University of Nairobi

School of Engineering

GIS IN FOREIGN NATIONALS MANAGEMENT:

SPATIAL ANALYSIS OF DISTRIBUTION AND SOCIO-ECONOMIC IMPACTS OF IMMIGRATION IN NAIROBI

By

David Peter Omondi Ogola

F56/68972/2013

A Project submitted in Partial fulfillment of the requirements for the Degree of Master of Science in Geographic Information Systems, in the Department of Geospatial and Space Technology of the University of Nairobi

May 2015

DECLARATION

I, David Peter Omondi Ogola hereby declare that this project is my original work and has not, to the best of my knowledge, been presented for examination in any other university.

Student:

Name: David Peter Omondi Ogola

Registration Number: F56/68972/2013

Signature: …… Date: ……

This project has been submitted for examination with my approval as university supervisor

Supervisor: Prof. Kiema, John .B. Kyalo

Signature: ……..…. Date……

DEDICATION

To my dear wife Rose for the love, care and support. To the girls Michelle and Layla; my daughters, may this inspire you to greater achievements. And to my mum Ruth Ogola, for her fortitude and resilience.

ACKNOWLEDGEMENTS

First and foremost I thank God for giving me the opportunity, strength and resources to pursue this academic program and carry out this research project successfully.

Secondly, I would also like to express my sincere gratitude to my supervisor, Professor Kiema, J.B.K for his immense wealth of knowledge and experience that he imparted unreservedly and made available all information and guidance needed to complete this research project. The lecturers and other staff members at the Department of Geospatial and Space Technology all played a pivotal role in ensuring the successful completion of the program.

My friends, class mates, discussion group members and colleagues too had a lot of influence throughout the project and can therefore not go unmentioned. Particularly, I wish to single out Frank Odida, Mary Gwena and Dominic Rotich for their priceless contributions towards the success of this undertaking.

My sincere gratitude also goes to the Department of Immigration Services, my colleagues at the Foreign Nationals Management Section and my seniors; Madam Habiba, Madam Otenyo and Mr. Omooria for their support and understanding. Also for the data that formed the basis and inspiration for this project work.

Last, but not least, I wish to thank my immediate family members for their financial and moral support.

God bless you all.

ABSTRACT

Due to increasing globalization trends, migration has increasingly become a key element in national and international deliberations. Mapping of immigrant issues has also gained prominence in many parts of the world, with several agencies taking the cue. In Kenya the management of foreigners or aliens is one of the core functions of the Department of Immigration Services with the mandate of enhancing security and socio-economic development through policy and management strategies targeting immigrant populations. Currently the practice within the department, and periodic censuses have generated immigration data, and lately emigration data, though a number of potential datasets still remain unexploited due to inadequate use of available technology. Such sources include data on visas and work permits, border-post data and passenger surveys at international airports

Through a review of related literature, this study showcased the great interest that other countries have on the numbers of foreigners they host, where they live, what they do and what sort of services they need or offer. It further demonstrated the relationship between migration and geospatial technology and its successful application.

The study adopted a methodology involving a spatial approach in the use of location information to enable tracking, visualizing, analyzing and management of alien activities. This involved the geo-coding of immigrant residential addresses and linking with their respective attributes to enable input, storage, manipulation and analysis using appropriate spreadsheet and GIS software. The results were then presented in the form of various maps, charts, figures and tables representing various themes according to the objectives of the study.

In conclusion, it emerged that migration and development are related and create impact in various perspectives and proportions. Geospatial technology is such a revolutionizing application that has great potential for organizing, manipulating and analyzing such migration information and can enable the department to use a variety of maps and documents to interpret immigrant activities, including major patterns of migration; changing environmental preferences and settlement patterns.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF MAPS AND FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

GIS	Geographic Information Systems
ESRI	Environmental Systems Research Institute
KNBS	Kenya National Bureau of Statistics
DIS	Department of Immigration Services
KML	Keyhole Markup Language
FNM	Foreign Nationals Management
DESA	Department of Economic and Social Affairs
OECD	Organisation for Economic Co-operation and Development
DIOC	Database on Immigrants in OECD Countries
UN	United Nations
NGO	Non-governmental organization
NCPD	National Council for Population and Development
UNFPA	United Nations Population Fund

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Management of foreigners or aliens is one of the core functions of the Department of Immigration Services. This is consistent with the mandate of enhancing security and socio-economic development through policy and management strategies targeting immigrant populations. According to Ronningen (2004), there is usually a great deal of interest to a particular country, the numbers of foreigners who reside there from other countries, where they live, what they do and what sort of services they need or offer. Currently operations in the Department involve only non-spatial methods for handling information, which have been used without much success particularly regarding the use of location information. A spatial approach would therefore enable tracking, visualizing, analyzing and management of alien activities.

This study therefore sought to assess the status and develop a spatial understanding and create a geo-database of the distribution of immigrant activities in Nairobi County for analysis. The main focus was to document and visualize the geographical distribution of socio-economic activities in relation to immigration processes and variables. Migratory population movements are very important objects of interest for demographers. It is in fact a key variable used for the description and prediction of demographic structures, together with the natural movement of the population such as births and deaths. These demographic indicators can be easily applied to monitor the development of economic activities in terms of their establishment, location, and distribution.

As a legal requirement, all foreigners who are present and resident in the country are generally required to register with the Department of Immigration Services as Aliens. To this end, all legal and documented immigrants in the country are therefore required to indicate their physical residential and business addresses. While this information is useful, it would be more valuable if this was captured in a spatial format to enable visualization and display of patterns and trends of immigration variables. This is the information gap that this project explored to showcase the relevance and contribution of geospatial information and knowledge in migration management.

The settlement structure of immigrants within the City is an important indicator of socio-economic conditions and transformations which is caused by several factors. The mechanisms of this process lead to a transformation of the social structures of society as they reflect or influence the characteristics of the migrant groups. There has been a decline in the traditional areas of the economy and the traditional professions which are closely interconnected with city spaces. At the same time, relatively deep incommensurability related to property have emerged, power or social position and these also exert their influence over the spatial structure of settlement. The agents of regional development do not have close ties to the territory any longer as the headquarters of their corporations are situated outside of the region. Processes of globalization therefore diminish the ability of public administration to regulate processes in the administered territory and this result in higher pressure on the management of municipalities when planning future development of the territory and its sustainability.

1.2 Statement of the Problem

There are several challenges in discussing international migration, but one of the major ones is the deficiency of data. This constrains meaningful and detailed analysis and interpretation of context of the data for sound information. According to Kenya Population Situation Analysis report NCPD (2013), it emerges that even though periodic censuses have generated immigration data, and lately emigration data, a number of potential datasets remain unexploited. Such sources include data on visas and work permits, border-post data and passenger surveys at international airports. Second, no international labour surveys have been undertaken to inform the country about its immigrant labour; especially those smuggled and trafficked to undertake jobs that Kenyans are overqualified for. Attention is therefore required to understand the desirable effects of immigration with a view of sustaining them, while taking steps to eliminate the undesirable effects.

Despite considerable interest in the relationship between migration and development, there have been relatively few attempts to map the various development impacts that migration can have on a country. This project presents a framework for mapping these impacts by focusing particularly on immigration and its variables. Drawing on two closely related definitions of development; the capabilities approach and the sustainable livelihoods approach, the study considered that migration can shape social and economic development in eight dimensions according to Chappell and Sriskandarajah (2007). These include: economic impacts,

educational impacts, health impacts, gender impacts, wider social impacts, governance impacts, environmental sustainability and disaster relief.

1.3 Research Objectives

The main objective of this study is to assess the socio-economic implications of immigration in Nairobi County using geo-spatial techniques.

Specific Objectives

1. To map the trend and settlement pattern of foreigners within Nairobi City.
2. To create a spatial entity profile of various immigration variables.
3. To evaluate socio economic activities which attract immigrants to Nairobi

1.4 Justification of the Study

In line with the mission of the Directorate of Immigration and Registration of Persons to enhance national security and social economic development, this study can be applied and used in spatial planning and management of Foreign Nationals. This is because development and distribution of human activities is crucial for planning and analysis of immigrant activities. The aim of this work was to find certain patterns and/or anomalies in the migratory behaviour of foreigners, both in terms of space and time. This can be useful for simulating and predicting the trends in the development of the economy, security implications, searching for optimal distribution scenarios of economic activities and employment in the area, the possibility of simulating the impact of policy decisions which would affect national and local level investment activities (e.g. decision-making on construction of industrial zones and targeted support of activities in selected areas). Case studies similar to the undertaken one are resulting in better understanding of the spatial aspects and relationships of socio economic activities that are associated to immigration.

Further, it is imperative that orderly international migration management requires sound national government capacity to plan, develop and manage migration related strategies, including spatial analysis. Migration involves institutional aspects such as the legal instruments regulating it and the organizations and officials enforcing them. A spatial analysis strategy would thus enable government to take cognizance for instance, of the labour migration dynamics of their nationals and immigrants, such as push and pull factors for outward and inward migration flows.

The study provides an overview of how spatial analysis of immigration data can be used to evaluate the distribution of economic activities and social interaction within the city spaces. It is important also to describe the spatial structure of immigrant settlement in the study area. Another area that stands to benefit from the spatial application would be to enhance security strategies through monitoring of trends and patterns of immigrant settlements for purposes of planning and mitigation of potential risk factors. This is due to the nature of international crimes including terrorism which tend to be linked with immigration. By enhancing a spatial understanding of immigration in the city, the law enforcement agencies would be well equipped to precisely manage and handle immigration related crimes and offences which are transnational.

1.5 Scope and Limitation of the Study

Given the main objective of this project, this study focused on identifying and summarizing the main areas, themes, and topics addressed in the research. These areas addressed impact aspects of immigrants within Nairobi City County.

The main focus of the research was on the legal and documented immigrants whose attributes and variables can be obtained from the various sources and who hold substantive immigration statuses often not less than one year. It does not however cover illegal or undocumented immigrants as well as temporary visitors who hold visitor's passes and who also form critical groupings and phenomena worth other studies.

The study also indicated the main research gaps, appropriate definition of terms, concepts, methodological considerations, and areas relevant to the field.

1.6 Organization of the Report

The report body of this study was organized into Five Chapters. These include The Introduction, Literature review, Methodology, Results and discussions, Conclusions and recommendations as well as References and Appendices.

The first chapter which covers the introduction comprises of Study background as an overview, problem statement identifying the knowledge gap and justification of the study, objectives and scope.

Literature review is the second chapter of the study. The section presented an assessment of related studies to showcase the context of this project by considering the Legal and Policy Framework, Theoretical Framework Economic Implications, Social Dynamics Theory, and Spatial Dimensions. The review is reckoned from a global perspective down to more localized views, facts and practices. It further demonstrated the relationship between migration and geospatial technology and its successful application

Chapter three of this report is the Methodology. It examined the study area, various sources of data, methodologies of data acquisition and analysis, and the procedure for acquiring the sample. This involved a spatial approach in the use of location information to enable tracking, visualizing, analyzing and management of alien activities.

The Results and Discussion are covered in Chapter four. The final result of this study comprised of various maps, charts and graphs which were used to visualize and analyze the findings of the project according to various socio economic themes. These are then discussed in detail concerning the outcomes, observations and their implications.

Conclusions and Recommendations form the fifth and the last chapter of the report. This presents the inferences from the study as well as pointing out areas that may need further research.

Finally, in the references section the citations used in the study are listed in an appropriate format. The appendices used in the study are also listed at the end of the report and clearly labeled.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Migration is today a key element in national and international debates as the world becomes more globalised. The main discussions revolve around migrants' and asylum seekers' rights and citizenship, state security and border management, development in the global South, ageing populations in the West, the globalization of skilled labour markets and other issues. However, according to Zimmermann (2005), it is mainly the distributional effects of migration that drive public attitudes towards immigration and the related policy discourse. This introduces the spatial assessment of various immigration variables, their relationships, effects and consequences to the source and destination countries. Dustmann, *et al.*, (2005).

It often involves social attitudes and values that inform things which the people of a nation see as important to them. It is for instance one of the highest issues on the political agendas of most governments. An ageing population and labour shortages for instance in both high and low-skilled sectors in the developed countries currently represent just a few of the phenomena suggesting the need for rethinking surrounding migration.

In Europe for instance the UK, recent rise in immigration debates reflects at least four forces: 'the strength of the British labour market, globalisation, increasing economic integration and labour mobility within the EU, and rising political instability around the world. Since these forces are likely to persist, we can expect higher immigration' (*The Economist* 27 January 2001: 38). Studies of the UK labour market further show the empirical evidence regarding the effects of personal or social characteristics McCann and Sheppard, (2001), such as gender, on interregional migration. It therefore follows that there is high demand for more and better social scientific research concerning a variety of policy domains relevant to migration (Lee, 1999).

Geographic approach presents a good array of skills set that employ rich methodologies for social scientific research. Harris and Longley (2004) however assert that geographic research has become too focused on specificity at the expense of understanding system-wide phenomena. This is where geospatial applications become useful in providing crucial system combinations that are definitely driving research into new frontiers. While knowledge generated by systematic social area analysis approaches are useful, their limitations have

been the focus on the perceived qualitative/quantitative divide within human geography McCann and Sheppard, (2001).

Academic studies that employ census mapping have been conducted that involve identifying and labelling areas/neighbourhoods by ethnicity, immigrant status, visible minority status, or as being deprived, impoverished, or at-risk create power-laden images Crampton, (2004). The growing role of census mapping in the identification and definition of neighbourhoods and communities, and often in resource allocation and facility planning can therefore not be understated. This ensures that policy-makers and the public are increasingly interested in the results of the analysis.

People working in many different fields use GIS technology. Many businesses use GIS to help them determine where to locate a new store. Biologists use GIS to track animal migration patterns. City officials use GIS to help plan their response in the case of a natural disaster such as an earthquake or hurricane. GIS maps can show these officials what neighbourhoods are most in danger, where to locate shelters, and what routes people should take to reach safety. Scientists use GIS to compare population growth to resources such as drinking water, or to try to determine a region's future needs for public services like parking, roads, and electricity Ayeni *et al.*, (2001).

Geospatial technology is an area of that includes techniques of utilizing the integration of geo-referenced information about a phenomenon with other non spatial attributes for analysis, of which geographic information system is a major application. A geographic information system (GIS) is a computer system for capturing, storing, checking, and displaying data related to positions on Earth's surface, Martin, (2005). GIS can show many different kinds of data on one map. This enables people to more easily see, analyze, and understand patterns and relationships.

With GIS technology, people can compare the locations of different things in order to discover how they relate to each other. For example, using GIS, the same map could include sites that are preferred by certain immigrants, residential estates, and sites that are prone to certain crimes such as occurrences of terror attacks as well as the countries of origin of the immigrants and their occupations. A map would help people determine which areas are most at risk.

GIS can use any information that includes location. The location can be expressed in many

different ways, such as latitude and longitude, address, or street code. Many different types of information can be compared and contrasted using GIS. The system can include data about people, such as population, income, or education level. This information was useful in profiling immigrants to map their physical addresses, economic activities as well as their legal residency in order to manage immigrant affairs effectively.

Mapping of immigrant issues has become a regular feature now in other parts of the world. The trend has gained momentum with many agencies getting involved and Department of Immigration Services will greatly benefit from following suit in this trend.

Through the government initiatives, groups that have self-identified as immigrant organizations as well as a larger group of community-based organizations can be established and mapped. These will play critical roles in the economic, social and political incorporation of immigrants and help examine how diverse networks of immigrants have established and adapted a host of community-based organizations as a means to build livelihoods and empowerment.

Spatial thinking will enable the department to use a variety of maps and documents to interpret human movement, including major patterns of domestic and international migration; changing environmental preferences and settlement patterns; the frictions that develop between population groups; and the diffusion of ideas, technological innovations, and goods. This will boost technical and entrepreneurial relationships through analysing trends created migrant populations and the impact of granting various classes of work permits to the foreigners.

GIS can also enhance historical interpretation to show the connections, causal and otherwise, between particular historical events and larger social, economic and political trends and developments regarding particular immigrant groups and their contributions to the host country. The Asian community for example have had a tremendous contribution to the country's socio-economic as well as political environment dating to pre-colonial times. This will help recognize the complexity of historical causes and effects, including the limitations on determining cause and effect.

2.2 Legal and Policy Framework

The context of the project arises by way of the policy goal that government policies in the field of integrating immigrants should be informed by the best possible research data and information. In order to develop and improve upon policy initiatives surrounding the integration of immigrants in the society, therefore, the current array of integration research and information should be examined. From there, new and modified policies based on solid evidence and sound vision could be formulated. The report generated is intended to be a contribution to this process through GIS Analysis, manipulation and Visualization.

The impacts of immigration on the labour market critically depend on the skills of migrants, the skills of existing workers, and the characteristics of the host economy. They also differ between the short and long run when the economy and labour demand can adjust to the increase in labour supply. The immediate short run effects of immigration on the wages and employment of existing workers depend particularly on the extent to which migrants have skills that are substitutes or complements to those of existing workers Borjas (1995).

Immigrants are often disproportionately represented at both the low end and the high end of the economic spectrum. Illegal immigrants tend to be at the low end of the skill spectrum, while legal immigrants are at the high end. The economic incentive for illegal immigration is strongest at the low end.

2.3 Economic Implications

Immigration today touches the lives and economies of more people and places than ever before. The places that are affected by immigrant flows are not just countries, but cities and neighborhoods within them.

One major aspect of immigration is its impact on economic matters. The new immigrants are both producers and consumers through jobs, social services, consumer goods, savings, taxation, and all the economic activities that other Kenyans are involved in. Borjas *et al*., (1997) for instance report that immigration explains a significant proportion of the increase in the wage gap between high and low skill labour in the US in the 1980s and early 1990s. There may be some unique economic activities such as through the use of interpreters but in most cases immigrants are very similar in their economic activities to the natives.

2.4 Theoretical Framework

2.4.1 Collective Action Theory

Immigrants resort to mutual help to solve collectively perceived problems, often at the expense of household needs, business aspirations and remittances. Such a collective act is made feasible by the enhanced social capital during settlement in the new social environment. Social capital, understood as a joint interaction of norms, networks and trust (Putnam, 1993, Coleman, 1990, Bourdieu, 1993) could be considered to be at its highest level among people encountering settlement constraints. Social capital as the bonding thread Portes, (1995) supports any form of mutual help and facilitates development of communal infrastructure during settlement. Moreover, social capital is itself enhanced as a result of successful communal endeavour: developed communal places, which are also identified as an indicator of social capital. Furthermore, through the defined node in social space, a communal place, comprehended as bridging social capital Putnam, (2000) as an externality is engendered towards the rest of community, expanding not only beyond ethnic, but also social and physical boundaries. Finding suitable housing in a supportive community for instance is seen as a vitally important part of successful immigrant settlement and integration, and that there is no singular immigrant housing experience Ray, (1994).

2.4.2 Social Dynamics Theory

The development of communal organizations is the outcome of fragmented ethnic collective acts in the new environment. In their study, Gamm and Putnam (2001) emphasize that the growth of associations in the USA from 1870 to 1920 was due to the effects of industrialization, urbanization, a structured division between work and leisure time, and network-based immigration.

A study of the Australian immigrant settlers provided a good example of social impacts foreigners can have on a host country. In this case the settlers, permanent immigrants, brought new forms of culture, social life and recreation as well as social needs, but Australia was not prepared for the effects of its own ambitious immigration program. There were large numbers of immigrants of diverse cultural background. This meant additional and differentiated demand for goods and services that could not be satisfied by the limitations of the entrenched local culture and a non-responsive welfare state Jakubowicz, (1989).

2.5 Conceptual Framework

This study recognizes that the migration process can be affected by and, in turn; create effects on, the development process at several points. It demonstrated the various points at which migration and development create impact when a migrant moves from one country to another, and possibly back to the original country.

Immigration is a focus of research that has had extensive work conducted, for instance lot of focus on the Washington metropolitan area in the USA which is a relatively new locale of immigrant settlement. Among the issues that have been analyzed are the demographic, socio-cultural, economic and political impacts of immigrant flows on cities, immigrant entrepreneurship, ethnic, racial and national identities of immigrants, the integration of immigrants in cities the use of sports and festivals by immigrant communities to make and maintain cultural space and occupational and ethnic niches of different immigrant groups Price and Chako (2009).

This might be called the 'development-migration-development' cycle. It is clear that while Migration may often be motivated by relative disparities between the economic development of sending and receiving countries, except generally those moving to seek political asylum, migration itself can have important impacts on economic development, especially on relatively poor countries experiencing significant outflows of migrants.

2.5.1 Spatial Dimensions

Immigration activities can be considered a spatial issue in two perspectives. People of a similar socio-economic background tend to live in the same areas because the amount of money a person makes usually, but not always, influences their decision as to where to purchase or rent a home. At the same time, the area in which an immigrant lives can determine the level of access to opportunities like education and employment because income and education can influence settlement patterns and also be influenced by settlement patterns. They can therefore be considered causes and effects as well as indicators of spatial differentiation.

Spatial interaction theory postulates that individuals undertaking spatial interactions such as migration will seek to maximize their benefits, while minimizing their costs Roy and Thill, (2003),

Orderly international migration management calls for sound national government capacity to plan, development and manage migration related strategies. Institutional aspects of migration include the legal instruments regulating it and the organizations and officials enforcing them. In this context, governments need to be aware of the labour migration dynamics of their nationals, such as push and pull factors for outward migration flows and those that inform inward migration flows.

2.6 Global Perspective

2.6.1 Global migration levels and trends

According to United Nations estimates, some 232 million international migrants are living in the world today. Since 1990, the number of international migrants in the global North increased by around 53 million (65%), while the migrant population in the global South grew by around 24 million (34%). Today, about six out of every ten international migrants reside in the developed regions. Table 2.1 summarizes the trend in world migration between the years 1990 to 2013.

Table 2.1: International migrant stock (millions)

	1990	2000	2010	2013
World	154.2	174.5	220.7	231.5
Developed regions	82.3	103.4	129.7	135.6
Developing regions	71.9	71.1	91	95.9
Africa	15.6	15.6	17.1	18.6
Asia	49.9	50.4	67.8	70.8
Europe	49	56.2	69.2	72.4
Latin America and the Caribbean	7.1	6.5	8.1	8.5
Northern America	27.8	40.4	51.2	53.1
Oceania	4.7	5.4	7.3	7.9

Source: United Nations (2013), *Trends in International Migrant Stock: The 2013 Revision*.

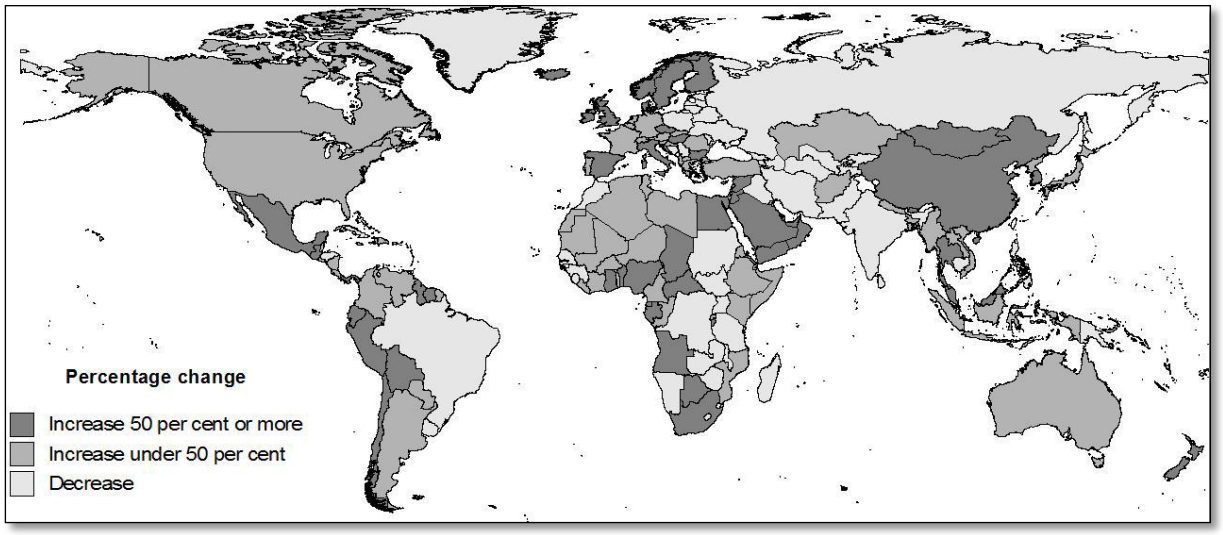
According to The Population Division of the United Nations Department of Economic and Social Affairs (DESA) and the Organisation for Economic Co-operation and Development (OECD) reports, the latest global migration trends can clearly be derived. This is possible with detailed information from the Database on Immigrants in OECD Countries (DIOC) which indicate that despite the economic and financial crisis, global migration continues to rise. Yet, the growth in the global migrant stock has slowed down since 2007.

The joint reports further revealed the following facts concerning the global trends and figures of international migration which would form a basic framework for this study on a local level.

- In 2013, the number of international migrants born in the South who lived in the North, or "South-North migration", almost equalled the number of migrants born in the South who resided in the South, or "South-South migration".
- The proportion of female migrants ranged from 52% in the global North to 43% in the global South in 2013. Six out of every ten international migrants under the age of 20 resided in developing regions. Conversely, about seven out of every ten migrants aged 60 and above lived in the developed regions.
- The number of tertiary educated immigrants in the OECD increased by 70% in the past decade to reach 27 million in 2010/11. About 30% of all migrants in the OECD area were highly educated and one-fifth of them were originating from India, China or the Philippines.
- Migrant workers, notably men, have been hard hit by the economic crisis. In 2010/11 there were 7.1 million unemployed foreign-born in the OECD, corresponding to an average unemployment rate of 11.6%.
- Emigration rates to OECD countries were on the increase, notably in Europe and Latin America. Emigration rates of the highly-skilled exceeded total emigration rates for most countries of origin, reflecting the selective nature of migration.
- One in every nine persons born in Africa with a tertiary diploma lived in the OECD in 2010/11. Corresponding figures for Latin America and the Caribbean and Asia are one in 13 and one in 30, respectively. The risk of "brain drain" is more acute in countries with small populations and island states, but lower in populous non-OECD countries.

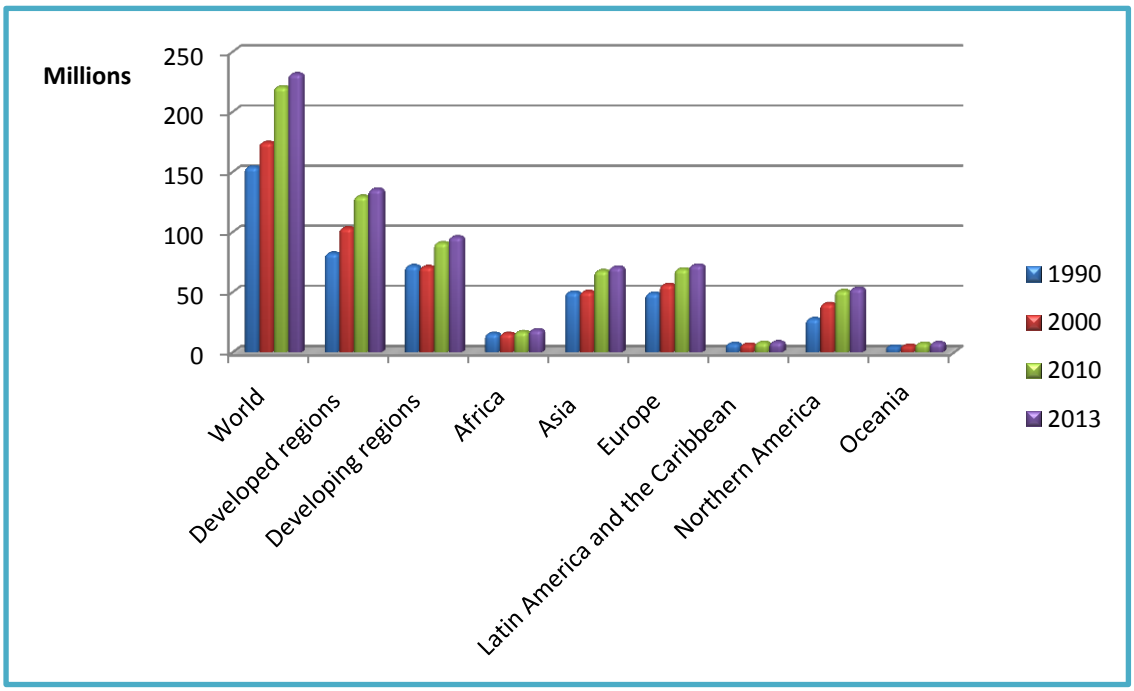
The change in the global migrant stock can therefore be mapped as indicated in map 2.1 shown below.

Map 2. 1: Change in the international migrant stock, 2000-2013 (percentages)

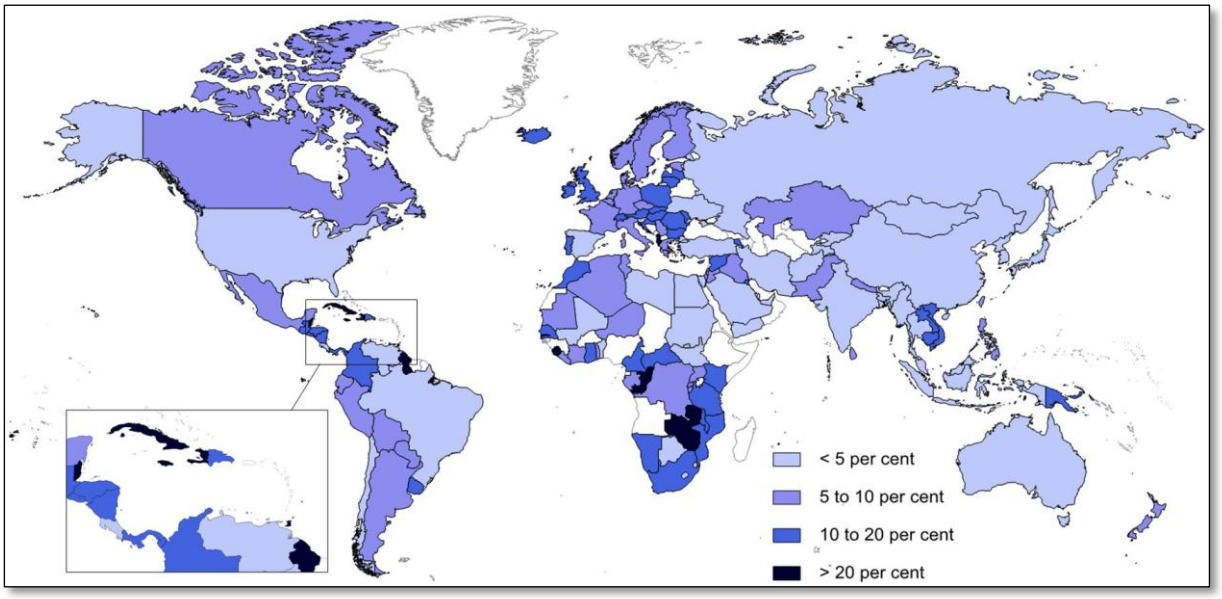


Source: United Nations (2013), *Trends in International Migrant Stock: the 2013 Revision.*

Figure 2. 1: International migrant stock trend



Map 2. 2: Emigration rates of the highly-skilled to the OECD, 2010/11 (percentages)



Source: DIOC 2010/11, www.oecd.org/els/mig/dioc.htm.

2.6.2 Kenya Facts and Figures

Kenya is in Sub-Saharan Africa and classified as a low income economy

Table 2. 2: Kenya Statistics

Population (millions, 2009) 39.8	Population growth (avg. annual %, 2000–09) 2.6
Population density (people per km2, 2008) 67.7	Labor force (millions, 2008) 17.4
Unemployment rate (% of labor force, 2008)	Urban population (% of pop., 2009) 21.9
Surface area (1,000 km2, 2008) 580.4	GNI (US$ billions, 2009) 30.2
GNI per capita, Atlas method (US$, 2009) 770	GDP growth (avg. annual %, 2005–09) 4.6
Poverty headcount ratio at national poverty line (% of pop., 2005) 19.7	Age dependency ratio (2009) 83.3

Source: KNBS

Orderly international migration management is therefore necessary and calls for sound national government capacity to plan, development and manage migration related strategies. Institutional aspects of migration include the legal instruments regulating it and the organizations and officials enforcing them. In this context, governments need to be aware of the labour migration dynamics of their nationals, such as push and pull factors for outward migration flows.

There is a growing need to encourage regional dialogue within East Africa and the Horn of Africa due to the increase in mobility of populations. It is equally important to facilitate dialogue on emerging migration challenges in the region to ensure that migration management in the community is harmonized in East Africa and the Horn of Africa.

2.6.1 Immigration Kenya, 2010

Table 2.3: Kenya Immigrants stock

Stock of immigrants	817.7 thousands
Stock of immigrants as percentage of population	2.0%
Females as percentage of immigrants	50.8%
Refugees as percentage of immigrants	32.9%
Top source countries: Uganda, Tanzania, Sudan, Somalia, Ethiopia	

Source: KNBS

Net migration rate: -0.22 migrant(s)/1,000 population (2014 est.)

Definition: This entry includes the figure for the difference between the number of persons entering and leaving a country during the year per 1,000 persons (based on midyear population).

An excess of persons entering the country is referred to as net immigration (e.g., 3.56 migrants/1,000 population); an excess of persons leaving the country as net emigration (e.g., -9.26 migrants/1,000 population). The net migration rate indicates the contribution of migration to the overall level of population change. High levels of migration can cause problems such as increasing unemployment and potential ethnic strife (if people are coming in) or a reduction in the labor force, perhaps in certain key sectors (if people are leaving).

CHAPTER THREE

METHODOLOGY

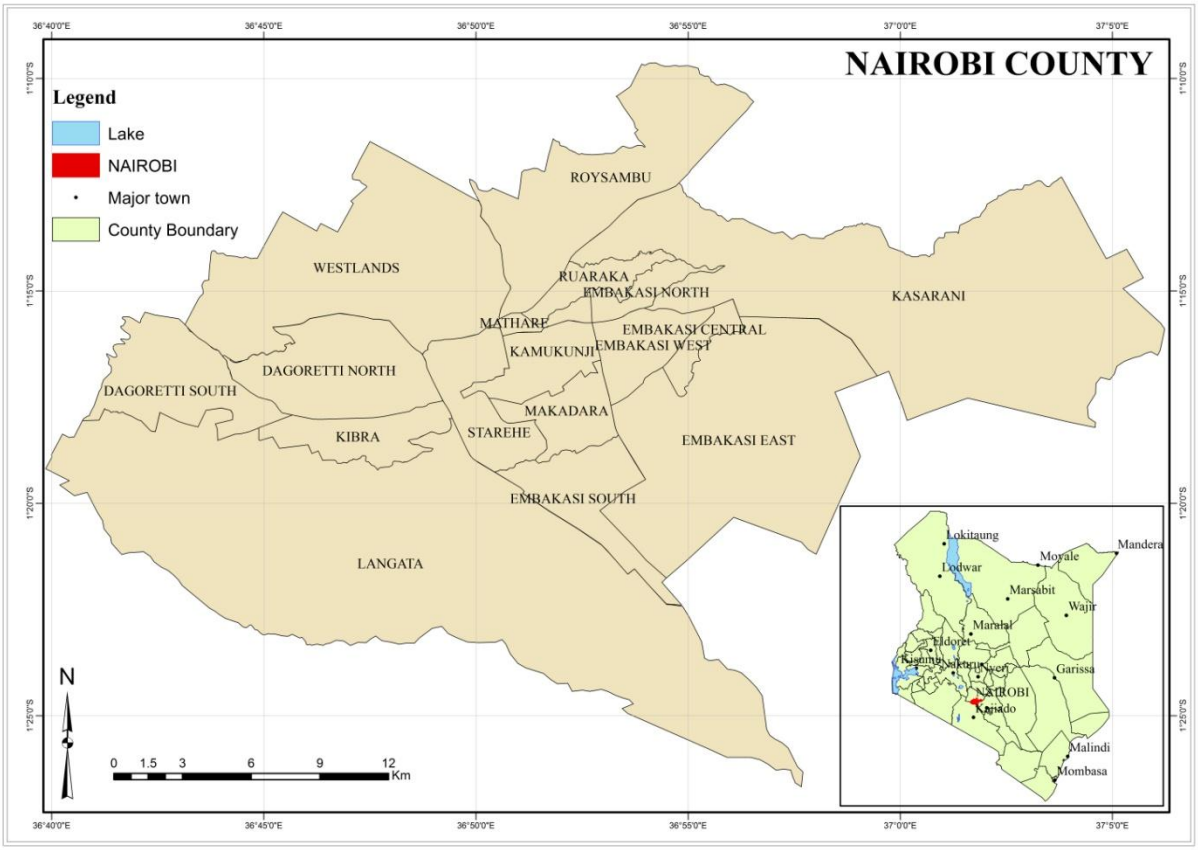
3.1. Introduction

This chapter examined the study area, various sources of data, methodologies of data acquisition and analysis, and the procedure for acquiring the sample.

3.2. Study Area

Nairobi County is one of the 47 Counties of Kenya. It contains Nairobi city, which is also Kenya's capital and largest city covering an area of 696 km^2 (269 sq mi). The County was founded in 2013 on the same boundaries as Nairobi Province, after Kenya's 8 provinces were subdivided into 47 counties with a population of 3,138,295 (KNBS, 2010). The county has been further subdivided into 17 constituencies.

Map 3. 1: Study area



3.3 Data Significance and Nature

The goal of this research was to analyze socio-economic influences of immigrant populations in Nairobi City County by their activities within the areas. The results of the analysis are intended to help service providers, government authorities and policy formulators better assess immigrant activities and settlement patterns, therefore to help them better prepare and plan the services and formulate appropriate policies involving immigrants and tap the potential.

It also gave an overview of the characteristics of the immigrant stock in the county and by extension country, thereby offering a framework for mitigating the undesirable effects of immigration. The end results may also be helpful for governmental budgeting and resource distribution. To complete this research, data gathering was undertaken.

Further, major processes for this work included data collection, conversion, joining, calculating, layer creation, analyzing, and graphing data.

Data comprised of two types namely:

- Primary Data
- Secondary Data

3.3.1 Primary Data

The primary data were collected using questionnaires and interview schedules and field survey for GIS analysis and also quantitatively and qualitatively using simple descriptive statistics and presented in form of maps, tables and charts.

3.3.2. Secondary Data

The secondary data collected comprised of recorded and archived information. Policies and Laws on Immigration were also examined. This information was obtained from internet, books, journals, reports, previous projects, Government publications, registration records and existing spatial information like geospatial images of study area, maps and immigration trends of foreigners in Nairobi County. Aspects of the data obtained from the secondary sources touched on legal framework, social-economic, cultural and environmental status of the study area. The focus of the review was to get a global perspective on immigration practice and experiences in migration management.

3.4. Sampling Frame

The sampling frame for the study comprised of all Foreigners registered in 2014 and who reside in the study area. The study was limited spatially to the extent of the Nairobi County with about 12,580 immigrants registered in the reference year. The area covered has a current total population of 3,138,295 residents; (KNBS, 2010).

3.5. Sample Survey Design

Stratified random sampling technique was used to achieve a representative sample of 500 registered immigrants in the study area in order capture different characteristics of the immigrant population.

The County level spatial resolution was considered which was then stratified into respective constituencies. Simple random sampling technique was used to select immigrant groups.

The existing institutions; Ministry of Interior and Coordination of National Government, Directorate of Immigration Services, Ministry of Devolution and Planning, Nairobi City County, Kenya National Bureau of Statistics were sampled through purposive sampling technique. These institutions were singled out as necessary to provide specific information during the survey.

Table 3. 1: Foreign Nationals Data Stock

Migrant category	Indicators/possible indicators	Possible ways to measure indicator	Data source
Development, demographic changes and migration	Population volume	Analysis of census data	KNBS
	Population growth rate	Analysis of census data	KNBS
	Net migration (total and rate, annually)	Data on migrants arriving and departing in regular border posts Analysis of census data, migration component	DIS
Immigrants	Stock of non-citizen resident population (total and percentage of total population)	Analysis of census data, migration component	KNBS
	Total stock of foreign-born resident population (total and percentage of total population	Immigration data from border posts statistics	DIS
	Naturalization rate		
Labour immigrants	Stock of employed regular immigrants (total and percentage of total employed population)	Application for visa/ work permit	DIS
	Issued work permits rate	Permits register/database	DIS

	Valid work permits (stock)	Permits register	DIS
	Immigrants employed during a reference period (flow)	Length of work validity of permits approved	DIS
	Estimated number of seasonal migrant workers - stock or flow	Length of work validity of permits approved	DIS
Immigration for study purposes	Number issued student Passes to foreign students		DIS

3.6. Data Collection

Multiple data sets were used. The main sources of data were the Statistical reports, Foreigner registration records, and base-maps of the study area and field Survey data. Data from these sources were used to create maps and perform analysis of the immigrant populations.

a) Questionnaires

Questionnaire schedules were used for the randomly selected immigrants and the data collected was based on the immigrant activities and the socio-economic implications in the area of study. Immigrant residential preference, alongside the social implications was examined. Interview schedules were used for resource persons from relevant institutions to provide information on how Foreign Nationals can be effectively managed, socioeconomic contributions of immigrants, problems and future prospects in Foreign Nationals Management (FNM).

b) Focused Group Discussions (FGD)

FGD was instrumental in getting information from organized group of residents like immigrant interest groups, employees and locals in the area.

c) Observation

Observation was basic to collecting data on the current state of affairs. It was also used in verifying information from data collected using questionnaires and serve to increase the range of relevance and reliability of data.

d) Photography

This comprised capturing of data using digital camera. It helped in clarification as an evidence of actual practices taking place in the study area. Photography captured spatial temporal data and it involved transferring the real situation on the ground and masking it on paper for easier understanding.

3.7 Methods of Data Analysis

The statistical data obtained from the Kenya National Bureau of Statistics and other agencies such as Department of Immigration Services and through field Survey were manipulated to make attributes consistent. Maps and data were obtained from the relevant authorities to acquire estimates of the county's overall and immigrant populations. GIS datasets of required variables were obtained and/or created. These comprise of shapefiles and database files. These shapefiles contained data representing (a) study areas (basemaps), (b) Constituency boundary polygons, and (c) immigrant count data. The polygon layers were used to estimate, locate, and analyze where immigrants reside.

ArcGIS's Geoprocessing and Spatial Analyst tools were used to convert, import, merge, and clip these data. Database files were joined across section IDs. Eventually all data layers were examined to make sure they were consistent and contain:

1. Across Section ID field to facilitate joining different features and tables

2. Area of study – basemaps

3. Demographic data attributes of immigrants

This information was generated in form of percentages and averages which are presented using maps, tables, graphs, and charts, upon which discussions, conclusions and recommendations are based on.

3.8 Methodology Workflow

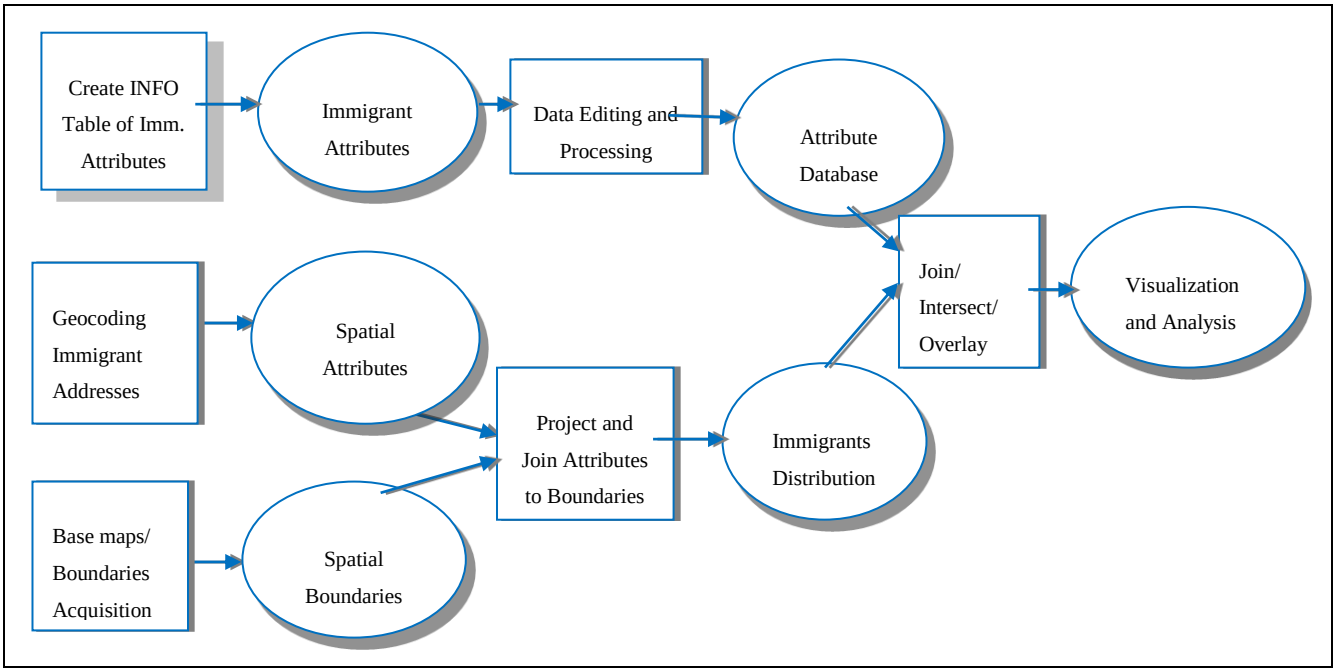


Figure 3. 1: Methodology flowchart

3.8.1 Data Preparation

The main dataset used in this project was acquired as a sample of registration records of foreign nationals in the Department of Immigration Services (DIS) at the Foreign Nationals Management Section (FNM) for the year 2014. This dataset comprised of all pertinent information acquired from registered immigrants including locational information in form of Physical residential, work or business address. The address location formed the basis of spatial variable component of the project while the other parameters constituted attribute variables relevant for the study.

3.8.2 Data Editing and Processing

The activities in this stage included the editing and processing of both spatial and attribute data that was collected, and involved the following activities:

- First, the personal information of the actual immigrants was disguised so as not to infringe on their privacy. This was achieved by using fictitious names and identification numbers instead of the real ones to mask their identity.

- The location information that was expressed in different forms such as LR Number Road/Street, Estate, Block/House name and Number was not consistent for presentation and therefore required to be standardised.

- Unnecessary fields in the immigrants attribute data were removed in clean up and preparation for GIS operations. Only the fields relevant for the study were retained.

- New data fields were created such as clusters of skill or education levels and sectors of the different professions.

- The other inconsistent attributes were also sorted and organized in themes in order to align them to the project objectives resulting in an excel datasheet that is compliant to the project.

3.8.3 Geocoding of Addresses

The Google Earth Pro provides a huge accessible archive of imagery which was useful for geocoding of the residential addresses. Scenes of the study area were selected based on the criteria of cloud free atmospheric conditions and temporal restrictions of the reference year (See Figure 3.2).

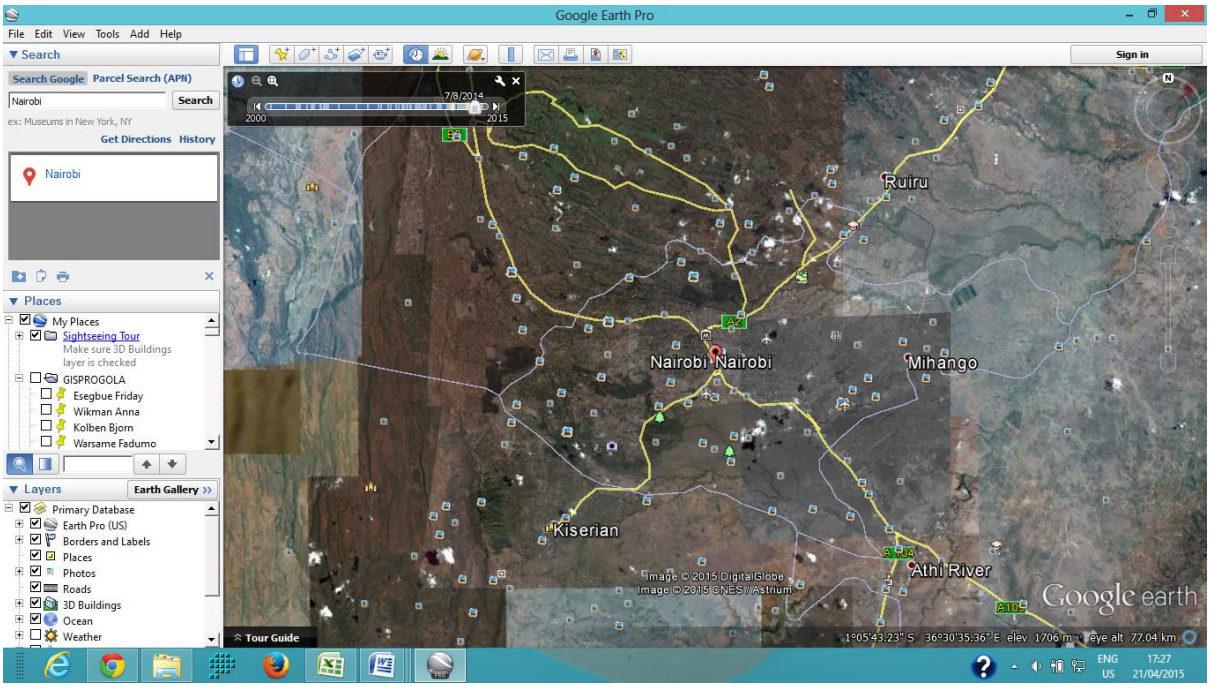


Figure 3. 2: Satellite image of the study area on Google earth.

Using the respective reference residential addresses obtained from the dataset, each address was geocoded on the Google Earth image using the address search function to obtain the spatial coordinates of the sample variables. This was done with precision where the address given existed or otherwise by approximation using nearest known features and stored in a single folder as shown in Figure 3.3.

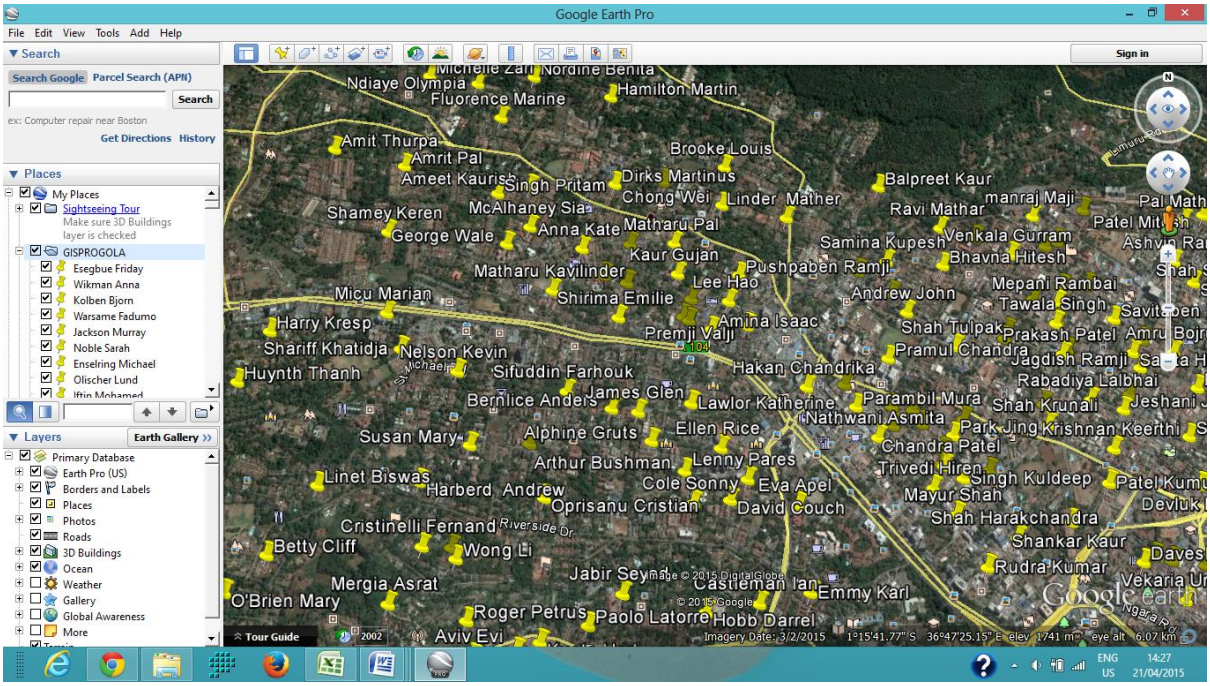


Figure 3. 3: Geocoding of physical addresses using pacemarks

Once all the addresses are geocoded, the folder containing the spatial references representing individual addresses was exported and stored in KML/KMZ format to be imported into GIS software for manipulation.

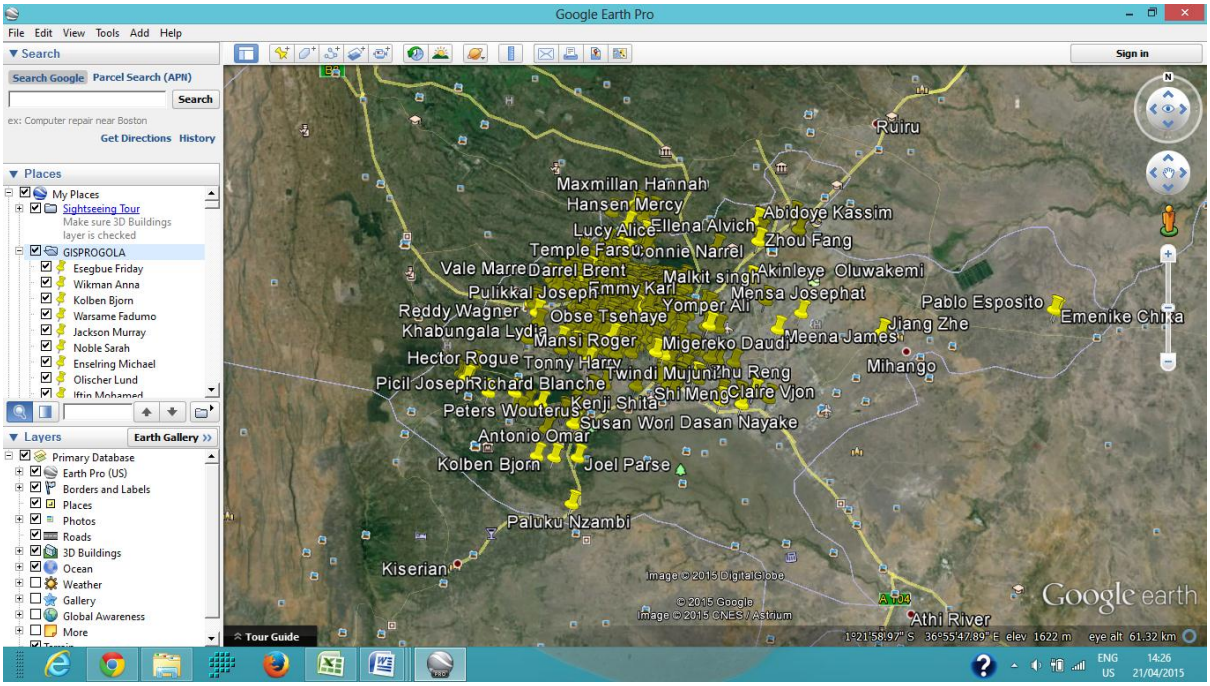


Figure 3. 4: Point coordinates for immigrant addresses

3.8.4 Immigrant GIS Database Development

ArcGIS 10.2 software was used to perform the GIS processes. Using conversion tools in ArcToolbox the KML file was converted to ArcGIS layer which can be manipulated in the software environment. The layer was then added to the GIS project for further processingThe placemarks shapefile created allowed the access and manipulation of the attribute table

The attribute table generated contained the spatial signature and identity of every immigrant mapped and would then allow for linking and performing join operation with the corresponding excel datasheet table for the other attributes of immigrants.

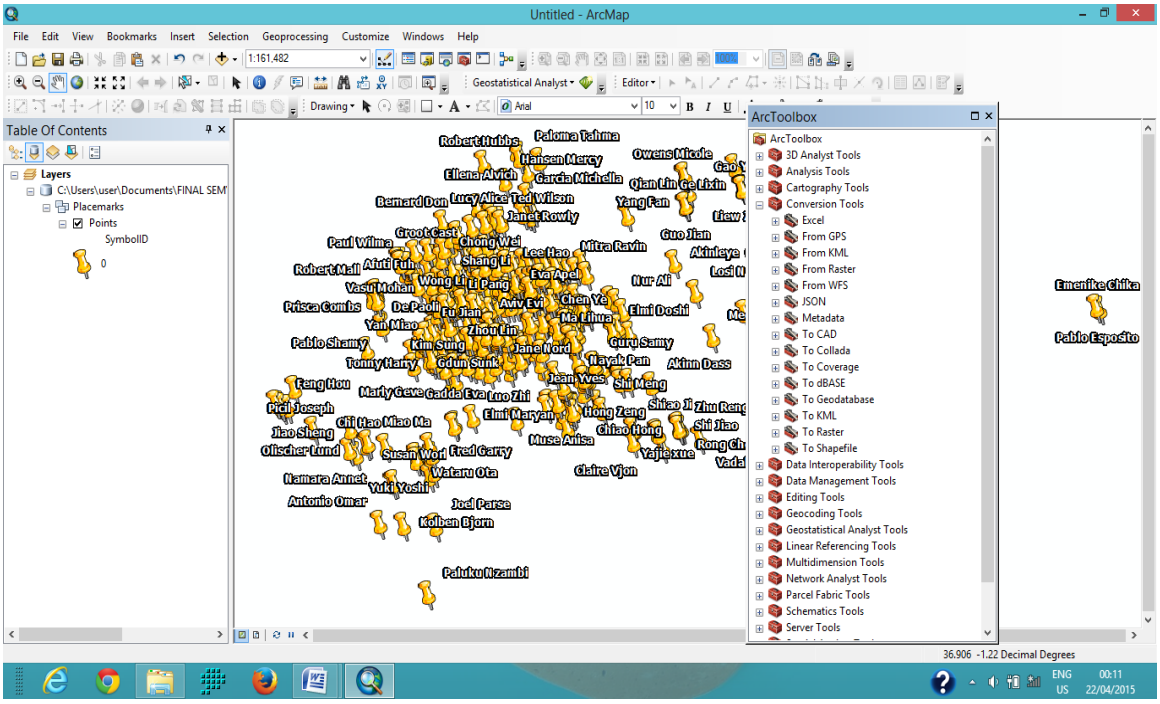


Figure 3. 5: ArcGIS layer converted from KML using ArcToolbox

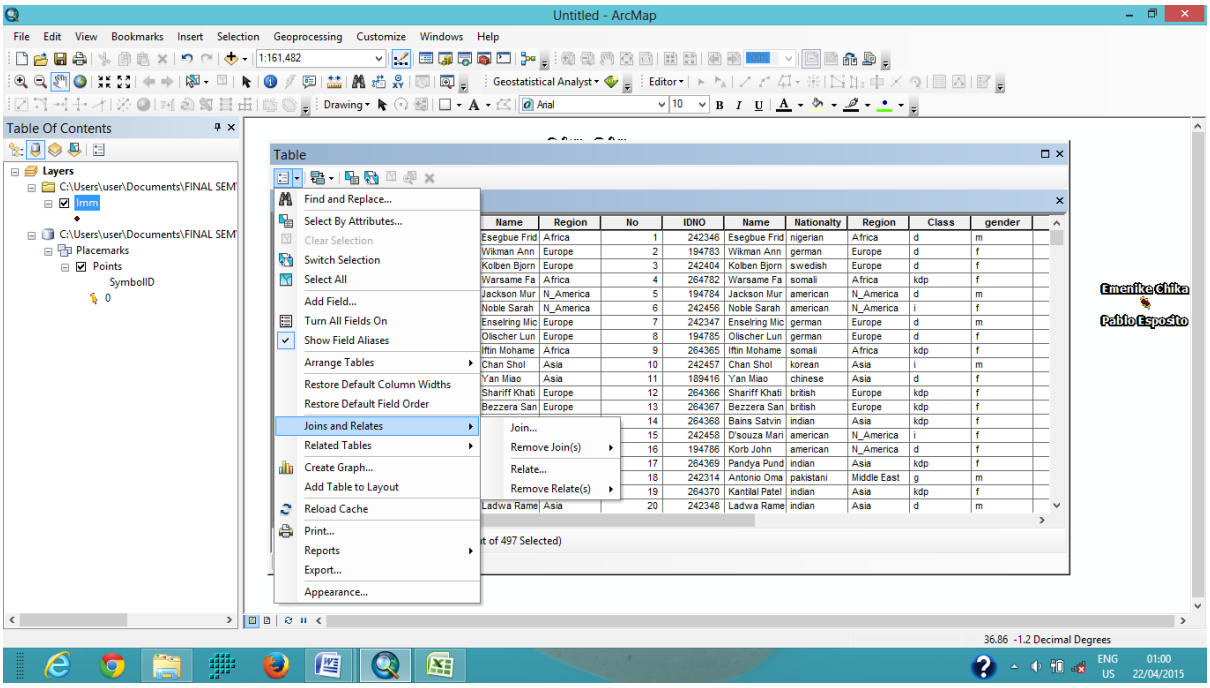


Figure 3. 6: Attribute table of immigrant profiles

The attribute table constitutes the geodatabase from which the GIS operations were performed. The name column was common and consistent in both tables and therefore was used to facilitate the join table operation.

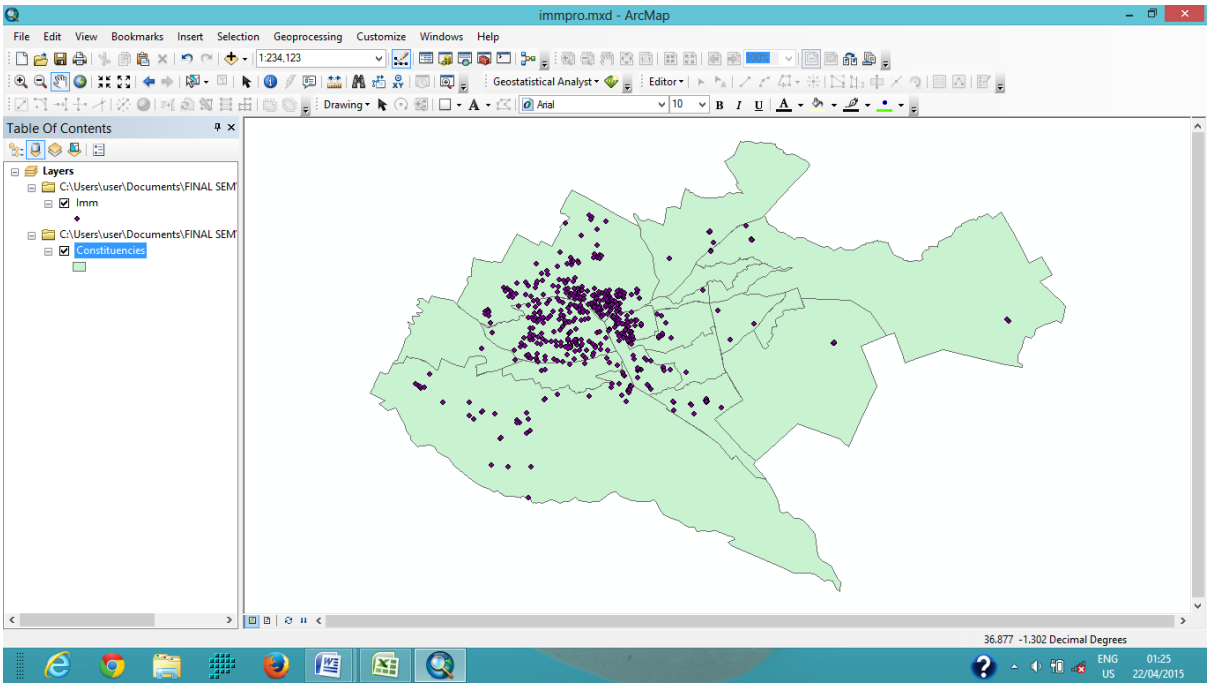


Figure 3. 7: An overlay operation of immigrants and constituency shapefiles

- The shapefile for immigrants was then created and overlaid with the county shapefile which has constituency boundaries as shown above.

- Several other shapefiles were created according to the various attributes that are aligned to the objectives for the analysis of the socio economic variables of the immigrants.

- This involved sorting the attribute table columns in order to identify the nationalities, regions of origin, immigrant categories, gender, skills, sector and age of immigrants for every constituency of the study area and creating respective shapefiles for GIS analysis.

- The operation allowed selection and data overlay, visualization of the maps by using the various techniques and visual variables such as shape, size and colour to show distribution by numbers and categories over different constituencies.

- These GIS operations further enabled the performance of statistical analysis of the various datasets created as indicators of demographic and socio economic variations of immigration over the study area.

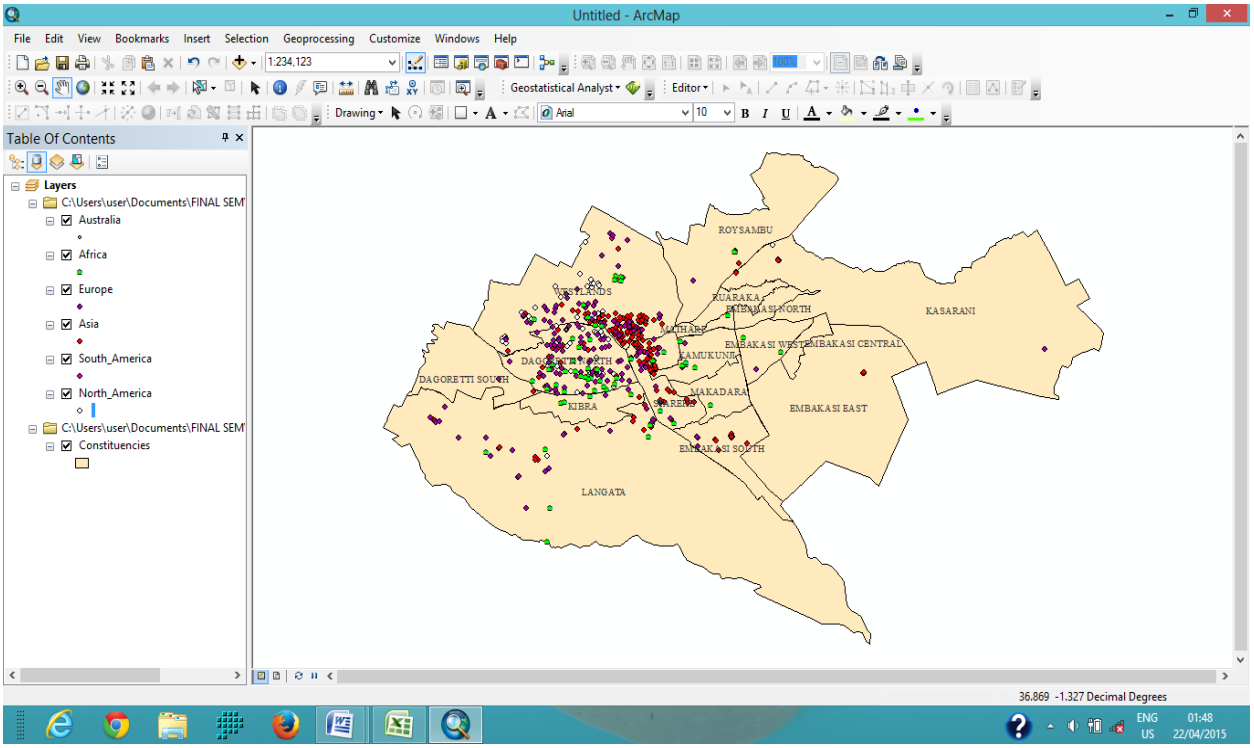


Figure 3. 8: Regional shapefiles overlay with the constituencies to show pattern and distribution

- Figure 3.8 above was a representation of the distribution and settlement pattern of foreign nationals as classified according to their regional clusters over the constituency spaces of the county.
- The separation of the foreigners according to their regions of origin and the shapefiles created was done in order to provide general overview of their common characteristics since the more spatially related the regions are, the more probable is the similarity in their attributes.
- The shape files which were created facilitated the linking of this category of foreign nationals with their corresponding attributes from the excel tables and this was replicated for all the identified themes of the study according to the study objectives.

The study methodology was therefore effective and successful in addressing its objectives as outlined. This produced the results and outcomes which are presented in the following section in detailed presentation and analysis.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1. Data Visualization and Analysis

The final result of this study comprised of various maps, charts and graphs which were used to visualise and analyse the findings of the project according to various socio economic themes. This was an effective way of representing various qualitative and quantitative variables as outlined in the project objectives which involved both spatial and non-spatial components. The areas covered included: general trend and spatial settlement pattern of immigrants, immigrant distribution per constituency, immigrant numbers by nationality and Continent of origin, Immigrants composition by gender, Skills level/education, Socio economic Sectors and age.

These variables were important in analysing and representing characteristics of the immigrant population as a way of assessing the socio economic impacts of immigration in the county. The age and skill indicators enabled the study to evaluate the general quality of the immigrant stock, while sectoral classification results were useful in dissecting the socio economic areas that are of benefit or otherwise to and from the immigrants inflow.

4.1.1 Spatial Profile of Immigrants

The spatial and attribute data of the immigrants were successfully aligned and organized into a geo-database after clean up for subsequent geo-processes. The geo-codes representing the respective physical addresses were created and stored. These can be accessed in the attribute table of immigrants as shown in Figure 4.1.

The corresponding attributes and other variables of immigrant information were stored in separate excel tables retaining the order of names as a basis for joining the tables and link the spatial and attribute profiles. An extract from the database is shown in Figure 4.2.

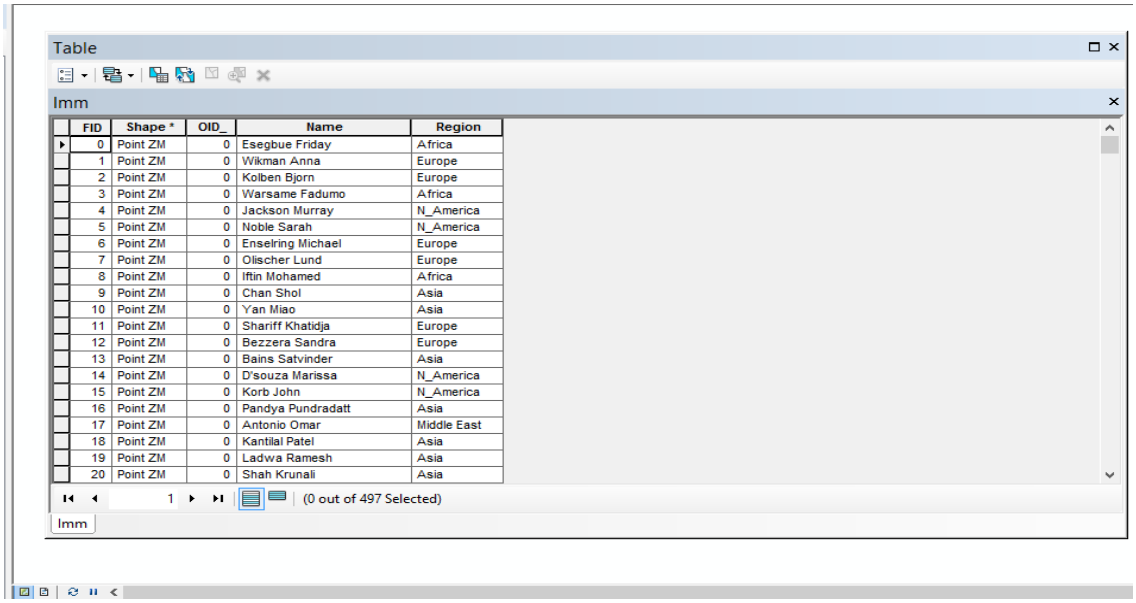


Figure 4.1: Attribute table showing spatial profile of immigrants.

The result of conversion of the geo-coded addresses into ArcGIS layer shows the spatial references of immigrants. These were organized into an attribute table representing every immigrant location with their corresponding names and region of origin. Other attribute information could therefore either be added directly in the corresponding columns or linked with the excel database that had been created.

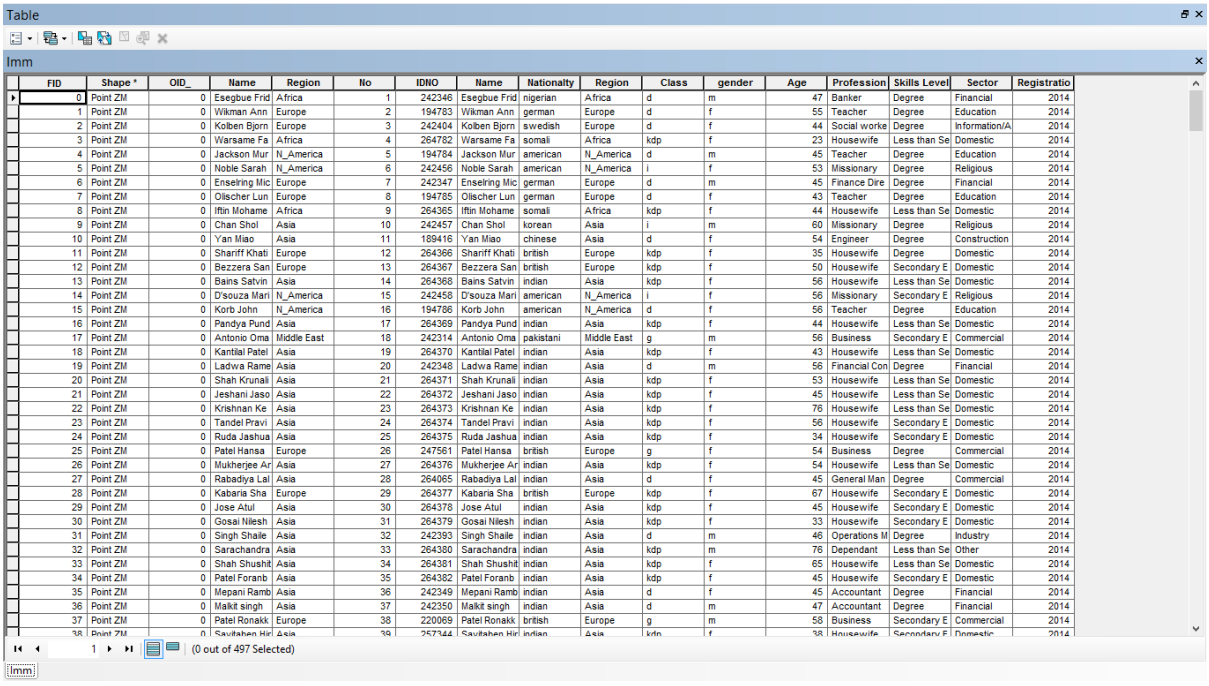
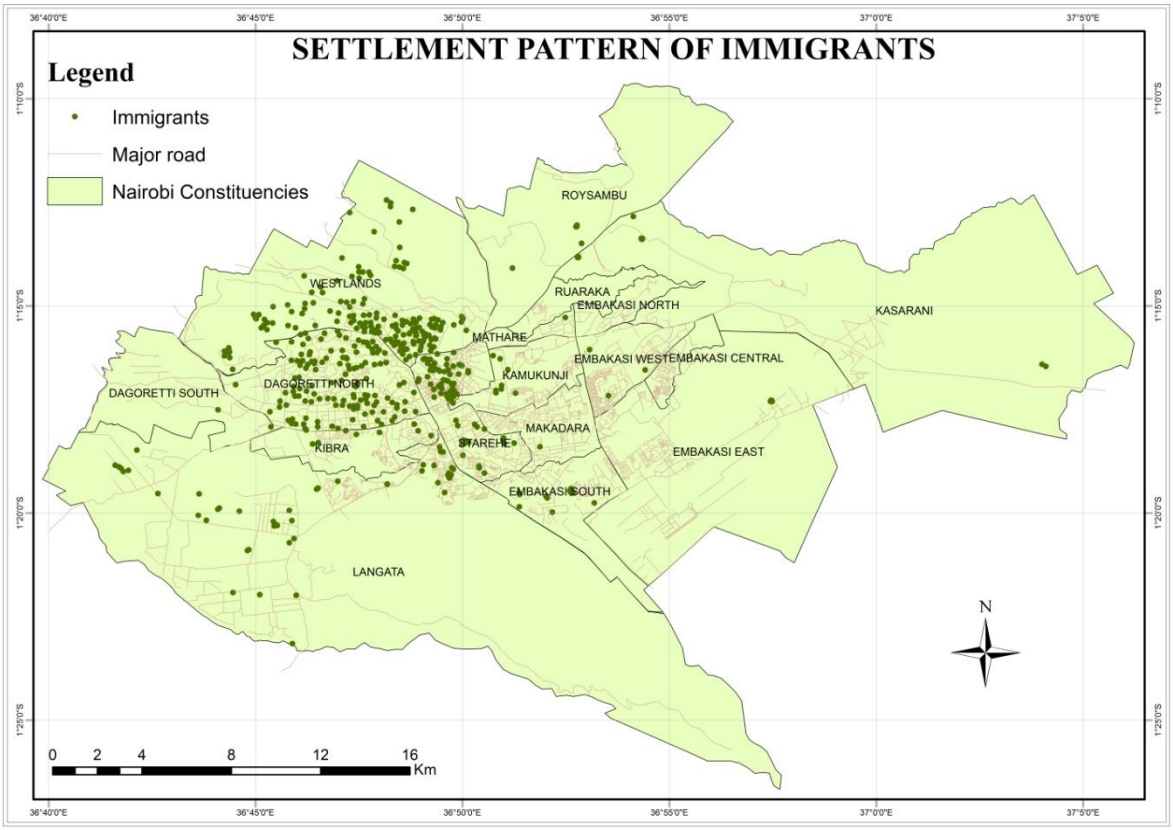


Figure 4.2: Extract from database with spatial and attribute profiles of immigrants

4.1.2 Spatial Settlement Pattern of Immigrants

One of the final results of this study was the trend and pattern maps of immigrant settlements in Nairobi. This was based on the physical addresses which were identified and geocoded to provide the spatial attributes for the study.

The resultant map is an overlay of the County constituency boundaries map, with that of roads and immigrant physical addresses as shown in Map 4.1.)

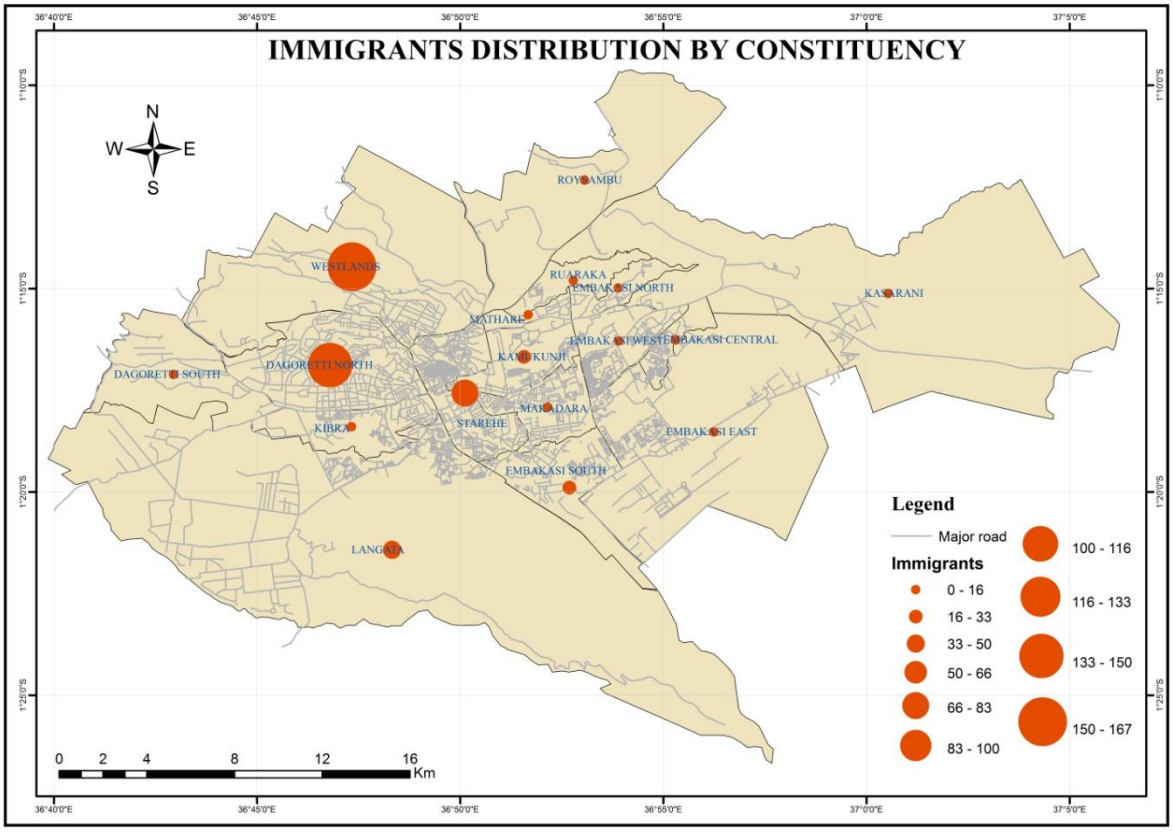


Map 4.1: Settlement Pattern of Foreign Nationals

Interpretation of the above map reveals several characteristics that are important in understanding the outcome as follows:

- Immigrants settlements tend to concentrate on certain areas than others.
- The overlay with the roads layer enhances the location addresses in terms of the roads and streets where immigrants are located.
- Some constituencies host more immigrants than others.

4.1.3 Distribution of Immigrants in Nairobi County per Constituency



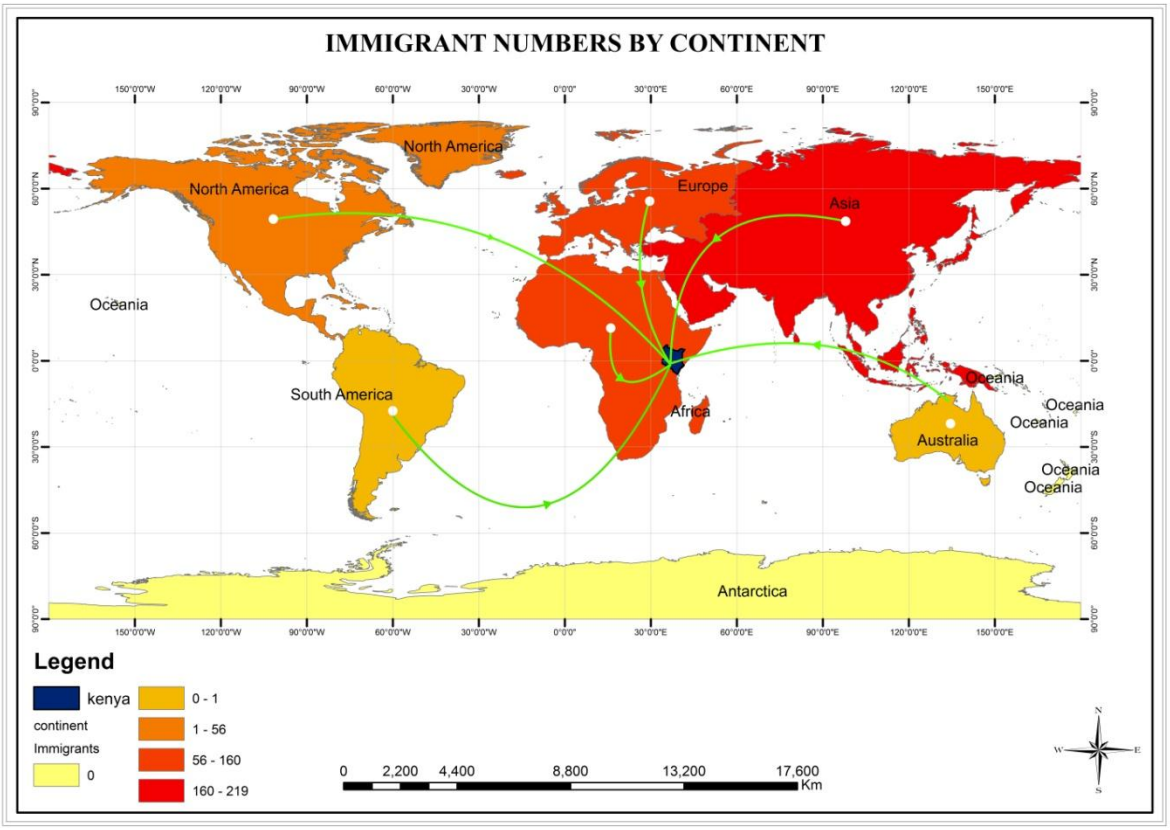
Map 4. 2: Distribution of Immigrants by Constituency

The resultant dot Map 4.2 shows immigrant distribution by size across the county so as to assess the areas preferred by most immigrants and possibly determine the reasons for this trend of settlement.

The following observations can be inferred from the map:

- There are more immigrants in Westlands, Dagoretti North and Starehe constituencies than the other constituencies in the study area.
- Immigrant settlements are mainly in areas covered with good road network. This is indicative of good infrastructure and high level of development
- There are fewer immigrants in far flung areas of the county.
- There were no immigrants reported to settle in Mathare, Ruaraka and Embakasi Central constituencies.

4.1.4 Share of Immigrants Origin by Continent



Map 4. 3: Proportion of Immigrants by Continent of Origin

A qualitative analysis of distribution of immigrants based on their continent of origin also revealed the following observations:

- A larger proportion of immigrants in Nairobi are of Asian origin, representing the most significant group of foreign nationals
- Europe also constitutes a great proportion of documented immigrants in Nairobi County.
- South America and Australia had relatively the least number of immigrants who are registered and resident in Nairobi.
- There were also a significant number of immigrants from the African region

A statistical and quantitative analysis of the results that was conducted on the share of immigrants was further considered according to regions of origin. This led to classification of immigrants into clusters of seven regions close to the continental classification.

These seven regions include: Africa, Asia, North America, South America, Europe, Australia and the Middle East.

Figure 4.3 shown below presents the actual proportion figures from the study of the various immigrant blocks.

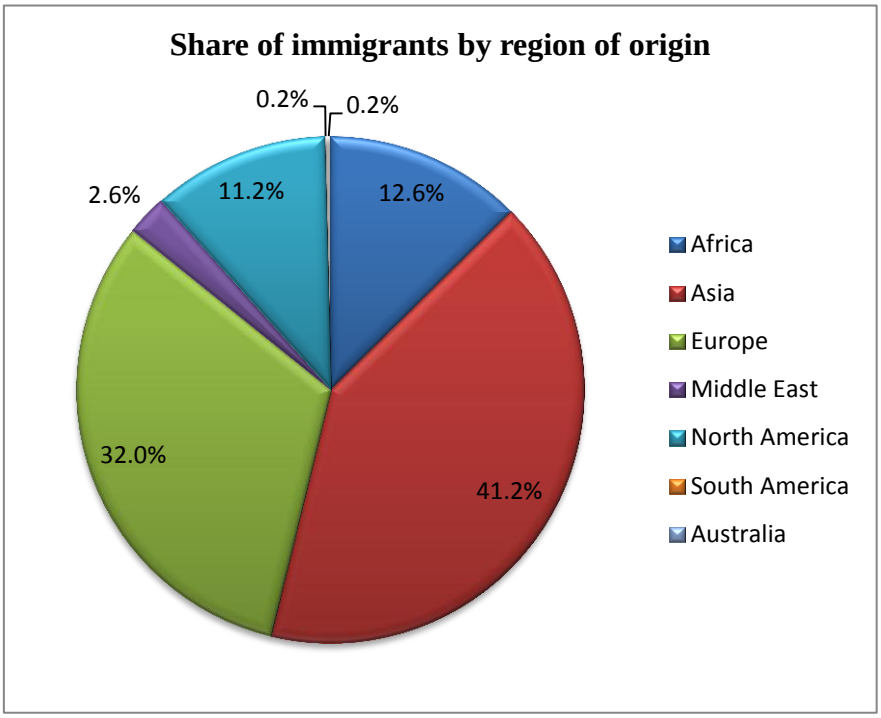


Figure 4. 3: Share of Immigrant numbers by region of Origin.

According to these findings, the following observations were made:

- A large majority of immigrants in Nairobi originate from the Asia at 41.2%
- Europe also contributes greatly to the number or registered and resident immigrants at 32%
- The least sources of documented immigrants in Nairobi are Australia and South America at 0.2% each.
- African immigrants constituted 12.6% of all foreign nationals recorded

The findings were also analysed according to main countries of origin of immigrants. The main purpose of this was to further understand the actual sources of immigrants in Nairobi in order to appreciate the dynamics and variables at play.

The results of this are presented in the graph indicated in Figure 4.4.

4.1.5 Main Nationalities of Foreign Nationals

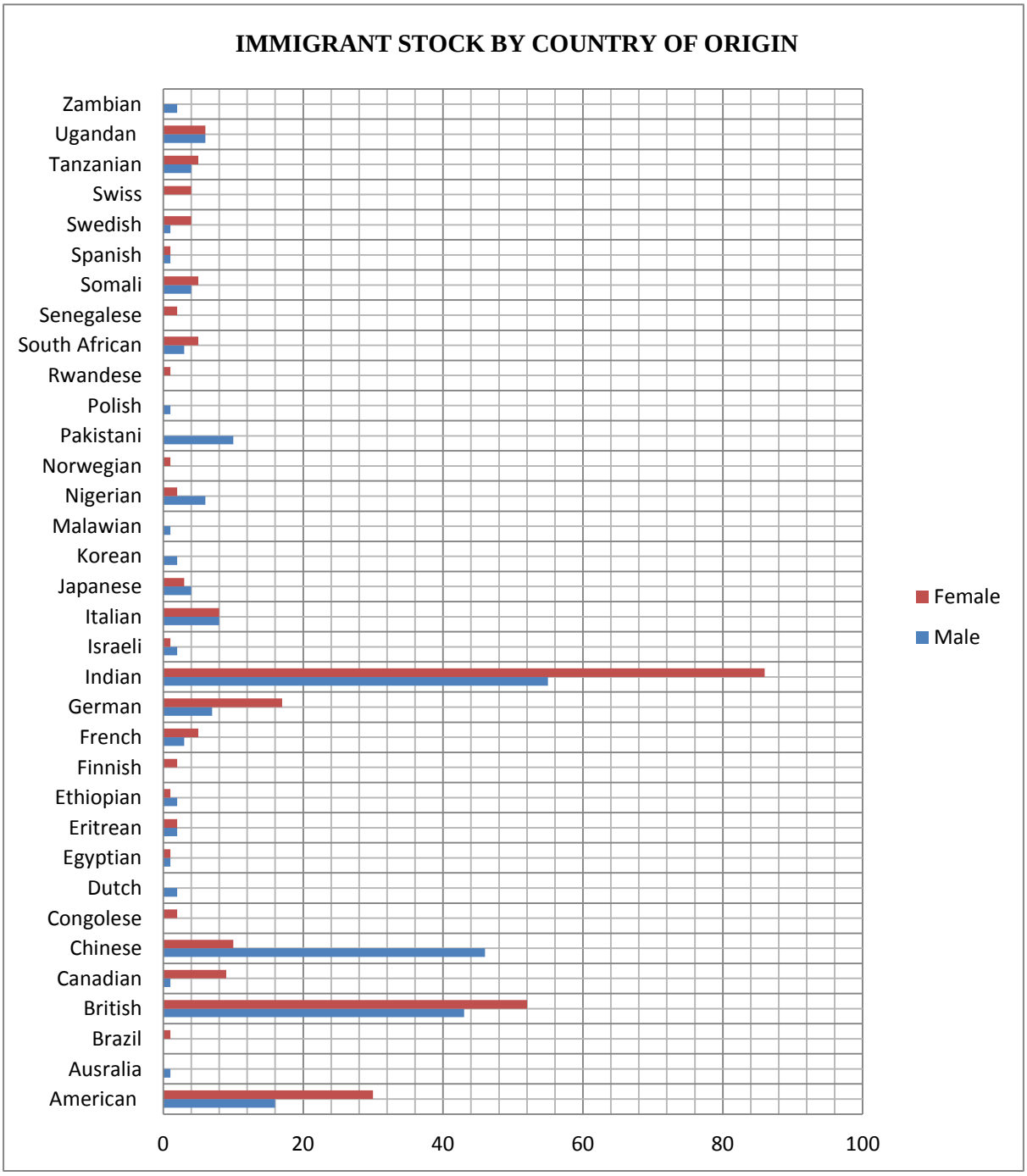
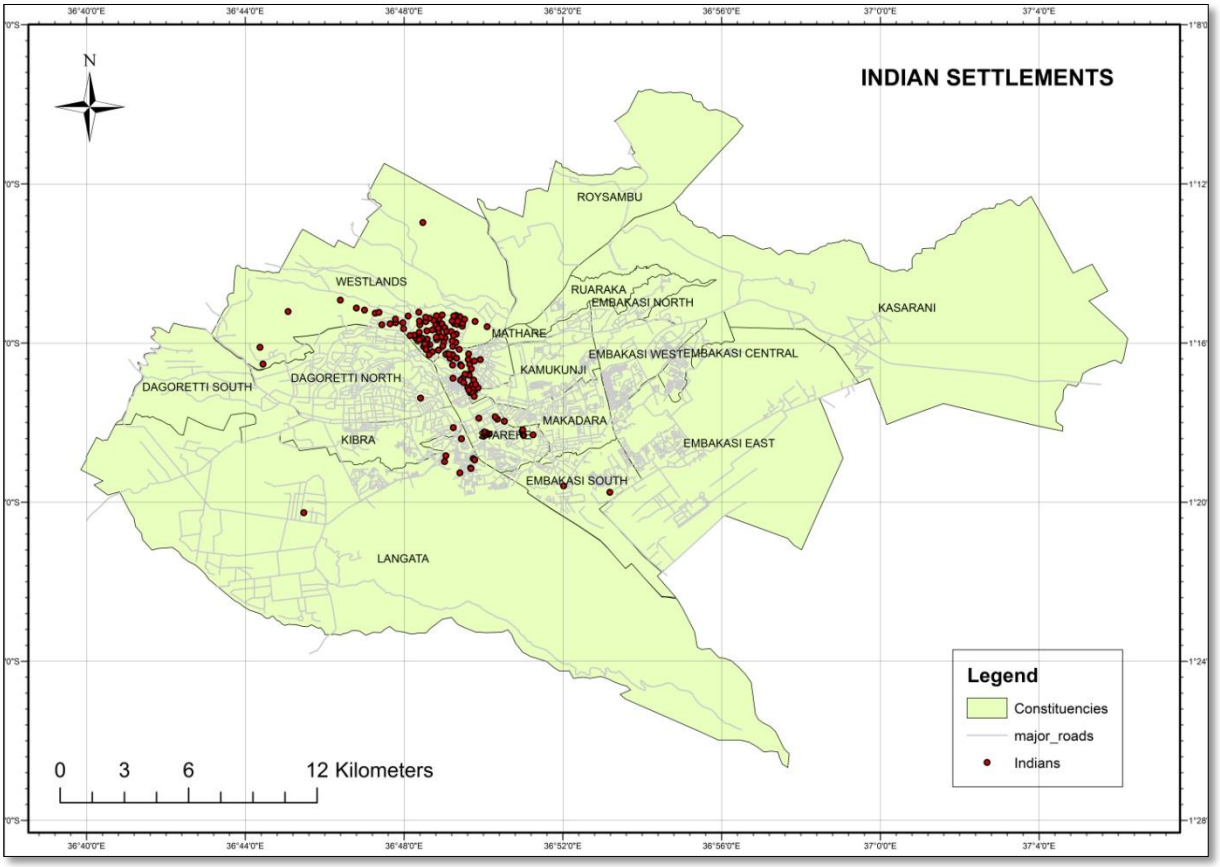


Figure 4. 4: Stock of immigrants in Nairobi and main countries of origin

The following information can be inferred from the graph above:

- Indian nationals constitute the largest group of immigrants who are registered and resident in Nairobi, followed by the British and the Chinese respectively.

- In most cases the female immigrants outweigh the male immigrants
- The Chinese immigrants are mainly male with fewer ladies registered in this study
- Most of the female immigrants were found to be of Indian origin.



Map 4. 4: Settlement pattern of the Indian Nationals

The Indian immigrants appear to be spatially concentrated in limited areas of the county, in this case especially in Starehe and Westlands constituencies (see Map 4.4).

A ground survey confirmed that these settlements were consistent and had spatial proximity to commercial centres such as Ngara, Parklands, Highridge, Westlands and downtown areas of Nairobi city like River Road and Kirinyaga Road.

Further survey indicated that these areas have traditionally been occupied by the Asian natives, particularly the Indians and have therefore continued to attract new immigrants from the same origin.

4.1.6 Gender Distribution of Foreign Nationals

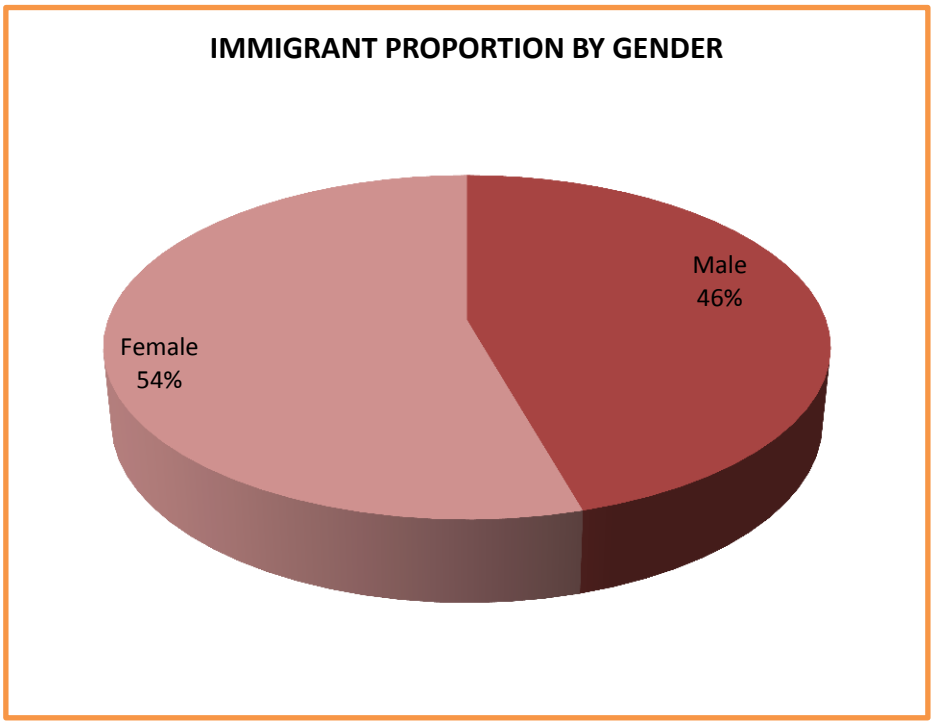


Figure 4.5: Gender composition of immigrants in Nairobi County

The study revealed the following outcome on the gender composition of immigrants who are resident and registered.

- 46% of the immigrants in Nairobi are male.
- 54% of registered immigrant residents in Nairobi are female.
- There are therefore more female foreign nationals registered in Nairobi than their male counterparts.

4.1.7 Foreign Nationals by Class Category

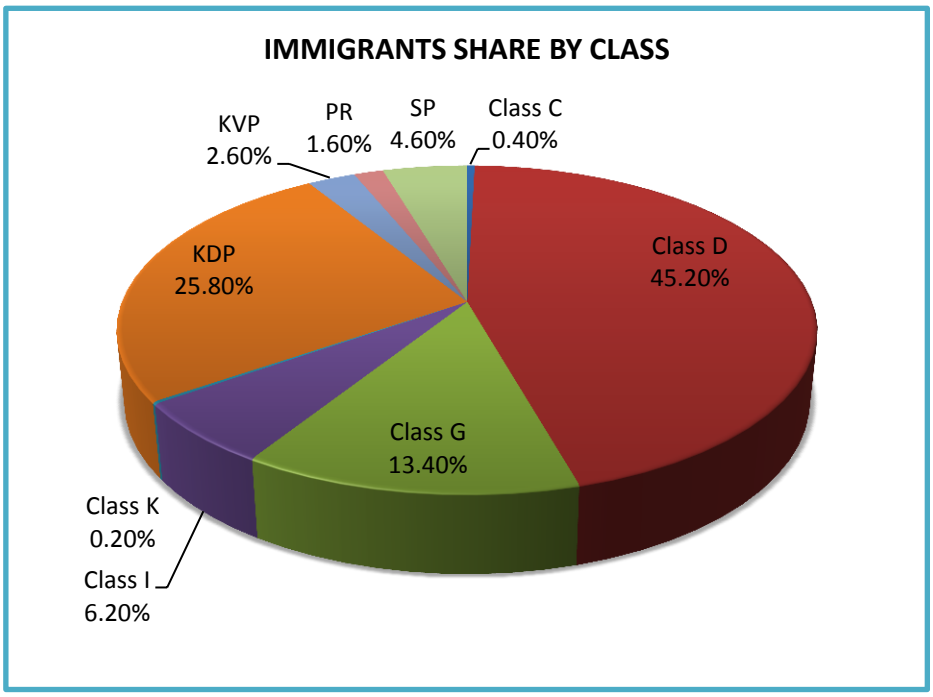


Figure 4. 6: Categories of immigrants by class of immigration status

Explanation of class categories

Class C: Prescribed profession (Doctors)	0.4%
Class D: Specific employment	45.2%
Class G: Specific trade (Investor)	13.4%
Class I: Missionary	6.2%
Class K: Resident (retiree)	0.2%
KDP: Dependants pass	25.8%
KVP: Visitors pass	2.6%
PR: Permanent Residence	1.6%
SP: Students pass	4.6%

4.1.8 Age composition of Immigrants

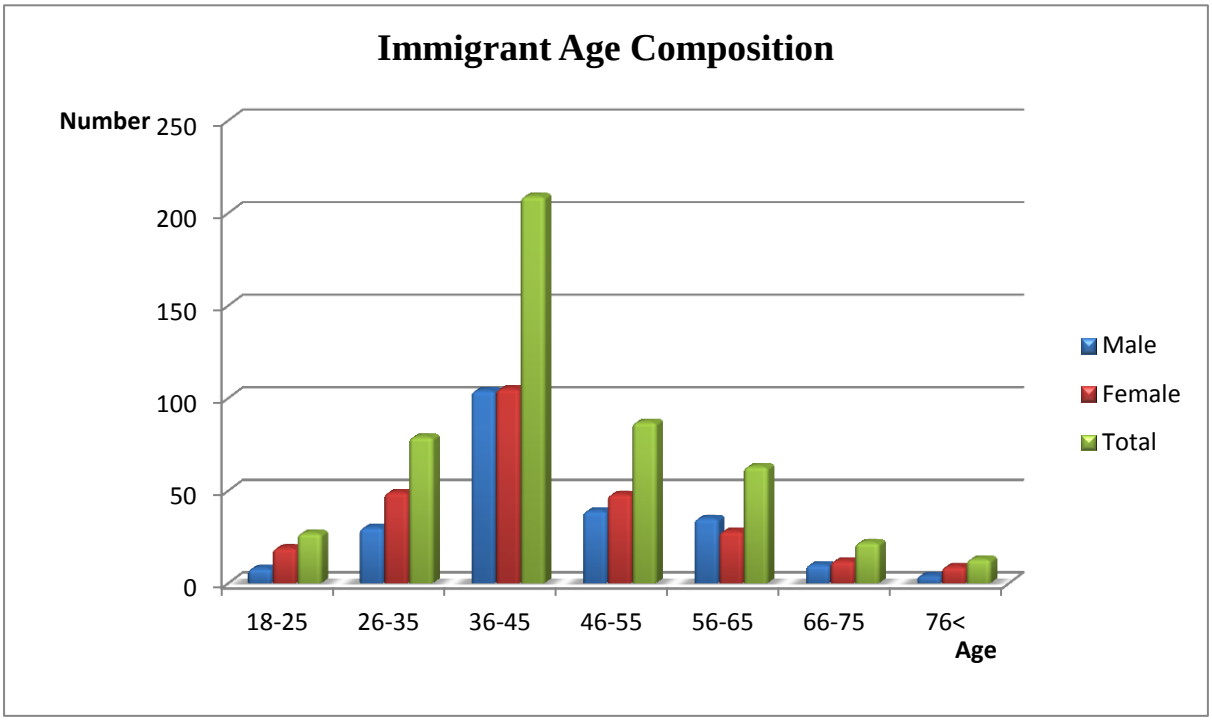


Figure 4. 7: Age Composition and Gender of Immigrant Stock

The following results were observed from the study of the immigrants' age composition

- Majority of Foreign Nationals registered and resident in Nairobi are in the middle age brackets.
- The largest number of the immigrants falls in the 35-45 years age bracket.
- There were more female immigrants in every age bracket apart from 56-65 years bracket where there were more male immigrants than females.
- The least number of immigrants were those above 76 years of age.
- The number of Foreign Nationals in Nairobi increase gradually from 18 years, peaks between 36-45 years and then declines towards the older immigrants.

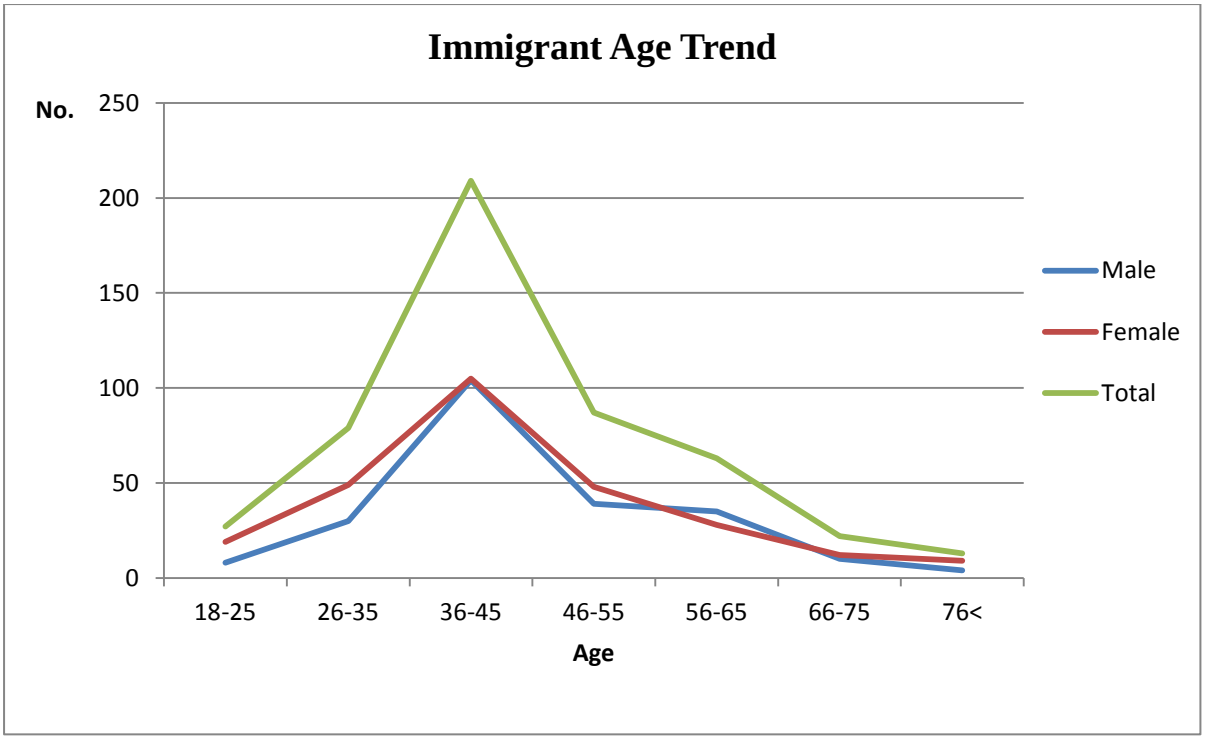


Figure 4. 8: Trend of Immigrant Age Composition

- The number of Foreign Nationals in Nairobi increased gradually from 18 years, peaks between 36-45 years then declines towards the older immigrants.

4.1.9 Age Differentiation by Gender

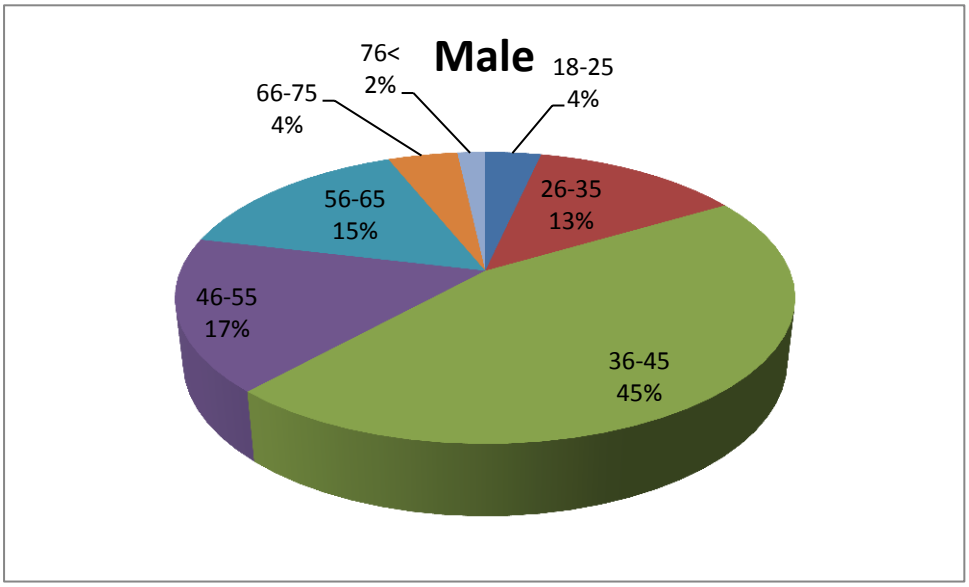


Figure 4. 9: Proportion of male Immigrants by age

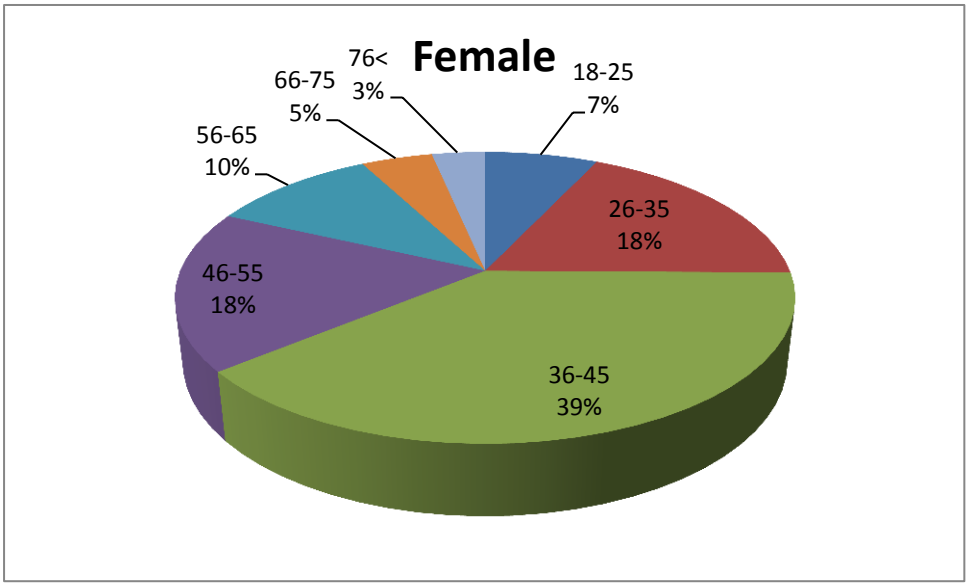


Figure 4. 10: Proportion of female Immigrants by age

According to the findings above several characteristics emerged as outlined below

- 45% of the male immigrants were in the majority age bracket of 36-45 as compared to 39% of the female immigrants.
- There were more of the female immigrants in the age brackets 18-25, and 26-35 at 7% and 18% respectively as compared to 4% and 13% respectively those of male immigrants.

- Some 3% of female immigrants were 76 years and above as compared to 2% of the male foreign nationals.

- There was however a slight variation between the male and female immigrants in the other age brackets, for instance 17% and 18% respectively of those in 46-55 years age bracket,

4.1.10 Foreign Nationals classification by Sector

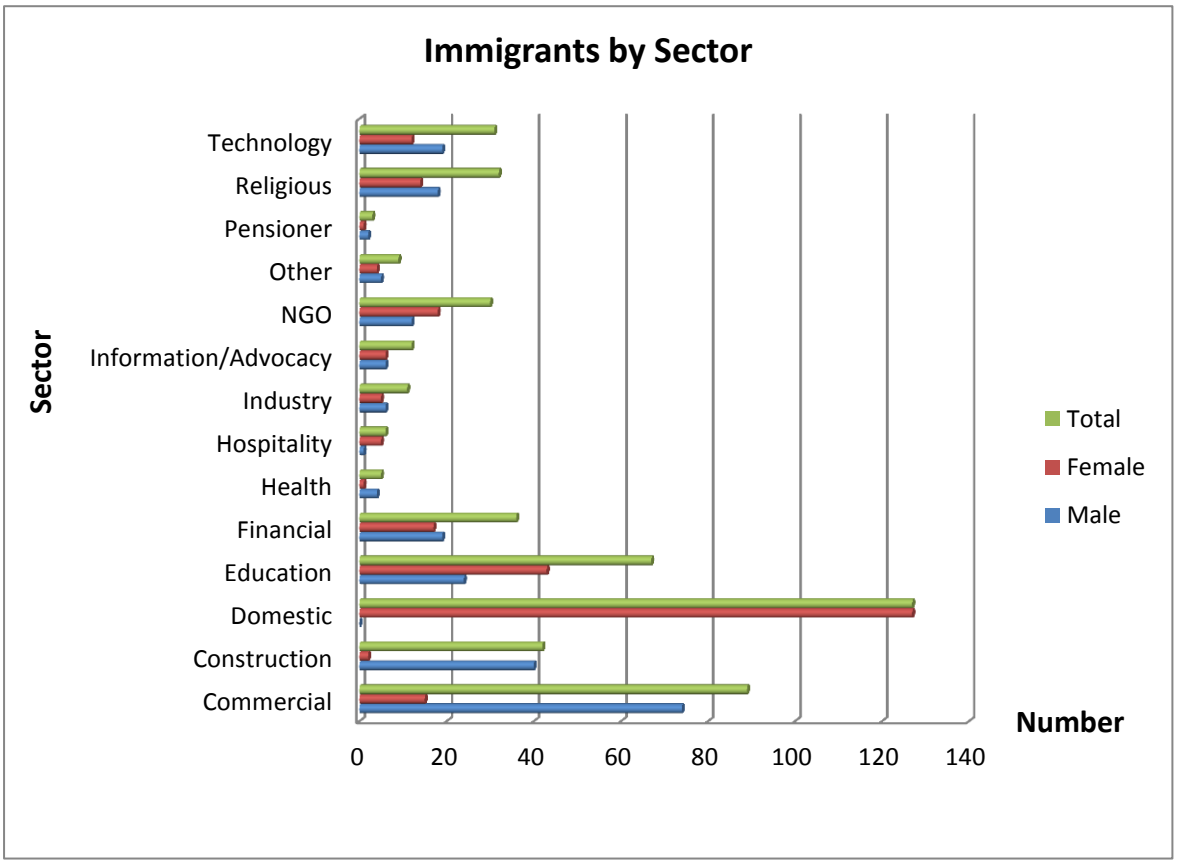


Figure 4. 11: Immigrant Distribution by Socio-economic Sector

As indicators of the socio economic characteristics of the immigrant population in the county, the registered foreign nationals were clustered into various categories according to their occupations. The result of this analysis generated interesting outcomes as outlined hereby:

- A large proportion of the foreign nationals in this study who were mostly women were dependants and were hence classified under domestic category.

- There were a significant number of foreign nationals who were engaged in the commercial sector, either as investors or employees.

- The technology sector also registered a sizable portion of the foreign nationals who were resident in the study area.
- There were very few retirees compared to other sectors of immigrant activities observed in the study.
- There were significantly many male foreign nationals in the construction sector. Many of these were of Chinese origin.
- Religion also took a key position in the activities that the foreign nationals were engaged in. Many of these were missionaries, priests and religious sisters.
- Education sector attracted students and teachers from across the immigrant groups, with majority of them being female.

4.1.11 Foreign Nationals Sector Classification by Gender

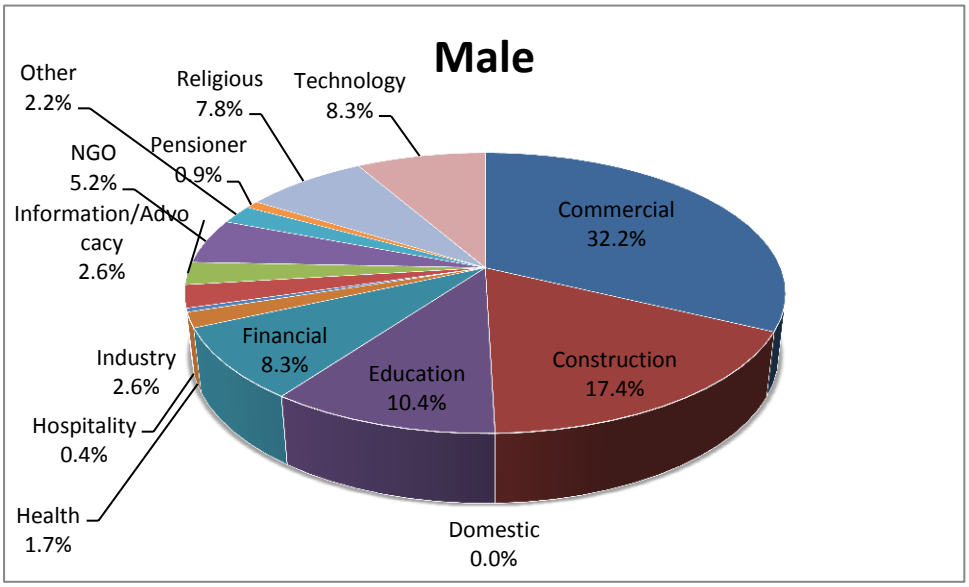


Figure 4. 12: Male Immigrant proportions per Sector

The findings from the analysis of the socioeconomic sectors that the male immigrants indicated the key activities that the foreign nationals are involved in. This considered the themes identified as the main sectors in which immigrant activities are distributed including:

- Some 32.2% of the male immigrants were found to engage in Commercial activities forming the largest share in this category.
- 17.4% male foreign nationals were found in the Construction sector.

- The Education sector enlisted 10.4% of the male immigrants who were either teachers or students.
- Financial and Technology sectors registered 8.3% share of the male foreign nationals each.
- There were also some 7.8% male immigrants in the Religious sector.
- 5.2% of the male immigrants were involved in the NGO sector representing the civil society.
- Other sectors had fewer male immigrants involved including Health sector 1.7%, industrial sector 2.6%, Information and Advocacy at 2.6% and hospitality 0.4%.

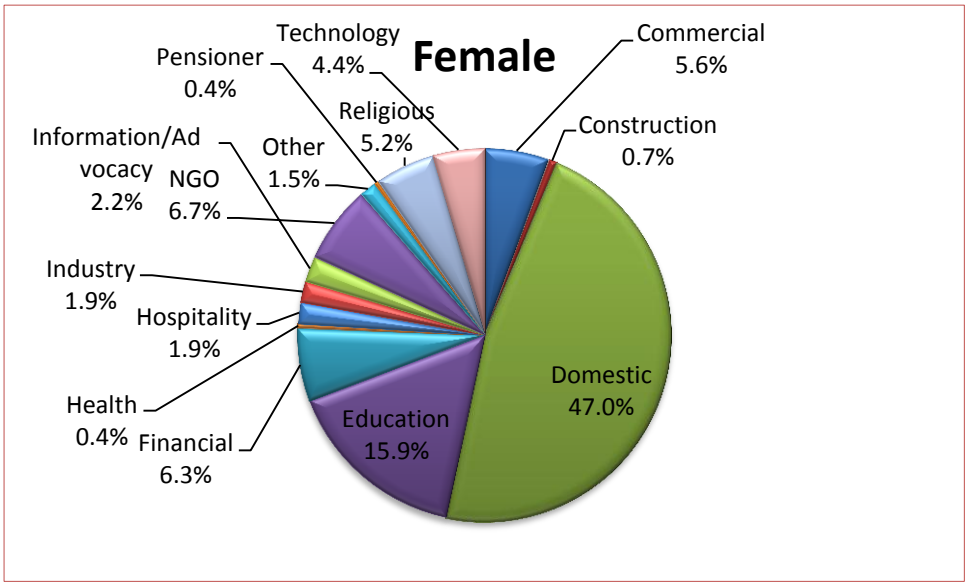


Figure 4. 13: Female Immigrant proportions per Sector

On the other hand, a study of the female immigrants in Nairobi had a very interesting manifestation. These were observed as follows:

- A vast majority of the female immigrants at 47% representing almost half of that lot were dependants falling under the domestic category.
- Education sector had considerably large share of female foreign nationals at 15.9% representing students and teachers. This was relatively high compared to the males in the same category which was 10.4%
- There were very few female foreigners in the construction sector with only about 0.7% captured in the study.

- Some 6.7% and 6.3% female immigrants were involved in the NGO and financial sectors respectively.
- The religious sector registered 5.2% of the immigrants in this category who were mainly missionaries.
- There were also some 5.6% of the female immigrants in the commercial sector who were mainly employed.
- Other sectors that had female immigrant participation included Technology with 4.4%, Industry and Hospitality 1.9% each

4.1.12 Immigrants Education Levels

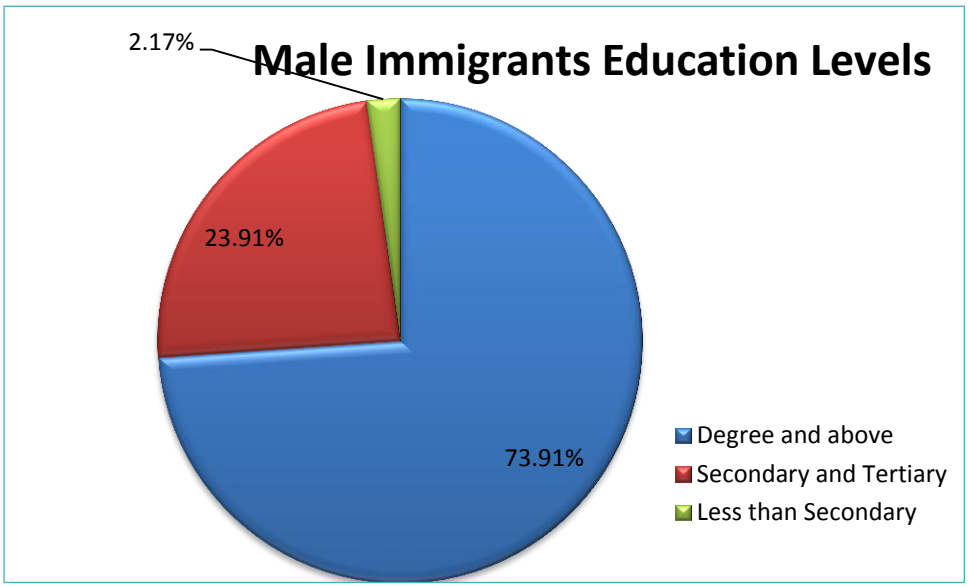


Figure 4. 14: Share of Male Immigrants by Level of Education

The study also considered the level of education of the immigrants in the county in order to assess the quality of the immigrant stock. This further categorized the immigrants into either gender so as to conduct a more in-depth analysis. The following findings emerged:

- A great proportion of the male immigrants were well learned.
- Those with degree and above stood at 73.91%
- About 23.91% of male foreign nationals had secondary and tertiary education

Only a paltry 2.17% had less than secondary education.

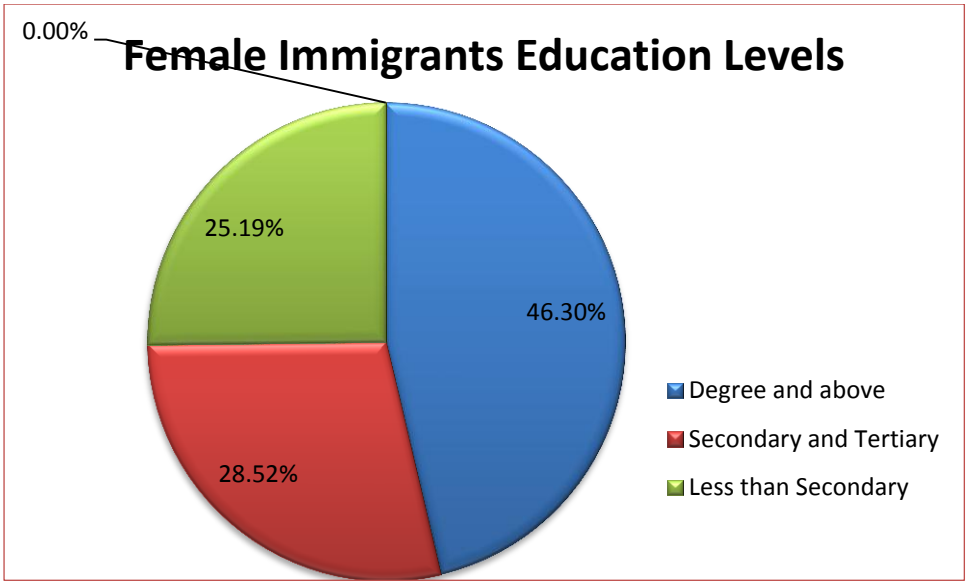


Figure 4. 15: Share of Female Immigrants by Level of Education

Comparatively, the level of education of the female immigrants was considered and the following results were found:

- 46.3% of the female immigrants had degree and above
- Those with secondary and tertiary education were found to be about 28.52%
- Some 25.19 of female foreigners had less than secondary education.

4.2. Discussion of the Results

In line with the main objective of this study that was to assess the socioeconomic impacts of immigration in Nairobi, it emerged that immigration had profound characteristics and consequences in the study area. The presentation and visualization of the results of the study established a clear pattern of settlement of foreign nationals through various maps that were able to overlay and display general and differentiated immigrant settlements to the constituency boundaries. This showed that certain immigrant groups often cluster around certain preferred areas. Indians for instance, who formed the bulk of foreign nationals registered in the study were found clustered in limited areas such as Westlands and Starehe constituencies.

According to the immigrant distribution map, the study was able to reveal that certain areas are preferred for settlement by foreigners than others. In the findings, the use of dot map to

show distribution and size of immigrants' settlements indicated that the registered and resident immigrants preferred to stay in relatively affluent areas of the county. These areas are characterized by up market, high cost residences. This reflected the economic status of these foreign nationals that appears to be relatively high compared to majority of the local residents, majority of who dwell in the densely populated areas of the county. The stronger economic power of the foreign nationals is of both micro and macroeconomic benefit to the county since they have superior spending habits.

4.2.1 Economic Impacts

The presence, characteristics and distribution of the foreign nationals in Nairobi as the study found out also presented the economic consequences of international migration. These can be viewed as direct, indirect or overall economic impacts. Some of the indicators of direct economic impacts of the presence of foreign nationals in the study area included:

- Generation of Government Revenue: This aspect accrued from the direct payment for services rendered such as fees charged for permits and passes as well as for registration.
    - Revenue is also generated from the direct taxes charged on the businesses owned by the foreign nationals.
- Employment Creation: The 13.4% foreigners who hold class G work permits have invested substantively within the county. These companies employ locals in their operations who earn wages as well as other associated utilities and supplies. This generates a number of employment opportunities that result in direct economic benefits as migration stimulates local employment and businesses.
- Technological contribution: From the findings of the study, about 7% of foreigners are involved in the technology sector. These migrants can bring broader economic benefits, including higher rates of innovation.
- Financial contribution: Foreigners were also found to be key players in the financial sector. Close to 7% of the immigrants are directly engaged in the financial sector.

Some indirect economic effects that were identified in the study included infrastructure developments and linkages. The outcome indicated there are several foreign nationals who

were involved in the construction sector of the economy. This accounted for 9% of the total immigrants of this study showing the great potential and impact that immigration is contributing to Nairobi County. The leading areas under this category were roads and house constructions with Chinese immigrants being the main players. This was revealed by their spatial settlement patterns which showed that most of them clustered around project locations.

Foreign nationals were also found to enhance economic linkages through international networking. The interaction at personal or business levels between foreigners and the locals creates an important synergy for benchmarking and networking. This was because some of the immigrants are well equipped with appropriate skills and knowledge involving international best practices. The study showed that many of the immigrants, particularly male had high skills level at 73.91%. Again some of the immigrants run local subsidiary companies of some international ones thus providing avenue for cooperation and incorporation.

On the overall economic impact, foreigners had the effect of aggregate benefit through expanding level and composition of consumer demand. This was due to need for exotic goods as well as locally available goods and services that are close to their homes and work-places.

4.2.2 Social Impacts

On the social front, the differentiation of foreigner activities into various activities and sectors provided significant indicators of the impacts. It emerged that most females were dependants who were either married to other foreigners or to locals. The field survey that was conducted further revealed that of the 47% female holders of the Kenya Dependants Pass (KDP) only 22% were married to Kenyans. This was indicative of social interaction and transmission of culture and social norms from across the world. This has a positive social impact if the influences are acceptable within the local setting, but can also be detrimental in cases where undesirable tendencies occur that erode the norms and value systems of the host society. Majority of the female dependants however were found to be of Indian origin with close and selective settlement pattern. This observation was consistent with the traditional view of this group as a closed community with limited cross cultural interaction.

This study also focused on creating a spatial profile of Foreign Nationals in the study area. The resultant geo-database that was created combined both spatial and attributes information

regarding these immigrants forming immigration datasets. An immigration dataset as demonstrated by the operations was an important asset that allowed subsequent operations and manipulation of the data possible for analysis of the characteristics.

Conversion of data from various sources confirmed the capability of including data in many different forms into GIS including those that are already in map form, including the location information such as residences. Digital, or computerized, data can also be entered and added into the GIS environment. An example of this kind of information was data collected from satellite imagery from Google earth for the location of residences, towns, or roads.

The results further showed how GIS can also utilize tabular data, such as population information and statistics. GIS technology allows all these different types of information, no matter their source or original format, to be overlaid on top of one another on a single map.

The manipulation of the geo-database produced a wide variety of individual maps, depending on which data layers were included. For instance, using various shapefiles created with GIS technology in this study, many kinds of information could be shown about a single constituency or a particular variable of the immigrants. Maps were also produced that related such information as immigrant population, settlement pattern, as well as occupation, nationality and residence location and migration patterns. Any GIS data layer can therefore be added or subtracted to the same map. These maps for instance were also used to show information about number and density of immigrants in the units of the study area.

.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Migration is a phenomenon that occurs over geopolitical jurisdictions in varied spatial extents and exhibits important characteristics of the source and destination countries as demonstrated in this study. It has therefore increasingly acquired prominence on the socio economic framework of many countries as revealed in this study.

The main objective of this study was to assess the socio-economic impacts of immigration using geospatial technology. This was motivated by great interest and need for information and technology that can be used to study and monitor the impacts and results of migration on the economy and society. Such an undertaking would enable relevant government agencies concerned with migrant populations to effectively address policy issues with regard to international migration and its resultant implications.

The methodology and results indicated that GIS offers a hitherto underexploited frontier in this regard with unique and enhanced capability for data capture, manipulation and analysis coupled with effective display through visualization. This needs to be focused on mainstreaming Geospatial technology on migration management in order to develop migration datasets that will enable effective immigration practice.

The evaluation of status and effects of International Migration then provides important insights to help in development of policies and programs that address the emergent challenges, while reinforcing the benefits accruing from migration, and their viability. It also helps in keeping track of the indicators during the implementation of various immigration policies and finally measuring the output and its sustainability. One of the important areas that emerged from the study was labour –based migration.

Labour migration constitutes a greater proportion of regular migrants. This is probably because the decision to migrate often results from the inherent need for improved and/or sustainable livelihood and safety. People therefore leave their natural abodes in search for better opportunities for employment, business, recreation and peaceful dwelling. The global economy is dynamic and constantly evolving and therefore labour mobility is a key

characteristic. This is conveyed through migration processes over geographic space and in this case was mainly characterized by highly educated, dynamic and middle age immigrants.

Another interesting characteristic that emerged from the study was the gender migration patterns. While there were more female immigrants than the males generally, some nationalities exhibited a great variation. The Chinese foreign nationals for instance, had a significant number of male immigrants as compared to their female counterparts which brings into focus their socialization, behaviour and interaction with the locals. This can however be a subject of another study that might delve into the effects of having fewer females of a particular nationality.

The gender disparity in terms of skills distribution also showed that the male foreign nationals were more highly educated and involved in most of the economic sectors. This could probably be due to their traditional roles in the family setups for instance providing for their families or being more flexible to travel to distant places. The female immigrants on the other hand who were the majority however, had a great deal of influence in the social order with many being dependants. This tendency was probably due to favourable policies and laws toward female immigrants since they are often easily acceptable as dependants, either of their foreign spouses or citizens.

5.2 Recommendations

The results of this study explored the nature and extent as well as the characteristics of immigrant populations. This presents a means for a more comprehensive and coherent strategy in migration management when adopted and implemented.

The geographic location data collected and used in this study can be modeled and utilized to develop a system for migration management by creating a web based interactive interface for maintaining and tracking immigrant activities.

The Department also has Border Management Infrastructure such as border controls and offices which require proper management. GIS can be used to determine areas where money should be allocated to establish more border control points and to adequately equip them. This will be a huge step in keeping inventory of the department’s facilities and their state at any given time.

The data for this study covered only one reference year of registration. This can be replicated for several years so as to study the spatio-temporal dynamics of this research area. This would allow for visualization and comparison of information for different periods for trend and change analysis for a more in-depth understanding of migration dynamics.

The study and analysis illustrated that there is no limit to the kind of information that can be analyzed using GIS technology. With this wealth of capabilities and possibilities, it is clear that the Department of Immigration services will greatly benefit in the adoption and implementation of a Geospatial Technology policy in delivering on its core mandate of enhancing socio-economic development of Kenya. This will be achieved for instance through Integrated Secure Border Management System that embraces geospatial technology.

References

Ayeni, O.O. & O.S. Adewale (2001), *A Geo-referenced information System for Population Management,* Proceedings of The International Conference on Spatial Information for Sustainable Development, Nairobi, Kenya. Oct. 2001.

Borjas, G. J., R. B. Freeman, and L. F. Katz (1997). 'How Much Do Immigration and Trade affect Labour Market Outcomes? ' *Brookings Paper of Economic Activity*, 1: 1-67.

Borjas, G.J. (1995). 'Assimilation and Changes in Cohort Quality Revisited: What Happened to Immigrant Earnings During the 1980s? ' *Journal of Labour Economics*, 13: 201-245.

Bourdieu, P. (1993), *Sociology in Question*, trans. R Nice, Sage Publications, London.

Chappell, L., & Sriskandarajah, D. (2007). Mapping the development impacts of migration. *Development on the Move*.

Coleman, J. S. (1990), *Foundations of Social Theory,* The Belknap Press of Harvard University Press,Cambridge, Mass.

Crampton, Jeremy W. (2004). GIS and Geographic Governance: Reconstructing the Choropleth Map. *Cartographica* 39(1).

Dustmann, C., F. Fabbai and I. Preston (2005). 'The Impact of Immigration on the UK Labour market'. *The Economic Journal*, 115: F324-F341.

Faggian, Alessandra, McCann, P. and Sheppard,S. "An analysis of ethnic differences in UK graduate migration behaviour." *The Annals of Regional Science* 40.2 (2006): 461-471.

Gamm, G. & Putnam, R. D. (2001), " The Growth of Voluntary Associations in America, 1840-1940" in *Patterns of Social Capital: Stability and Change in Historical Perspective,* (ed) R. I. Rotberg, Cambridge University Press, Cambridge

Jakubowicz, A. (1989), "`Normalising aliens`: The Australian Welfare State and the Control of Immigrant Settlement" in *Australian Welfare-Historical Sociology,* (ed) R. Kennedy, The MacMillan, Melbourne.

Lee, K. C. D. (1999). Long Memory and Asia Crisis: Implication for Capital Controls and Management. Far-Eastern Meeting of the Econometric Society.

Longley, P. (2005). Geographical information systems: A renaissance of geodemographics for public service delivery. *Progress in Human Geography* 29(1), 57-63.

Longley,P. (2003). Geographic information systems: Developments in socio-economic data infrastructures. *Progress in Human Geography* 27(1), 114-121.

Martin, D. (2005). Spatial representation: the social scientist's perspective. In Longley P, Goodchild M, Maguire, D. J. and Rhind, D.W (eds.), *Geographical Information Systems: Principles, Techniques, Management, and Applications* (2nd (Abridged) ed.). New York: John Wiley & Sons, pp. 71-80.

National Council for Population and Development (NCPD), (2013). Ministry of Devolution and Planning. Kenya Population Situation Analysis.

Portes, A. (ed.) (1995), The Economic Sociology of Immigration: Essays on Networks, Ethnicity, and Entrepreneurship, Russell Sage Foundation, New York.

Putnam, R. D. (1993), *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton University Press, Princeton, N.J.

Putnam, R. D. (2000), Bowling Alone: The Collapse and Revival of American Community, Simon & Schuster, New York.

Ray, B. 1994. Immigrant Settlement and Housing in Metropolitan Toronto. *Canadian Geographer* 38(3), 262-265

Ronningen, B. J. (2004). Estimates of Selected Immigrant Populations in Minnesota: Population Notes. Minnesota: Minnesota State Demographic Center.

Zimmermann, K. F. (2005). *European Migration: What Do We Know?* Oxford/New York: Oxford University Press.

APPENDIX A THE KENYA CITIZENSHIP AND IMMIGRATION ACT, 2011

No. 12 of 2011

Date of Assent: *27th August, 2011*

Commencement: *30th August, 2011*

AN ACT of Parliament to provide for matters relating to citizenship; issuance of travel documents; immigration and for connected purposes

ENACTED by the Parliament of Kenya, as follows—

PART I—PRELIMINARY

Short title.

1. This Act may be cited as the as the Kenya Citizenship and Immigration Act, 2011.

Interpretation.

KenyaCitizensh **2.** (1) In this Act, unless the context otherwise requires—

"application" means a request in a prescribed form made under this Act;

ip and Immigration "Board'' means the Kenya Citizens and Foreign Nationals Management Service Board established under section 5 of the Kenya Citizens and Foreign Nationals Management Service Act; **No. 12**

"border" means the national borders of Kenya and includes the ports of entry, the coastlines and the outer margin of territorial waters;

"Cabinet Secretary" means the Cabinet Secretary responsible or matters relating to citizenship and the management of foreign nationals;

"carrier" includes any ship, boat, aircraft, wagon, truck, or any other vessel of conveyance;

"certificate of registration" means a certificate of registration issued under section 18;

"child" means any human being under the age of eighteen years;

"dependant" means a person who by reason of age, disability for any status of incapacity is unable to maintain himself or herself adequately and relies on another person or his maintenance;

"deportation" means the action or procedure aimed at causing an illegal foreign national to leave the country either voluntarily or compulsorily, or under detention in terms of this Act and the verb 'to deport' has a corresponding meaning;

"director'' means any person appointed as a director under section 16 of the Kenya Citizens and Foreign Nationals Management Service Act, 2011;

"entry" means admission into Kenya at a designated port of entry on the basis of the authority to do so validly granted under this Act;

"exit" means departing Kenya from a designated port of entry in compliance with this Act;

"foreign national" means any person who is not a citizen of Kenya;

"foreign nationals order" means an order made by the Cabinet Secretary under section 56;

"foreign national registration certificate" means a registration certificate issued under section 56;

"habitual residence'' means stable, factual residence of a person, in Kenya;

"holding facility," means any place designated as a holding facility under section 50 of this Act;

"human smuggling'' means the procurement, in order to obtain, directly or indirectly a financial for other material

benefit, of the illegal entry (and exit) of a foreign national into and outside Kenya;

"immigration officer" means the Director and any of the persons appointed as an immigration officer under section 16 of the Kenya Citizens and Foreign Nationals Management Service Act;

"inadmissible person" means a person declared under section 33 (2) as an inadmissible person.

"Kenya mission" includes an office of a consular officer of the Government of Kenya and where there is no such office, such other office as may be prescribed;

"marriage" means a legally sanctioned conjugal relationship between a man and a woman intended to be permanent and recognized under the laws of Kenya;

"pass" means a pass issued pursuant section 36;

"passport" means a passport issued under this Act or issued by any lawful authority or government recognized by the Government of Kenya;

"permit" means a permit issued under section 40;

"permanent resident" means a person who has acquired permanent residence status under section 38 and has not subsequently lost that status;

"permanent residence" means a status granted to a person under section 37;

"piracy'' has the meaning assigned under section 369 of the Merchant Shipping Act, 2009f(No. 4 of 2009);

"premises" means any building, structure, enclosure or tent together with or without the land on which it is situated and the adjoining land used in connection with it and includes any land without any building structure or tent and any vehicle, conveyance, vessel or ship;

"prohibited immigrant" means a person declared as a prohibited immigrant under section 33 (1);

"port" means a designated place where a person has to report before he or she may move, sojourn, enter, exit or remain within the country;

"Service" means the Kenya Citizens and Foreign Nationals Management Service established under the Kenya Citizens and Foreign Nationals Management Service Act, 2011;

"stateless person" means a person who is not recognized as a citizen by any state under the operation of the laws of any state;

"travel document" means a document issued under this Act for issued by any lawful authority or government recognized by the Government of Kenya for the purpose of travel;

"traficking in persons" has the meaning assigned to it by section 3 of the Counter Traficking in Persons Act, f2010 (No. 8 of 2010);

"visa'' means a visa issued under this Act or issued by any lawful authority or government recognized by the Government of Kenya.

(2) Despite subsection (1), until after the first elections under the Constitution, references in this Act to the expression "Cabinet Secretary" shall be construed to mean "Minister".

Age.

3. For the purposes of this Act, a person is considered not to have attained a given age until the commencement of the relevant anniversary of the day of his birth.

(3) An immigration officer may prosecute any person who fails to immediately pay the penalty imposed in subsection (1) above for the offence of unlawful presence:

PART VII—FOREIGN NATIONALS MANAGEMENT

Foreign Nationals Management.

56. i(1) The Cabinet Secretary may on advice of the Cabinet and National Security Council, at any time when a state of war exists between Kenya and any foreign power or when it appears that an occasion of imminent danger or great emergency has arisen, by order impose from time to time restrictions on foreign nationals and provision may be made by the order—

(*a*) for prohibiting foreign nationals from landing in or otherwise entering Kenya either generally or at certain places and or imposing restrictions or conditions on foreign nationals landing or arriving at any port in Kenya;

(f) for prohibiting foreign nationals from embarking in or otherwise leaving Kenya either generally or at certain places, and for imposing restrictions and conditions on foreign nationals embarking or about to embark in Kenya;

(*c*) for requiring foreign nationals to reside and remain within certain places within Kenya;

(*d*) for prohibiting foreign nationals from residing for remaining in any areas specified in the order;

(*e*) for imposing penalties on persons who aid or abet any contravention of the order, and for imposing such obligations and restrictions on masters of ships or any other persons specified in the order as appear necessary for expedient for giving full effect to the order;

(*f*) for any other matters which appear necessary or expedient with relating to the security of the country.

(2) Notwithstanding subsection (1), the Cabinet Secretary may at any time by order require foreign nationals

residing in Kenya to comply with such provisions as to registration, notification of change of address, traveling for otherwise, and in such manner, as may be specified in the regulations.

(3) A person who contravenes any provision for requirement of an order issued to a foreign nationals commits an offence and liable upon conviction to a fine not exceeding one hundred thousand shillings, or to imprisonment or a term not exceeding three years, or to both.

(4) The court before which a person is convicted under this section may, in addition to for fin lieu of any such punishment, require that person enter into recognizance with or without sureties to comply with the provision of the order or such provision thereof as the court may direct, and if the person fails to comply with the order of the court requiring him to enter into recognizance, the court may commit that person to imprisonment for a term not exceeding three years.

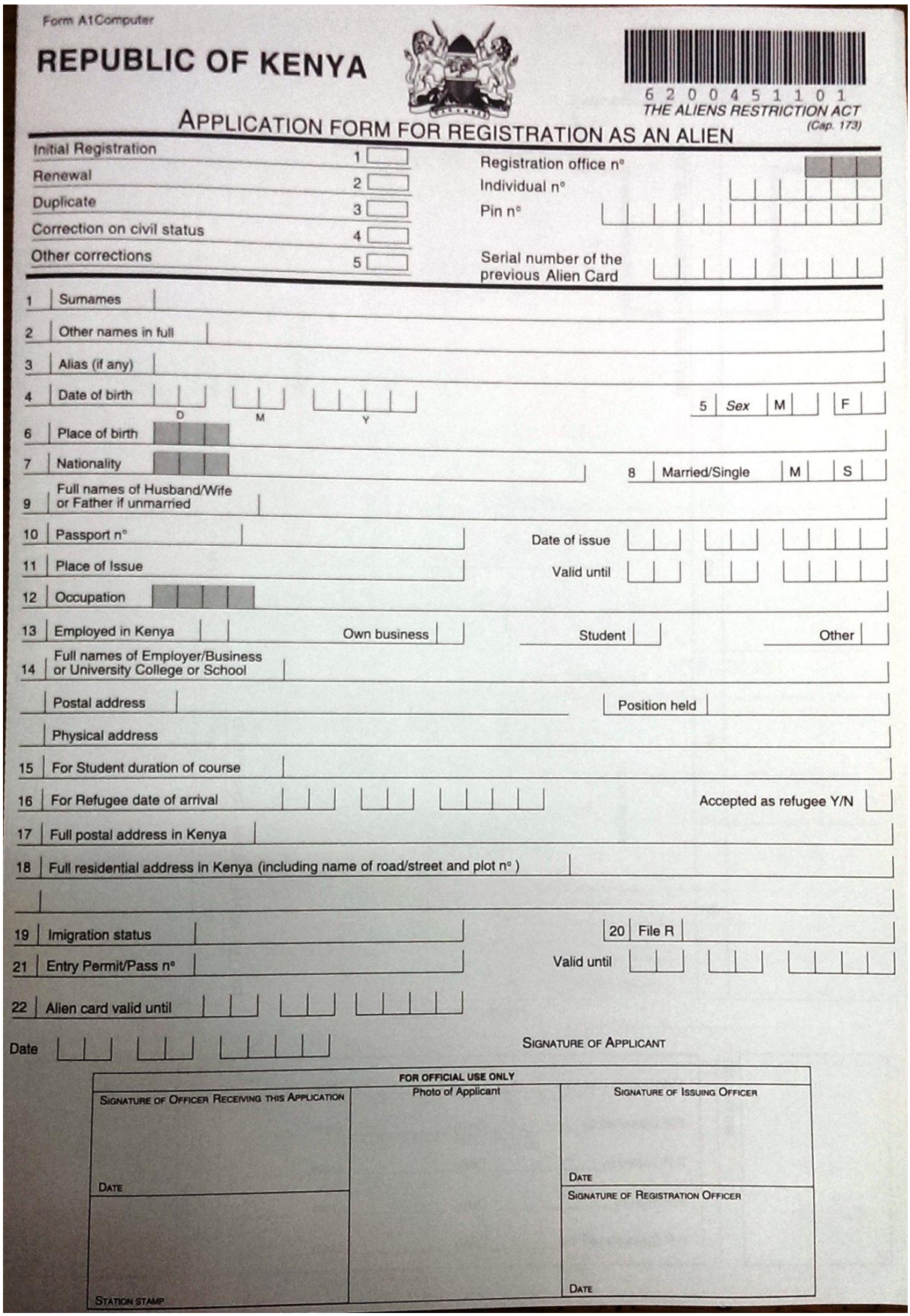
(5) Any provision contained in this Act in respect of a Foreign National Order may relate to foreign nationals fin general or to any class or description of foreign nationals.

(6) If any question arises in any proceedings under a foreign national order, or with reference to anything done or proposed to be done under any such order, as to whether any person is a foreign nationals or not, or is a foreign nationals of a particular class for not, the onus of proving that that person is not a foreign national, or, as the case may be, is not a foreign national of that class, shall lie upon person contending so.

(7) The Cabinet Secretary may at any time revoke, alter, or add to any foreign nationals' order.

(8) Any powers given funder this section, or in any foreign nationals' order, shall be in addition to, and not in derogation of, any powers with respect to the expulsion of foreign nationals or the prohibition of foreign nationals from entering Kenya or any other powers conferred on the Cabinet Secretary or any other service by any other written law.

APPENDIX B :Alien Registration Form



Form A1Computer

REPUBLIC OF KENYA

6 2 0 0 4 5 1 1 0 1

THE ALIENS RESTRICTION ACT (Cap. 173)

APPLICATION FORM FOR REGISTRATION AS AN ALIEN

Initial Registration 1 ☐
Renewal 2 ☐
Duplicate 3 ☐
Correction on civil status 4 ☐
Other corrections 5 ☐

Registration office n°
Individual n°
Pin n°
Serial number of the previous Alien Card

1 Surnames
2 Other names in full
3 Alias (if any)
4 Date of birth D M Y
5 Sex M ☐ F ☐
6 Place of birth
7 Nationality
8 Married/Single M ☐ S ☐
9 Full names of Husband/Wife or Father if unmarried
10 Passport n° Date of issue
11 Place of Issue Valid until
12 Occupation
13 Employed in Kenya ☐ Own business ☐ Student ☐ Other ☐
14 Full names of Employer/Business or University College or School
Postal address Position held
Physical address
15 For Student duration of course
16 For Refugee date of arrival Accepted as refugee Y/N ☐
17 Full postal address in Kenya
18 Full residential address in Kenya (including name of road/street and plot n°)
19 Imigration status 20 File R
21 Entry Permit/Pass n° Valid until
22 Alien card valid until

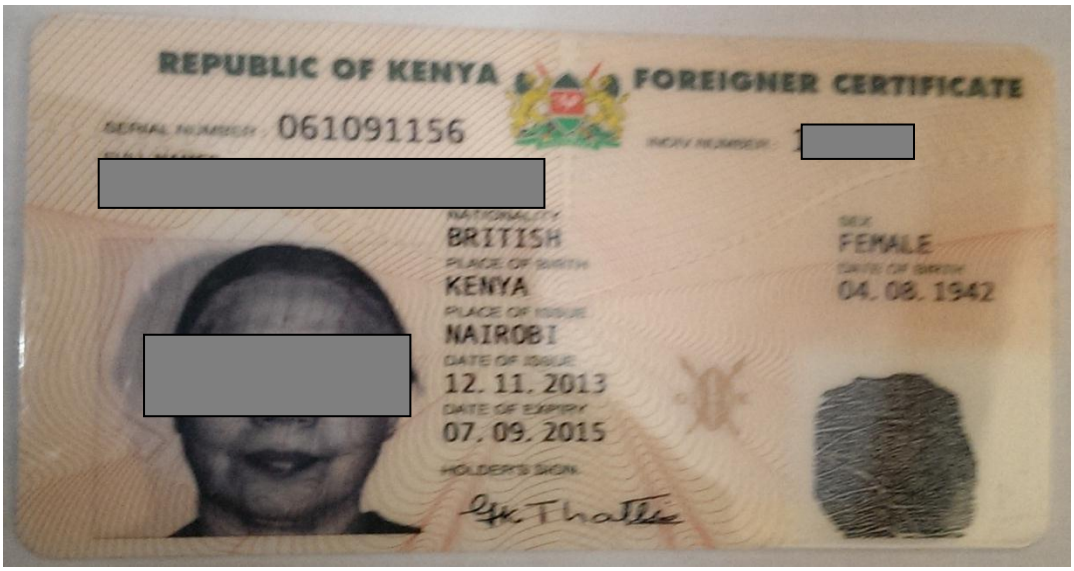
Date

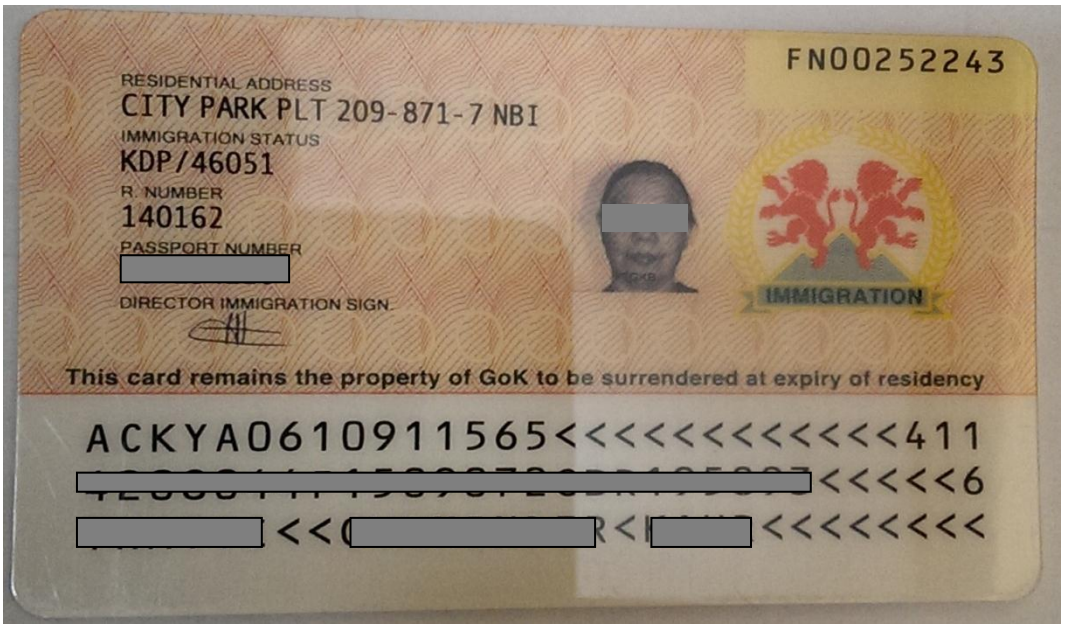
SIGNATURE OF APPLICANT

FOR OFFICIAL USE ONLY

SIGNATURE OF OFFICER RECEIVING THIS APPLICATION	Photo of Applicant	SIGNATURE OF ISSUING OFFICER
DATE		DATE
STATION STAMP		SIGNATURE OF REGISTRATION OFFICER
		DATE

APPENDIX C: Sample Foreigner Certificate





APPENDIX C: QUESTIONNAIRE

Kenya is a host to immigrants from different countries around the world most of who stay in Nairobi. The Foreign Nationals have varied reasons for coming, ranging from work, residence and investment. This study aims to understand these dynamics and the socioeconomic impacts both to the immigrant and the host community. Kindly spare a moment of time to answer the questions in this questionnaire. The information given will be used only for study purposes and will be highly confidential.

Questionnaire number_____ Date _____

PART 1 personal Characteristics

1. What is your sex (sex of the respondent)

☐ Male ☐ Female

2. Age (Age range of respondents)

☐ 18 – 24 ☐ 25 – 34 ☐ 35 – 49 ☐ 50 – 64

☐ 65 and above

3. (i) What is your marital status (Civil status of the respondent)

☐ Single ☐ Married ☐Divorced ☐Separated ☐Widowed

(ii) If married, are/were you married to a Kenyan?

☐ Yes ☐ No

(iii) What is the size of your household? _____Members

4. What is your country of origin (Indicate)

---

5. How long have you been in Kenya (Length of settlement)

☐ Less than 1 year ☐1 – 2 years ☐ 3– 4 years ☐ 5 – 7 years ☐ 7+ years

6. Indicate which of the following reflect your current family status

☐ Living with dependents
☐ Living with family who are not dependents
☐ Living with people who are not family
☐ Living alone
Living in foster care

PART 2: Occupation

7. Which of the following describes your occupation in Kenya

☐ Unemployed
☐ Full time paid employment
☐ Part time paid employed
☐ Self employment
☐ Work for a family business
☐ Working as a volunteer
☐ Missionary
☐ Student

PART 3: Education

8. What was your level of education before entering Kenya?

☐ None ☐ Primary ☐ Secondary Certificate ☐
☐ Diploma ☐ Degree ☐ Other

9. (i). Have you taken any studies here in Kenya?

☐ No ☐ Yes

(ii). If the answer in 9(i) above is yes which of the following describes the grade you obtained

☐ Basic education (primary) ☐ Advance education (secondary)
☐ Further (college) ☐ Higher (university)

10. What type of school does your children go to

☐ Public ☐ Private

Part 3 Language

11 (i). Which is your first language_____?

(ii) State any other language that you learnt while in Kenya

Language_____

(iii) State your ability to speak understand read and write the language in above

Speak	☐ Fluently	☐ Fairly well	☐ A little bit	☐ Not at all
Understand	☐ Fluently	☐ Fairly well	☐ A little bit	☐ Not at all
Read/Write	☐ Fluently	☐ Fairly well	☐ A little bit	☐ Not at all

Part 4 Social participation

12. Do you belong to any of the following association (involvement in social affairs)

Sports club	☐ Yes	☐ No
Charity club	☐ Yes	☐ No
Self help group	☐ Yes	☐ No
Music society	☐ Yes	☐ No

13 (i). What are your sites for formal social network information.

☐ Religious institutions
☐ Schools and colleges
☐ Neighbourhood groups
☐ Places of work
☐ Internet

(ii). what are your sites for informal social network information

☐ Own home (Housemates, visits by neighbours)
☐ Friends' houses
☐ Sites of leisure activities
☐ Shops and markets
☐ In parks and in the street

PART 5 Legal and human rights

14. Which of the following documents do you possess?

☐ Passport ☐ Foreigner certificate ☐ Dependants pass

☐ Work permit ☐ Permanent Residence certificate ☐ Driving licence

15 Are you aware of your rights and obligations as a Foreign National?

☐ Yes No ☐

PART 6 Housing and Property ownership

16 What type of house do you live in?

☐ Town house ☐ Apartment /Flat ☐ Informal settlement

17. i) Type of home ownership

☐ Own ☐ Rental ☐ Live for free

ii) If the answer in 17 I above is own how did you acquire it

☐ Built / Constructed ☐ Bought ☐ Inherited

18 What Criteria did/do you use for settlement choice as Foreign National?

- ☐ Location
- ☐ Security
- ☐ Cost
- ☐ Convenience
- ☐ Comfort
- ☐ Social/Community network

PART 7 Challenges

19 What Challenges do you face as a Foreign National in Kenya?

- ☐ Climate/Environment
- ☐ Low levels of development
- ☐ Bureaucratic processes
- ☐ High cost of living
- ☐ Lack of social support
- ☐ Legal systems
- ☐ Limited rights to work
- ☐ Public perception
- ☐ Language barrier/ lack of common language
- ☐ Lack of places to meet people

20. How do you counter these challenges?

21 In your opinion what are the best coping strategies as a foreign national?