization of housing information by key construction professionals in selected three surveyed institutions based in Nairobi the capital city of Kenya and to suggest some measures for improvement.

6.2 Summary of the Findings

Based on the findings, this study specifically showed that, public institutions with key roles in housing construction engaged construction professionals with knowledge and skills to serve and advice the public in different capacities. Due to their functional roles, the professionals needed to access many types of information and used wide range of information relating to housing construction and the built environment in general. The information was to help support their decision makings with facts. However, the information they sought was found to be scarce in the organizations they worked for. This situation warranted the professionals to seek credible sources which were scatted in Nairobi city. It resulted in many to resolute to seeking information using various methods and channels. The seeking process sometimes caused delays in accomplishing result oriented tasks as presented and discussed previously in chapters four and five.

Recommendations have been drawn from these findings giving light on what the study came across and concluded. A framework model for future planning for an information system is suggested. The study showed what is summarized as follows:

The specific research objectives were:

1. To identify information needs, access methods and seeking behaviour of key construction professionals.
2. To establish the role played by key professionals in the construction sector
3. To establish the range and types of housing construction information that exists in the public sector institutions in Nairobi.
4. To examine the extent to which key construction professionals of public institutions use the existing information.
5. Determine the level of application of ICT in managing and accessing housing construction information.
6. To Identify factors that hinder access to and utilization of in housing construction information in existing in public institutions
7. Suggests a framework for improving access to and use of housing construction information in the public institutions in Kenya.

The corresponding questions are in chapter one.

6.2.1 The Roles Played by Housing Construction Professionals in Public Institutions

{Objective 2. The corresponding research Q 2}

Based on the study findings, the construction professionals were found to play important roles in the sector that they served. They were found to serve the public with knowledge

and skills obtained from long term experiences and high level of education attainment as shown in tables 4.3 and 4.4. Due to their experiences and functional roles, they participated in housing construction with professionalism and humility since they were found to have engaged in professional consultancies, institutional work tasks and also served as advisers and helpers of their communities as a social responsibility. These made them occupy important roles in the society and responsible members of professions who can be trusted with improving the poor conditions of the built environment. They were, and still are considered respected members of the Kenyan society.

6.2.1.1. Housing Construction Professional Categories

The study showed that the investigated public sector institutions that play important roles in housing sector engaged construction professionals. The categories investigated included: architects, engineers, planners, quantity surveyors, environmentalists, building inspectors and lawyers. Regarding their enlightenments they were found to be of higher standard of education exhibited in their skills and knowledge in serving the sector.

6.2.2. Housing Construction Professionals ‘Information Needs Assessment; Types and Range Used

{Objective 3. The corresponding research Q 1 }

The study revealed that construction professionals needed and consumed information of various types to accomplish their work tasks in respective institutions. They pursued and used housing construction information of a wide range. The identified types were: social, economic, legal and political information.

The social information included those relating to human basic needs: such as housing, healthy living and environmental matters which are entrenched in planning and

infrastructure development information. Some of the information also related to basic income and affordability of these needs which summarizes on the well-being of the society.

The technical information which related to information ranging on: building technologies and research on material types and their scientific investigations, building design and aesthetics.

Information Relating Economic; These were sort for understanding the basis of population growth and development in terms of improvement of social and physical planning for lives of people 's dwellings in the urbanized towns such as Nairobi. They included information on population growth and development, poverty, income and wages, statistical information, trade and occupational activities and others.

Legal Information. Emanating from the study it was identified that professionals sort information on legal issues that affect city dwellers. These were found to be aspects of: the right to the city, what could advocate for seeking and demanding what the dwellers ought to get out of city governance such as: the right to accommodation, infrastructure and other services, their own safety, the security of their properties, issues dealing with crimes in dwelling areas and the freedom to work and trade within the city. There is land ownership which also dictates housing construction including the right to clean environment. At city hall there were issues of licensing and revenue collection that especially affect traders/ hawkers who look for income for sustainability including paying of rent and rates, transportation, approval of design plans and others that might be.

Political Information. It was discovered that professionals sort information that lead to protect the role of citizens. They used information that tended to understand the role of

leaders and how they are governed by the politicians. Such information emanates from issues that include incidents which occur and should be solved by politicians: such as why there could be infernos in slum areas instigated by politicians, transport issues that go haywire; these concern planners and engineers. Some of this information is explained according to needs of professionals as listed in table 4.5.

The study showed that the different types of information that were needed were vast and linked to the functional roles of the professionals. This culminated from the training background that professionals had and the nature of task that needed to be solved. The vast ranges of information they used were repackaged in written words that were in print published or unpublished, statistical or numeric data, maps and, pictures and other formats including raw building materials. Their work tasks dictated the use of precise and timely information for decision making. To get the information, the professionals pursued scattered housing information wherever it could be found. This they did by making sense on credible sources. They were found to have used intuitiveness and self initiatives for seeking the needed information. Further, what was discovered was that, the information needs of key professionals were associated with the kind of roles and work tasks that an individual professional held: Those that were in management positions needed information on decision making and policy formulations, while those on technical ranks needed information on the tasks they undertook on construction assignments. The technical groups were of varied professional backgrounds making their information needs based on background training and skills attainment developed in each field of engagement. In short summary for instance:

Architects needed information on: clients' needs and construction sites such as land status. *Engineers* needed information on strength of structural materials their safety and comfort and underlying dangers they may have on human well being.

The *Quantity Surveyors or building economists* needed information on building materials types, where to sources the materials and the prices.

Land economists and surveyors needed information on land tenure and the right of purpose of use.

The planners needed information on city bylaws and the security of the physically constructed items relating their uses to the neighboring population.

The *environmental assessors* needed information on the social and scientific effects on the built environment impacting on the public, while

The lawyers and the *building assessors* needed information on by-laws concerning city regulations the rights to and acceptable living standards respectively.

It was found that these types of information are useful for serving the needs of professionals that deal with interrelated issues while pursuing their tasks on housing construction.

6.2.2.1 Information Awareness

The study further discovered that, the construction professionals were aware of their information needs and the creditable sources to be consulted. For these reasons they looked for information wherever the information existed.

6.2.3 The Extent of Information Availability and Meeting the Needs of Professionals

{Objective 4. The corresponding Research Q 4}

This study showed that there were many pitfalls on organizational accrued information and its management in the studied organizations. Quite noticeable were: a) lack of the right and accumulated information materials. The existing situations depicted lack of well organized, classified and availed information to the professionals. b) Lack of expertise information managers made the information flow to stagnate. Where there was some information such as at the NHC, little was done to provide adequate space and ample financial support for growth of library. In other two related institutions studied (MoH and,CCN) there was lack of trained information specialists with the matching understanding of information needs of professionals. Due to these shortcomings, information was scarce in the organizations and could not meet the needs of varied criterion of professionals needs. As a result the professionals had to seek outside credible sources such as libraries of academic institutions such as University libraries; map centers, the Bureau of Statistics, relevant Ministries, bookshops and the Government printer for official publications.

The study observed and recognized the fact that, understanding information needs of professionals in the public sector does not rely on theoretical basis. Realistically there are challenges that contribute to devising information systems that meet the needs of users practically. These challenges faced the information providers such as the information specialists and the policy makers of the studied institutions to get concerned with housing construction information service system to support the information needs of their employees. The situation needs high level of training for understanding information needs and demands of the users. Altogether it was discovered that, the information needs

of professionals culminating from the nature of their work tasks is not an end in itself. This should be coupled with better services which is the role of providers.

6.2.4 Identified Factors that Hindered Information Flow and Accessibility in Studied Organizations

{Objective 6 The Corresponding Research Q 5}

The study findings indicate that there were hindrances to information accessibility in the studied institutions. This was culminated by scarce internal information material that did not meet the needs of professionals whose tasks were myriad and demanded consulting vast range of information. Lack of information deterred internal accessibility while the flow was hindered due to lack of facilities and laxity of institutional managers.

Further study outcome suggests that there was no proper information system put in places for acquiring, organizing and availing information for use by those who desired. All the studied institutions lacked well established libraries or documentation centers that could support information services that meet information needs of the professionals appropriately.

There were no institutional laid plans that envisioned development of information services. Adversely, the study showed that there were other organizational red tapes that contributed to failures in making information systems function for the benefit of the professionals. These were; lack of trained Librarians or Document lists to man information, space set aside for library accommodation was lacking, proper library budget for financial strategic planning for information just as other organizational functions would be treated, lacked in all organizations that were subjected to this study.

6.2.5 Information Seeking Pattern and Seeking Behaviours {Objective 1 The Corresponding research Q3}

Access Methods

As part of their work practices, the professionals used consultative approaches when they converge together to work on construction projects. In general the construction sector was found to produce and channel out wide but related information on social/ economic and techno/ scientific and political information. These were consumed by different professional criterions.

The study revealed that the professionals used various methods for searching the needed information. When they could not obtain information in their own institutions, they opted to search for information elsewhere. Revealed was that, there was use of junior staff members that were sent by professionals to fetch identified information in other institutions.

Others methods included oral means in the form of discussions with fellow professionals and knowledgeable persons. This was found to be the natures in which construction professionals' behave, thus; they discuss when they undertake projects that need different skills. They also look for any factual information that can support their undertaking. This is due to their categorical and multiple skills and knowledge needed to accomplished construction projects amongst them housing.

The time Factor on Accessing Information

The study revealed that the professionals had varied information needs and therefore the need to consult plenty of information sources. This process sometimes made it difficult to

access timely information resulting to failure in concluding reports on time. A large majority of professionals (97.2%) complained that time used to search and obtain certain information types such as the preparation of topographic maps, building plans and so forth was sometimes colossal and delayed in result delivery. This negated on their performance such as giving an on time reports with appropriate facts when this was demanded. They complained of long traveling time out of the city that made them also incur travel cost on the road trying to reach the sources.

6.2.5.1. Information Channels Used and Seeking Patterns of Professionals in Studied Institutions

The study identified some seeking patterns and channels used by professionals in an attempt to secure needed information for their work tasks. Some of the issues relating to habits of seeking and channels used were found to be as stated:

The Use of Oral and Documentation

Construction professionals were found to depend on informal and formal channels of communication that are structured by their organizations. They relied on documented records received or produced by the organizations and depended on oral channels for communicating. Given that the professionals worked for the interest of the public, dealing with land, housing, planning, rates and many issues of the built environment typically experienced in many cities of developing countries, it is not surprising that the oral channels of communication dominated their habits of accessing information. This was experienced in formal and informal meetings, consultations and discussions which occur frequently as the organizational work procedures and as part of information sharing.

These procedures were found to be in most instances a management-controlled process, whereby; there exists regular and impromptu meetings organized by administration, and also meetings which come un-procedural when clients popped in organizations either by appointments or impromptu to inquire on issues affecting their lives in the city. Through the formal meetings the professionals said that they became acquainted with one another considering it a healthy way of sharing information and knowledge, learning each other's information needs and understanding the practices in their professions.

Use of Documentary Materials

The professionals reiterated that use of documents is as important as oral procedures in accessing information. The professionals in the public sector are known to rely on published and grey literature information. The written version allows them to extend time in consulting a piece of information, and may drive them to seek more information on credible sources that have variety of information materials. Such places were discovered to be libraries, institutions, and documentation centers. These centers allowed the professionals not only to extend consulting time by way of borrowing information items for a period but also to acquaint themselves with variety of information materials as they look for them in credible sources. Library visits were ascertained during the interviews by the revelations of professionals in their information seeking habits. The desire to read is a matched need of both professionals' knowledge seeking and the academic pursuit. The two characteristics were possessed by construction professionals some of whom continued to go for formal education and technical training to acquire academic knowledge and technical skills.

6.2.6 The Level of Information Communication Technology Use as It Effected Access to Information

{Objective 5 the corresponding research Q 6}

The study found out that Information Communication Technology appliances to help source online information were not in full realizations in all organizations studied. This factor made information searching more difficult. Lack of electronic gadgets and in some instances frequent power outage as was in the Ministry of Housing made the professionals work with anxiety. It also was found that many professionals did not benefit from organizational electronic gadgets facilities. There were fewer supplies of computers by the studied organizations for everybody's use. Some professionals had to share the gadgets, and as it were there was a general indication that most professionals did not receive institutional appropriate training for use of electronic resources. This hampered the majority's ability to explore construction data bases or relevant e- journals which they needed for acquiring the latest information. They also lacked skills for relevant software usage such as Archi-CAD, Auto-CAD and accounting packages (sage and Pestell) used by quantity surveyors. There was also lack of Wide Area Network that would connect the institutions with other official staff elsewhere out of the city; For example there was no WAN to connect *Dandora* offices with City Hall. However, there were professionals who owned personal ICT gadgets and used them to communicate in sourcing for and receiving information through; fax machines, e-mails, telephones, radio and television sets including printed sources and so forth.

Although some computers and TV sets were provided in the Ministry of Housing, the provision of ICT tools was not evenly done. The distribution favored the senior

administrators and senior professionals staff members rather than middle level construction professionals who had to share the gadgets limiting their potential ICT skills development and therefore full ICTs exploration. It was revealed that most professionals did not use construction databases to source construction information due to lack of skills to explore IT. What was discovered was that, due to these hindrances the professionals opted to look for information in other credible sources outside their own organization. The sources pursued were many and scattered in the city. For instance a number of libraries, map centers and the bureau of statistics, and relevant ministries made credible sources perhaps because online searchers were unavailable. This prevalence made the professionals use more time on information seeking.

6.2.7 Other Factors Considered in the Findings

(Objective 6 The corresponding research Q 5)

The value of information and the use of ICTs

Information forms part of the ingredients for organizational development when used for better decision making. It is imperatives for organization that deal with social publics whose needs are myriad, to create a well defined information centre and harness, organize and manage the relevant information for work role uses. To avail the information in a more accessible manner, the opinions of the respondents indicated that the professionals preferred electronic channels as the access points. Such information channels were discovered to provide quicker and easier ways to access paths that would relieve the anxiety and emotional information seeking. For instance, they argued that the electronic channels have less financial spending, save time and give more choices to the users. They preferred on-line channels that give instant information on e-books, e-

journals and open access on topical databases for construction sector professionals' needs such as *ICONDA*. They said that online access enables free flow of information on, a wide variety of choice on sources and they reiterated that there was surety or certainty in finding the needed information, and that ICT channels were a better way of efficient communication which allowed easy contacts with other online users as was experienced in using university libraries.

6.3 Paying Attention to Specialized Information (Creating of specialized data bases) {Objective 7 The Corresponding research Q 7}

All sectors of development generate and produce information related to the needs of the concerned sector. Construction sector is prominent in due to its uniqueness in dealing with across social, economic, political and technical issues and producing myriad of information in types and range. Managing this information well can stimulate its use by the professionals in the sector for better decision making as was seen recently when revising building and planning by laws (2009), which is has been debated in parliament. If passed, several bylaws will have been put in place to improve planning and management of the construction sector. The new information is necessary for putting things straight lawfully in the construction sector. It will be used for monitoring the ongoing activities in the sector in an attempt to avoid loss of lives and properties prone to the construction sector as is currently on the increase. Better still the information of this nature will pay a significant role on construction informing that can enlighten both the public and the experts.

6.3.1 The Effect of Environment on Access to Information: Meeting User Needs {Objective 4. The Corresponding Research Q4}

Environmental conditions can affect information seeking and has been found to be a barrier in many public institutions due to lack of recognizing user needs. Generally environmental conditions of the physical and social /cultural conditions can impact in a way that affects human behaviour. The impact could be extended in a work environment because user needs embrace needs such as; economic, social/ cultural and emotional needs which constitute some of the needs in a work environment. Besides, it is generally understood that full range of human needs causes motivation towards information seeking behaviour. The needs are recognizable in the rise out of roles an individual fills in social life. The most relevant of the roles is working role Wilson (2001). The need to perform in particular tasks and the process of planning and making decisions are the main generators of needs.

The need to achieve in an organization, coupled with self actualizations are a particular type of needs and may determine information seeking behaviour in the climate of organizations (Wilson, 2001). Wilson's long studies on human information needs gives some details and says that;

“The economic climate and differential stratification of resources define work environment as information poor or information rich with the consequence effects upon the probability of information seeking behaviours and the choices of the channels of communication.” It is acknowledged that, the political system may define certain types of information as forbidden to particular groups (including the general public). For instance this used to be experienced in Kenya when classified information could not be available

for possible consumption to many publics. The consequences of non-availability of information materials may affect the performance in specific work roles. The physical environment can also affect the solution of tasks (Wilson 2001); such as lack of space to have stocked information may affect the timeliness for access to the needed information and delay report writing when those concerned are still taking their time to find the information they need.

Wilson (2001) continues to argue that specialized information systems are concerned with the relevance of roles in work place, that is the set of usual activities and responsibilities of individuals in some organizational setting in the pursuit of earning and other satisfactions.

At work role levels there is clarity that, the performance of particular tasks and the processes of planning and decision making will be the principal generators of cognitive needs. The nature of an organization and the individual's personality structure will create effective need such as the need to achieve for self expression, self actualization, the pattern of needs and factors such as organizational levels at which the role is performed and the climate of the organization.

The determining factor of self actualization relates to need and information seeking behaviour. In summary the researcher argues that in the current experience the need to succeed in work environment should be broadened to include aspects of information environment. This has an impact on how the work role is performed of both at the individual's and the organizational levels. The information needs therefore strongly influence the habits on seeking, in terms of communication and the searching mechanism.

This is in relation of identifying credible sources that are of formal or informal systems as was being done by the professionals who were studied.

Through the consulted literature, it was in the views of many information specialists including Odini (1995) and Wilson (2001) that credibility of a system can be judged on whether the system is efficient in terms of speed of delivery of a response or more effective in terms of quality of information provided or its currency. The user's main aim is to seek information on the basis on what purpose he/she believes it will serve and to what use it is actually put when the information is received. These two factors may be considered while designing information systems in any organization, so that they are more efficient and more effective. Information seeking, behaviour is determined by the way the seeker views the sources they use in answering the information need. The urge to use credible sources was found to have a strong link with the way in which professionals searched for their information. This was seen in revealing about repeated usage of credible sources, such as university libraries.

In this study, Wilson's 'studies of information science and modeled on information seeking and user behaviour were tested during data analysis in this research. Saturation was reached in the early stage of data analysis during face to face interviews and revelation of information seeking and provision in relation to work environment.

To a large extent the findings in this study has implications for information provision for professionals in public institutions. It was found, for example that there existed undesirable information environment characterized by lack of books, journals and unavailability of un-published information which is institutional generated. This confirms

that there was undesirable information environment that made the professionals to strategize their information seeking and searches. It was also discovered that, the professionals out of their precise information needs preferred to seek information only where needs were satisfied.

The determining factor was the lack of easy to access information in the institutions studied by ignoring attempts to establish proper libraries, (save for the registries and stores) that prohibited and inhibited information access to professionals. The psychological affect on the professionals that there was no substantial information services in their own organizations and the urge to secure information for work accomplishment and self actualization resulted to searching for credible sources. Identifying credible sources was also found to be the influencing factor on accessibility.

The professionals' varied information needs and the need to consult plenty of sources made them spend substantial real time for work in looking for myriad of information. The environmental impediment became lack of relevant information which challenged the way professionals sought information.

6.3.2 Information Specialist's Role in the Housing Construction Sector

{Objective 2. The corresponding research Q 2}

a) Information Workers

On the part of information workers, it became apparent that construction professionals should be helped to be able to use and access information resources necessary for their practices by way of educating them on how to explore the world of information. This was

realized when substantive number of professionals admitted that they lacked skills to use on online searches to attain the required information. Familiarizing information professionals with online search techniques, identifying, describing and recommending relevant construction databases, is an essential undertaking on information specialists in educating users. This would be for the benefit of professionals in the construction sector.

b) The Role of Information Science Schools

Training institutions take challenges to tailor curriculums for the benefits of the development of the country economy. Such is also the mandate of information sciences schools. Currently information science schools have mushroomed in Kenya, emanating from the pioneer Moi University Information Science School.

Such schools ought to offer courses that will produce personnel that can handle specialized information and manage the information with user interest and subject needs. This trend can improve harnessing of specialized information in the country and also creating jobs for subject specialists and Documentalists. The housing sector can benefit in employing specialized information personnel. Educating users and training information personnel to handle information in the public sector is recommended in this research

6.3.2.1 Centralization of Housing Information

{Objective 7 The corresponding research Q7}

Chasing information in the wild can be tedious and time consuming. An attempt to do a Kenyan situational analysis on housing information by Abonyo, (2002) revealed that this information is scattered. Given that, the information is also characterized of wide range and is generated and produced by multi-dimensional range of professionals, searching for

precise information by users can cause anxiety to many seekers, who have the need to fulfill work tasks. For instance, searching for building material producers and suppliers, need a compilation of available institutions' addresses of both locals and internationals and can also be in gathering documents of the implicating by laws of the construction sector and related issues and so forth. This type of work requires skills of trained personnel such as librarians who have the skills to systematically organize knowledge by way of acquiring, classifying and preserving it for use by the needy. With the myriad information that exists in the construction industry, this sector can benefit from the information science experts if put on board to serve the related professionals. Besides, to consolidate information in the sector, there is need for cooperation amongst institutions owning the information leading to eventual coordination in a centralized information system by an overseeing institution.

6.4 Conclusion

This research was based on qualitative approach. Only where unavoidable and on a small scale, data was provided in tabulated descriptive form. The study has attempted to answer the research questions that were provided on the phenomenon of accessing and utilizing housing construction information by key professionals. The research was conducted in public sector institutions in Nairobi, Kenya. It provided an insight on to why the investigated professionals needed information and how they used the information that they sought.

The study has helped illuminate the information needs in the construction sector, the complexity of information seeking and user behaviour in the search processes. The

research also presents a substantial contribution to knowledge and understanding of access to and use on housing construction information in public sector institutions in Kenya bringing more insight to the information needs of the key construction professionals. It identifies and highlights the types and range of information used and the information seeking methods of key construction professionals revealing communication systems in the studied institutions.

It came out with a new finding concerning housing construction information that has been in the grey area. It therefore concluded that:

Accessing Information

Housing construction information was vast, existed in a wide range but scattered in different institutions in Nairobi. Accessing various aspects of this information needed time and those involved in the use of it ought to rethink for a system that can assemble, consolidate and organize the scattered information in their institutions. Due to scattered information, the professionals were directly affected in their work out put since they use it on a daily basis. Therefore, there is need to centralize Housing information for easy accessibility.

Construction Sector' Information Vital Role

The study gives the findings that the construction sector is one of the sectors that is vital as of Kenyan economic indicator. It points across the economic dimensions of the societal housing needs and provides jobs to many categories of the citizens. The information generated in this sector also plays a vital role in informing across the social dimension of the population in different ways thus; as study material for referencing, as

documentary information on policy material in the complex housing sector and as a wealth of the nation on information accumulated with the historical development of the housing sector. Some of this historical housing information forms a benchmark as one of the best housing information references for future researchers.

The information therefore needs to be handled in the most befitting way. The study therefore emphasizes on collecting processing and preserving the information especially due to the fact that; the process of building and constructing houses have many spheres including; extensions, repairs, renovations and initiating the design of new structures. There are also new discoveries of modern building materials. Some of these processes demand cross referencing of information. With these angles and stages of housing development and at whatever time, new and old information is always being sought.

Additionally, the findings forms a basis of information materials for policy formulation aimed at improving access to and use of housing construction information in the public sector. Such policy interventions should encourage information systems improvement and sharing between private firms and public institutions information. This would be for the benefit of all construction professionals at local levels for short term solution and across the countries in the region who share similar challenges as long term solution.

Although this study achieved the set objectives, it acknowledges that the quantize analysis was not fully inclusively in the reporting. This however, was not the intension. Instead what was emphasized was the reporting of personal stories of the individual professionals. The attainment of the study success was therefore possible due to the use of interpretive social based paradigm which sought to understand information access and

use phenomena and argued on the *need theory*. This enhanced the understanding and therefore interpreting the professionals' stories from their own point of views of information need and descriptions of action in their own words which they recollected in words. In addition the use of semi-structured in-depth interview as the main data collection instrument, including qualitative analysis modeled on grounded theory technique contributed greatly towards the success of the study.

6.5 Recommendations

After investigation and conclusion made on access to information and utilization by housing construction professionals in public institutions that were studied, there were some recommendations made on the study.

6.5.1 Recommendation on Policy Issues

- **Strategic planning** for information access should be done in public institutions by information managers and policy makers. By planning strategically it is of the researchers opinion that away forward should be forged on how these institutions should handle their information systems, Further, it is recommended that the executives and information professionals working in the investigated institutions should endeavor to plan and provide suitable information to support the work of professionals in carrying out the institutions' missions. This would make the professionals save on seeking time and given them room to be more productive in real work tasks.

- **The role played by information professionals** in housing construction sub-sector should be investigated. If this is revealed, it would encourage employment of information professionals in respective institutions making a notch higher for improving information management in the country and specific sectors. Although it is not mandatory to employ all graduates, creating more job opportunities for the youths and graduates is constitutional in the country.
- **There should be a study of the strategies** of how to centralize housing construction information in Kenya, This can be borrowed from experiences of advanced countries and tailoring it to suit Kenyan situation. This kind of strategy has been experienced in the Ministry of lands where the Ministry consulted the Scandinavians on digitizing land information system.
- **Information management and knowledge management** inclusive of harnessing, restoring preserving of both tacit and explicit information in the housing sector should be investigated to enhance posterity of this information, first at the institutional levels and second at national level.
- This study has been conducted in public institutions. However, to understand wholesomely the phenomenon of access and use of information in the housing subsector a user study should be investigated in private sector this should be instigated by construction professionals.
- Research should be done on the possibility of constructing a unified Building material data base in Kenya. There should a central Government directive to make concerned housing institutions to offer their information to the Ministry of housing for the centralization to foster for national prosperity.

- **Training of information specialists** biased on construction sector information should be done by making Housing Construction and the Built Environment information as one of the electives in the schools of information sciences courses.

6.5.2 Specific Recommendations on the Study

It is recommended in this study that public institutions especially those that were investigated, expedite innovative investigations and use rigorous data collection methods. This should be constituted of personal interviews in order to assess information needs, accumulation and accessibility of the key construction professionals. It should be done as follows:

6.5.2.1 Bench Marking Housing Construction Information by the Studied Institutions

The study recommends that a *bench mark* on housing information for particular institutions should be prepared, documented, preserved and archived not only for the prosperity of the individual institution but for posterity of the country's history on housing information. This is particularly directed to City Council of Nairobi where building plans including housing have accumulated for years, yet to do any new works on these buildings the concerned professionals must retrieve the old information (architectural design plans) for guidance on the newly proposed development.

Specialized information

It is further recommended that particular attention be paid on specialized information that has unique users. Observed in Kenya were health and agricultural sectors' information

already being dealt with as specialized. Such a model should be extended on housing information as specialized for the construction sector.

6.5.2.2 Investing on Appropriate Information System by Policy Makers of the Surveyed Institutions

The findings have important implication for information providers inclusive of policy makers working in the institutions where housing construction information exists. It is an awareness creation to the policy makers challenging them to invest into the provision of appropriate information systems that are user oriented.

6.5.2.3 Professional Information Management by Information Professionals

It is recommended that information management should be expedited by information specialists who should be employed in the researched institutions. The information professionals should take firm grounds on harnessing, preserving and availing housing construction information on both the tacit and implicit nature, and to provide adequate and improved service, that is set to satisfy the information needs of professionals.

6.5.2.4 Borrowing Experiences from other Countries by Kenyan Professionals in Housing Institutions

No country can exist without co-operation with others. Therefore recommended too is for Kenya as a country to borrow good ideas from other countries. Suggested therefore is that it is imperative for Kenyan public institutions of the housing construction sector authorities, to establish a fully fledged information centers in the individual institutions, and coordinate them to a centralized system which could be established in the Ministry of Housing as suggested before. This should make Kenya learn from the existing example of the Scandinavian countries which hosts the Swedish Institute of Building Documentation

(Byggdok). The institute is known worldwide for providing and channeling out building information that serves the Scandinavian countries and extends the services to the rest of Europe. They even tried Africa by using some institutions in the Eastern African countries; Kenya, Tanzania and Mozambique. This should be done by the Use of IT.

It is also recommended that systems operators who are experts in IT and information specialists such as Librarians, Document lists and archivists should be employed to do the jobs of information management in organizations. They have the knowledge and when put to work with coordination of administrators and information technology specialists' better results can be yielded.

6.5.2.5 The Role of Professionals in Safeguarding Their Information by Information Professionals and Policy Makers

Another pointer is that, it is vital for information workers and policy makers concerned with housing to be responsible when undertaking information management ventures. It is to their interest that involving the construction professionals in the process of identifying the information materials will make the information more valuable. The quality of information takes the lead, as opposed to quantity. Quality is what can and will make the centers more credible.

Moreover, there was recognition of the benefit and therefore the importance to have well trained and educated information specialists on board to man the information services in these organizations since these specialists could play significant roles in preserving, managing and the dissemination of housing information to users they also would be able to understand their information needs.

Users studies in regards to information services in information science discipline has been explored internationally by renown information specialists including Wilson since 1981, and later with Kuhlthau, Dervin, Belking and others. In the local arena, the study undertakers includes Ocholla, 2004 and Odini, 1995 and on institutional information management; Wamukoya (2006, 2009) amongst others. They recommend modernized education and training for information workers and the use of the trained personnel to manage information in all institutions in order to satisfy user needs. Since the specialists have the skills, they can work together with policy makers execute appropriate information system that is users oriented.

6.5.2.6 User Study Investigation by Public sector Housing Institutions

After data analysis and drawing up the findings, the researcher recommends that a similar user study with more innovative method be done in the public sector construction institutions, in order to understand further information access, needs and use including seeking methods of the construction professionals and in particular those in the housing sub sector. This should also embrace understanding of information environment situations of the public sector institutions.

6.5.2.7 Investigating on Housing Construction Information in Private Firms

A further study would give a clear picture of the existing housing construction information sources that is already scattered and not well documented as recognized by Abonyo (2002).

- a) Given the circumstance it is suggested that private firms and international organizations such as UN- Habitat be included in the investigation on housing

- construction information access and use. Without this insight, it would be difficult to trace housing construction generated information for utilization purposes.
- b) It is however important to note that housing is a wide topic and needs a thorough background understanding. If related topical issues are selected to be investigated it then needs the advice of key professionals holding key roles in the sector.

This study identified a number of significant issues that merit further investigation in the Kenyan platform:

- a) It would be worthwhile investigating personal variables such as age, position seniority and gender in affecting access to information related to housing construction.
- In addition, psychological variables such as: environmental situations, cultural factor, interest, motivational factor and so forth ought to be considered in shedding more light on information seeking behaviour. These variables could give more understanding on access to and utilization of housing construction information.
- b) More intensive would be to extend the study to private sector housing construction firms' information needs and accessibility methods. The kind of study would determine a more complete housing information situation in the country at large.

6.5.2.8 Building Housing Information Data Base by Information Managers

To satisfy the information needs of the users, different types of data bases should be established in the country by respective institutions to enhance the existence of specialized information just as Joint Building Council (of Kenya) has established the data bases on construction material prices.

It is also recommended is that appropriate laws and regulations should exist for information provision and systems to benefit professionals in public institutions especially those institutions dealing directly with housing construction. Such laws should state that certain bench mark information should be compulsorily acquired and stored in related institutions to make it easier for professionals to get the information in close proximity. These should include newly developed maps of the city, any new planning Government document or city information, gazette notices dealing with construction sector and so forth should be harnessed and pooled for central access.

6.5.2.8.1 Building Local Material Data Bases by Researchers

It would be imperative to investigate information needs of local and traditional builders in the villages or in the upcoming counties in Kenya, as this would un-earth regional housing needs. It would also popularize the research on building material types that have been used traditionally and have not been investigated scientifically. This type of investigation would trigger the interest of scholars who study building materials in search for durability, affordability the esthetics they give to buildings in Kenya, for instance, the use of *makuti*, in the coastal region and earth in constructing houses which is currently popular in the West African region and is used in constructing houses in large cities such as the northern towns of Nigeria, Ghana, Bukinafaso to mention some. In Europe France takes the lead in earth construction in Grenoble city. The study of local building materials and their use in construction of houses has given an area of building materials investigation and rise to the study of housing. It has generated additional building materials information not only in Africa but also with bamboo as housing building

materials in the Far-East. If some of these studies are done then building material data bases would be enriched, and perhaps the African content would improve.

6.5.2.9 Recommendation on Prevalent Issues that Were Found in the Study

i) On Information Channels

It is recommended here that, the systems of internal communication should be made to work efficiently for the benefit of professionals since they communicate more frequently pursuing construction matters as organizational businesses.

In addition the professionals internally and externally targeting clients, colleagues and pursue further education amongst others.

ii) Affect of Environment on Information Access

It is recommended that in order to entrench information culture in organizations, effective information system should be established to support information needs of professionals.

This can be done by using innovative social research which will have room to investigate user needs, habits and environmental factors on information supplies

iii) On Appropriate Types of Information in Meeting User Needs

The study recommends that the studied organizations should acquire a wide range of housing construction information to match the need of professionals. This should be stocked in these organizations so as to avoid external attempts of information seeking.

iv) On access methods

It is recommended that access methods of information exiting for professionals should be strengthened in their various organizations. The organizations should create effective and relevant facilities for conveying information to professionals especially after meetings. Suggested are that e-mailing of minutes and proper filing systems that are easily

retrievable should be put in place. Classifying and organizing documents should be professionally done to avoid bundling and heaping of information materials that makes retrieval difficult and time consuming.

It is recommended though that, the two systems formal and informal should be strengthened to co-exist as they complement one another as ways or methods for accessing information. However, distinction should be made to make each system work as efficiently as possible to make work easier for the professionals. It is further recommended that information units such as libraries be established to ease information seeking since they are handled by information professionals whose duties are to support the course of information access.

v) On Benchmarking

It is suggested that the institutions strive to source for bench mark information store them in their own organization for quick access. This may save time on seeking if information is available in the nearest proximity.

6.5.2.10 Investigating User's Experiences on using Credible Information Centers by Information Sciences Scholars.

It is therefore suggested that more research is needed in the area of user experiences on information accessibility processes relating it on credible sources. This could be done by information science scholars as one of the topic for investigations.

The models used on this investigation included; Dervin's sense making theory, and Ellis behavioural model of information seeking strategies. These were used to support the philosophical argument on individual expressions of words and pinions derived from a

face to face interviews and subjected on a semi structured interview schedule and considered in data analysis using grounded theory method popular for social research as opposed to natural experimental data analysis which does not consider opinions but generate numbers as quantified results.

- It is suggested that there is still room to *include Wilson information seeking behaviour models in the future studies.*

Wilson posits that;

..”... Information need is not a primary need but a secondary need that arises out of a more basic kind... that in the efforts to discover information need the inquirer is likely to meet barriers of different kinds such as; physiological, cognitive or effective. These are manifested in the person him/herself, or the role demands of the person’s work or life or the environment in which the work takes place...The barrier that impeded the search for information comes out of the same set of context.

This is reiterated “in” Wilson’s models in behaviour research (1999) papers “In’ Journal of Documentation 55(3) 249-270.

This study was accomplished through the use of qualitative approach of investigation with the platform of social paradigmatic argument of interpretation of the minds and making sense out of the opinions derived from the respondents. The methodical approach of a case study, the use of qualitative analysis of data modeled on the grounded theory technique contributed greatly towards the success of the study.

THE PROPOSED MODEL FOR INFORMATION AND KNOWLEDGE SHARING FOR PUBLIC INSTITUTIONS IN THE HOUSING CONSTRUCTION INDUSTRY

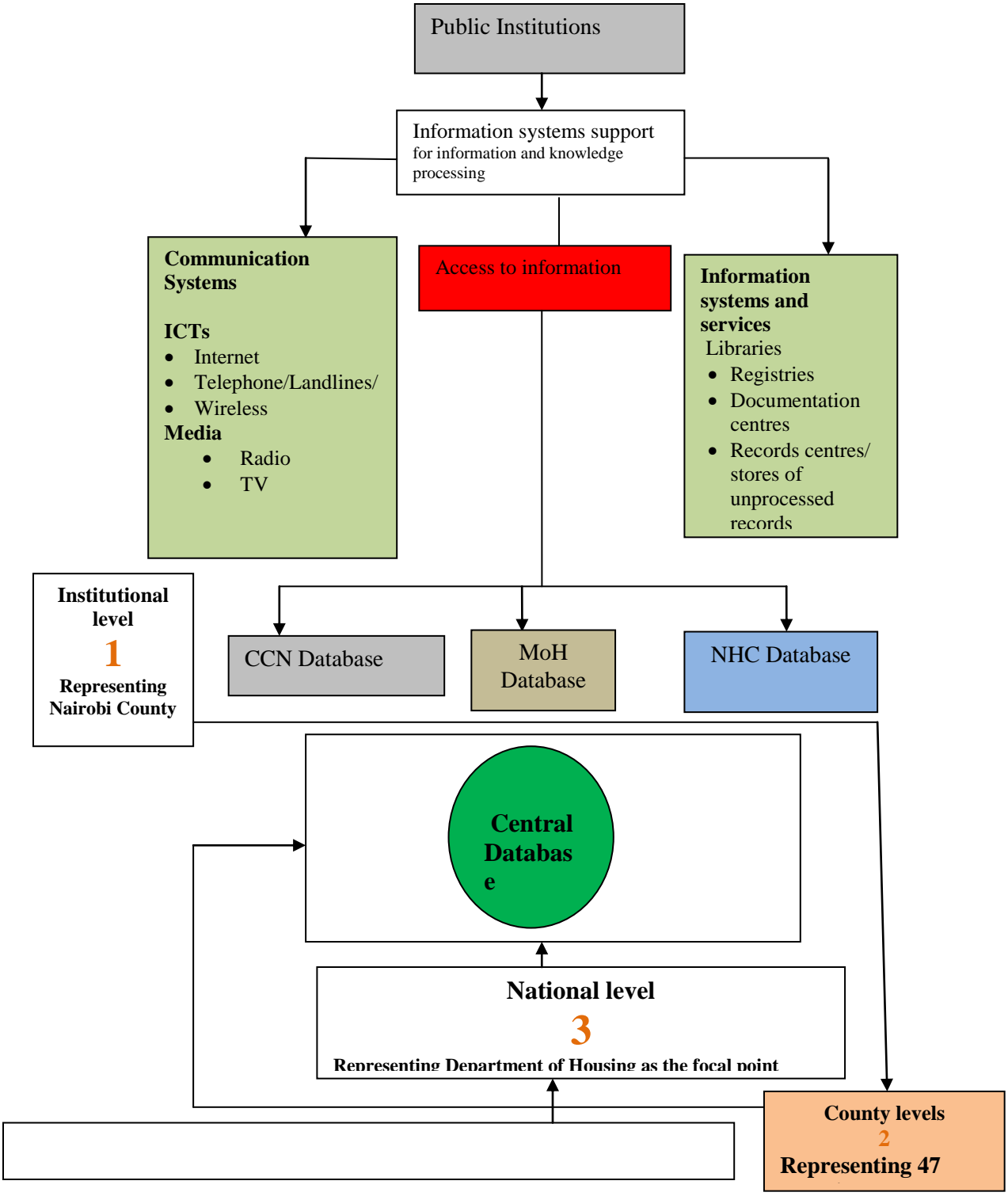


Figure 6.1: Proposed model for improving access and utilization of housing construction information in public institutions

6.6.3 The Proposed Model for Improved Access and Utilization of Information in Public Sector Institutions

The perception put on this model was construed in relation to the study objectives that were formulated with relation to the aim of the study.

The aim of the study was to investigate access to and utilization of housing construction information.

The presentation and interpretation of data in this research shows that key professionals in the studied public institutions needed and used various types and wide range of information. And that this information played vital roles in their everyday tasks solutions. This made them strive to seek the information from various credible sources including outside their own organizations. This they did using various access methods, some of which existed in their organizational systems such as meetings of formal and informal nature. They strived to consult information units that were present in their own organization that they revealed did not offer much information that met their immediate needs. When compelling tasks sometimes proved difficult and more facts beyond the measures of information available in their organizations, they extended the search for information to what they considered credible sources.

Based upon findings on the study and the reviewed literature including literature furthered by Brenda Dervine (1986,1998) on Sense-Making and the need model furthered by Maslow(1960, it become apparent in this research that, the furthered ideas on access to information was actually not only on just information access phenomenon but access to specified information needs and use. These needs for use of precise information

generated access methods that were discovered to have been instigated by intuitiveness of the specific people who had their needs to be satisfy.

The suggested model is depicted in three levels. First level is at the institutional levels where the routine of accessing information is stated in an internal system. Secondly at the county levels where data bases from the counties would empty to the central level. And third, the effect of the two levels that will brings it to a national level. Although not depicting the needs directly, the model indicates that, if proper or favorable environment of information systems in the studied organizations were in place, then the need phenomenon would be fulfilled or realized.

The proposed model incorporated information channels of individual organization that if included with other factors such as favorable information accumulation, then information access would be much easier and satisfying to the professionals in these public housing institutions. It would be for example easier to access information if, various information types were collected ,organized and stored in data banks in respective institutions and then centralized in a data base in an institutions that has more weight on housing matters such as the Ministry Housing. It would make access to this specialized information easier and satisfying in the sense that, the pooled database would contain more subject content. The content that is in an individual institution would be directed to the central database, making the central data-base richer and widely covered by array of housing and construction information. (Suggested to be in the Ministry of Housing) The central data base would be superior and therefore a more credible source on housing construction information. Access to this information and use by key professional would be enhanced.

It would depict the extent to which the existing information meets the need of users irrespective of where they emanate from local or international.

It will have fulfilled two objectives of the study:

Objective 3: Establish the types and range of information that exist in the institutions.- the range and type would be found in the data base. To small organizations' content would be assembled to reflect in the central data base.

Given the current technological know-how consisting of different application soft-wares and including those of libraries system and also borrowing examples from an experienced information management in institution such as Byggdok in Sweden as discussed in previous chapters, Access to conglomerated information makes life for seeker much easier. This is because they can consult the needed various types of information in one stop shop.

The findings suggested that the main objective of information providers and the information practitioners should be to provide information that is of quality and quantity in this sector, coupled with high standard of information services to the professionals. This is likely to happen only, when the service providers and the users share their ideas and needs in tackling the tasks of designing information systems that is user oriented. The suggested model is the only way of meeting the information needs for professionals and is recommended for adoption in public institutions in Kenya.

Objective 7 and Q7 would also be fulfilled

Fig.6.1 Provides the frame work modeled for enhancing housing information data banks and the organization systems that exist already in the studied organizations. If these systems were to be enhanced such as; the system of internal communication and establishment of libraries, documentation centers systems of collecting, organizing preserving and then availing the information to the users together with good information management. The housing construction information and related issues would be available not only for current usage, but also for preserving our posterity as a wealth of the nation.

The study is supported by reviewed literature on information models championed by Wilson and his co-authors such as :a) Wilsons situational relevance b) Ellis model on information seeking c) Dervine's sense-making, d) Ingwersen's cognitive in information retrieval model and Kuhlthau's information seeking process as discussed in chapter two.

6.5 Suggestion for Further Research

In order to better understand more deeply the phenomenon of access to and utilization of information in the housing construction sector a similar study should be done in the country so as to integrate the findings of this study as a contribution of knowledge in the areas of information science studies and the construction sector information. The future researchers are however cautioned to bear in mind that, information seeking behaviour is a complex phenomenon which if intended for investigation should be backed by well conceptualized and concretely defined theories can account for a variety of phenomena that may emerge in the study. And while doing the research the opinions of key construction professionals is important since they are the main users of the information.

Consequently, information accessing and seeking studies is best investigated in that particular environment in which it takes place.

The study has identified some the following areas that merit further investigation in Kenya, suggested for further studies are that:

- Further Research should be conducted in a similar area but should target institutions such as UN- Habitat and the privately owned construction firms in Kenya. This should give a more comprehensive understanding of information access and use in the housing sub- sector.
- It would be worthwhile to investigate the influence of individual variables on information seeking such as; seniority, qualification and age and even gender. Psychological variables: such as motivational, environmental influences, organizational cultures and so forth should also be considered. These could be determinant in information seeking patterns of construction professionals.
- More research needs to be conducted on user studies since their intellect; skills and feelings affect information search process.

BIBLIOGRAPHY AND REFERENCES

- Abonyo, J.A (2002). Managing Housing Information in Kenya. *The Architect: Journal of Architectural Association of Kenya*, 4, 24-27
- Agevi and Ngari (ed) (1990). Building Bylaws and Planning Regulations.: Proceeding s of a seminar, Milimani Hotel, Kenya
- Allan, G. (2003). A Critic of Using Grounded Theory as a Research Method. *Electronic Journal of Business Research methods* 2 (1), 1-10
- Aligula, E.M. (1995). Maintenance of Information Management: The Role of Management of Information Systems in Built Assets Management. Unpublished MA thesis, University of Nairobi, Nairobi
- Amis, P.H. (1983). A Shanty Town of Tenants: The Commercialization of Unauthorized Housing in Nairobi 1969-1980. Unpublished PhD thesis, University of Birmingham
- Anderson, D. (1993). What of the information Poor?. *Library Review* 42 (1), 20-24
- Awalla, J. (2008). The forgotten Housing Cause: Halting Middle Income Housing Decay in Kenyan cities and towns, Nairobi, NHC. Unpublished paper presented at a workshop in Sweden
- Babbie, E. (1998, 2007). *The Practice of Social Research*. 8th ed. New York: Wadsworth Publishing Company.
- Baker, I.M.(1995). A new method for Studying Patients' Information needs and Information Seeking Patterns. *The international symposium on health information research*; Sheffield 5-7, April
- Baker, T.L. (1994). *Doing Social Research*. 2nd ed., New Delhi: Mc Graw– Hill.
- Bayer,G. (1978). *Housing: A factual analysis*. New York: The Macmillan Co.
- Belkin, N.J, Cole, M., Cool,C., Stein, A. and Thiel, U. (1995). Case Scripts and information Seeking and Retrieval, Part 1: background and theory. *Journal of Documentation* 38 (2), 61-67
- Belkin, N.J. (1990). Cognitive view point in information science. *Journal of information science*, 16,11-1-5

- Bill and Melinda Gates Foundation (2004). Towards equality of access; The role of Public Libraries in Addressing the Digital Divide. Available at: [http://www.gatesfoundation.org/nr/Downloadslibraries/reports/ Towards Equality of access.pdf](http://www.gatesfoundation.org/nr/Downloadslibraries/reports/Towards%20Equality%20of%20access.pdf).
- Bodil the Scandinavian Database for Constructions: Data Sheet, June 1989– Extract from Byggdok – the Swedish Institute of Building Documentation (Byggdok)
- Bygddok Report (1996). On institutional Documentation of Information in Developing countries: Kenya, Tanzania and Mozambique
- Bruce, C. (2003). *Seven faces of information literacy: towards inviting studies into new experiences*. Available at; [http://www. Best library.org/ digital/file/Bruce pdf](http://www.Bestlibrary.org/digital/file/Bruce.pdf) Accessed on December 2010.
- Bryman A, (2004). *Social Research Methods*. 2nd ed. Oxford: Oxford University Press
- Built environments: Environmental impact assessment; the Next Step?* 20(4), 94.
- Bulmer, M. (2001). *Research social life*. 2nd ed. London: Sage Publications.
- Burkarh, R. and others (n.d.) Beyond Excel and PowerPoint: knowledge maps for transfer and creation of knowledge in organizations. *Access in the internet*.
- Burrell G. R Morgan G, (1979) *Sociological paradigms and the organizational analysis: elements of Sociology of corporate life*. Aldershot: Gower.
- Busha, C. and Harter, S. (1980). *Research Methods in Librarianship: Techniques and Interpretation*. London: Academic Press.
- (1998). *Meeting Managers information needs*; Aslib: Managing information reports, London:Staple Hall
- Chana T. S. (1983). Human Settlements and Housing in Eastern Africa: Kenya and Tanzanian Experiences. *UN Follow-Up workshop on Housing Nairobi 11-29 Jan, 1982: background papers; University of Lauven, past graduate centre for Human Settlements*.
- Chew, F. (1994). The relationship of information needs to issue relevance and media use *Journalism Quarterly*, 71, 676-688
- Chisenga, J. (2001). Global Information Infrastructure and the Question of African Content: Libraries in the Information Society. *IFLA Publication*, 102, 56-73.

- Chisenga, J. (2002). Indigenous knowledge: Africa's opportunity to contribute to global information content. Proceeding of the 15th standing conference of Eastern , Central and Southern Africa library and information professionals 15-19 April 2002 Johannesburg LIASA100,
- Choguill, C. and Werna, E. (2008). (ed) Labor in urban areas. *Habitat International: Special issue Habitat International*, 32(2)
- Choguill, C. and, Silva–Roberts (1992). A. Building Databases to Facilitate Construction and Housing in Developing World. *Habitat International Journal* 16(3), 59-86.
- Choi, Y. (2006). What is needed to Educated Future Digital Libraries: A Study Of Current Practice and Staffing Patterns: Academic and Research Libraries. *Documentation Library Magazine*, 9 (12).
- CIB, (1980). International Council for Building Research and Documentation. *CIB waking Report*, 69(80).
- Cozby, Paul (2003). *Methods in behavioural Social Research*. 8th ed. New York: McGraw- Hill.
- Crabet, B. & Millier, (ed). (1999). *Doing Research 2nd ed*. London: Sage Publications.
- Cresswell, J.W. (2003). *Research Design, qualitative, quantitative, and mixed methods approach 2nd ed*. Thousand Oaks, CL: Sage Publications
- Czjkowski, K. (2001). Grid information Services for distributed Resource sharing. *International Symposium on IEEE*, 181-194
- Dale, F. and Mclaughlin D. J (1988). *Land information management: An introduction with special reference to cadastral problems in third world countries*. Oxford: Clarendon Press
- Dandora eyesore that refuses to go away (2010, September 27). *Daily Nation, special report*, 61.
- Denscombe, M .(1999). *The Good Research Guide, for Small–Scale Social Research Project*. New–Delhi: Viva Books.
- Denzin, N. and Lincoln Y. (ed), (2003). *The Landscape of Qualitative Research Theories and Issues*. 2nd ed. California: Sage Publication.
- Dervin ,B and Nilan,M (1986). Information needs and use. *Annual Review of Information Science Technology*, 2, 3.

- Dervin B. (1998). Sense-Making Theory and Practice: an overview of User Interests-Knowledge Seeking and Use. *The Journal Knowledge Manager*, 2 (2)
- Dervin, B. (1999). On studying information seeking methodologically: the implications of connecting metatheory to method in: information processing and Management 35, 27-750: accessed www.elsevier.com/locate/infoproman.
- Devason, F.J. and Lingman, P.P. A methodology for the in identified needs of users. *IFLA Journal*, 23 (1), 41-57.
- Dey, I. (1993). *Qualitative Data analysis: A user –Friendly Guide for Social Scientists*. London: Routledge.
- UN Habitat (1980). *Directory on Information and Documentation Centre in the Field of Human Settlements*, Nairobi.
- Ellis, D. (1989). Behavioural approach to information acquisition retrieval system design. *Journal of Documentation*, 45,191-215.
- Ellis, D (1993). Modeling the information seeking patterns of academic research; A Grounded theory Approach. *Library Quarterly*. 63(4), 105-106.
- Erkelens, P (1990). *Housing Need and demand; Productivity factors of Self-help Housing: The Case of Kenya*, Eindhoven, Eindhoven University of Technology.
- Ernest and Peter Neuffert.(2000). *Architects data*. 3rd ed. Oxford: Blackwell.
- Fazakerley, V.W. (2005). Critical issues for the future of Australian urban water Supply Industry. Unpublished PhD Thesis.
- Feather, J and Sturges, P. Ed. (2003). *International Encyclopedia of information and library Science* 2nd ed., London: Rutledge.
- Fidel R. (1997). Information seeking and Subject representation: An activity theoretical approach to information science: *Journal of Academic Librarianship*, 13, 46
- Fidel, R. and Green, M. (2004). The many faces of accessibility: engineers' perception of information sources. *Information Processing and Management*, 40 (3),563-581.
- Flick, Uwe; (2006). *An introduction to Qualitative Research*. 3rd ed. New Delhi: Sage Publishers.
- Fourie, I. (n.d). Learning from web information seeking studies: some suggestions for LIS Practitioners Accessed from the internet

- Gandi, S. (2004). Knowledge management and reference services. *Journal of Academic Librarianship*, 30(5), 3681-381.
- George, C. et al. (2008). *Scholarly Use of Information: graduate seeking information behaviour Web Based Information Choices Retrieval*. Information Habitat. DF. Source: Internet. [Www. Mnstale.ed/Wcharnort](http://www.Mnstale.ed/Wcharnort).
- Gephart, R. (1999). Paradigms and research method. *Research Methods Forum* Vol. 4, summer, 999 available :<http://A:1999%2oRMD%20Forum%20paradigms%20and%20Research%20Methods.htm>. (Accessed Jan, 2009).
- Gilham B. (2005). *Case Study Method*. London: Continuum
- Gilles, Fauconnier (1994). *Mental spaces: Aspect of meaning construction in natural language*. Cambridge: Cambridge University press
- Gitau, P.K (n.d). Construction Process in Kenya. Access from the internet 28 Sept. 2011
- Glaser, B. & Strauss, A. (1967). *The Discovery of Grounded Theory Strategies (Qualitative Research)*, Chicago, Aldine, Republic. [www.Tile. Docemat Glaser/5/27/200](http://www.Tile.DocematGlaser/5/27/200).
- Golashani, N. (2003). Understanding Reliability and validity in Qualitative Research. *Qualitative Report*, 8 (4) 597 – 607. <http://www.Hova.edu.SssQR4/golafshani.pdf>.
- Golland, A. and Blake, R (ed.) (2004). *Housing development: theory and Practice*. New York: Rutledge.
- Gorrard, S. (2001). *Qualitative Methods in Educational Research: the Role of Numbers Made easy*. London: Continuum.
- Government of Kenya(2010). *The Economic Survey*. Nairobi: Kenya National Bureau of Statistics
- Hardoy, J., Cairncross, S. and Satterthwaite, D. (Ed.) (1990). *The poor Die Young: Housing and Health in Third world Cities*. London: Earthscan Publications Ltd.
- Harris, R. (2008). Info-mobilization: Understanding and making use of relationship between ICTs and development. Accessed on May. 2012 from: [http://orgharris.org/understanding the relationship.pdf](http://orgharris.org/understanding%20the%20relationship.pdf).
- Hedman, J. (2005). On librarians' occupational identities: ICT and shaping of information seeking Expertise 7th IFLA World Library and Information Congress: General Conference and Council, Oslo

- Hertzum, M. and Prejtersen, M.A. The information seeking practices of engineers': searching for documents as well as for people. Accessed on *Jan 2011*
- Hoepfl, Marie C. (1997). Choosing Qualitative Research: A primer for Technology education Researchers. *Journal of Technology Education*, 9.
- Horland, et al (1953). Credibility is tied to information. *Journal of empirical generalizations marketing*
- Holland, B. (2002). Principia informatica: foundational theory of information and principles of information services. In *Emerging frameworks and methods, proceedings of the fourth international conference on conceptions of library and information science* Ingwersen, P. and others (ed.) *libraries unlimited* (pp 109-121).
- Housing and Environment: A report of the Vienna workshop*. UN-Habitat, Vienna International Centre, 22-23 Nov. 1999.
- Huchzermeyer, M. (2011). *Tenement Cities: From the 19th century Berlin to 21st Century Nairobi*. Trenton: African World Press,
- Huotari, M. and Wilson T.D: (2001). Determining organizational information needs: the critical Success factors approach. *Information Research* 6(3). Retrieved from [http:// informationr.net/ir/6-3/ paper108.html](http://informationr.net/ir/6-3/paper108.html).
- ICONDA: 'I' General Description User Input–Supplies and Host,(1986) Stuttgart, /ICONDA, Agency Source: *Internet 2009*.
- ICTs in developing countries in, *POSTNOTE* March 2006; no. 261
- Ikoja, O.and Ocholla. D. (2003). Information needs and information seeking behaviour of the artisan folks of Uganda. *International Library and Research*, 25 (1), 189-105.
- Jain, P. (2004). *ICT as a catalyst in empowering Africa's development through knowledge management*. Paper presented at SCECSAL XVI, Kampala.
- Jarvelin,K. & Wilson, T.D. (2008). On Conceptual Models for Information Seeking and Retrieval. *Information Research*, 9 (1)
- Jorgensen, N.O. (2013.) *How to pay for Housing: and Alleviate Urban Poverty through Housing Finance*: Kahrius, dk Forlagsaktieselskab.

- Kaddu, S. (2004). Application of information and communication technologies (ICTs) in knowledge management: case studies of Centre for basic research library and privatization unit library in Uganda. Paper presented at SCECSAL XVI, Kampala.
- K'Akamu, O A. and WHO Olima (2006). The Dynamics and implications of residential segregation in Nairobi. *Habitat International* 31 (2007) 87-99. Retrieved from www. Elsevier, comlocate/habitatint.
- Kakumu, A.O. (2006). Evaluation of Housing Statistics in Kenya. *Habitat International* 30, 27 – 45
- Kakumu, A.O. (2007). Construction Statistics Review of Kenya. *Construction Management and Economics Journal*, 25, 315 – 326
- Kamau, H. W. (2000). Housing and Health: The Relationship between the residential environment and the health status of households: a study of Jericho, Umoja Estates and Lindi Village (Kibera). Unpublished MA Thesis UoN.
- Karim, H (1992). Current Algerian Housing Policies Affecting the Methods for Housing Provision. *Habitat International*, 16(3), 71-78
- Katonga, F.M. (2006). Government information and E-Government in Kenya. A paper presented at Kenya National Library Conference, 28-30 March, 2006, Nairobi,
- Republic of Kenya (2004) *Sessional Paper No. 3 on National Housing Policy for Kenya*, Nairobi: Ministry of Lands & Housing
- Kenya Country Report *Kenya Republic of: Ministry of Planning and National Development*, Kenya National Bureau of Statistics: Economic Surveys 2007pp 214 -221.
- Kenya Country Report (2010). 5th Session of World urban forum: The right to the city: bridging the urban Divide, Rio Deneiro Brazil.
- Kevin, P. (2005). *Excellent dissertations*: Maidenhead Open University, McGraw-Hill, Uk
- Kleiner, A. and Roth, G. (1997). How to make Experience your company's best teacher; *Harvard Business Review: on knowledge management*.
- Kombo, K and Tromp, K. D. (2006). *A proposal and thesis writing: An introduction*. Nairobi: Pauline Publications, Kenya
- Kothari C.R. (1990). *Research Methodology: methods and techniques*. New Delhi: Wishwa Prakashan.

- Kothari, C (2004). *Research Methodology: Methods and Techniques*. New Delhi: New Age International
- Kuhlthau, C (1991). Information Search Process: Information Seeking From the User Perspective. *Journal of American Society for Information Science*, 42(5), 361–171.
- Kuhlthau, C. (2011). From information to meaning: confronting challenges of the 21st century. Aberdeen i3 conference 2007
- Kuhlthau, C. (1991). Inside the search process: information seeking from the user's perspective. *Journal of American society for information Science*, 42 (5), 261-371
- Kuhlthau, C.C. (1993). A principal of uncertainty for information seeking. *Journal of Documentation*, 49(4)
- Labour in urban areas (2008). *Habitat International Journal*, 32 (2).
- Lancaster, F.W. (1972). *Vocabulary Control for Information retrieval*. Washington D C: Information Resources Press.
- Land for Housing: (1987). *UN- Habitat Nairobi, UN Habitat*.
- Levin, J.H., (2008). Introduction to data analysis; The Rule of evidence (*from mackintosh H.D.D.A DAXI. V1: 006 intro., what is (wealth) Source: internet.208*
- Levin, P. (2005). *Excellent Dissertations*, Maidenhead, Open University Mc Graw- Hill.
- Limberg, L. (1999). Three conceptions of information seeking and use in: proceedings of second International conference on research “in”: *information needs, seeking and use in different contexts 13/15 August 1999* Sheffield, UK. (Pp 116-135).
- Lin, H. and Lee, G (2004). Perceptions of Senior Managers Towards Knowledge-sharing behaviour. *Management Decision*, 42(1). 108-125.
- Lindlof, T.R. and Taylor, B.C. (2002). *Qualitative Communication Research Methods 2nd ed.*, London: Sage Publications.
- LuZius, J. (2002). Non Traditional students, library satisfaction. *Library Philosophy and practice*, 5 (1).
- Lyn, E. (2002). *Qualitative Research Methods: A Field Guide For Applied Research in Sexuality and Reproductive System*, Research Triangle Park, Family Health International.

- Marczyk, G., Dematteo, D. and Festinger, D (2005). *Essentials of Research Design and methodology*. New York: John Willey and sons.
- Mason, J. (2002). *Qualitative Researching*. 2nd ed. London: Sage Publications Ltd
- Masu, S. M. (2006). An Investigation into the causes and impact of Resources mix practices in the performance of construction firms in Kenya. Unpublished PhD Thesis, University of Nairobi, Nairobi
- Miles, M. B. and Huberman, M. A. (1994). *Qualitative data Analysis: an expanded Sourcebook*. 2nd ed. Thousand Oaks, California: Sage Publications
- The Ministry of Housing (2008). Bringing hope in our cities: Kenya Slum Upgrading programme. *Kensup Newsletter*, November
- Mittulah W.V. and Wachira, I. (2003). *Informal labor in the Construction industry in Kenya: A case study of Nairobi*. Geneva: ILO
- Morse, J. E. (1994). Designing funded qualitative Research. *Handbook of qualitative research*. Denzin, N.K. and Lincoln, Y.S.(eds). Thousand Oaks C.A: Sage.
- Mugenda, O. M and Mugenda A.G. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Acts Press
- Mugenda, A.G. (2008). *Social Science Research Theory and Principles*. Nairobi: Art Press.
- Mugo, W .(2005). Sampling in Research [online] Available at: <http://www:FAMPLING%20IN%20Research.htm> (Accessed, 2009).
- Muraguri, L. A Study of Public Institutional Frameworks Involved In Housing Provision: M.A Thesis UoN199 Unpublished 1
- Mutula, S. M. (2004). Information Technology Diffusion in Sub Saharan Africa: Implication for Developing and Managing Digital Libraries “in” *New Library World P.T.O New Lib World 105 (1202/1203/281-289)* Acceding Emmoral@: Sijut Com.6367. 4803. html; Source: *internet* Accessed Sept.,2008.
- Mutula, S.M. (2006). Knowledge management–based approach to e-Government: A model for East and Southern African Countries, *paper presented at 17th SCESCAL Conference in Dar-Es Salaam, 10 -15 July 2006*.
- Myers, M. (2000). Qualitative Research and Generalizability Question: Standing Firm with Proteus. *The Qualitative Report Vol. 4, No3/4 March, 2000*, URL: http://www.nova.edu/ssss/QR/QR4-3_myers.html accessed May 2008.

- Nabutola, W. (2005). Affordable Housing: Upgrading Informal Settlements in Kenya; A paper presented at workshop (*TS- planning informal Settlements*) Cairo, April, 16-21, 2005
- Nachmias C.F and Nachmias D. (1996). *Research Methods in Social Sciences*. 5th ed. London: Arnold.
- Nairobi: *from the wikipedia file; accessed 11/10/2007*
- National Housing Corporation Brochure (2006).
- Nevanlinna, A. K. (1996). *Interpreting Nairobi: The culture study of Built forms*. Helsinki, Soumen Historiallinen, seura
- Newby, G.B. (2001). Cognitive space and information space. *Journal of American Society for information science technology*, 52 (12)
- Nicholas, D. (1996). *Assessing Information Needs: tools and techniques*. London: IFLA publication
- Niedzwiedzka, B.A. (2009). Purposed general made of informant behaviour. *Information research*, 9(1)
- Niehaves, B.(2006).and Stahl, B.C. Criticality, Epistemology and Behaviour Vs Design-information systems research across different sets of paradigms. *Source from the internet*, 2009
- Nimpuno-Parente, P. (1987) The struggle for shelter: women in site and service project in Nairobi, Kenya. In Moser, C and Peake, L. (eds.). *Women, Human Settlements and Housing* London: Tavistock Publications.
- Nissen, M.E. (2002). An extended model of knowledge Flow Dynamics. *Communication of Association for information Systems*, 8(1), 251-266
- Nyagweso, M. O. (2007). Kenya; A building regulatory: System gone haywire. *The Professional Journal of Construction and Fire Safety*, April
- Nyabiagel (2011, February 21). Why your posh residence, might be a death trap. Quakes infiltrate local architectural field leading to shoddy work and tartar city. *Sunday Nation*
- Nyandemo, S. (2007) *Research Methodology and Method Approaches*, Nairobi: Richmond designers and Printers.

- O' Reilly, C.A. (1983). The use of information in organizational decision making: a model and some propositions "in"; *Research in organizational behavior*. Vol. 5, Greenwich, Conn: JAI Press.
- Obama, B. (2006). *The Audacity of Hope: Thought of reclaiming the American dream*, New York, Cannongate
- Obama, B. (2004). *Dreams from my father: A story of race and in heritage*. Chicago: Three River press
- Ocholla, D.N. (1998). Insight into information- seeking and communication behaviour of academics, University of Zululand, S. Africa.
- Odini, C. (2005). Information seeking and communication behaviour of Kenya railways engineers. *University of Dar -as salaam library journal*,.7 (2), 98-111, 2005
- Odini, C. (1993). Setting up an Industrial information service. *Library review*, 42(1).
- Odini, C. (1993). Trends in Information Needs and Information Use Research. *Library Review*, 42(7), 29-37.
- Odini, C., and Amoth, D. (2006). Provision of information consultancy and brokerage services in Kenya: A paper presented at *Moi University annual conference 29 August to 2nd Sep*. 2006.
- Odini. C. (1995). Stimulating the Use of Information Kenya. *New Library World*, 96 (2), 23-25
- Ogunshakin, L. and Olayiwola, L. (1992). The collapse of official housing policy in Nigeria, *Habitat International*, 41-53.
- Okello – Obura, C. et al (2007). Assessment of Business Information Access Problem in Uganda. *Canadian Journal of Library and Information Practice and Research*, 2 (2)
- Okoth Ogendo,H.W.O.(1976). African Land Tenure reform. In J. Heyer, J.K. Maitha and W.M. Senga *Agricultural development in Kenya: An economic assessment* (152-186), Nairobi: Oxford Press.
- Olowu, K. (2004). Access to information Myths and reality. *Journal of Nigerian Library Association*, 28 (1),21
- Opara, U.N. (2003). The nature of information: Some concern for information management. *Journal of the Nigerian library Association Imo state Chapter*, 2(1&2).

- Otieno, S. (2006). Mitigation of liability for Negligence in Design and Construction: A case study of collapse Building in Nairobi. Un published MA thesis, University of Nairobi.
- Oxford English Dictionary 4th ed.
- Oyadongahan, J.C. (2010). Information Flow Patterns in Organization: in Focus. *Library Philosophy and Practice*. Accessed in the Internet Jan, 2013.
- Oyedepo, D. (2010). People and technology in the work place: A national Academy of engineering and commission on behavioural sciences and education (1991) in National Academy of engineering national Research Council, Washington D.C. national academy press
- Patton, M.K. (1990). *Qualitative Evaluation and Research Methods 2nd ed.* Newsbury Park, California: Sage Publications.
- Payne, G. (ed) (2002). *Land Rights and Innovation: Improving Tenure Security for Urban Poor*. London: ITDG Publishing House
- Pettigrew, K. & Mackechnie L (2001). The Use of Theory in Information Science Research. *The Journal American Society for Information Sciences and Technology*, 52(1), 62-73
- Pickard, A. and Dixon, P. (2004). The applicability of constructivist user studies: how can constructivist user inquiry inform service providers and systems designers?. *Information Research*, 9 (3)
- Radecki, C.M. and Jaccard, J. (1995). Perceptions of knowledge, actual knowledge and information search behavior. *Journal of experimental Social Psychology*, 31, 107-138
- Rader, George, W. (1966). A history of Nairobi capital of Kenya, *Thesis* Ohio State University; History Department. Unpublished M.A thesis.
- Regularizing Land Tenue within Upgrading Programmes in Argentina: the case of Promeba and Risario Habitat. *Journal of Environment and Urbanization*, 21,2009
- Republic of Kenya (1999). Population Census and Population Report. Nairobi: Government Press
- Republic of Kenya (2004). *Kenya Country Report* Ministry of Land Housing. Nairobi: Government Printers.

- Republic of Kenya & UN – Habitat (2004). Draft report on investigation of Actors Operation in Kibera
- Republic of Kenya (2004). *Sessional Paper No. 3 on National House Policy Blue Print*. Government Printers,
- Republic of Kenya (2007). *Ministry of Housing; project Document for KENSUP and communication Components*, Nairobi: Government Printers.
- Republic of Kenya (2006). *Ministry of Housing; Kenya Slum Upgrading programme (KENSUP): A communication Action Plan*. Nairobi: Government Printer.
- Republic of Kenya (2007). *Kenya Vision 2030*. Nairobi: Ministry of planning.
- Republic of Kenya (2005). Ministry of Housing, *Kenya Slum Upgrading Programme (KENSUP): Communication Strategy*, Nairobi, Government printer.
- Richardson, B.A. (1990). *Defects and Deterioration in Buildings*; London: Spon, E. and F.N.
- The Right to the city: Kenya country report 5th session on world urban forum*, Rio de Janeiro, Brazil 22-26, March, 2010.
- Robert, P. (2000). Knowledge information and literacy. *International Review of Education, Journal*, 46 (5), 433-53.
- Rubin, A. and Babbie, E. (2001). *Research Methods for Social work*. 4th ed. Belmont, CA : Warshworth/ Thomson Learning
- Rusbridge and Royan (2002). Towards the Hybrid Library Developments in UK: Higher Education. *Libraries and Information Society* ,162 ,123-133
- Rusbridge, C. (1999). Towards the Hybrid Libraries. Russian Digital Libraries Journal*, 2(3)
- Sachs J.D. (2005). *The End of Poverty*. London: Beguine.
- Savic. D. (1992). Evolution of information resource management. *Journal of Librarianship and Information Science* 24(3), 127-138
- Savolainen, Reijo (1993). The sense- making theory: reviewing the interests of a user–centered approach to information seeking and use. *Information Processing and Management*, 29 (1), 13-28.

- Scandinavian consulting company "In" *the electronic journal of Knowledge Management*, vol. 4 issue 2, 2006 Pp 109- 116 available at www.ek.com. Schiefer, H. Meyers, S.S. and Levelt .(2004).
- Schlogl, C. (2005). Information and knowledge management: dimensions and approaches. *Information Research*, 4 (July).
- Schlyter, A. and Schlyter, T. (1980). *George Town: The Development of a Squatter Settlement in Lusaka–Zambia*. Stockholm Swedish Council for Building Research.
- Sharing knowledge for development: IDRC's information strategy for Africa*. Study 64,f Technical Ottawa, Ont., 1989.
- Sheen, M. R. (1992). Barriers to scientific and technical knowledge acquisition in industrial research and development. *Research and Development Management*, 22 (2) 135-143.
- Slater, M.(1990). *Research Methods in Library and Information Studies*. London: Library Association.
- Smith, W.F. (1971). *Housing the social and economic elements*. Berkeley: University of California Press.
- Spink, A. (1997). Successive Searching Behaviour During seeking: An explanatory study *Journal of Information Science*, 25, (6), 439-449.
- Strategic Listing: the Complete Building and Construction Guide: 2003-2004*, Nairobi: Ramko Printing works ltd, 2004.
- Strauss, A.: (1987). *Qualitative Analysis for Social Sciences*. Cambridge: University Press.
- Strauss, A. and Corbin J.(1990). *Basic Qualitative Research Grounded Theory Proceeding*, Newbury Parle, Sage Publican Research Section.
- Sturges, P. and Neil (1990). *The Quiet Struggle: libraries and information for Africa*, London: Mansell Online. Available at [WWW, ifla.org/IV/ifla65/ papers/126-72e. htm](http://WWW.ifla.org/IV/ifla65/papers/126-72e.htm) (accessed Feb, 2007).
- Sutherland, E.(1991).Methodologies and models for information management. *ASLIB Proceedings*, 43(2/3), 99-107.

- Syagga, P. M, (2006). Land Ownership and Use in Kenya: Policy Prescriptions from an Inequality Perspective: Report prepared for society for international Development Eastern Africa Office, Nairobi, unpublished,
- Talukhaba, A. A. (1993). Effective Planning and Control of Construction Projects in Kenya. Unpublished paper. Nov,
- The Housing of Africans in the urban areas. (1946). In *The Kenyan Information office, *Nairobi, 1946- Source: Macmillan Library City Council of Nairobi)*
- Tellis, W. Introduction to Case Study. In *The Qualitative Report Vol3 No.2(Online)* Available: <http://www.nova.edu/ssss/QR/QR3-2/tellis.html> (Accessed Jan. 2008).
- Toggerson, S.K. (1981). Media coverage and information seeking behavior. *Journalism Quarterly*, 58, 89- 93.
- Turnbull, D. (2003). Information seeking model: A possible Hybrid approach Accessed internet: www.ischool.utexas.edu/~donturn/research/SIGUSE2003...
- Twenty years of Transition: The Evolution of Urban Planning in Eastern Europe and the former Soviet Union, 1989-2009: *Dialog series 5 By S. Hirt and K. Stanislov, (2009), UN- Habitat Nairobi,*
- UN – Habitat (1996). *Urbanizing World, Global Report on Human Settlements, (1996)*
UN- CHS (2003) *Guide Monitory Target 11 Improving the Lives of 100 Million Slum Dwellers, Progress towards the Millennium Development Goal Nairobi.*
- UN Habitat (2005). *Good policies and enabling Legislation for Attaining the Millennium Development Goal: A methodology for participatory Review and Assessment.* Nairobi: UN- Habitat
- UN Habitat (2008) 2003 *Habitat Debate*, 14 (2).
- UN- Habitat (2000). *Stratégies to Combat Homelessness.* Nairobi: UN- Habitat.
- UN- Habitat (2004). *The State of the world cities 2004/2005: Globalization and Urban culture.*
- UN- Habitat (2010). *Bridging the Urban Divide: Why cities must build equality*, 1 (5)
- UNCH- Habitat (2001). *Habitat Debate: Five years after Habitat II*, 7 (1)
- Unwin, T. (2001). *Information technology for development;* Cambridge: Cambridge University press.

- Vickery, A and Vickery B. (1991) *Information Science Theory and Practices*, London: Bowker- Sour
- Wachira, I. (2008). An investigation into the training of the informal construction sector in Kenya. Unpublished PhD thesis, University of Cape Town, South Africa
- Waliaula, M.W. (1992). *Technologies: A Selective Review of Building Component's and Construction Techniques Development for the Kenyan Context* : Dept. of Arch. And Urban and Regional Planning University of Leuven, Belgium. 22
- Wamukoya, J. (2009). Public sector information management in East, Southern Africa: implications for democracy and governance. *East African Journal of Information Sciences*, 2, 67-101.
- Wang, R. Y. (1998). Manage your information as a product. *Sloan Management Review*, 39 (4), 95-106.
- Webb, S.V. (1988). *Information needs analysis; Creating an information service 2nd ed.*, London: Aslib
- Weugraff, T. (2001). *Qualitative Research Interviewing*. London: Sage Publication.
- Wiersma, W. and Jurs, G.S. (2005). *Research Methods in Education: an introduction*, 8th Ed. Boston: Pearson Education, Inc.
- White, L Wathornton, Silverman I. & Anderson P. R. (1948). *Nairobi Master Plan for colonial capital, A Report prepared for the municipal council of Nairobi*, London His Majesty's Stationery Office.
- Whittaker, K. (1993). *The basics of Library- based user services* London: The Library Association Publishing Ltd.
- Daily Nation, Why your posh residence might be a death trap. *Daily Nation* Feb. 2010 p 27- 28
- Wilson, T.D and Sreadtfield, D.R. (1977), Information needs in local Authority social services department: an interim report on Project INISIS. *Journal of Documentation*, 33 (4), 277-293.
- Wilson T.D, (2000). Human information behavior. *Information Science Research*, 3 (2).
- Wilson, T.D. (2006). On user's studies and information needs. *Journal of Documentation* 37, 3-15.
- Wilson, T.D. (1994). Information needs and uses: fifty years of progress. *Fifty years of Information progress: a Journal of Documentation Review*, 15-51

- Wilson, T.D. and Walsh, C. (1996). Information behaviour: an interdisciplinary perspective *British library and innovation report*, 10.
- Wilson, T.D. et.al. (2002). Information Seeking and Mediated Search; Part2 : Uncertainly and it's Correlated. *Journal of American Society for Information Science and Technology* 53(9), 702 – 175
- World Health Organizations (1989). *Health Principles of Housing*. Geneva.
- Yahya,S., Agevi,E., Lowel, L., Mugora, A. et al (2001). *Double standards, single purpose: reforming housing regulations to reduce poverty*. ITDG, U.K.
- Yahya, S. (1979). English- Swahili Glossary of Technical Terms for Valuers and Land Economists available; HRDU
- Yakel, I. (1992). *Information environment in organizations*, unpublished paper for University of Michigan, SILS PHD IIS 888 1-27.
- Yin, R. Robert (1988, 2003, and 2009). *Case Study Research Design and Method*. Revised (ed). Applied Social Research Method Series.
- Zach, L. (2006). Using a Multiple-case Studies Design to investigate the Information seeking behaviour of Arts Administration. *Library trend*, 55 (1), 4-22

APPENDIX I: LETTER OF INTRODUCTION

Jayne Abonyo
Moi University
School of information sciences
P.O. Box, 3900,
Eldoret

Date _____

To Whom It May Concern

Dear Participant,

My names are Jayne Abonyo, a PhD student at Moi University, Eldoret, faculty of Information sciences. Presently, I am based in your organization to conduct a research on: *access to and utilization of housing construction information* in this organization. The aim of the study is to investigate access and use of housing construction information i.e. habitual access to information by Key professionals in organizations that deal with housing construction such as this one. The significance of the study is to understand the problems of access to information in the housing sector. The outcome of this study is expected to contribute to policy issues that can help to overcome challenges on information access in institutions. It is hoped that this study will sensitize decision makers and government to put in place mechanisms that may empower information handlers to implement ways of enhancing information flow and use in the sector. You have been chosen to participate in this research. You will be given interview schedule to answer questions to help direct this research. This process will be guided by the interviewer. It is vital that you answer the questions directed to you frankly, thoroughly and as earnest as possible. Although a tape recorder will be used to secure accurate responses in order to keep tract of true records, the information, given will only be reported for the purpose of analyzing of data and will be treated with utmost confidentiality. This research is purely on academic exercise. Please answer all questions as appropriate. And thank you for your assistance and time.

Jayne Abonyo

APPENDIX II: INTERVIEW SCHEDULE FOR HOUSING CONSTRUCTION PROFESSIONALS

Serial No. _____ Interview date _____

Interview location _____

Section Unit _____

The information you give will be treated with confidentiality. It will only be used for Research purposes to facilitate for data analysis.

Section A: PERSONAL INFORMATION

What is your status / Level of education?

1 Designated/Position _____

2. Which is your area of specialization?

3. What is the nature of your work?

4. What is your experience in this sector both at personal and organizational levels?

Section (B) INFORMATION NEEDS

5. Are you ever faced with the situations in which you need information to enable you accomplish your work related tasks? Please explain in details

6. How do you seek information that you need?

7. As a professional/ skilled worker in the construction industry what are your major reasons for seeking information?

8. (a) Do you get information on Housing construction?

(b) What types? + (Ranges)

(c) How often do you get it?

d) How often do you need it? _____

9. Which information **sources** and **resources** do you use for your information inquiries?

a) **Source** _____

b) **Resources** _____

10. How do you seek information in your work place?

11. Does your institution offer you information on Housing? (NHC, MoH, CCN)

(a). Which information sources do you use to get information on housing?

(b) Resources _____

(c) Which format (s) (Electronic/Print)

(d) Which one do you prefer? _____
If both state why

How relevant/ adequate and timely is this information?

12. (a) If the information is **not** relevant/ timely and inadequate, give reasons why there is Hindrances _____

b) What options do you revert to in-order to get the information you require for your tasks accomplishments?

13. (a) How do you get awareness of the information you require?

b) How often is this?

14. What problems do you encounter in your attempts to look for information on housing?_____

15. (a) Does your organization have a library?_____

(b) Does the institutional library have an information manager? _____

(c) How helpful in the manager? State this elaborately

16. What would you like to see improved on information access on housing construction in your organization?

17. Is there any additional information you would like to give concerning information access and relevance to you at your institution?

SECTION C: ACCESSIBLY OF INFORMATION SOURCES AND RESOURCES

18. (a) How do you access information outside your organization?

(b) Are there preferences in the sources / resource you use in accessing information?
Explain this _____

19. Does time spent on information hunting affect your work input? Yes/ No
Give more views on this question

20. (a) How do information communication technologies (ICTs) play a role in providing and accessing information in your organization?

(b) What mechanism/tool(s)/ gadget do you use to access information at CCN, NHC, MoH? _____

(c) How often do you use the tool(s) etc

21. Do you access housing construction database(s)? Yes, No
If yes, which one (s) online journals, statistical databases, information gateway databases

Manual databases etc?

Explain why

(b) In what format?

22. Do you access national resources such as libraries, information centers, Archives departmental Documentation centers etc for information you need for your work at your work place? Yes, No
State the communication methods you use for accessing these centers

SECTION D: ICT AND INFORMATION DATA BASES

23. Do you use ICT in accessing data bases on housing information/ construction Data Bases?

for your tasks and knowledge? Yes, No

a) If not why don't use it? _____

b) If yes, what makes you use ICT _____

c) What difference does the use of ICT make in accessing information that you need? Explain _____

24. Is there any impediment for you in using ITC?

(b) Explain what you do not know about the search techniques in accessing relevant information

(c) Explain if the information resource managers have problems in applying IT facilities for supporting information services that you require

d) What ICT gadget/ tools do you prefer using in your organization?

e) Elaborate on help concerning the gadgets available to you and by whom?

25. Do you get access to electronic journals and data bases?

(b) Which one do you get access to? (Ajol, Ebsco, Eric, emerald, e-brary etc)

SECTION E: SKILLS AND COMPETENCE

26. What are the capabilities you have in using ICT tools for accessing information?

27. (a) How did you learn to use the computer to enable you to access the information and the World Wide Web and other electronic Data Bases independently?

b) What kind of problems in your opinion hinders you from ITC access?

(c) Which skills do you require?

28. What recommendations would you propose for improving and enhancing application of ICTs in providing and disseminating information on housing construction in your organization?

SECTION F: INFORMATION SHARING AND UTILIZATION

29. What type of information do you get to discuss with your colleges at work and elsewhere?

Explain Professional / personal administrative affecting organization etc

What types of information do you discuss concerning your work? (Technical/ social/ both

29. (a) How do you share this information?

(b) With whom do you share with?

(c) In what medium do you share it?

What else do you put to use your information apart from work necessities?

30. What recommendations would you give for improving and enhancing the use and sharing of information with others, in your organization?

Thank you for your cooperation and time

INTERVIEW QUESTIONS

(Critical Questions Asked By Probing)

1. What makes you consider yourself a professional in the construction sector?
2. Have you ever experienced a desperate situation when you need information to solve an immediate task?
3. What were the major reasons for seeking that information?
4. Where did you turn to seek the kind of information you needed?
5. What types of information did you need for that kind of task?
6. Were you satisfied with the sources you sought to get the information?
7. Does your organization offer you information on housing construction matters?
8. How and what methods did you use to seek the information?
9. Did you look for help from an information savvy person?
10. Apart from work tasks what else do you need and use information on?
11. What type of information do you get to discuss with your colleagues?
12. How does Information Technology play a role in providing information in your organization and for yourself?
13. Do you experience impediments in using ICTs
14. Does your IT manager offer you enough assistance in retrieving the necessary information?
15. How did you learn using computer to access World Wide Web
16. Does your organization have a library or a documentation centre?
17. What role does it play in supplying information in the organization?
18. What would you like to see improved on information provision and access facilities in your organization?
19. What suggestions would you give on improving housing information access in your organization?
20. And the country at large?

APPENDIX III : OBSERVATION GUIDE (FOR THE RESEARCHER)

Objective: To investigate the pattern of access, use of the information on Housing construction information professionals obtained in the organization elsewhere in Nairobi.

Date: _____

Time: From _____

To: _____

Name of institution _____

Department / Unit _____

1. Nature and type of information accessed and used

- Information related to work
- General professional information

Information for other professional activities i.e. conferences/, teaching/, research for publication/others (state)

2. Information accessed from the organization's information centre

- professional information
- General information/references
- Institutional information i.e. in-house publication/ newspapers/ reports/ working documents.

3. In which format are they available?

- On line /print/tapes CD-Rom data bases/ drawings/Electronic journals.
- Print: journals, books, theses, pictures (albums) conference papers, reports, drawings, maps etc
- On line/electronic; tapes, Slides, CD-Rom, E-journals.

In other forms i.e.: materials, stones, tiles, grass, *makuti*, cement, glass, wood, steel, models, sand, stones.



4. Problems encountered in the work place

- a.
- b.
- c.
- d.

5. What are the housing typologies in Nairobi?

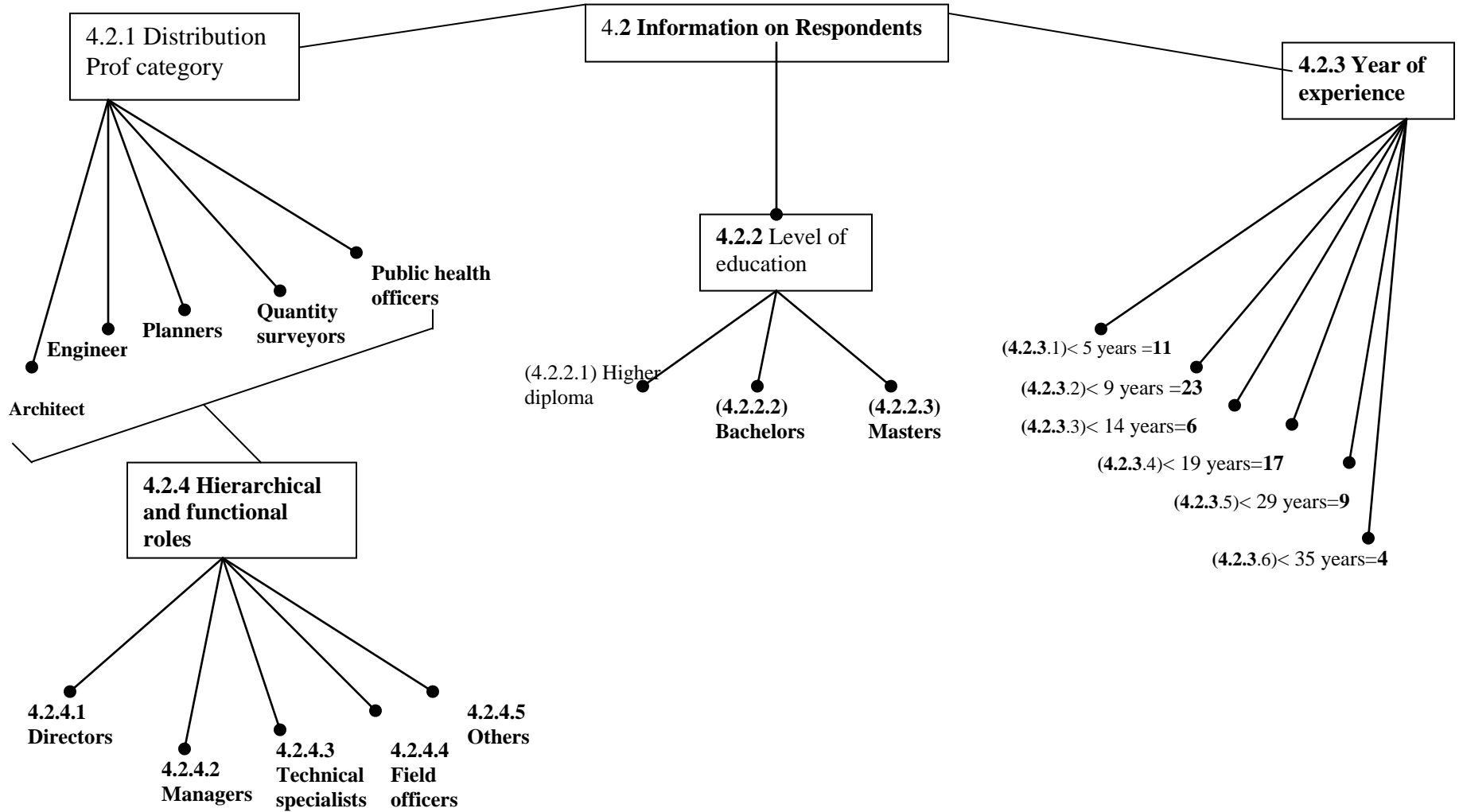
	Eastland	Westland
<ul style="list-style-type: none"> - Shacks - Tenements - One roomed permanency built flats - Maisonnettes - Bungalows - Homes or palatial 		
<p>6. Environment</p> <ul style="list-style-type: none"> - clean - filthy - garbage uncollected - river polluted - clear 		

APPENDIX IV: RESEARCH PERMIT

<p>PAGE 2</p> <p>THIS IS TO CERTIFY THAT:</p> <p>Prof./Dr./Mr./Mrs./Miss..... JAYNE AWOUR ABONYO.....</p> <p>of (Address)..... MOI UNIVERSITY P.O.BOX 3900 NAIROBI.....</p> <p>has been permitted to conduct research in..... PUBLIC INSTITUTIONS.....Location, NAIROBI.....District, NAIROBI.....Province, on the topic..... ACCESS TO AND UTILIZATION OF HOUSING CONSTRUCTION INFORMATION BY PROFESSIONALS IN SELECTED PUBLIC INSTITUTIONS IN NAIROBI, KENYA</p> <p>..... for a period ending 30TH DECEMBER, 11 20.....</p>	<p>PAGE 3</p> <p>Research Permit No. NCST 5/002/R/157 Date of issue..... 4.3.2009 Fee received..... SHS.2000</p> <div style="text-align: center;">  </div> <p style="text-align: right;">  SAID S. HUSSEIN Applicant's Signature for: Permanent Secretary Ministry of Science and Technology </p> <p style="text-align: right; color: blue; opacity: 0.5;"> PERMANENT SECRETARY MINISTRY OF SCIENCE AND TECHNOLOGY </p>
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APPENDIX V : GROUNDED THEORY MODEL ON RESPONDENTS

4.1 Categories and concepts



Category of professionals (Themes and concepts)

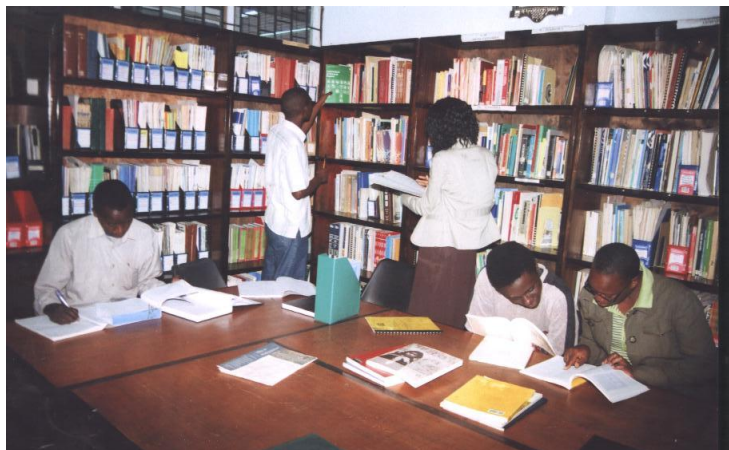
APPENDIX VI: PHOTOGRAPHS FROM FIELD OBSERVATIONS**Observation at City Hall (2009) Records keeping situation**

Poorly stored building plans at City Hall. [How quickly can one access the right one they are looking for in this pile?]



Information files and building plans put on the corridor floor at city Hall.
[Is this the right place for storing them?]

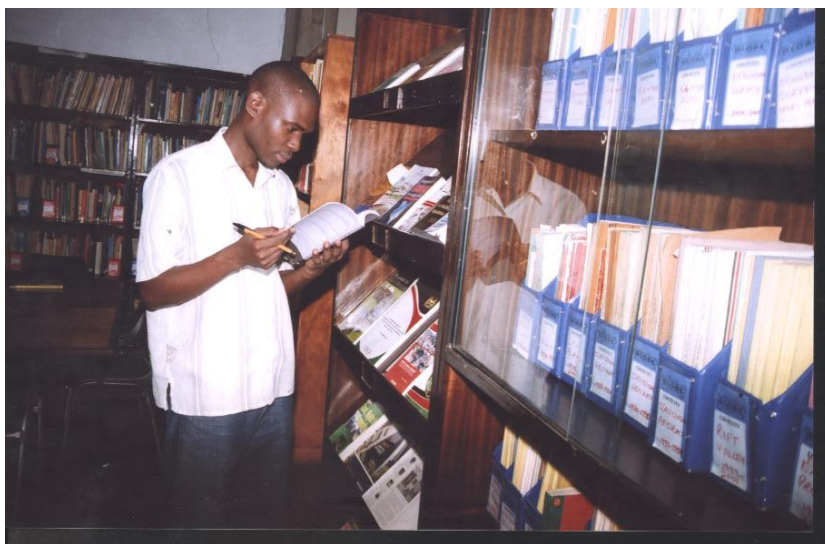
A well organized information where users are free to access what they are looking for



A form of hybrid collection where both computers and manual catalogues can be accessed and used

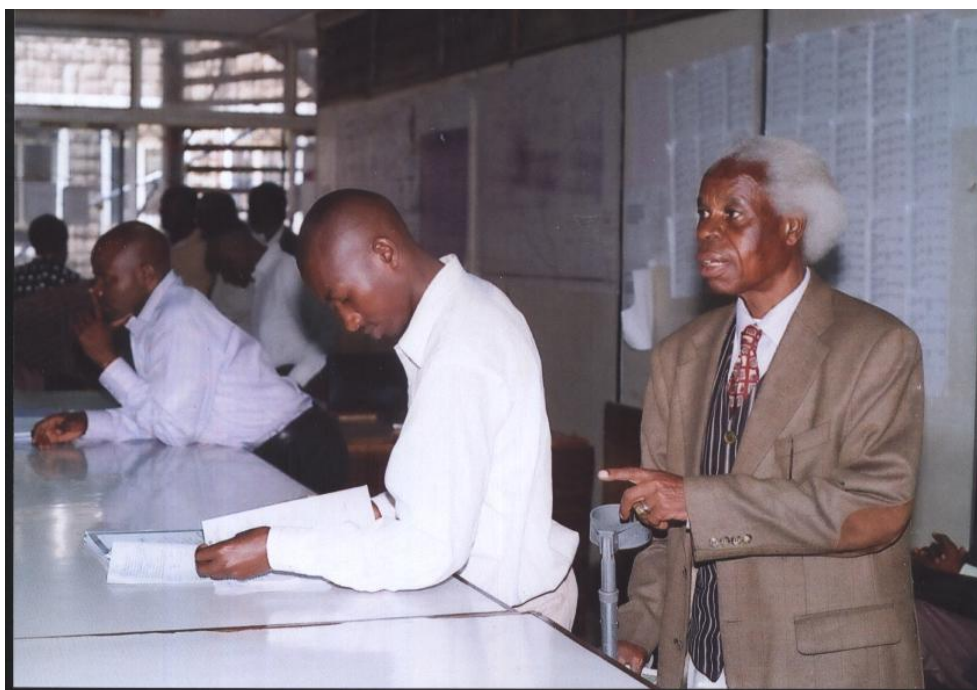


A user has removed the right document from easy to access organized material





City Hall client waiting to hand in a house design plan (2009)



Innocent Kenyans at city hall checking on their approved building plans, but How quickly can the plans be found? Perhaps they will be told to come in a month's time, again! Here access to documents is no easy matter (Photo at city Hall, (Sept, 2009)

Field observations at Kibera Slum and decanting site



A professional sharing information with the Soweto East of *Kibera* Slum dwellers at a sensitizing workshop



A woman expressing her happiness for being allocated a flat, at the new decanting site at Soweto East



Professionals educating new allot-tees of flats and sharing information with them at the new hall :the decanting site at *Kibera*.



Deplorable Housing state at Kibera slum; mud and wattle this is.



Site of Kibera slum,; Un-healthy living conditions. Note: professionals walking in the slum to try and get information on the plight of the dwellers.(Photo,2009)



Happy allo-tees of decanting flats: the slum dwellers at Kibera slum moving to the decanting sites: The tasks of moving is enormous, you cannot see the smiles in their faces yet at heart, they are joyful to get out of the squalid housing conditions.

||



Improved housing conditions in Kibera slums; Soweto East
The coordinated work of the ministry of housing (KENSUP group)

APPENDIX VIII: DESIGNED ARCHITECTURE SHEET

In Using ICTs, City Hall designed a fact field sheet for receiving design plans from architects: This is how it is organized and makes information easy to retrieve. Effected in Jan, 2012. The sheet was collected on final survey and as follow up by the researcher in May, 2013

No	Plan Reg No	Building Class	Developer	Developer Address	Development Description	Parcel No	PLOT SIZE(he)	Plinth(M2)	Locality	Street / Road	Zonal User/Density	Zone No	Architec & No.	Architect Address	Date of Submission	Estimated Cost	Submission Fee (Ksh)	Conditions Of Approval (See Appendix)
348	FA 107	D	Aron Kandie	P.O Box 72648-00200 Nairobi	Proposed Amendment To Approved Plan EN 454 (20No. Dwelling Houses	L.R. 1055/19	4.031	546	Karen	Miotoni West	Single Dwelling on 0.2ha	12	Envolvild Systems (A222)	P.O Box 66533-00800 Nairobi	16/02/11	16,380,000	46,050	a, c, d, h, p, q, v, w
349	FA 121	D	Hen Joel Onyancha & Melissa Baker	P.O. Box 34838 - 00100 Nairobi	Proposed Extension & Alteration to Existing Dwelling House	L.R. No. 209/8336/50	0.2692	256	Loresho	Off Loresho Ridge	Single Dwelling on 0.2ha	14	Yusuf Ibrahim(A699)	P.O. Box 34838 00100 Nairobi	24/02/11	5,000,000	25,765	a, c, h, p, q, v, w
350	FA 137	D	Willis Odhiambo	P.O. Box 13310 - 00100 Nairobi	Proposed Dwelling House	L.R. No.13844	0.4193	137.8	Karen	Karen Plains	Single Dwelling on 0.4ha	12	Osman Abunge	P.O. Box 13310 00100 Nairobi	21/02/11	4,500,000	25,430	a, c, h, p, q, v, w
351	FA 169	D	Mr. & Mrs. Kiboi	P.O Box 28515-00200 Nairobi	Proposed Dwelling House	L.R. No. 13869/7	0.5	402	Karen	Karen Plain	Single Dwelling on 0.4ha	12	Bisher Fawaz (A1184)	P.O Box 28515-00200 Nairobi	22/02/11	12,420,000	33,910	a, c, d, h, p, q, v, w
352	FA 189	D	Riverside Gardens	P.O Box 3848-00506 Nairobi	Proposed Conversion Of 4No. Apartments To Duplex Apartments- Approved Plan No. EX 882 - 112No. Flats	L.R. No. 4275/84	1.0044	421	Riverside	Riverside Drive	Mixed Residential	4	Sylvia M. Kasanga (A1083)	P.O Box 11954-00100 Nairobi	23/02/11	200,000,000	153,730	a, c, h, p, q, v, w--
353	FA 190	D	Real Industries Park Ltd	P.O. Box 11324 - 00400 Nairobi	Proposed Boundary Wall	L.R. No. 209/11287	2.142	150	Industrial Area	Off Mombasa Road	Industrial Use	9	Mwendo M. F. (A1219)	P.O. Box 194 - 00519 Nairobi	23/02/11	300,000	20,600	a, c, h, p, q, v, w
354	FA 191	D	Real Industrial Park Ltd	P.O. Box 11324 - 00400 Nairobi	Proposed Boundary Wall	L.R. No. 209/11288	2.428	170	Industrial Area	Off Mombasa Road	Industrial Use	9	Francis Mwendo (A1219)	P.O. Box 194 - 00518 Nairobi	23/02/11	340,000	21,080	a, c, h, p, q, v, w
355	FA 197	D	Jeremiah Ngondi	P.O Box 51911 Nairobi	Proposed Dwelling House & D.S.Q.	L.R. No. 12495/73	0.2	259	Karen	Off Karen Langata	Single Dwelling on 0.2ha	12	Paul Aloyo (A1005)	P.O Box 14011-00100 Nairobi	24/02/11	7,830,000	28,695	a, c, d, e, h, p, q, v, w
356	FA 199	D	James Kamunge & Everlyn	P.O Box 1738-00902 Nairobi	Proposed 24No. Flats	L.R. No. 209/870/3	0.379	2236.4	Parklands	Off Limuru Road	Single Dwelling on 0.2ha	3	I.M. Kibaara (A1080)	P.O Box	24/02/11	67,000,000	87,885	a, c, h, p, q, v, w
357	FA 202	D	Thomas Wafula Wegulo	P.O Box 7068-00300 Nairobi	Proposed Dwelling House.	Plot No. X-8	0.0167	186	Embakasi Phase II	Off Eastern Bypass Utawala	Single Dwelling on 0.2ha	10	Maurice Ongadi (A1055)	P.O Box 59274-00200 Nairobi	24/02/11	4,470,000	25,310	a, c, h, p, q, v, w
358	FA 213	D	F.M. Mbogori	P.O Box 42159 Nairobi	Proposed Renewal Of 10No. Shops & 10No. Flats	L.R. No. 36A/CS	0.0684	1140	Umoja I	Off Outering Road	Single Dwelling on 0.2ha	8	Maurice Ongadi (A1055)	P.O Box 59274-00200 Nairobi	01/03/11	27,360,000	46,980	a, c, h, p, q, v, w
359	FA 236	D	Selima R. Fernandes & Others	P.O Box 6229-00100 Nairobi	Proposed Dwelling House	L.R. No. 7785/820	0.2539	565	Runda	Off Limuru Road	Single Dwelling on 0.2ha	13	Mburu J.M. Architects (A110)	P.O Box 6229-00100 Nairobi	01/03/11	17,100,000	38,350	a, c, d, h, p, q, v, w
360	FA 273	D	Presbyterian Foundation (P.C.E.A)	P.O Box 10507-00100 Nairobi	Proposed Boundary Wall To a Dwelling House.	NBI/BLK/72/155	0.0348	N/A	Langata Ngeli II	Kitengela Road	Single Dwelling on 0.2ha	11	Samuel Kiai (A1022)	P.O Box 11511-00400 Nairobi	03/03/11	248,000	18,325	c, h, q, v, w
361	FA 283	D	Fredrick Mburu Gicho	P.O. Box 1485 - 00100 Nairobi	Proposed Dwelling House	L.R. No. 13330/105	0.197	280	Thome	Off Thika Road	Single Dwelling on 0.2ha	14	Simiyu B. Nakitare (A1041)	P.O. Box 1485-00100 Nairobi	07/03/11	8,730,000	29,145	a, c, h, p, q, v, w
362	FA 289	D	Anil Patel	P.O. Box 63756 - 00619 Nairobi	Proposed Amendment to Approved Plan ET 85 2No. Town Houses	L.R. No. 7741/239	0.4113	4392	Kitisuru	Ngecha Road	Single Dwelling on 0.2ha	13	T. S. Bowman (A847)	P.O. Box 63756 00619 Nairobi	07/03/11	22,276,200	2,000	a, c, h, p, q, v, w
363	FA 290	D	Anil Patel	P.O Box 14564 Nairobi	Proposed Amendment To Approved Plan ET 86 - Dwelling House	L.R. No. 7741/240	0.4113	784	Kitisuru	Ngecha Road	Single Dwelling on 0.2ha	13	T.S. Bowman (A847)	P.O Box 63756-00619 Nairobi	07/03/11	22,276,200	2,000	a, c, h, p, q, r, v, w

Received: May 2013

Communication online has improved the receipt of architectural drawings as was seen earlier by clients visits and pilling of the information at City Hall.