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2009 Kenya Population and Housing Census

Analytical Report on Housing Conditions, Amenities and Household Assets

Volume XI

March 2012





Kenya National Bureau of Statistics
Ministry of State for Planning, National Development and Vision 2030

KENYA CENSUS2009
Nipo! Natambulika!

2009 Kenya Population and Housing Census

"Counting Our People for Implementation of Vision 2030"

Volume XI

Housing Conditions, Amenities and Household Assets

March 2012

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List of Abbreviations

ASAL	Arid and Semi-Arid Lands
CBS	Central Bureau of Statistics
CHQI	Consolidated Housing Quality Index
FBO	Faith Based Organization
ICT	Information and Communication Technology
KFI	Keying From Image
KNBS	Kenya National Bureau of Statistics
KPHC	Kenya Population and Housing Census
lpcd	Litres per Capita per Day
lpd	Litres per Person per Day
LPG	Liquid Petroleum Gas
MDGs	Millennium Development Goals
NGO	Non-Governmental Organization
NHC	National Housing Corporation
OCR	Optical Character Recognition
ppr	Persons Per Room
UN	united Nations
US	United States
USAID	United States Agency for International Development
WHO	World Health Organization
WSB	Water Services Board
WSP	Water Services Provider
WSS	Water Supply and Sanitation

Foreword

The 2009 Kenya Population and Housing Census (KPHC) was conducted from the night of 24th/25th to 31st August 2009. The Census was the fifth to be undertaken in Kenya since independence and the seventh in the country's history. Previous censuses were conducted in 1948, 1962, 1969, 1979, 1989 and 1999. Planning and execution of the 2009 Census was spearheaded by the Kenya National Bureau of Statistics (KNBS) on behalf of the Government – in accordance with the Statistics Act, 2006. The theme of the Census was *"Counting our People for Implementation of Vision 2030",* which was deemed necessary in order to respond to the greater demand for statistical information, for monitoring the implementation of Kenya's development plans and other global initiatives, such as the Millennium Development Goals (MDGs).

The main objective of the 2009 Census was to provide the Government and other stakeholders with essential information on the population, as regards demographic, social and economic characteristics, housing conditions and household amenities. By generating information at all administrative levels, it was also intended to provide a sound basis to evaluate the impact of population-related policies and programmes in the country.

The first series of the 2009 Census preliminary results were released on August, 2010, in a set of four volumes. The volumes presented census information in the following categories; Population Distribution by Administrative Units; Population Distribution by Political Units; Population Distribution by Age and Sex; and, Distribution of Households by Socio-economic Characteristics. This second set comprising thirteen analytical reports, addresses issues on Fertility and Nuptiality, Mortality , Housing Conditions, Amenities and Household Assets, Education and Training, Household and Family Dynamics, Disability, Migration, Urbanization, Labour Force Dynamics, Gender Dimensions, Population Dynamics, Population Projections and Census Atlas.

Preparation of the analytical reports involved collaborative efforts of both local and international experts as well as various Government Ministries and Departments. The authors were recruited on competitive basis, ensuring they possessed the necessary experience and skills. The authorship was done under the supervision of two experienced lead consultants.

Data capture was done using scanning technology. The processes were highly integrated, with tight controls to guarantee accuracy of results. To achieve internal consistency and minimize errors, rigorous data editing, cleaning and validation were carried out to facilitate further analysis of the results. The information presented in these reports is therefore based on more cleaned data sets, and is preferred in case there are differences in the results published in the first set of volumes.

This monograph presents housing conditions, amenities and household assets from the 2009 Census data. The analysis reveals disparity between urban and rural housing conditions and access to basic amenities. While the bulk of the housing stock (69.0 percent of the 15,390,410 dwelling units) was in the rural areas, a higher percentage (67.4

percent) of rural households live in poor quality housing compared to 19.5 percent of urban households.

On behalf of the Government of Kenya, I wish to thank the management and staff of Kenya National Bureau of Statistics, KNBS Board of Directors and authors for their contribution towards preparation of this monograph. I also thank the US Census Bureau for the technical support. I would also like to thank our development partners, especially UNFPA, for the financial support in writing and publication of this monograph.

Hon. Wycliffe Ambetsa Oparanya, E.G.H, MP
Minister of State for Planning, National Development and Vision 2030

Acknowledgement

The 2009 Kenya Population and Housing Census (KPHC), whose theme was *"Counting our People for Implementation of Vision 2030"* was the fifth to be conducted in Kenya since independence, and the seventh in the country's history. The census was carried out on a *de facto* basis, with August 24th/25th as the reference night. The first series of the 2009 Census preliminary results were released in a set of four volumes, in August, 2010. This was achieved in a record time of one year after successful enumeration. This monograph is one among a set of thirteen, which are a culmination of an ambitious, synchronized and all-inclusive in-depth analysis process, addressing various topical areas regarding the demographic, social and economic profiles of the Kenyan population.

The 2009 Census was accomplished through concerted effort of various organizations, institutions, Government Ministries and individuals who assisted in a variety of ways to prepare, collect, compile, process, analyze and publish the results. Kenya National Bureau of Statistics (KNBS), on behalf of the Government, takes this opportunity to thank all those who participated in the preparation of this monograph.

Special appreciation goes to Dr. Edward Sambili, the Permanent Secretary in the Ministry of State for Planning, National Development and Vision 2030; the KNBS Board of Directors led by the Chairman, Mr. Edwin Shisia Osundwa, staff of Population and Social Statistics Directorate and the entire KNBS staff, for their spirited efforts towards successful compilation of the monographs.

We also thank our Development Partners, namely, UNFPA, USAID, UNICEF, DfID, UNDP, SIDA, and the US Census Bureau for their material, financial and technical support, offered during various phases of implementation. Additional gratitude goes to UNFPA for coordinating donor support to the Census process.

Finally, we sincerely hope that the data contained in this monograph will be fully utilized in the national development planning process by all stakeholders for, the welfare of the people of Kenya.

A.K.M Kilele, MBS
DIRECTOR GENERAL
KENYA NATIONAL BUREAU OF STATISTICS

Fact Sheet

Indicator	Unit	Region		
		Urban	Rural	Kenya
Dwelling Units	Number	4,769,040	10,621,370	15,390,410
Habitable Rooms	Number	7,285,587	16,110,418	23,396,005
Households	Number	3,338,718	5,429,236	8,767,954
Persons per Room	Ratio	1.65	1.64	1.64
Proportion of Households Occupying Own Dwellings	Percent	33.81	89.01	67.99
Proportion of Households Occupying Dwellings with Durable Roof Material	Percent	95.91	72.77	81.56
Proportion of Households Occupying Dwellings with Durable Wall Material	Percent	56.56	19.29	33.43
Proportion of Households Occupying Dwellings with Durable Floor Material	Percent	76.45	23.01	43.29
Proportion of Households with Access to Improved Sources Of Water	Percent	73.47	45.35	56.05
Proportion of Households Using Improved Sanitation Facility	Percent	79.45	56.19	65.03
Proportion of Households Using Clean Cooking Fuel	Percent	15.47	1.11	6.58
Proportion of households using clean lighting fuel	Percent	53.35	8.98	25.87
Proportion of Households Owning Radio	Percent	78.4	71.3	74.0
Proportion of Households Owning TV	Percent	47.8	15.8	28.0
Proportion of Households Owning Mobile Phone	Percent	80.2	52.7	63.2
Proportion of Households Owning Landline Phone	Percent	2.6	0.04	1.2
Proportion of Households Owning Computer	Percent	7.9	0.9	3.6
Proportion of Households Owning Bicycle	Percent	19.5	28.8	25.3
Proportion of Households Owning Motor Cycle	Percent	2.3	2.0	2.1
Proportion of Households Owning Fridge	Percent	10.9	0.8	4.7
Proportion of Households Owning Car	Percent	8.0	2.1	4.3
Homeless Persons	Number	12,912	5,249	18,161
Urban Households Living in Informal Settlements	Number	-	-	89,438
Proportion of Households Occupying Good Quality Housing	Percent	31.46	2.30	13.30

Executive Summary

This monograph covers housing conditions, amenities and household assets. It consists of an introductory chapter and four analytical chapters followed by conclusion. The first two analytical chapters contain basic analysis while the last two are interpretative.

Chapter Two covers three basic issues: dwelling units and habitable rooms; tenure status; and construction materials for roof, wall and floor of the main dwelling unit. There were 15,390,410 dwelling units in Kenya containing 23,396,005 habitable rooms occupied by 8,767,954 households. These habitable rooms served a population of 38,412,088 or 1.64 persons per habitable room.

The analysis by status of tenure shows that 5,466,916 (or 62.4 percent of all households) constructed the houses they own. In addition, 2,350,222 households (representing 26.8 percent of total households) lived in houses rented from individual landlords. Nairobi County in particular provides a sharp contrast to the national picture. In Nairobi, 741,123 households (75.2 percent) lived in houses rented from individual landlords; and only 5.7 percent had constructed their own houses compared to 62.4 percent at the national level.

A reported 81.6 percent of households lived under roofs made of durable materials. However, the score for durable walls was low at 33.4 percent. Similarly, only 43.3 percent of households had dwellings with floors made of durable materials. The rest mainly had earth floors. There were significant variations between urban and rural areas, among counties and among urban centres.

Chapter 3 analyses household amenities (including main source of water and mode of human waste disposal), cooking and lighting fuels, and household assets. At the national level 56.1 percent of households had access to an improved source of drinking and only 65.0 percent of households used improved sanitation facilities.

At the national level firewood was the predominant cooking fuel used by 64.6 percent of households while the sustainable energy such as biogas (0.7 percent) and solar (0.1 percent) are among the fuels least used for cooking. Only 6.6 percent of households used clean (smokeless) fuel for cooking. For lighting 22.7 percent of households use electricity, 69.5 percent use kerosene lamps, while only 1.6 percent use solar. Overall, only 15.5 percent used clean (smokeless) fuel for lighting.

Chapter 4 considered various dimensions of housing need. Using a density index of 1 person per habitable room, the unmet needs were 9,877,912 dwellings at the national level, 6,776,205 for rural areas and 3,101,415 for urban areas. There were 18,161 homeless persons, with 5,249 in rural areas and 12,912 in urban areas.

Another dimension of housing need is the housing quality index, as reported in Chapter 5. The housing quality index shows that about two-thirds (67.4 percent) of rural households live in poor quality housing. In urban areas 31.46 percent live in good quality housing while 49.1 percent live in moderate quality and 19.5 percent in poor quality housing.

Chapter 1-Introduction

1.1 Census Background

A population census is the total process of collecting, compiling, evaluating, analyzing and publishing or disseminating demographic, economic, and social data pertaining, at a specified time, to all persons in a country or in a well delimited part of a country. It is vital for effective planning of national development, because it provides detailed benchmark data on various population characteristics. The United Nations recommends that national population censuses be undertaken at regular intervals of ten years.

The 2009 Kenya Population and Housing Census was the fifth to be undertaken in Kenya since independence and the seventh since 1948. Like the previous censuses, the 2009 Census was a *de facto* census conducted on the night of 24th/25th August 2009, though the questionnaire also allowed *de jure* enumeration. The 2009 Census was implemented in accordance with the Statistics Act, 2006. The theme of the census was "*Counting our People for the Implementation of Vision 2030*".

1.1.1 Objectives of the 2009 Census

The main objective of the 2009 Census was to provide essential information at the national and sub-national levels on the demographic, social and economic characteristics of the population, as well as housing conditions and household amenities to assist the Government in the implementation, monitoring and evaluation of national programmes such as Vision 2030 and international programmes such as the Millennium Development Goals (MDGs).

The specific objectives were to ascertain the following:

1. Size, composition and spatial distribution of the population.
2. Levels of fertility, mortality and migration.
3. Rates and patterns of urbanisation.
4. Levels of education attained by the population.
5. Size and deployment of the labour force.
6. Size, types and distribution of persons with disabilities.
7. Housing conditions and availability of household amenities.

New modules included in the 2009 Census were: disability; information and communication technology (ICT); deaths in the household; number of livestock owned; and information on emigrants.

1.2 Overview of Housing

The 2009 Kenya Population and Housing Census (KPHC) collected data on a various demographic attributes including housing and social amenities. It was the third census since independence to incorporate the housing component, the first being the 1989 Census.

The questionnaire used in 1989 was slightly modified and improved in 1999 to enable capture of the housing stock. The 2009 Census questionnaire did not substantively modify the 1999 questionnaire. However, the use of mapping techniques in the 2009 KPHC

enabled the disaggregation of data within the urban areas into formal and non-formal (slums and informal settlements).

The 2009 Census data may be complemented and enriched by other related household surveys. The results of the 2009 KPHC and the Kenya Integrated Household Budget Survey, 2005/2006 will provide the basic framework within which other housing indicators can be derived, comparisons made, housing indices computed, and further statistical inquiries or surveys planned.

Prior to the 1989 Census, there was no comprehensive national survey of housing in Kenya. The best attempt at a comprehensive housing survey was the 1983 Urban Housing Survey that covered 32 urban centers. The housing component was introduced in Kenyan censuses because of the failure of the past housing surveys to provide reliable and comprehensive information for planning and management of housing. This was also in line with UN recommendation on the necessity of including questions pertaining to housing conditions and amenities in the 1989 Census (Republic of Kenya, 1996).

In terms of policy development, the housing sector in Kenya has evolved considerably since pre-independence period. In the 1960s up to early 1970s the welfare state was the predominant political/ administrative system where central and local government intervention was regarded as a means of correcting market imperfections. The 1966/67 National Housing Policy (Sessional Paper No. 5) promoted a strong role for the government in providing affordable housing for the citizens through (a) its parastatal or quasi-government institution - the National Housing Corporation (NHC) - in partnership with various city, municipal and other local authorities, and (b) through civil service housing. It also advocated for slum clearance and encouraged mobilization of resources for housing development through aided self-help and cooperative efforts. For more than two decades, the NHC was the market leader in the housing industry, responsible for development of government-initiated and managed public housing.

This situation changed with the onset of the structural adjustment programmes in the 1980's which persuaded governments to create an enabling environment through pro-market legislation. In this paradigm, full cost recovery concept was imposed and all subsidies were removed. This is the era during which a significant downturn in housing sector started becoming apparent, as the private sector was ill prepared and least focused for the task of national housing delivery.

In the late 1990s, consequent to the Second United Nations Conference on Human Settlements held in Istanbul, Turkey in 1996 (UN-Habitat, 1996) some renewed focus in the Kenyan housing sector emerged albeit with less vigour. This renewed focus included concerted efforts in the formulation of a new National Housing Policy (Sessional Paper No. 3 of June, 2004). The new policy initiative deviates from the earlier policy frameworks and promotes, among other things:

- An inclusive approach to housing delivery which involves all the stakeholders,
- Slum/informal settlements improvement and prevention as opposed to clearance,

- Increased public investment in the housing sector through, among other avenues, installation, expansion and maintenance of key housing infrastructure and services,
- The role of the public sector as a facilitator of the other partners in housing delivery through various approaches including housing sector incentives and,
- The establishment of an effective and vibrant coordination of the housing sector through appropriate institutional and legal mechanisms.

The implementation of the 2004 policy has led to marked improvement in government investment in the housing sector; initiation of a nationwide slum upgrading programme; establishment of Appropriate Building Technology Centres in all the regions; improved private sector participation in housing delivery mainly to the middle and high income segments; improved coordination and participation of all players in the housing sector and improved profile of the housing sector in national economic development.

Apart from the National Housing Policy, Kenya's Vision 2030 envisages "an adequately and decently housed nation in a sustainable environment". The medium-term goal of Vision 2030 is to increase the production of housing units from 35,000 to over 200,000 annually. The Vision 2030 has largely incorporated attainment of the millennium development goals (MDGs). In the context of housing, MDG aims to halve the proportion of the population without sustainable access to safe drinking water and basic sanitation and, to achieve a significant improvement in the lives of at least 100 million slum dwellers. This monograph will help inform the reader on progress made in the attainment of local and international commitments in relation to housing and household amenities.

The main goal of this monograph is to generate statistical information on housing conditions, availability of household amenities and ownership of household assets. This would help in monitoring and evaluation of housing programs, and provide baseline information for monitoring the success of future programs. In addition, it would enable international comparison with other countries; local comparison between urban and rural regions, counties, and urban centres; and with previous censuses.

1.3 Methodology

1.3.1 Data Collection Procedures

The 2009 Census, like the previous censuses, adopted the *de facto* as opposed to *de jure* approach, and the canvasser as opposed to the householder method. However, an additional question was included to identify whether each individual was a usual resident in the household of enumeration, which helped to compile the *de jure* population. Additionally, some foreign and diplomatic missions were allowed to enumerate themselves using a short questionnaire.

The target population was all persons who spent the night of 24th /25th August 2009 in households, institutions, or outdoor locations within the administrative boundaries of Kenya or those transiting through Kenyan territory on the census night. The frameworks of identification were defined to cover populations in conventional households, institutions,

on transit and even those with no fixed abode (outdoor sleepers). The unit of enumeration for housing characteristics was the main dwelling unit.

All persons in conventional households and institutions such as boarding schools and colleges were enumerated as scheduled within the seven days using the main (long) form, while the other categories such as hotels, travellers and outdoor sleepers were strictly enumerated on the census night using the short form.

1.3.2 Data Capture Methodology

During the 2009 Census, data capture was done using the Optical Character Recognition (OCR) process commonly referred to as the scanning method just like the 1999 Census. This mode of data capture was quite effective despite a few technological hitches which were resolved with technical assistance of the U.S. Census Bureau. The process had several stages including: batching, scanning, Keying from Image (KFI), Optical Character Recognition and the library. Batching involved putting together a number of booklets from the same enumeration area and giving it a unique number for tracking purposes. Scanning was the process of electronically capturing the information from the questionnaires and maintaining it in the system for processing. Keying from image was the manual keying of the images that could not be recognized by the scanners due to various reasons. The characters that were not clear were done manually by the OCR team. All the captured data was then stored for analysis.

1.3.3 Measurement of Housing

The topics of the decennial census in Kenya are selected from a list of topics recommended by the United Nations for investigation in housing censuses (Republic of Kenya, 1996). The recommended topics for a housing census are contained in the *Principles of and Recommendations for Population and Housing Censuses Revision 1* (UN, 1997). For instance, the 1989 Census had questions on housing attributes under the topics of: tenure status, construction materials (roof, wall and floor), main source of water, main type of sewage disposal, main cooking fuel and main lighting fuel. It did not have questions about the number of dwelling units and rooms (Republic of Kenya, 2002) that were later included in the 1999 Census.

The questions in the 1999 Census on housing attributes were also included in the 2009 Census. There were two additional sets of questions in the 2009 Census regarding household wealth. These are:

- Information regarding livestock (H17), and
- Ownership of household assets (H28)

The livestock categories include exotic cattle, indigenous cattle, sheep, goat, camels, donkeys, pigs, indigenous chicken, commercial chicken and beehives. Household assets include radio, TV, mobile phone, landline telephone, computer, bicycle, motorcycle, car, truck/ lorry/ tractor / bus, refrigerator, boat, animal drawn cart, canoe, and *tuk tuk*. For the first time, questions on household assets were included in a national census although they have been consistently covered in national household surveys such as the Welfare Monitoring Survey (I, II and III) and the Kenya Integrated Household Budget Survey

2005/2006. Responses to question H28 are analyzed and reported in this monograph while H17 are not.

Dwelling space was measured through responses to questions H18 and H19 while the quality of structure in terms of construction materials was measured from questions H21 through H23. Availability of amenities such as water, electricity, sewage disposal and cooking and lighting fuels was measured in H24-27. Additionally, dwelling ownership (tenure status) was measured through H20. Information on homelessness was obtained from the short questionnaire on vagrants and outdoor sleepers. The rate of homelessness can be thus inferred.

Information on the conditions of the dwelling unit, dwelling ownership and homelessness, and household assets are aggregated according to residence (rural/urban), province and counties. Information on housing conditions is compared with findings from previous censuses and related surveys to gauge changes in the housing situation in Kenya.

1.3.4 Data Quality

Demographic data collection in Kenya and elsewhere is riddled with problems of administration and logistics. These give rise to coverage and content errors, which vary in nature and magnitude from one country to another and one region to another. Coverage errors result from omission of certain pockets of the population, while content errors pertain to misreporting or misclassification of events. The errors cause biases and distortion in the estimates based on such data.

For example, the results show that a proportion of households (less than 0.1 percent) in Nairobi occupy grass thatched dwellings, makuti thatched and had roofs made of mud and dung, which is doubtful. The main source of drinking water in Nairobi included water from the stream, pond and lake (about 0.1 percent). In sanitation, 0.5 percent of households in Nairobi were reported using bucket latrines.

1.4 Definitions of Concepts

Consolidated Housing Quality Index (CHQI): an indicator of housing quality derived by combining the quality of construction materials of the structure (roof, wall and floor) and the level of service provision (water, drainage) and energy for cooking and lighting.

Conventional Household: usually consists of a person or a group of persons who live together in the same homestead or compound but not necessarily in the same dwelling unit, have common housekeeping arrangements, and are answerable to the same household head. It is important to note that members of such household are not necessarily related by blood or marriage.

Cooking Fuel: the type of energy the household uses for cooking such as LPG, electricity, paraffin, charcoal and firewood.

County: the local territories of devolved governance listed in the First Schedule of the Constitution of Kenya, 2010.

Durable Floor: any floor made of wood, terrazzo, concrete, wood tile, brick, cement, or quarry tile.

Durable Roof: any roof made from tin, tiles, concrete, corrugated iron and asbestos sheets.

Durable Wall: any wall made from brick, block, stone and concrete.

Dwelling Unit: This is a place from abode or residence occupied by one or more households with a private entrance. It is made of a structure which a household uses for sleeping, eating, entertaining guests, etc. A dwelling unit may be a whole structure or part of a structure, especially in the urban setting.

Habitable Room: any room in a dwelling unit that is used mainly for living and excludes stores, granaries, offices, toilets and garages. For the purpose of the 2009 KPHC, a kitchen or a store which under normal circumstances should not be counted as a habitable room were included, if members of the household used it for eating and/ or sleeping purposes or even for purposes, of entertaining guests.

Homeless Person: any person who fits into the type of nonconventional households of vagrants and outdoor sleepers.

Homelessness: the state or condition of being homeless.

Household Amenity: any facility or service made available to provide comfort or convenience to a household in the occupation and use of a dwelling unit e.g. electricity, sewerage, water.

Household Asset: any of the movable property belonging to a particular household. For the purposes of the 2009 Census these include radio, TV, car, truck/lorry/tractor/bus, canoe, mobile phone, refrigerator, landline telephone, boat, animal drawn cart, computer, bicycle, motorcycle and auto rickshaw (*tuk tuk*).

Household Head: This is the most responsible member of the household who makes key decisions of the household on a day-to-day basis and whose authority is recognized by all members of the household. It could be the father, mother or a child, or any other responsible member of the household depending on the status of the household.

Household Size: the total number of persons living in one household.

Housing Need: The number and type of housing units required to accommodate a population at a given standard of housing occupancy within a designated geographical area.

Housing Quality: adequacy of housing in terms of structural standards and level of provision of services.

Housing: the processes and outcomes of the production (construction) and consumption (use) of residential (living) shelters. It includes the physical product, the process that yields

the product, and the socio-cultural and environmental circumstances in which the product is developed, delivered and used. It also involves the process of analyzing the shelter needs of society, organizing the resources and facilitating society to access shelter that is adequate, affordable, functional and environmentally sustainable.

Human Waste Disposal: the handling of human excreta including faeces and urine.

Informal Settlements: The operational definition of informal settlement applied during the 2009 Census cartographic mapping entails an area that combines, to various extents, the following characteristics: inadequate access to safe water, inadequate access to sanitation and other infrastructure, insecure residential status, overcrowding and poor structural quality of housing. Any settlement which depicted at neighbourhood levels, a combination of at least two of the above characteristics or elements, was designated as informal settlement during mapping.

Lighting Fuel: the types of energy used for providing lighting in dwelling units such as electricity, and paraffin applied in lanterns.

Nonconventional Households: type that does not fit the criteria of conventional household such as groups of people who live together but cannot be said to belong to an "ordinary" household e.g. hospital inpatients, people in police cells, travelers, guests in hotels, or prison inmates and outdoor sleepers.

Number of Persons per Room: the density indicator derived by dividing the number of people in a household (or population of any spatial unit) by the number of habitable rooms available for the households (or spatial unit).

Rural: a large and isolated area of an open country, often with low population density.

Source of Water: the point at which a household accesses water for domestic use.

Tenure: the proprietary status indicating whether households are owners or tenants in their dwellings.

Urban Area: any aggregate part of the county, region or country, made up of urban centres or parts of urban centres.

Urban Centre: a built-up and compact human settlement with a population of at least 2,000 people defined without regard to the local authority boundaries. It is normally a trading, market and service centre that provides goods and services to both the resident and surrounding population.

Chapter 2-Housing Conditions

Housing conditions are useful as physical indicators of the social and economic well-being of the population. In the 2009 Census household heads were asked questions about the proprietary and physical conditions of their dwellings, specifically concerning:

1. Accommodation (number of dwellings and habitable rooms)
2. Tenure status of the main dwelling unit
3. Construction materials of the main dwelling unit (roof, wall and floor)
4. Amenities (source of water, mode of human waste disposal, and type of cooking and lighting fuels).

This Chapter covers housing conditions in terms of habitable rooms in relation to number of households and the population, tenure status, and construction materials.

2.1 Dwelling Space

2.1.1 Dwelling Units and Habitable rooms

Table 2.1 shows that there were 15,390,410 dwelling units in Kenya with 23,396,005 habitable rooms occupied by 8,767,954 households and 38,412,088 persons. Information at county level and for rural and urban regions is presented in Appendix Table 2

Table 2.1: Summary of Housing Indicators by Residence, 2009

Indicators	Region		
	Rural	Urban	Kenya
Number of dwellings	10,621,370	4,769,040	15,390,410
Number of households	5,429,236	3,338,718	8,767,954
Number of habitable rooms	16,110,418	7,285,587	23,396,005
Total population	26,388,518	12,023,570	38,412,088
Number of persons per room	1.6	1.7	1.6

In general, the results show that there is not enough rooms per person, as the average persons per habitable room was 1.6 compared with the expected standard of one habitable room per capita. The population of 38,412,088 persons had only 23,396,005 habitable rooms.

The average number of persons per habitable room was lower in rural areas than in urban areas, indicating a general shortage of housing in urban areas. This was the reverse in ASAL areas

2.1.2 Number of Persons per Room

Table 2.2 indicates the average number of persons per room by residence (rural and urban). Comparison is also made for Kenya based on earlier population censuses and between Kenya and other countries. Questions on number of dwelling units and number of habitable rooms were not included in the 1989 Census. However, comparisons are made with the 1999 Census as shown in Table 2.2. The data indicates a slight overall increase in the number of persons per room from 1999 to 2009, with an increase in rural areas while in urban areas it was constant at 1.7.

Table 2.2: Average Number of Persons per Room by Residence, 1999 and 2009

Region	1999	2009
Kenya	1.6	1.6
Urban	1.7	1.7
Rural	1.5	1.6

At the international level, comparisons are made by listing countries with the lowest and the highest rankings of number of persons per room as shown in Table 2.3. Further details on international rankings are presented in Appendix 3. Some of the data in these tables date back many years but are the latest available from the United Nations Statistics Division.

Table 2.3 International Comparison of Average Number of Persons per Room

	Country	Average
Countries with Lowest Averages	Canada	0.5
	Germany	0.5
	New Zealand	0.5
	Sweden	0.5
	United Kingdom	0.5
	United States	0.5
Countries with Highest Averages	Honduras	2.2
	Sri Lanka	2.2
	Nicaragua	2.6
	India	2.7
	Pakistan	3.0
sub-Saharan countries	Cameroon	0.5
	Mauritius	1.2
	Gambia	1.5
	Kenya	1.6
	Lesotho	2.1

The Kenyan average of 1.6 persons per room compares well with other developing countries such as Bolivia, Gambia, Iraq and Panama. Some developing countries such as Azerbaijan, Lesotho, Pakistan, Sri Lanka, Nicaragua and Syria are far below Kenya, while Egypt, Mauritius and Cameroon are far above. Developed countries are far ahead of Kenya with densities as low as 0.5 persons per room.

2.1.3 Habitable Rooms and Household Size

The average number of persons per habitable room may be too general to give a clear indication of the extent of crowding. A clearer indication of crowding, especially in urban areas, is the distribution of households by household size and number of habitable rooms occupied as shown in Appendix 4. For a one habitable room dwelling, there is no problem with one person occupying it. However, when the household size exceeds one, crowding is apparent. The worst situation is when 3 or more persons occupy a single habitable room. In Nairobi, for example, 3 or more persons occupy a single habitable room in 287,844 households. This is an indication of crowding. In case of two habitable rooms, crowding begins with household size of 3 or more. In three or more habitable roomed dwellings crowding may be minimal given the average household size.

2.2 Tenure Status

Tenure refers to the proprietary status indicating whether households are owners or tenants in their dwellings. The census question required household heads to state the holding status of their main dwelling unit whether owned or rented. Owner occupation could take three forms, namely; purchased, constructed, or inherited. Rental occupation could differ according to type of owner of dwelling such as public landlords (parastatal, central or local government), private landlords (individual or corporate entities) or nongovernmental landlords (faith based organization or nongovernmental organization).

2.2.1 Tenure Distributions

Table 2.4 shows that about 68.0 percent of households own dwellings they occupy, comprising 44.4 percent male-headed households and 23.6 percent female-headed households. In the rural areas more households, 89.0 percent owned dwellings than in urban areas, 33.8 percent. Appendix 5 gives further details by County.

Table 2.4: Percentage Distribution of Households by Tenure and Sex of Head of Household

Tenure	Sex	Region		
		Urban	Rural	Kenya
Own	Male	23.0	57.6	44.4
	Female	10.9	31.4	23.6
	All	33.8	89.0	68.0
Rent	Male	49.0	7.6	23.5
	Female	17.0	3.4	8.5
	All	66.0	11.0	32.0

Table 2.5: Percentage Distribution of Households by Tenure Status

Tenure	Type	Region	
		Nairobi	Kenya
Owner occupied	Purchased	6.2	3.0
	Constructed	5.7	62.4
	Inherited	1.6	2.7
	All	13.5	68.0
Rented	Government	2.6	1.3
	Local Authority	2.6	0.7
	Parastatal	1.4	0.5
	Private Company	3.2	1.8
	Individual	75.2	26.8
	Other	1.0	0.5
	All	86.5	32.0

Table 2.5 shows that of 62.4 percent of all households occupied were own constructed as opposed to being purchased, rented or inherited. A further 26.8 percent were renting from individual landlords. In particular Nairobi provides a sharp contrast to the national picture. In Nairobi 75.2 percent of the households rented from individual landlords and only about 5.7 percent had constructed their own houses compared to the national average of 62.4 percent.

Appendix 6 presents percentage distribution of households by tenure status in select urban centres. Only 13.5 percent of households in Nairobi own the houses they live in, while the vast majority, 86.5 percent, are tenants. The least contributor to housing stock in general was FBO/NGO landlords. Malindi town had the highest proportion of households who

owned their dwelling, at 55.5 percent, followed by Nyeri town at 46.4 percent. Nairobi had the least, 13.5 percent and Thika 16.2 percent. In Nairobi and Thika, over 70 percent of housing is rented from individual landlords. Although one of the mandates of local authorities is provision of housing in their respective jurisdictions, their contribution was rather low. Nakuru had the highest proportion of local authority housing at 4.0 percent while Ruiru Town had the lowest at 0.4 percent.

2.2.2 Tenure Characteristics and its Implications

Figures 2.1 shows total average number of habitable rooms by residence (rural/ urban), while Figure 2.2 shows the average number of habitable rooms by tenure status (owned/rented). Figures 2.3 and 2.4 present tenure status (own/rented) for rural and urban areas, respectively.

Figure 2.1: Number of Households by Habitable Rooms and Residence

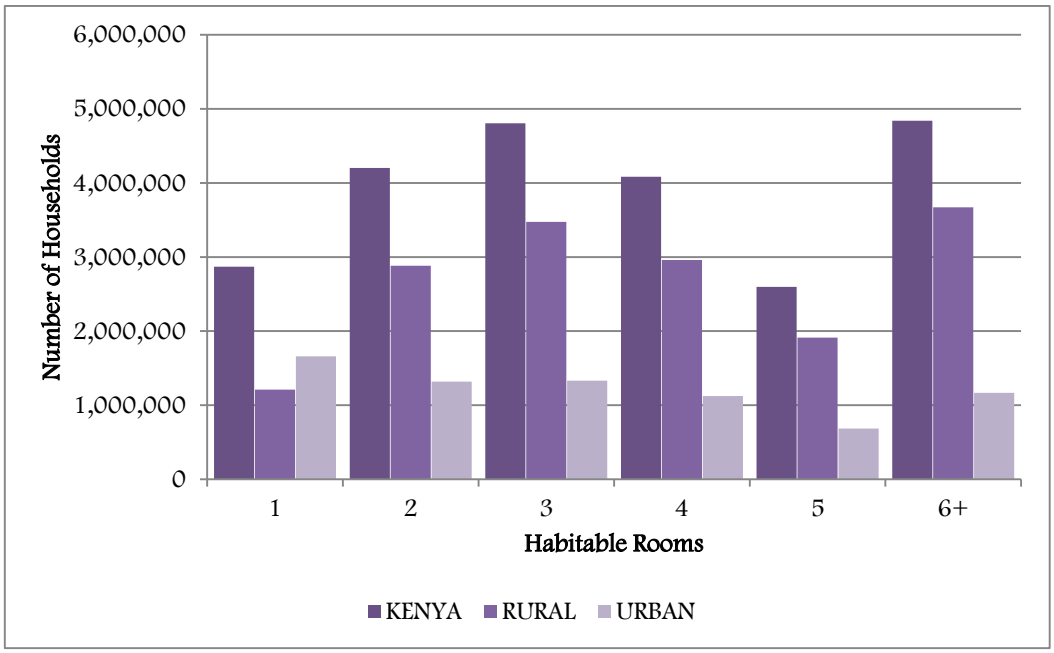


Figure 2.1 shows that relatively more urban households occupy single rooms compared with rural households. Figure 2.2 shows that majority of households occupying single rooms in Kenya were renters, although the situation reversed with higher numbers of habitable rooms. The proportion of renting households steadily reduces as the number of habitable rooms increase. The distribution of households by number of habitable rooms shows a steady increase from one habitable room to peak at three habitable rooms and then decline steadily. The rise in the number of households for 6+ (six or more habitable rooms) can therefore be excluded when the trend in the number of households occupying habitable rooms is analyzed.

Figure 2.2: Total Number of Habitable Rooms in Own and Rent Tenure Status

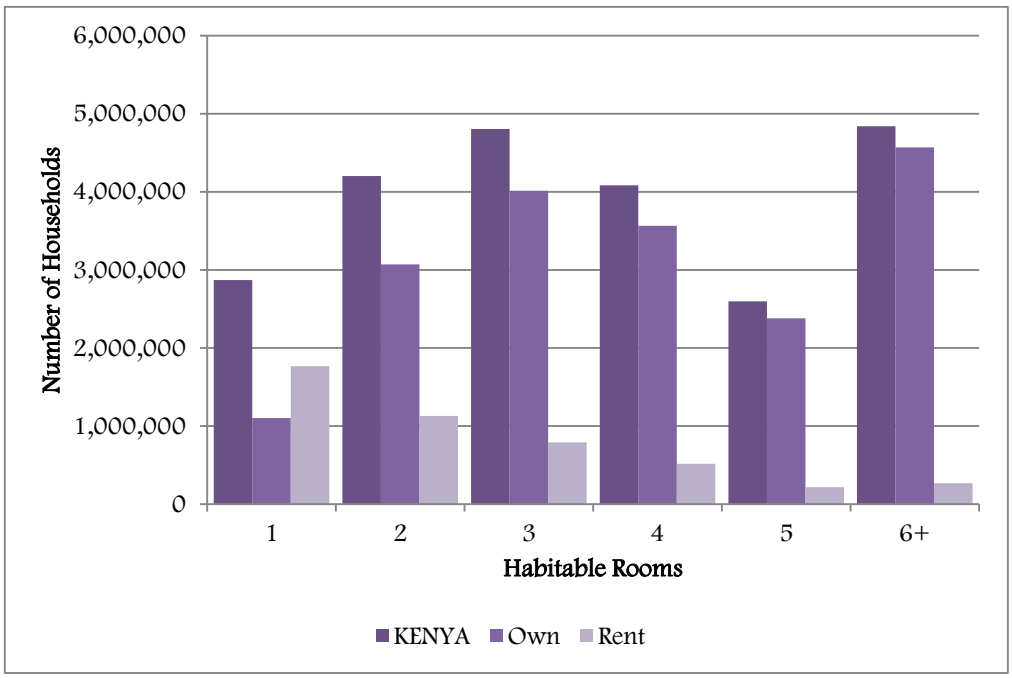


Figure 2.3: Number of Households by Habitable Rooms and Tenure Status, Rural Kenya

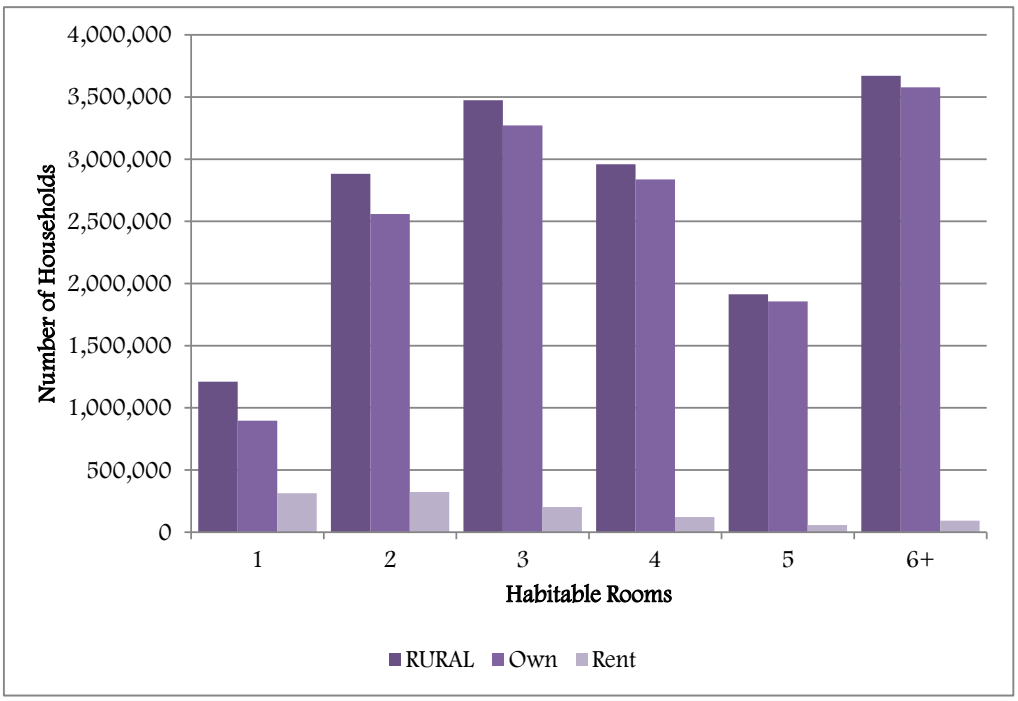
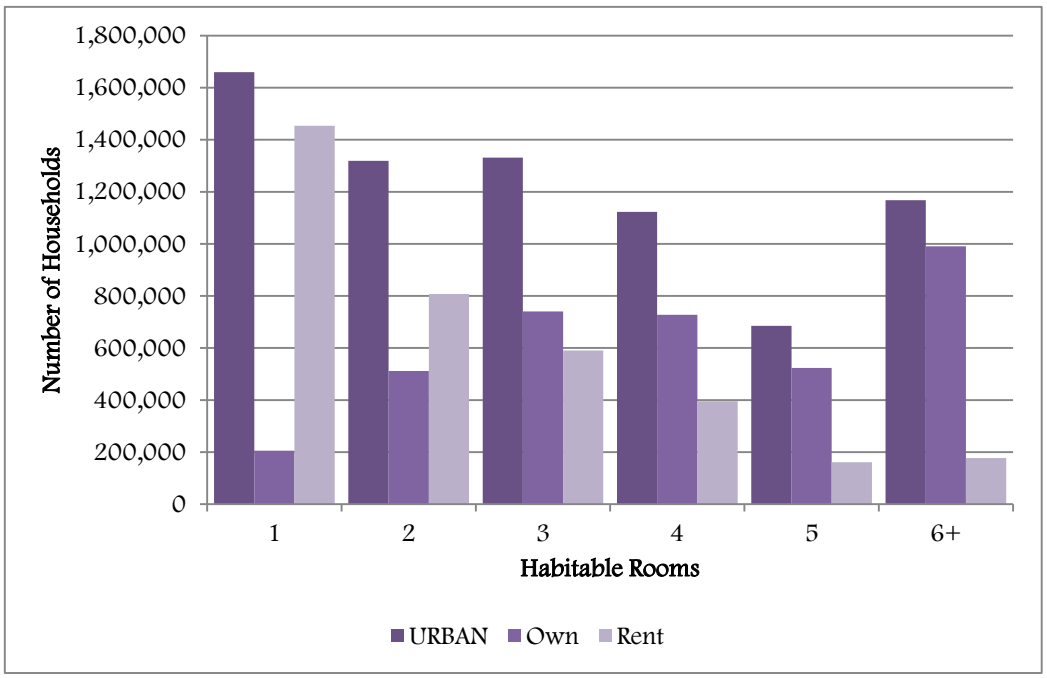


Figure 2.3 indicates that across all the number of habitable rooms, most households own rather than rent their dwellings in the rural areas. In urban areas, renting decreases steadily as the number of habitable rooms increase, and single rooms accommodate the greatest number of households. Figure 2.4 presents number of households by habitable rooms and tenure status in urban areas. The number of households tends to decline steadily with increase in number of rooms, although 2 and 3 habitable rooms seem to house almost an equal number of households.

Figure 2.4: Number of Households by Habitable Rooms and Tenure Type, Urban Kenya



2.3 Construction Materials of the Main Dwelling Unit

The type of construction materials can give a general picture of the structural condition of the building mainly based on consideration of the durability of the material. It can also provide a general picture of the economic condition of the household.

The concepts of durable material as defined by the *Urban Housing Survey 1983* (Republic of Kenya, 1986) were adopted as follows:

- Durable roof: any roof made of tin, tiles, concrete, and corrugated iron and asbestos sheets,
- Durable wall: any wall made of bricks, blocks, stones and concrete,
- Durable floor: made of wood, terrazzo, concrete, wood tiles, brick, cement, [and] quarry tiles.

Table 2.6: Analytical Categorization of Roof, Wall and Floor Material of Main Dwelling Unit

Construction Material	Durable	Non-durable
Roof	Corrugated iron sheets	Grass
	Tiles	Makuti
	Concrete	Mud/Dung
	Asbestos sheets	
	Tin	
Wall	Stone	Mud/wood
	Brick/block	Mud/cement
		Wood only
		Corrugated iron sheets
		Grass/reeds
		Tin
Floor	Cement	Earth
	Tiles	
	Wood	

2.3.1 Roof

Table 2.7 shows that 81. 6 percent of households in Kenya occupy dwellings falling under the durable category consisting of corrugated iron sheets, tiles, concrete, asbestos sheets. In Nairobi, almost all households occupy dwellings of durable roof materials.

Table 2.7: Percentage distribution of households by roof materials and Residence

Type of Material	Region			
	Nairobi	Urban	Rural	Kenya
DURABLE MATERIALS	99.7	95.9	72.8	81.6
Corrugated iron sheets	65.3	78.9	69.8	73.2
Tiles	9.7	4.6	0.7	2.2
Concrete	21.2	9.1	0.2	3.6
Asbestos sheets	3.1	2.9	1.9	2.3
Tin	0.4	0.3	0.3	0.3
NONDURABLE MATERIALS	0.1	3.8	26.2	17.7
Grass	0.0	2.2	20.7	13.7
Makuti	0.1	1.6	4.3	3.2
Mud/Dung	0.0	0.1	1.2	0.8
OTHER	0.2	0.3	1.0	0.7

Despite the positive picture at the national level, there are significant disparities across counties. For instance, Appendix 7 shows that mud/dung is used in significant proportions in West Pokot, Kajiado, Samburu and Narok counties. Makuti is considered nondurable materials and is dominant in the coastal counties of Kwale (49.8 percent), Kilifi (44.8 percent) and Lamu (34.8 percent) where its use is significant even within urban centres. However, the use of makuti does not necessarily imply low quality housing because of its excellent thermal insulation properties given the climatic conditions where it is dominant despite the fact that it is poor in fire resistance.

Grass is dominantly used in Wajir, 86.2 percent; West Pokot, 67.0 percent; Mandera, 61.6 percent; Garissa, 60.3 percent and Tana River 56.4 percent. In Nyanza, use of grass is dominant in Siaya, 32.1 percent.

The use of non-durable roof materials was not replicated in the major urban areas. Appendix 8 shows that the main roofing material in urban areas was corrugated iron sheets at 78.9 percent, followed by concrete at 9.1 percent and tiles at 4.7 percent. Together with asbestos sheet and tin, the use of durable roof materials was used by 95.9 percent of urban households.

2.3.2 Wall

About a third (33.4 percent) of the households live within durable walls, i.e. stone, 16.6 percent and brick/block, 16.8 percent. In rural areas, only 19.3 percent of the households were living in dwellings with walls made of durable materials, compared with urban areas at 56.6 percent as presented in Table 2.8.

Table 2.8: Percentage Distribution of Households by Type of Wall Material and Residence

Type of Material	Region			
	Kenya	Nairobi	Urban	Rural
DURABLE MATERIALS	33.4	61.4	56.6	19.3
Stone	16.6	47.4	34.5	5.6
Brick/Block	16.8	14.0	22.0	13.7
NON-DURABLE MATERIALS	65.7	38.5	43.2	79.4
Mud/Wood	36.7	3.7	15.1	50.0
Mud/Cement	7.7	5.3	7.9	7.6
Wood only	11.1	1.9	5.8	14.4
Corrugated iron sheets	6.6	26.9	13.3	2.5
Grass/Reeds	3.2	-	0.8	4.6
Tin	0.3	0.6	0.3	0.3
OTHER	0.9	0.1	0.3	1.3

In non-urban based counties, lower Eastern led in the use of durable wall materials because of the inclination to use brick in wall construction. Machakos with 86.1 percent; Makueni, 75.2 percent and Kitui 66.4 percent had the highest nationally in the use of durable wall materials.

Counties outside lower Eastern with high use of durable wall materials include Kiambu, 53.2 percent and Taita Taveta, 48.0 percent. Households in Kiambu mainly use stone while those in Taita Taveta use bricks. As in the case of roof materials, households from the ASAL regions had low percentages of households in dwellings with durable walls. They include Mandera, 7.4 percent; Wajir, 7.1 percent; Marsabit, 6.5 percent; West Pokot, 5.5 percent and Samburu, 5.3 percent. Turkana had the lowest, 4.6 percent.

Appendix 10 shows the prevalence of durable walls for selected urban centres. A reported 56.6 percent of households in all urban areas live within durable walls, with Ruiru Town leading at 86.3 percent, followed by Thika Town at 82.6 percent. Ruiru and Thika are located within the reach of stone quarries in Juja and present the highest percentages of households living in stone houses at 78.5 percent and 77.3 percent, respectively.

2.3.3 Floor

Table 2.9 presents the percentage distribution of households by floor materials and residence. A reported 56.5 percent of households live on earth floors. In rural areas, households who live on earth floors were 76.8 percent. This means that less than a quarter of rural households enjoy the privilege of durable floors. The scenario is reversed for urban households where less than a quarter of the households live on earth floor and 76.5 percent of households live in dwellings with cemented floors.

Table 2.9: Percentage Distribution of Households by Type of Floor Material and Residence

Type of Material	Region			
	Kenya	Nairobi	Urban	Rural
Durable materials	43.3	91	76.5	23
Cement	41	82.3	72	22
Tiles	1.6	6.7	3.5	0.3
Wood	0.8	2	0.9	0.7
Nondurable material (Earth)	56.5	8.9	23.4	76.8
Other	0.2	0.1	0.2	0.2

Within the rural-based counties, the ASAL areas had the highest scores on earth floors, with Turkana leading at 92.0 percent, followed by Mandera, 91.7 percent; Wajir, 91.5 percent; Tana River, 88.0 percent; West Pokot, 86.7 percent and Samburu 82.7 percent. In Nyanza Province, Kisii led had the highest households with earth floor, at 77.4 percent. It was followed by Nyamira, Homa Bay, Migori and Siaya, at 76.3 percent, 74.7 percent, 72.0 percent and 70.1 percent respectively. In Western Province, Kakamega had the highest at 80.3 percent. Counties with the lowest households with earth floors were Nakuru, Machakos, Kajiado and Kiambu, with 46.8 percent, 39.8 percent, 38.9 percent and 22.3 percent respectively.

Appendix 12 shows the distribution of types of floor for selected urban centres. Less than a quarter of the floors for main dwelling units in urban areas, 23.4 percent, were earth. However, some urban centres had poor indicators, including Kitale with 39.3 percent earth floors, Nyeri with 32.4 percent and Kisumu, 31.6 percent. Ruiru had the best indicators among the selected urban centres with only 7.2 percent of households on earth floors, closely followed by Nairobi at 8.9 percent and Nakuru at 13.0 percent.

Appendix 13 and 14 detail the distribution of construction materials of the roof, wall and floor, with regard to durability, for the counties and selected urban centres.

Chapter 3-Household Amenities and Assets

3.1 Amenities

Amenities are important physical attributes of housing. In turn, the quality of housing and the living environment is enhanced, and also affected, by the level of housing amenities and services. For instance, neighborhoods without decent and adequate sanitation will negatively affect the water bodies near them. This is evidently the case with informal settlements situated along the Nairobi River. Housing amenities such as water, sanitation as well as cooking and lighting fuel are an integral component of adequate housing (UN-Habitat, 1996).

3.1.1 Main Source of Water

Safe drinking water is a fundamental human need. In particular, poor access to safe drinking water is a recipe for public health hazards in a country or community. Kenya recognizes these factors and has entrenched the right to water in section 43(1)(d) of the Constitution which states that "every person has the right to clean and safe water in adequate quantities".

The Constitutional provision is a statement of national commitment to the Millennium Development Goal 7, Target 10, which aims to "halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation".

In order to facilitate the achievement of both global and national targets on access to safe water, the Government in 1999, initiated far reaching reforms in the water sector that aimed at addressing policy, legal and institutional deficiencies in the sector. These efforts led to Sessional Paper No. 1 of 1999 on National Policy on Water Resources Management and Development and the Water Act, 2002.

However, there are many challenges confronting the water sector in Kenya.

- Cost of service: The poor pay 5 to 10 times more for water supply and sanitation (WSS) services than the rich who have ready access to services.
- Access to services: The urban and rural poor have limited access to WSS services.
- Attracting private investment capital: The funds available from the Government and development partners are not enough to meet the MDGs.
- Corporate Governance: It is difficult for stakeholders in the Water Service Boards (WSBs) and Water Service Providers (WSPs) to hold their directors and top managers to account.

In terms of quantity, various international organizations have made recommendations for basic drinking water and sanitation requirements. For instance, the United States Agency for International Development (USAID), the World Bank and the World Health Organization (WHO) have recommended between 20 and 40 litres per capita per day (lpcd), each of which excluded water for cooking, bathing and basic cleaning. This is also in line with recommended standards from the UN International Drinking Water Supply and Sanitation Decade and Agenda 21 of the Earth Summit.

Gleick (1996), on the other hand, recommends a basic water requirement of 25 lpcd to meet the most basic of human needs with an additional 15 lpcd for bathing and 10 lpcd for cooking giving a total of 50 lpcd, as shown in Table 3.1. It is important that national and international entities commit to meeting these four domestic basic needs (drinking, bathing, sanitation and food preparation) independent of climate, technology, and culture.

Table 3.1: Recommended Basic Water Requirement for Human Domestic Needs

Purpose	Recommended commitment (litres per person per day)	Range (litres per person per day)
Drinking water [b]	5	2 to 5
Sanitation services [c]	20	0 to over 75
Bathing	15	5 to 70[d]
Food preparation	10	
Total Recommended Basic Water Requirement	50	

[a] Excluding water required to grow food.
[b] This is a true minimum to sustain life in moderate climatic conditions and average activity level.
[c] An average (not minimum) of 40 l/p/d is considered adequate for direct sanitation hookups in industrialized countries. The upper end of the range represents extremely inefficient toilets. In water-short regions, sanitation systems that use no water are available, but rarely embraced socially.
[d] The upper values here represent societal preferences for moderately industrialized countries. Use in some water-rich regions may exceed these amounts. The lowest values reflect minimum uses in developing countries.
Source: (Gleick, 1996)

A significant proportion of people particularly in developing countries lack access to even this basic water requirement of 50 lpcd. More often than not, the inadequacy is due both to water unavailability and the quality of water available for human consumption.
The analysis normally recognizes key indicators with regard to safe and adequate water that includes access (based on source, distance and cost) and availability (based on quantity and sometimes seasonal factors). In this monograph, the analysis is based on quality of main source of drinking water, as this was the only indicator covered in the 2009 KPHC.
The analysis categorized the water sources into improved and unimproved sources as follows.

Table 3.2: Analytical Categorization of Main Sources of Water

Category	Main source
Improved	Piped into dwelling
	Piped
	Rain harvested
	Borehole
	Protected well
	Protected spring
Unimproved	Unprotected well
	Unprotected spring
	Jabias
	Stream/River
	Vendor
	Lake
	Dam
	Pond

Table 3.3 presents summary data at the national level, while details at county and urban centre levels are presented in Appendix 15 and 16 respectively. In addition, Map 3.1 presents a cartographical mapping of the households' main source of drinking water at sub-location level.

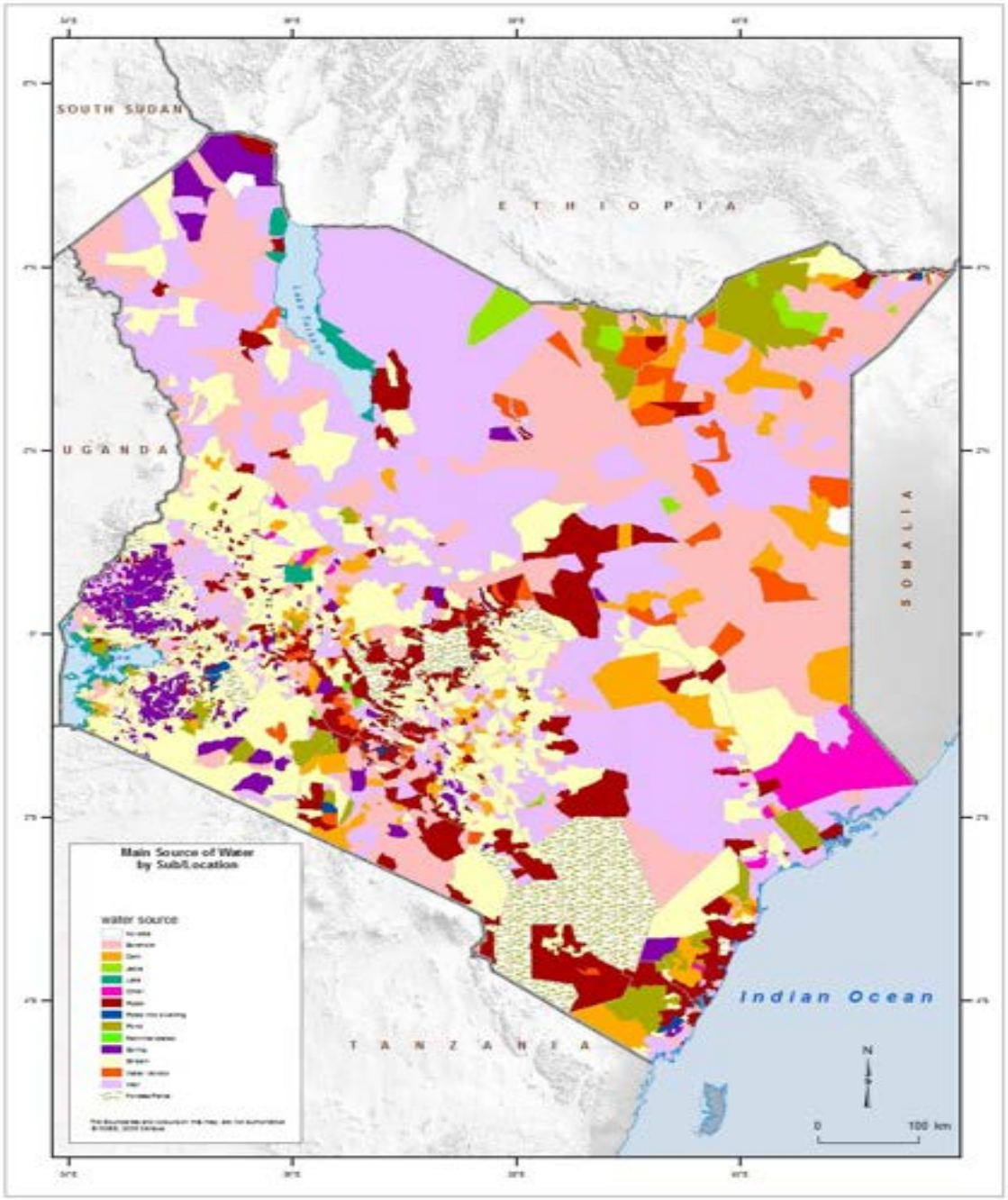
At the national level, 56.1 percent of households mainly draw water from improved sources, 43.7 percent from unimproved sources and 5.2 percent from unsafe sources, as shown in Table 3.3. A reported 45.4 percent of rural households mainly obtained water from improved sources, compared to 73.4 percent of urban households. Over half of rural households, representing 54.3 percent, obtain their water from unimproved sources, compared to 26. 5 percent of households in urban areas.

Table 3.3: Percentage Distribution of Households by Main Source of Water by Residence

Source	Region			
	Nairobi	Urban	Rural	Kenya
IMPROVED	82.7	73.4	45.4	56.1
Piped into dwelling	23.4	14.4	2.3	6.9
Piped	52.3	38.7	13.5	23.1
Rain harvested	0.1	0.5	1.0	0.8
Borehole	6.0	10.5	11.3	11.0
Protected well	0.6	6.1	8.1	7.4
Protected spring	0.4	3.3	9.3	7.0
UNIMPROVED	17.3	26.5	54.3	43.7
Unprotected well	0.2	2.2	7.8	5.7
Unprotected spring	0.1	1.5	6.2	4.4
Jabias	0.1	0.2	0.4	0.3
Stream/River	0.1	7.5	30.3	21.6
Vendor	16.5	13.4	2.3	6.5
Lake	0.0	0.5	1.5	1.1
Dam	0.1	0.5	2.8	2.0
Pond	0.2	0.6	3.0	2.1
Other	0.1	0.1	0.4	0.3

In comparison with 1999 Census, the proportion of households with access to safe water sources, particularly in relation to piped water, has stagnated at around 30.0 percent. This means that while the absolute number of households with access to piped water has increased over the years, the rate of increase has not been more than the rate of increase in population or households.

Map 3.1: Main Source of Drinking Water in Kenya for Households at Sub-Location Level



3.1.2 Main Mode of Human Waste Disposal

Achieving universal access to decent and safe sanitation is one of the least expensive and most effective means to improve public health and save lives. Decent sanitation minimizes exposure to excreta-related diseases that are caused by direct or indirect contact with pathogens associated with excreta and/or vectors breeding in excreta. This includes trachoma and most waterborne diseases. The importance of sanitation is underscored by the constitutional provision in Kenya which states in section 43. (1) (b) that "every person has the right to accessible and adequate housing and to reasonable standards of sanitation."

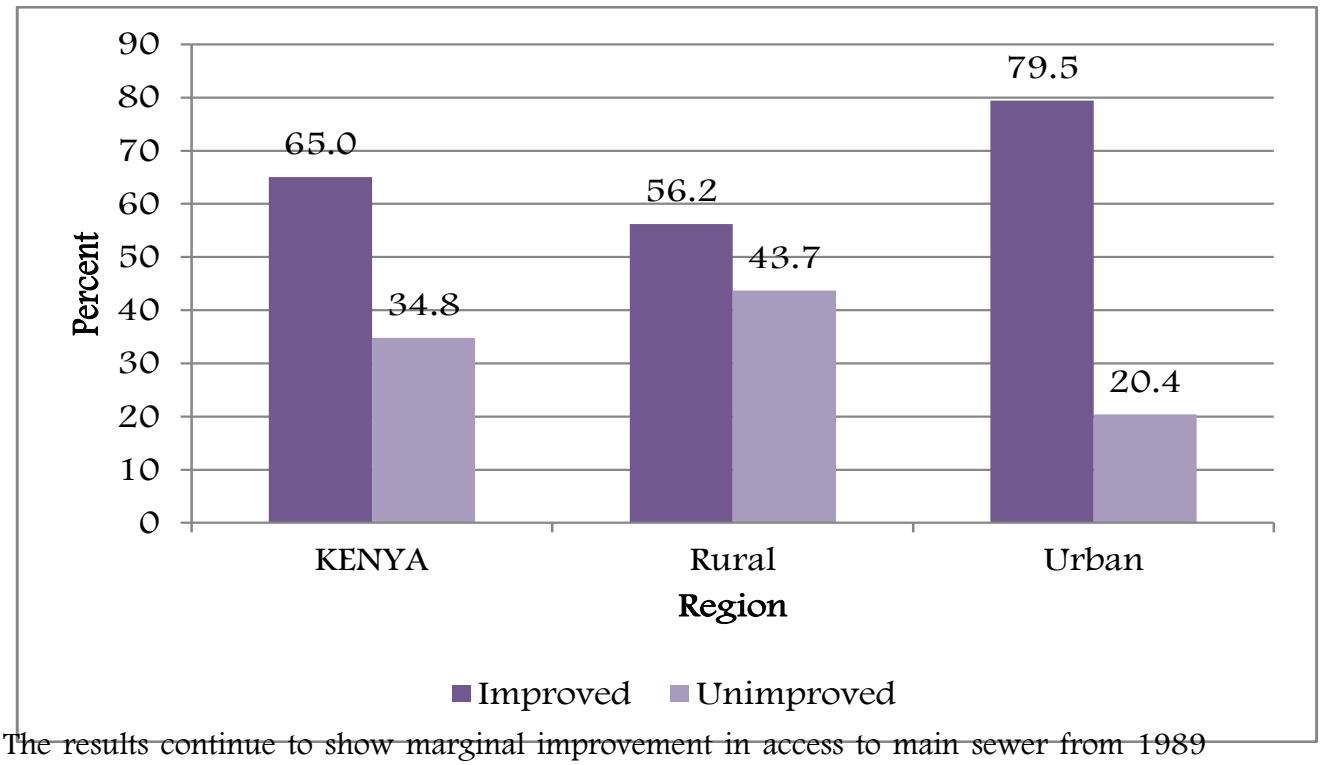
The 2009 Census data on main modes of human waste disposal has been analyzed based on the following categorization.

Table 3.4: Analytical Categorization of Main Mode of Human Waste Disposal

Category	Main Mode
Improved (Adequate)	Main sewer
	Septic tank
	Cess pool
	VIP Latrine
	Pit Latrine Covered
Unimproved (Inadequate)	Pit Latrine Uncovered
	Bucket Latrine
	Bush

Based on the above categorization, only 65.0 percent of households had access to an improved mode of human waste disposal while a significant 35.0 percent use unimproved facilities, as shown in Figure 3.1. A reported 14.0 percent of households did not have access to decent and safe human waste disposal facilities, and use bush as their main mode of human waste disposal as shown in Appendix17.

Figure 3.1: Percentage distribution of households by main mode of human waste disposal



The results continue to show marginal improvement in access to main sewer from 1989 through to 2009 Censuses. The proportion of households with access to main sewer slightly

improved from 6.7 percent in 1989 to 7.1 percent in 1999 and 7.7 percent in 2009. The analysis further shows that 13.6 percent of households used bush (had no sanitary facility), representing a drop of about 3 percentage points from 16.5 percent recorded in 1999. Sub-national data on main mode of human waste disposal by county for selected urban centres is presented in Appendices 17 and 18, respectively.

3.1.3 Water and Sanitation: International Comparison

For purposes of monitoring MDGs, comparisons can be made between Kenya and other countries as shown in Table 3.5.

Table 3.5: Percentages Distribution of Households by Access to Drinking Water and Sanitation Facilities in Selected Countries, 2009

Category	Country	Drinking Water			Sanitation		
		Total	Rural	Urban	Total	Rural	Urban
Developed	Australia	100	100	100	100	100	100
	Belgium	100	100	100	100	100	100
Developing	Argentina	96	93	98	90	77	91
	Bangladesh	80	78	85	53	52	56
sub-Saharan	Botswana	95	90	99	60	39	74
	Cameroon	74	51	92	47	35	56
	Congo	71	34	95	30	29	31
	Kenya	56	45	73	65	56	79

3.1.4 Main Type of Cooking Fuel

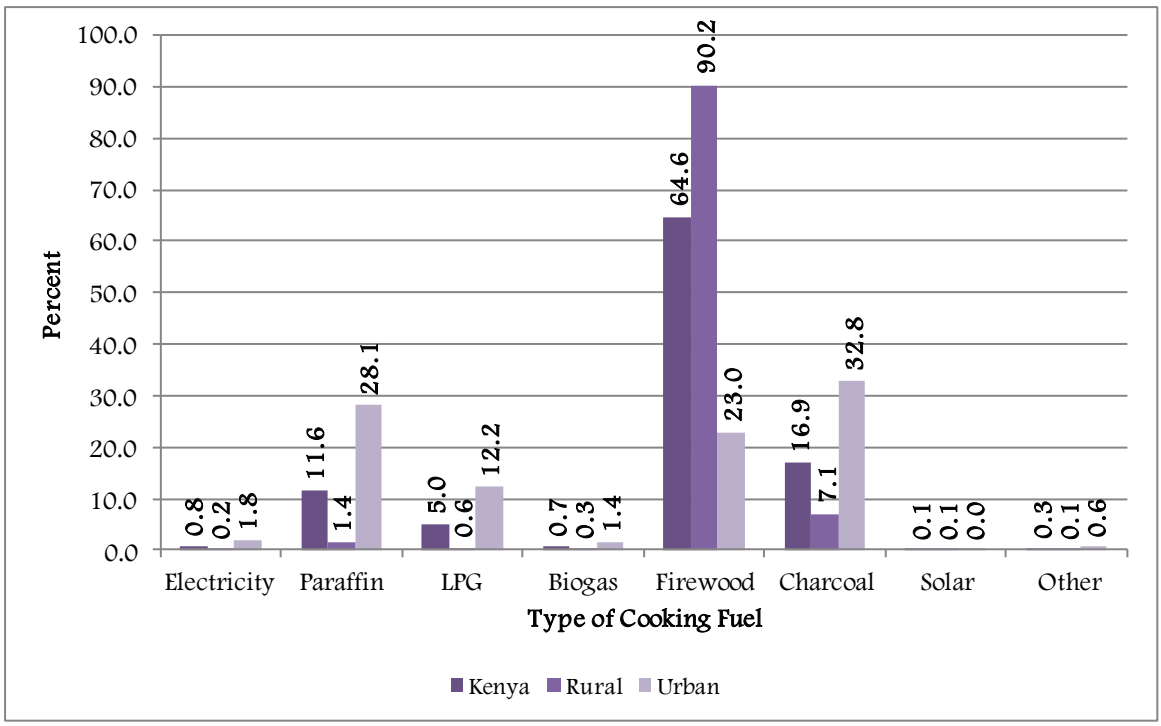
The type of cooking fuel has direct influence on levels of indoor air pollution. Cleaner cooking fuels such as electricity and solar are usually more expensive compared to less clean cooking fuels such as paraffin and firewood. This analysis categorized the types of cooking fuels into clean and dirty as shown in Table 3.6.

Table 3.6: Analytical Categorization of Main Type of Cooking Fuel

Category	Type of Fuel
Clean (Smokeless) Fuel	Electricity
	LPG
	Biogas
	Solar
Dirty (Smoky) Fuel	Paraffin
	Firewood
	Charcoal

The results show that 64.6 percent, 16.9 percent and 11.6 percent of households use firewood, charcoal and paraffin for cooking, respectively. Only 5.0 percent of households use LPG, which is a slight improvement from the 4.0 percent reported in 1999. However, the proportion of households using LPG for cooking in urban areas was substantial at 12.2 percent.

Figure 3.2: Percentage Distribution of Households by Main Type of Cooking Fuel and Residence



The proportion of households using paraffin for cooking increased from 15.5 percent in 1989 to 17.2 percent in 1999, but decreased to 11.6 percent in 2009. This may be attributed to the increase in the cost of petroleum products including paraffin, during the period.

Appendices 19 and 20 present detailed information on types of cooking fuels used by Kenyan households.

3.1.5 Main Type of Lighting Fuel

Table 3.7: Analytical Categorization of Type of Lighting

Category	Type of lighting
Clean (Smokeless)	Electricity
	Solar
	Gas Lamp
	Pressure Lamp
Dirty (Smoky)	Lantern
	Tin Lamp
	Fuel wood

As shown in Figure 3.3, majority of Kenyans in both rural and urban areas mainly use electricity, lantern and tin lamps as their main source of lighting fuel or appliance. A reported 51.2 percent of urban households use electricity for lighting compared to only 5.2 percent of rural households. A sizable majority of rural households, 90.3 percent depend on less clean energy for lighting, as they use paraffin-based appliances (lantern or tin lamps) and fuel wood. Cleaner lighting energy such as solar is still not widely used. For instance, only 1.6 percent of households use solar as their main source of lighting.

Figure 3.3: Percentage Distribution of Households by Main Type of Lighting Fuel or Appliance

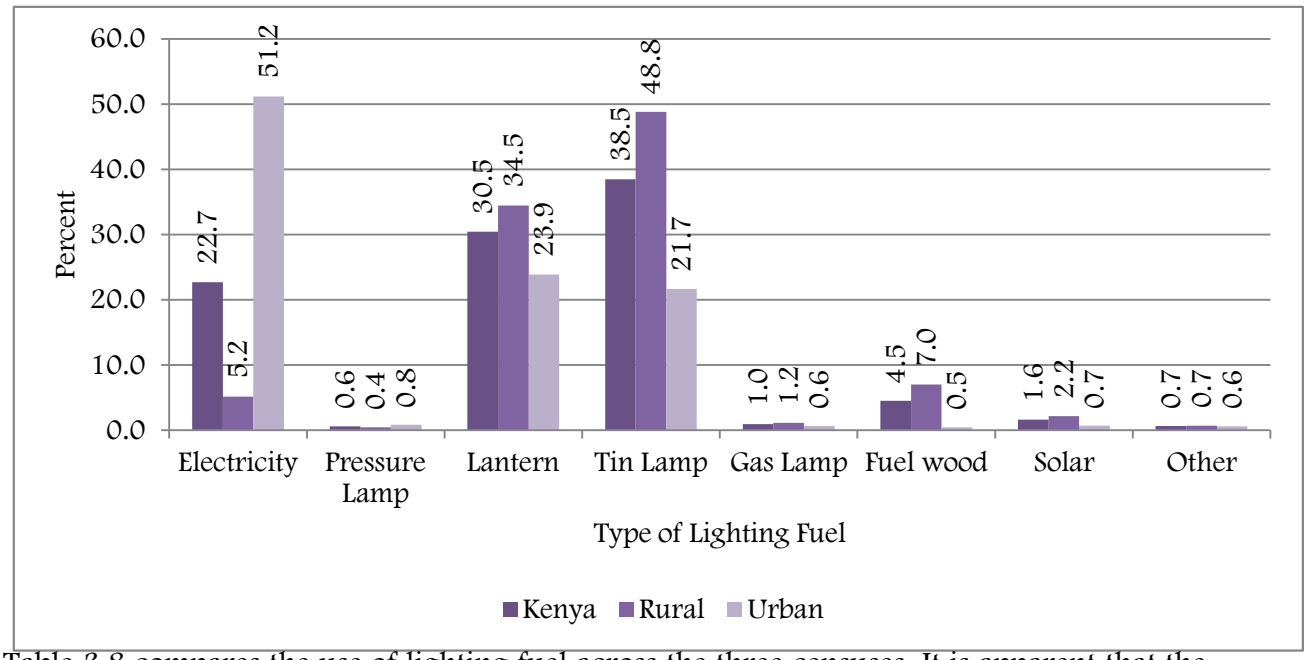


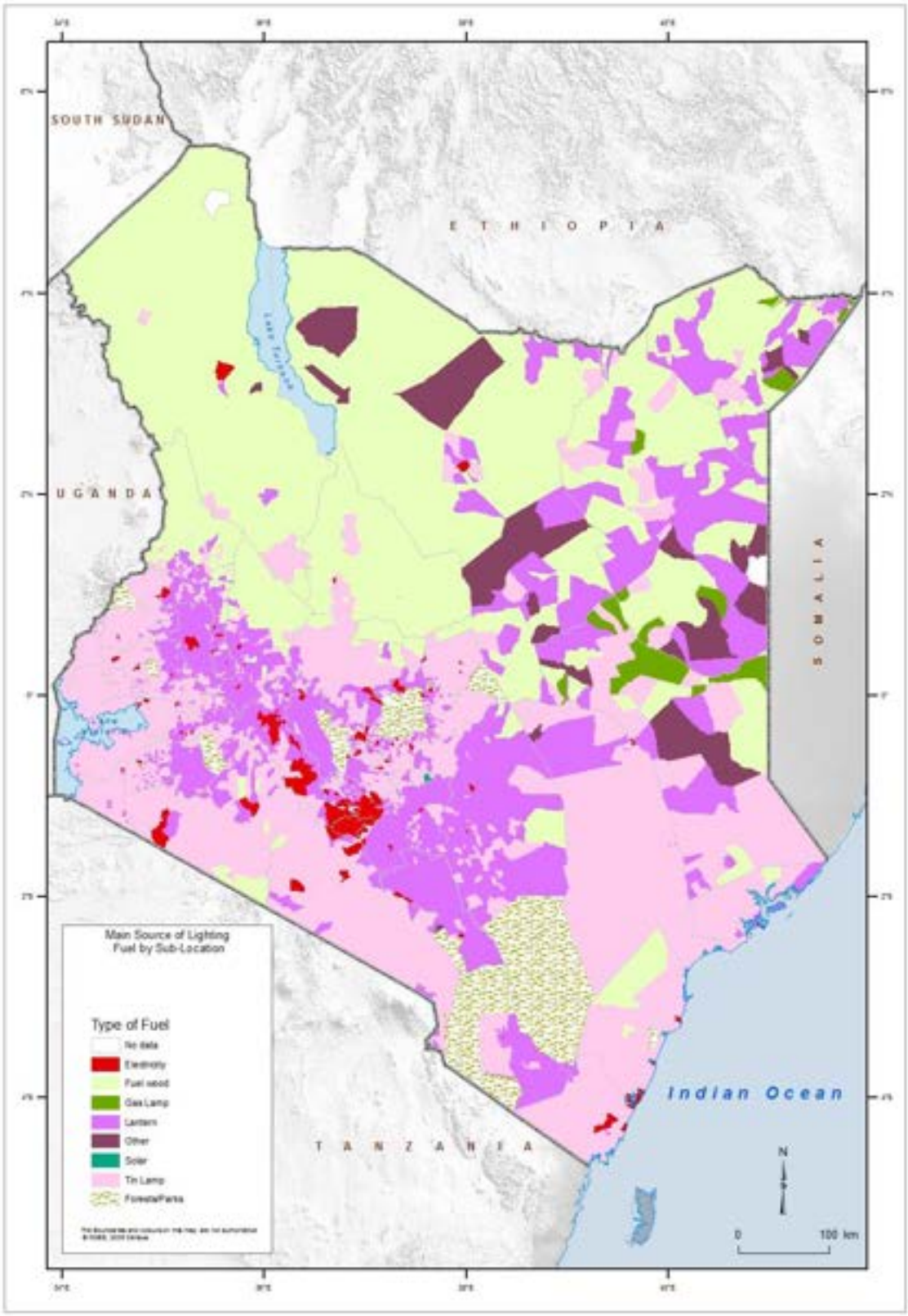
Table 3.8 compares the use of lighting fuel across the three censuses. It is apparent that the proportion of households connected to electricity has consistently increased from 8.7 percent in 1989 to 22.7 percent in 2009. Correspondingly, households using paraffin for lighting decreased from 81.3 percent in 1989 to 69.5 percent in 2009.

Table 3.8: Percentage Distribution of Households by Main Type of Lighting, 1989, 1999 and 2009

	Electricity			Paraffin			Other		
	1989	1999	2009	1989	1999	2009	1989	1999	2009
Urban	32.1	42.1	51.2	64.3	55.3	46.4	3.6	2.6	2.4
Rural	1.9	4.2	5.2	86.2	87.0	83.7	11.9	8.8	11.1
KENYA	**8.7**	**13.6**	**22.7**	**81.3**	**79.1**	**69.5**	**10.0**	**7.3**	**7.8**

Appendices 21 and 22 show the percentage distribution of households by type of lighting fuel, county and selected urban centres, while Map 3.2 shows the distribution at sub-locational level.

Map 3.2: Main Type of Lighting Fuel in Kenya for Households at Sub-Location Level



3.1.6 Use of Solid Fuel

For purposes of the monitoring of MDGs, cooking fuels have been categorized into solid and non-solid fuels, as shown in Table 3.9.

Table 3.9: Percentage Distribution of Households by Use of Solid Fuels in Kenya

Region	Percentage
Kenya	81.5
Rural	97.4
Urban	55.8
Nairobi	17.9

The table shows that 97.4 percent of the rural population relies on solid fuels. However, urban households rely relatively less on solid fuels. Further details by county are presented in Appendix 23.

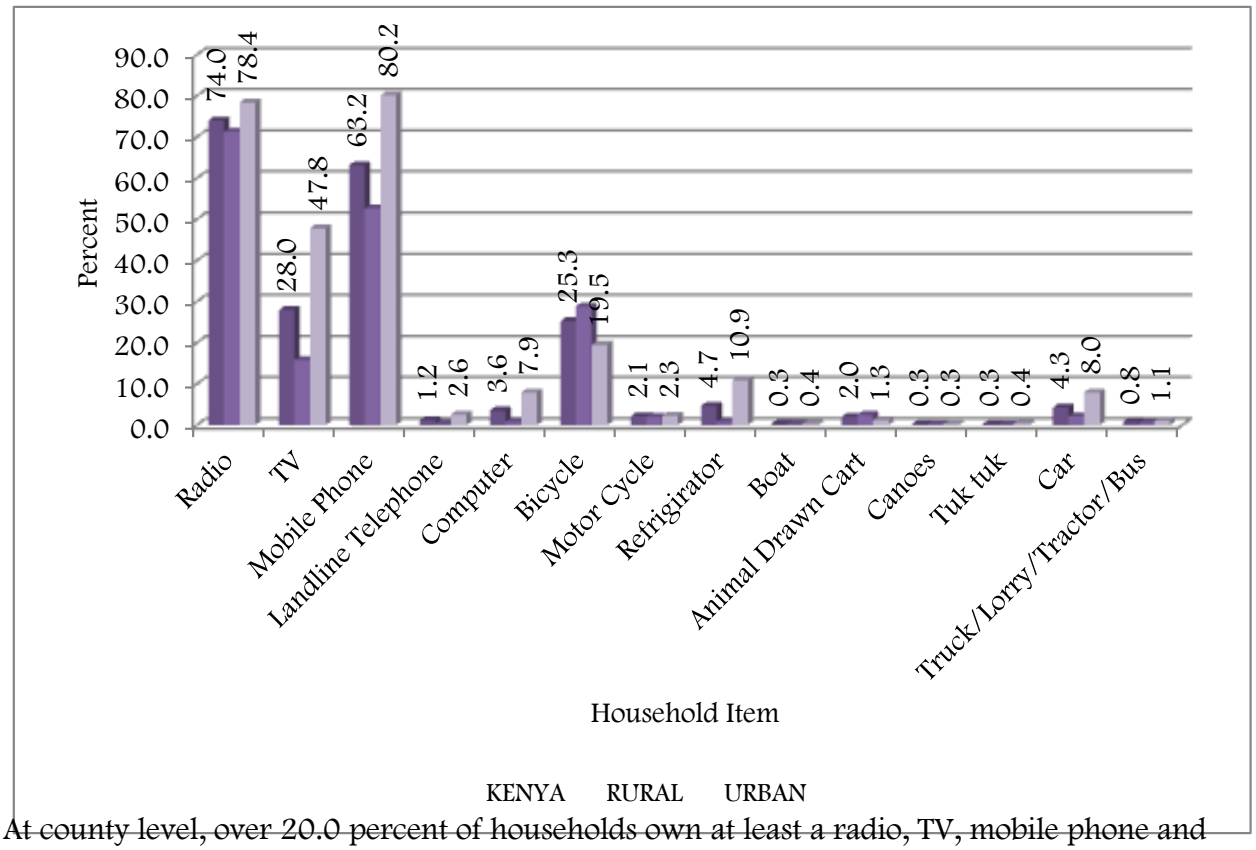
3.2 Household Assets

The material quality of life may be enhanced by possession of assets or "consumer durables". These include devices for domestic chores (e.g. washing machines and dishwashers), for food storage (e.g. refrigerators and freezers), for communication (e.g. telephones and in some cases computers) and for entertainment (e.g. televisions and video and audio systems). One of the most expensive consumer durable for many households is a private motor vehicle which, although not normally internal to the dwelling, forms part of the household durable assets. A car is particularly necessary for travel to work, worship, school and other places household members may wish to reach at specific times of the day or week.

Consumer durables or assets may be deemed as a component of measuring consumption when attempting to obtain direct measure of living standards. This therefore may be reflected in the state of housing a household lives in. It is important to note that most consumer durables are used over a long period and current consumption (use value in a given time period) is therefore normally smaller than cost of purchase.

As shown in Figure 3.4, most households reported owning at least a radio and mobile phone. Mobile phone ownership was highest in urban areas at 80.2 percent compared to rural areas at 52.7 percent. Ownership of computers was marginally higher in urban areas at 7.9 percent compared to rural areas at 0.9 percent.

Figure 3.4: Percentage of Households by Ownership of Selected Household Assets



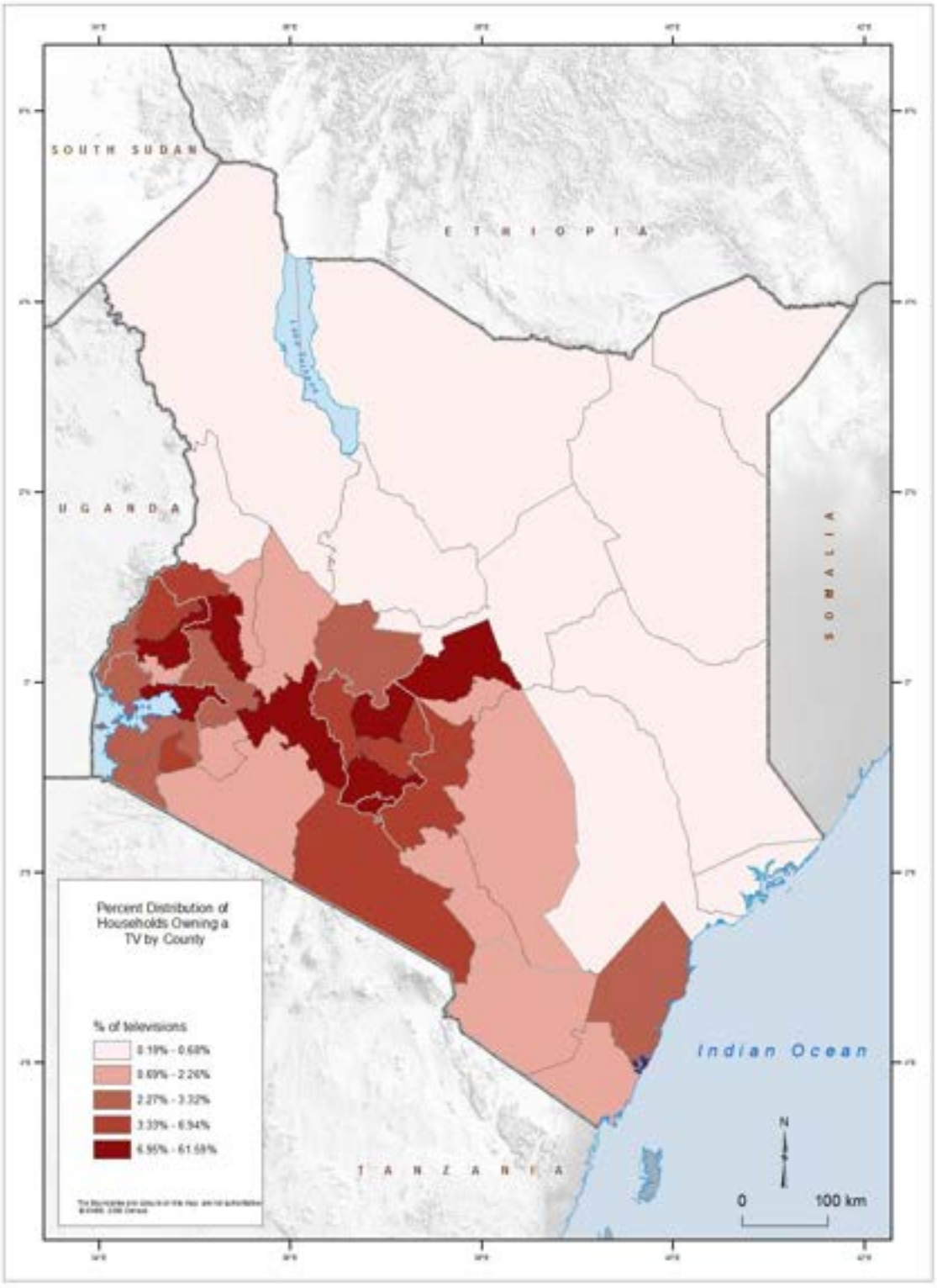
At county level, over 20.0 percent of households own at least a radio, TV, mobile phone and bicycle, while ownership of the other assets such as landline, motorcycle, boat, canoe, tuktuk and lorries is very minimal. The top five counties in proportions of households who own selected items are presented in Table 3.10.

Table 3.10: Percentage of Households Owning Selected Household Assets by Top Five Counties

Asset	County	Percentage	Asset	County	Percentage
TV	Nakuru	40.0	Computer	Uasin Gishu	13.0
	Kiambu	55.0		Mombasa	7.0
	Mombasa	49.0		Kajiado	7.0
	Nyeri	41.0		Kiambu	7.0
	Nairobi	62.0		Nairobi	4.0
Radio	Nyandarua	88.0	Bicycle	Bungoma	53.0
	Nyeri	88.0		Siaya	51.0
	Kiambu	85.0		Makueni	45.0
	Kirinyaga	83.0		Kakamega	44.0
	Murang'a	83.0		Busia	43.0
Mobile	Nairobi	88.0	Car	Nairobi	12.0
	Mombasa	82.0		Kajiado	8.0
	Kiambu	81.0		Kiambu	8.0
	Nyeri	77.0		Uasin Gishu	7.0
	Nyandarua	76.0		Mombasa	6.0

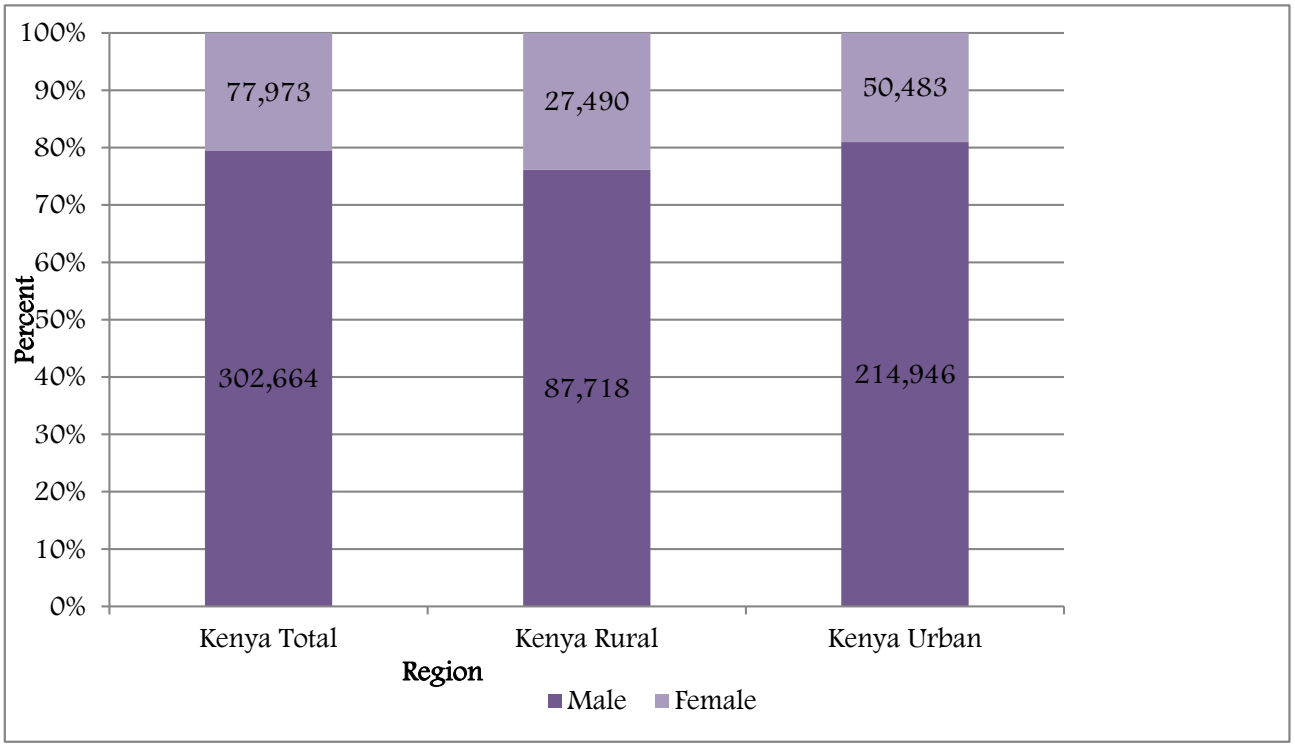
Map 3.3 presents a cartographical mapping of the percentage distribution of households owning TV by County.

Map 3.3: Percentage Distribution of Households Owning TV by County



Only 380,637 households, representing 4.3 percent reported owning a car, as shown in Figure 3.5. The proportion owning a car in urban areas at 8.0 percent was higher compared to rural areas at 2.1 percent.

Figure 3.5: Percentage Distribution of Car Ownership in Kenya by Sex of Household Head



Chapter 4-Dimensions of Housing Needs

4.1 Housing Needs

The reasons for undertaking National Housing Censuses are to:

- Provide a measure of the national housing deficit in terms of families without housing;
- Ascertain the number of families living in makeshift or other grossly unsuitable housing;
- Obtain data on housing conditions by regions, cities, and various areas within and surrounding cities;
- Provide data on the extent of overcrowding in existing living units in terms of persons per room and by other simple indices;
- Aid in planning by indicating whether or not the living units or premises are connected to an approved water supply and sewage disposal system; and
- Provide statistical indicators of housing conditions (Senn and Yentis, 1971).

In order to achieve some of the above objectives, particularly in determining housing deficits, this section attempts to estimate the housing deficit i.e. adequacy in terms of quantity using the guideline of one person per habitable room. For example, Kumie and Berhane (2002) applied the number of persons per room crowding index to analyze the level of housing inadequacy in Ethiopia using the following classifications: one person per room as under-crowded and 2.0 or more persons per room as crowded. This analysis settled for one person per room as a measure of adequate housing in Kenya.

Table 4.1: Habitable Rooms and Dwelling Deficits in Kenya by Residence, 2009

Indicators	Region		
	Rural	Urban	Kenya
Total number of dwelling	10,621,370	4,769,040	15,390,410
Total population	26,388,518	12,023.57	38,412,088
Total habitable rooms available	16,110,418	7,285,587	23,396,005
Total habitable rooms required	26,388,518	12,023.57	38,412,088
Total habitable rooms deficit	10,278,100	4,737,983	15,016,083
Total number of households	5,429,236	3,338,718	8,767,954
Mean number of rooms per dwelling	1.5	1.5	1.5
Approximate dwelling units deficit	6,766,205	3,101,415	9,877,912

The number of rooms required is based exclusively on the benchmark of persons per room, which yields the Total Habitable Rooms required. From the latter, the Total Habitable Rooms Available was deducted to arrive at the Total Habitable Rooms Deficit. The average number of rooms per dwelling was generated by dividing the Total Habitable Rooms Available by the Total Dwelling Units, which was then used to divide the Total Habitable Rooms Deficit to get the Approximate Dwelling Unit Deficit.

From the analysis, Kenya had a housing deficit of 9,877,912[1] although there is slight variation by residence (rural and urban) due to averaging. Appendix 24 displays housing

[1] It is important to note that this figure assumes that the only parameter for establishing housing need is the persons per room, when in reality there are other relevant factors such as the physical state of the unit,

deficit data at the county level and rural and urban details where necessary. In Central Province, the rural areas of Nyeri, Murang'a, and Kirinyaga were the only ones showing negative deficits, meaning they experience housing surpluses. This may be due to migration to Nairobi leaving vacant houses back in these counties.

4.2 Household Formation

According to Population Projections Monograph, there will be an additional 3,818,437 households in Kenya and 707,884 in Nairobi by the year 2020, as shown in Table 4.2. This implies that dwelling units must be constructed to achieve a balance between number of households and number of dwellings.

Table 4.2: Household Projections, 2010-2020

Source	Year	Region	
		Nairobi	Kenya
Population Projections	2010	1,156,564	10,101,936
	2011	1,240,614	10,520,571
	2012	1,298,637	10,722,709
	2013	1,394,742	11,244,000
	2014	1,436,909	11,411,350
	2015	1,552,626	12,026,122
	2020	1,864,448	13,920,373

These figures do not include dwellings to be replaced due to obsolescence, low quality conditions and disasters. The total number of dwellings required implies an average of 318,200 to be constructed annually in Kenya and 58,990 in Nairobi during the 10-year time period.

4.3 Homelessness

In the 2009 Census a short questionnaire was used to capture vagrants and rough sleepers as part of the non-conventional households. In this section we analyse data from the short form to give an indication of homelessness. A homeless person is defined as anyone who does not belong to a household that owns or rents a dwelling under the tenure status described in Chapter 2.

In Kenya, a homeless person is generally expected to be found in urban areas, although the results indicate that homeless persons exist even within rural areas. Table 4.3 presents data on the distribution of homeless population by county, including the number of homeless persons as percentage of total population. There were 5,249 homeless persons in the rural areas representing 28.9 percent of total homeless persons. It is apparent that the percentage homeless for rural areas is very low, nearly 0.0 percent compared to the urban areas at 0.1 percent. Mombasa, Lamu, Nairobi, Taita Taveta, Isiolo and Samburu had relatively high proportions of their population as homeless while counties like Nyamira, Kisii, and Mandera had minimal.

connection to services, etc. This also ignores the fact that households are not homogenous in size and therefore smaller households have less need of housing in terms of space/number of rooms and vice versa.

Table 4.3: Distribution of Homeless Population by Sex and County, 2009

COUNTY	Number of Households	Number of homeless persons			Population	Percentage
		Total	Male	Female		
KENYA	8,767,954	18,161	15,472	2,689	38,412,088	0.1
Rural	5,429,236	5,249	4,405	844	26,388,518	0.0
Urban	3,338,718	12,912	11,067	1,845	12,023,570	0.1
Nairobi	985,016	4,168	3,529	639	3,109,861	0.1
Nyandarua	143,879	53	45	8	595,421	0.0
Nyeri	201,703	124	120	4	689,437	0.0
Kirinyaga	154,220	141	130	11	525,962	0.0
Murang'a	255,696	166	131	35	940,882	0.0
Kiambu	469,244	405	368	37	1,618,422	0.0
Mombasa	268,700	1,422	1,053	369	925,137	0.2
Kwale	122,047	115	92	23	645,955	0.0
Kilifi	199,764	313	256	57	1,102,937	0.0
Tana River	47,414	123	116	7	239,323	0.1
Lamu	22,184	132	127	5	100,398	0.1
Taita Taveta	71,090	301	224	77	277,475	0.1
Marsabit	56,941	182	149	33	289,337	0.1
Isiolo	31,326	156	135	21	141,711	0.1
Meru	319,616	841	775	66	1,350,481	0.1
Tharaka	88,803	131	86	45	364,290	0.0
Embu	131,683	414	381	33	513,271	0.1
Kitui	205,491	338	286	52	1,008,156	0.0
Machakos	264,500	412	316	96	1,093,503	0.0
Makueni	186,478	362	303	59	880,048	0.0
Garissa	98,590	228	204	24	619,571	0.0
Wajir	88,574	144	134	10	658,596	0.0
Mandera	125,497	110	98	12	1,023,670	0.0
Siaya	199,034	800	669	131	839,420	0.1
Kisumu	226,719	944	865	79	959,882	0.1
Homa Bay	206,255	406	334	72	961,956	0.0
Migori	180,211	268	253	15	914,289	0.0
Kisii	245,029	117	112	5	1,148,612	0.0
Nyamira	131,039	15	12	3	597,730	0.0
Turkana	123,191	1,022	819	203	849,277	0.1
West Pokot	93,777	86	72	14	511,824	0.0
Samburu	47,354	235	202	33	222,327	0.1
Trans Nzoia	170,117	120	87	33	815,810	0.0
Baringo	110,649	296	250	46	553,564	0.1
Uasin Gishu	202,291	568	486	82	888,043	0.1
Elgeyo Marakwet	77,555	35	31	4	369,270	0.0
Nandi	154,073	99	99	-	751,815	0.0
Laikipia	103,114	229	197	32	396,086	0.1
Nakuru	409,836	530	486	44	1,593,448	0.0
Narok	169,220	342	329	13	845,196	0.0
Kajiado	173,464	351	304	47	682,123	0.1
Kericho	127,581	120	106	14	587,416	0.0
Bomet	174,914	157	117	40	889,447	0.0
Kakamega	355,679	185	172	13	1,655,013	0.0
Vihiga	123,347	147	140	7	553,633	0.0
Bungoma	270,824	124	108	16	1,372,020	0.0
Busia	154,225	184	164	20	740,043	0.0

Since the incidence of homelessness seems to be higher in urban areas (10.7 homeless persons per 10,000 populations), further analysis of urban centres was done as reported in Table 4.4. Among the total homeless population in Kenya, men constitute the highest proportion of 85.8 percent.

The results show significant differences among urban centres. Nairobi contributes the greatest number of homeless persons (4,168 or about a third of total homeless urban population), although its rate of homelessness is not the highest. Eldoret had the highest rate of 16.7 homeless persons per 10,000 population followed by Kisumu at 15.5 and Mombasa at 15.4. Nevertheless Nairobi's rate (13.4) is slightly higher than the national average of 10.7.

Table 4.4: Distribution of Homeless Population by Sex in Selected Urban Centres

URBAN CENTRE	Homeless Population					Total Population	No. of homeless per 10,000 Population
	Total Count	Male		Female			
		Count	Percent	Count	Percent		
Kenya	12,889	11,058	85.8	1,831	14.2	12,023,570	10.7
Nairobi	4,168	3,529	84. 7	639	15.3	3,109,861	13.4
Nyeri	95	94	99.0	1	1.1	117,297	8.1
Thika	105	97	92.4	8	7.6	149,289	7.0
Ruiru	96	85	88.5	11	11.5	240,226	4.0
Mombasa	1,422	1,053	74.1	369	26.0	925,137	15.4
Kisumu	593	571	96.3	22	3.7	383,444	15.5
Kitale	58	56	96.6	2	3. 5	148,261	3.9
Eldoret	523	444	84. 9	79	15.1	312,351	16.7
Nakuru	213	206	96.7	7	3.3	367,183	5.8
Others	5,656	4,963	87.8	693	12.3	5,726,681	9.9

4.4 Informal Settlements

The MDG Goal 7 and Vision 2030 aim to reduce the number of slum dwellers. According to Table 4.5, 89,438 households live in informal settlements. About half of this number, 41,919 is contributed by Nairobi. This information could be useful in monitoring how far this number has reduced in Kenya and in various urban centres.

Table 4.5: Number of Households Living in Formal and Informal Settlements by Urban Area

Area	Total	Formal	Informal
Kenya	1,127,076	1,037,638	89,438
Central Region	174,173	171,593	2,580
Coast Region	115,258	93,191	22,067
Eastern Region	178,256	176,510	1,746
North Eastern Region	45,859	45,320	539
Nyanza Region	169,011	158,806	10,205
Rift Valley Region	213,623	204,939	8,684
Western Region	98,465	96,767	1,698
Nairobi	132,431	90,512	41,919
Mombasa	59,876	46,057	13,819
Kisumu	35,023	25,427	9,596
Eldoret	21,484	17,887	3,597
Nakuru	23,368	22,545	823

Chapter 5-Consolidated Housing Quality Index

The quality of housing is a key element for ensuring a healthy community. Poor housing quality can lead to many health problems, and is associated with infectious diseases (such as tuberculosis), stress and depression. Fundamental deficiencies in the provision of housing may therefore be considered as significant indicators of social or economic deprivation. Everyone should therefore have access to good-quality housing and a pleasant home environment that makes them happy and content. In chapters 2 and 3 we undertook basic analyses on the quality of housing including the livable space, durability of building materials, and heath safety of amenities. One of the drawbacks of these analyses is their stand-alone nature. This chapter presents interpretative analysis through the use of a Consolidated Housing Quality Index to assess the quality of housing at the national and sub-national levels.

5.1 Revisiting the 1999 Consolidated Housing Quality Index

The first attempt at a consolidated approach to housing quality index was made in the Housing monograph following the 1989 Census (Republic of Kenya, 1996). The 1999 Census further applied a consolidated housing quality index in the analysis of housing and related amenities (Republic of Kenya, 2002). The quality matrix used in 1999 Census included variables on construction materials and basic housing amenities, as shown in Table 5.1. The variables were given scores that were consolidated for every household as shown in Table 5.2.

Table 5.1: Variables for the 1999 Census Housing Quality Index

Roof Material	code	Wall Material	code	Floor Material	code	Water Source	code	Human Waste Disposal Mode	code	Cooking Fuel Type	code	Lighting Type	code
Tile	2	Stone	1	Tiles	2	Piped	8	Main Sewer	1	Electricity	1	Electricity	1
Concrete	3	Brick/ Block	2	Cement	1	Tank/ Jabias	9	Septic Tank	2	Solar	6	Solar	6
Iron	1	Mud/ Cement	4	Wood	3	Spring	5	Cess Pool	3	Gas	3	Pressure Lamp	2
Asbestos	4	Wood only	5	Earth	4	Well	6	Pit Latrine	4	Paraffin	2	Lantern	3
Grass	5	Mud/ Wood	3			Borehole	7	Bucket Latrine	5	Char-coal	5	Tin Lamp	4
Makuti	6	Iron	6			Stream/ River	4	Bush	6	Fire-wood	4	Fuel Wood	5
Tin	7	Tin	8			Lake	3						
		Grass/ Reeds	7			Dam	2						
						Pond	1						

Table 5.2: 1999 Census Housing Quality Scores

Score	Roof	Wall	Floor	Water	Sewage	Cooking	Lighting
1	2 and 3	1 and 2	2	8 and 9	1,2 and 3	1	1 and 6
2	1 and 4	4 and 5	1	5	4	6 and 3	2
3	5 and 6	3	3	6 and 7	5	2	3
4	7	6 and 8	4	4 and 3	6	5	4
5		7		2 and 1		4	5

Source: CBS (2002).

Since there were seven items, the top consolidated score (score 1 for each item) would be 7, while the lowest score (score 5 for 4 items and score 4 for 3 items) would be 32. The consolidated scores were thereafter ranked and then aggregated. Ranking was done as follows: 1 for scores 7-11; 2 for scores 12-16; 3 for scores 17-21; 4 for scores 22-26; 5 for

scores 27-31; and 6 for score 32. Rank 1 had the attribute of high quality housing; 2 good quality; 3-4 average quality; and 5-6 poor quality.

The results of these scores presented a mixed outcome. For instance, the results indicated that only 0.8 percent percent of urban households lived in poor quality housing, with majority, 66.2 percent percent enjoying high to good quality housing. This was an implausible picture for a country where a significant proportion of the urban population live in informal settlements (K'Akumu 2007). The results were also contestable considering that 58.9 percent percent of urban households lived in single rooms (CBS, 2002). Most of these single rooms are most likely to be found in informal settlements where housing conditions are known to be inadequate. It appears that lack of integration of living space into the quality index and the grouping of scores into those that constitute high, average and low quality, may have yielded results that were not in conformity with the housing reality in Kenya.

5.2 Constructing the 2009 Consolidated Housing Quality Index (CHQI)

As a result of the above enumerated deficiencies of the 1999 CHQI, an attempt has been made to refine and reconstitute a 2009 CHQI. In this index, the concept of adequate housing as reflected in the Habitat Agenda has been applied to the extent the census data can accommodate. The Habitat Agenda emphasizes that "adequate shelter means more than a roof over one's head. It also means adequate privacy; adequate space; physical accessibility; adequate security; security of tenure; structural stability and durability; adequate lighting, heating and ventilation; adequate basic infrastructure, such as water-supply, sanitation and waste-management facilities; suitable environmental quality and health-related factors; and adequate and accessible location with regard to work and basic facilities: all of which should be available at an affordable cost".

The reconstructed consolidated housing quality index (CHQI) has therefore included space adequacy through number of persons per room (ppr). Another departure from the previous index is the exclusion of roof material, mainly because this variable does not appropriately capture housing disparities either between urban and rural areas or between formal and informal settlements within urban areas. For example, 70.0 percent of rural households had corrugated iron sheet roofs compared with 77 percent percent in urban areas. The reconstituted consolidated housing quality index from 2009 Census and the specific aspects of housing quality are depicted in Table 5.3 below:

Table 5.3: Variables for Constructing the 2009 CHQI

Space Adequacy	Structural Adequacy				Service Adequacy							
Persons per Room	Wall		Floor		Water		Human Waste Disposal		Cooking Fuel		Lighting	
	Material	code	Material	code	Source	code	Mode	code	Type	code	Type	code
1	Stone	1	Tiles	2	Piped into Dwelling	10	Main Sewer	1	Electricity	1	Electricity	1
2	Brick/ Block	2	Cement	1	Piped	11	Septic Tank	2	Solar	7	Solar	7
3	Mud/ Cement	4	Wood	3	Rain Harvested	13	Cess Poll	3	LPG	3	Gas Lamp	5
4	Wood only	5	Earth	4	Borehole	9	VIP Latrine	4	Biogas	4	Pressure Lamp	2
5	Mud/ Wood	3			Protected Well	7	Pit Latrine Covered	5	Paraffin	2	Lantern	3
6	Iron	6			Protected Spring	5	Pit Latrine Uncovered	6	Charcoal	6	Tin Lamp	4
7	Tin	8			Unprotected Well	8	Bucket Latrine	7	Firewood	5	Fuel Wood	6
	Grass/ Reeds	7			Unprotected Spring	6	Bush	8				
					Jabias	12						
					Stream/River	4						
					Vendor	14						
					Lake	3						
					Dam	2						
					Pond	1						

Table 5.4: 2009 Housing Quality Scores

Score	Room	Wall	Floor	Water	Sewage	Cooking	Lighting
1	≤1 ppr	(1) or (2)	(2)	(1)	(1)or(2)or (3)	(1)	(1) or (7)
2	>1 and ≤2 ppr	(4) or (5)	(1)	(11)	(4)or(5)	(7) or (3)	(2)or(5)
3	>2 and	(3)	(3)	(13)or(9)or(5)or (7)	(6)	(4)	(3)
4	>3 and ≤4 ppr	(6) or (8)	(4)	(8)or (6)or (12)or(4)or(14)or,(3)	(7)	(2)or(6)	(4)
5	>4 ppr	(7)		(2) or (1)		(5)	(6)

Since there are seven items as in 1999, the top consolidated score (score 1 for each item) would be 7 for a household, while the lowest score (score 5 for 5 items and score 4 for 2 items) would be 33. The consolidated scores are thereafter ranked and then aggregated. Ranking is done as follows: Rank 1 (scores 7-11), Rank 2 (scores 12-17), Rank 3 (scores 18-23), Rank 4 (scores 24-29), and Rank 5 (scores 30-33).

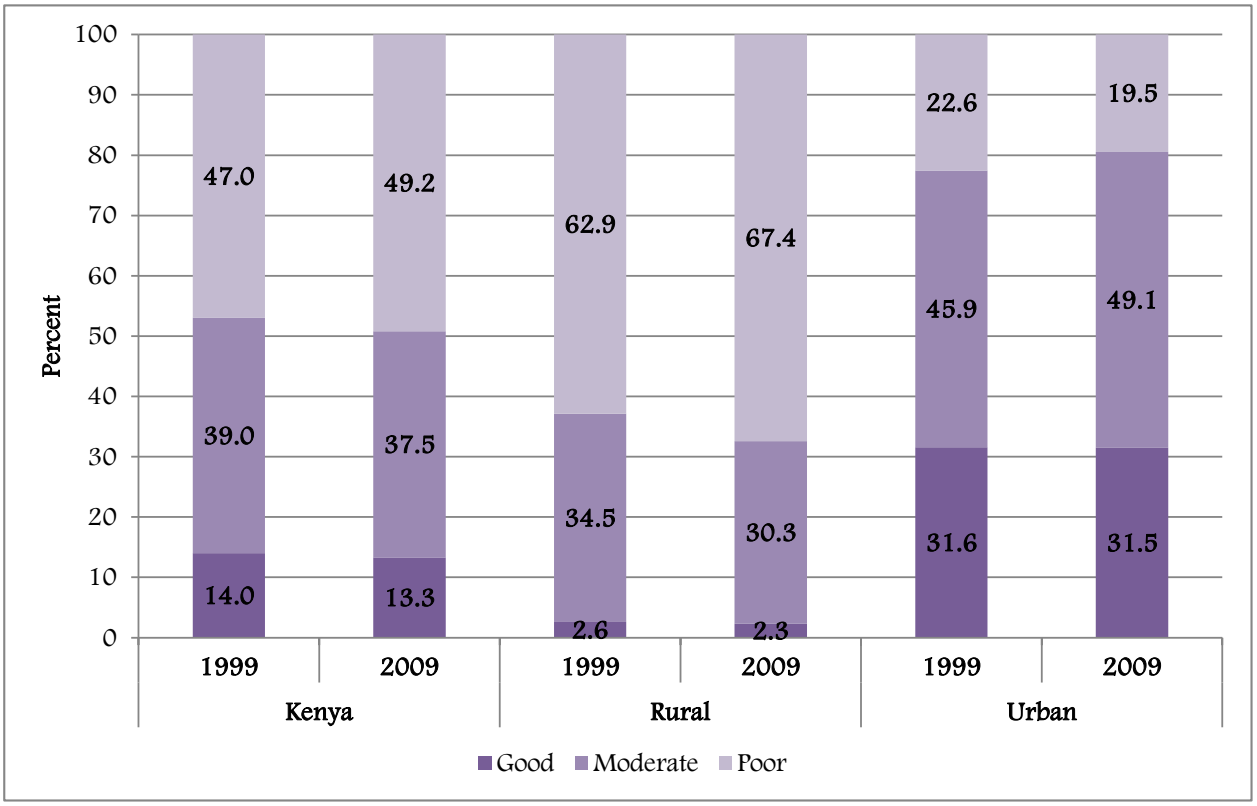
5.3 Analysis of Housing using the CHQI

Based on the above ranking, the analysis was structured so that Ranks 1 and 2 constituted an attribute of good quality housing, Rank 3 average quality, and Ranks 4-5 poor quality. At the national level, 13.3 percent of households lived in good housing conditions while 49.2 percent lived in poor housing conditions as shown in Figure 5.1. A reported 31.5 percent of urban households lived in good housing conditions compared to only 2.3 percent of rural households. The proportion of rural households who live in poor housing conditions was 67.4 percent. This means that while the majority of housing stock is in rural areas, a significant proportion of this housing stock lacks in basic quality parameters.

The methodology of computing the housing quality index used on the 2009 Census data was applied on the 1999 Census data, to facilitate comparison. A comparison of housing quality indices in 1999 and 2009 generally depicts a housing quality situation which is

largely stagnant. In the rural areas, the proportion of households living in poor housing quality rose from 62.9 percent in 1999 to 67.4 percent in 2009, while that of urban households slightly decreased from 22.6 percent in 1999 to 19.5 percent in 2009. There was no significant change in the proportion of rural households living in good quality housing between 1999 and 2009 (at 2.6 percent and 2.3 percent), as was also the case for urban areas at 31.6 percent and 31.5 percent, respectively.

Figure 5.1: Percentage Distribution of Households by housing quality in 1999 and 2009



5.4 Housing Quality Indices by County and Selected Urban Centres

The results presented in Table 5.5 reveal that out of the 47 counties, Nairobi at 48.3 percent; Mombasa, at 32 percent; Kiambu, at 27.9 percent; Kajiado, at 21.3 percent and Nakuru at 18.8 percent, recorded the highest proportions of households with good housing quality. On the other extreme, Wajir at 93.9 percent; Mandera, 93.2 percent; Turkana, at 91.1 percent; West Pokot, at 88.5 percent and Tana River, at 86 percent recorded the highest proportions of households living in poor housing conditions. The counties that recorded higher proportion of households with good housing conditions are more urbanized while counties that recorded high proportions of households living in poor housing conditions are less urbanized, and are mainly pastoralist or nomadic and semi-arid regions.

Table 5.5: Percentage Distribution of Households by Quality of Housing and County, 2009

County	Total	Good	Moderate	Poor
KENYA	8,767,954	13.3	37.5	49.2
Nairobi	985,016	48.3	43.3	8.5
Nyandarua	143,879	4.6	53.2	42.1
Nyeri	201,703	15.0	60.3	24.7
Kirinyaga	154,220	11.1	57.9	30.9
Murang'a	255,696	7.6	46.9	45.5
Kiambu	469,244	27.9	56.1	15.9
Mombasa	268,700	32.0	58.8	9.2
Kwale	122,047	6.3	25.4	68.2
Kilifi	199,764	11.6	30.5	57.8
Tana River	47,414	1.4	12.7	85.9
Lamu	22,184	11.9	35.9	52.2
Taita Taveta	71,090	11.6	54.6	33.8
Marsabit	56,941	1.9	17.6	80.4
Isiolo	31,326	12.2	27.9	59.9
Meru	319,616	8.2	50.5	41.2
Tharaka	88,803	6.1	41.1	52.8
Embu	131,683	10.6	49.0	40.4
Kitui	205,491	2.5	42.1	55.4
Machakos	264,500	9.1	64.9	26.0
Makueni	186,478	3.7	60.3	36.0
Garissa	98,590	5.8	18.5	75.8
Wajir	88,574	0.4	5.8	93.9
Mandera	125,497	0.5	6.3	93.2
Siaya	199,034	2.1	23.8	74.2
Kisumu	226,719	9.3	37.0	53.6
Homa Bay	206,255	1.7	18.4	79.9
Migori	180,211	2.3	22.5	75.1
Kisii	245,029	3.2	26.5	70.4
Nyamira	131,039	2.1	29.0	68.9
Turkana	123,191	1.4	7.4	91.1
West Pokot	93,777	1.2	10.4	88.5
Samburu	47,354	3.0	14.6	82.4
Trans Nzoia	170,117	4.4	29.9	65.6
Baringo	110,649	3.1	23.7	73.1
Uasin Gishu	202,291	16.8	42.4	40.7
Elgeyo Marakwet	77,555	2.5	26.0	71.4
Nandi	154,073	2.5	32.3	65.1
Laikipia	103,114	13.0	40.8	46.1
Nakuru	409,836	18.8	46.0	35.2
Narok	169,220	2.6	14.7	82.7
Kajiado	173,464	21.3	38.9	39.8
Kericho	127,581	6.1	36.8	57.1
Bomet	174,914	2.4	25.7	71.9
Kakamega	355,679	3.4	22.1	74.4
Vihiga	123,347	2.7	28.4	68.8
Bungoma	270,824	3.0	24.4	72.6
Busia	154,225	2.9	23.9	73.2

Further Map 5.1 is a cartographical representation of counties according to percent scores of number of households living in good housing.

Map 5.1: Percentage Distribution of Households in Good Housing by County, 2009

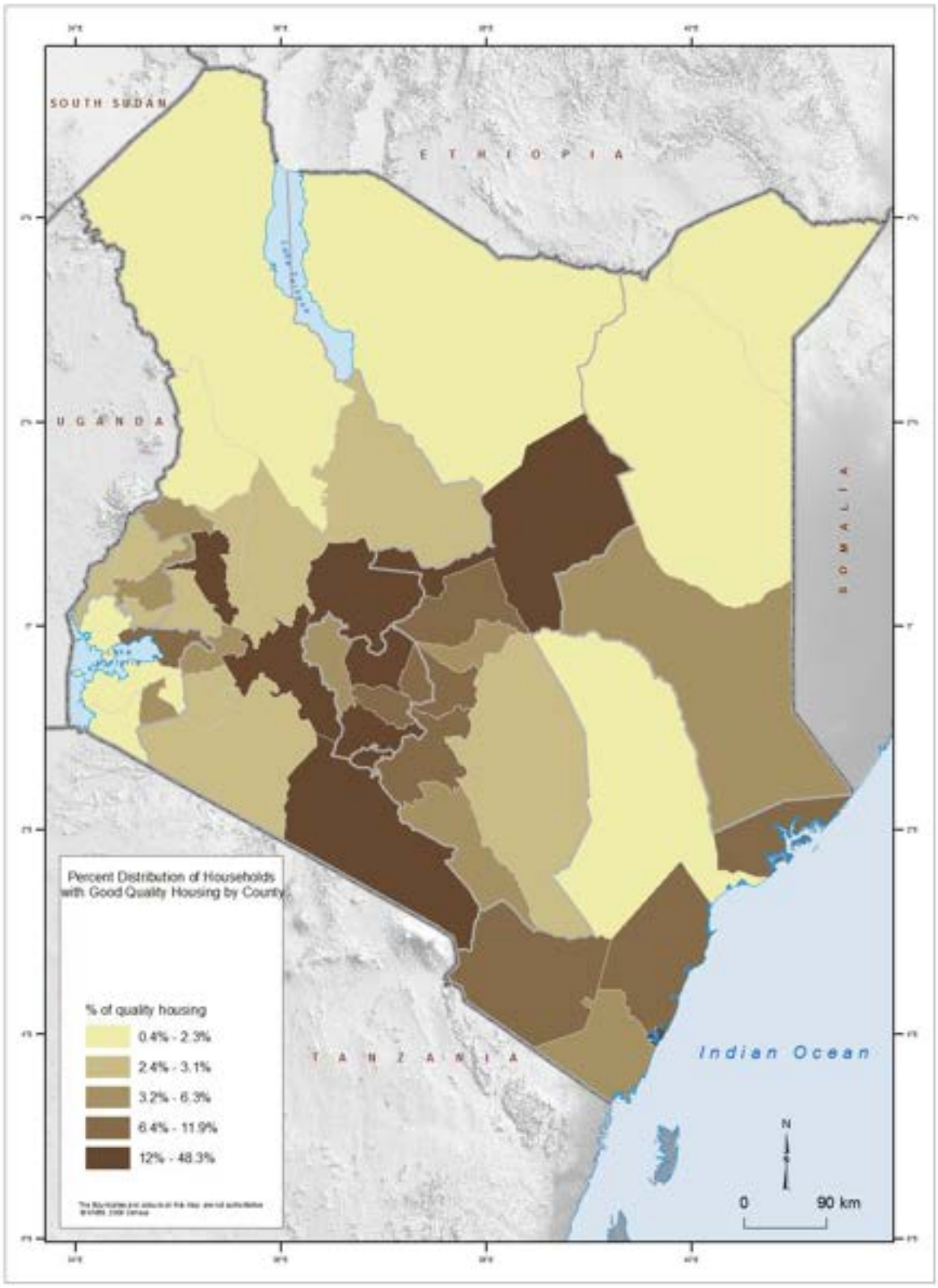


Table 5.6 presents the results of CHQI analysis for urban centres.

Table 5.6: Percentage Distribution of Households by Quality of Housing in Selected Urban Centres, 2009

County	Total Households	Housing Quality		
		Good	Moderate	Poor
Nairobi	985,016	48.3	43.3	8.5
Nyeri	38,730	36.6	49.0	14.4
Muranga	10,254	55.0	35.6	9.5
Ruiru	75,184	49.6	45.3	5.2
Thika	51,936	49.7	44.2	6.1
Kikuyu	77,045	26.7	62.1	11.2
Mombasa	268,700	32.0	58.8	9.2
Malindi	42,294	24.4	39.8	35.8
Voi	12,093	25.9	61.6	12.5
Kilifi	24,123	15.9	38.9	45.1
Lamu	4,725	44.0	37.0	19.1
Meru	18,686	46.7	49.7	3.6
Embu	19,500	42.7	42.9	14.3
Mavoko	45,482	25.9	56.2	17.9
Machakos	40,512	16.1	69.6	14.3
Garissa	21,009	25.6	52.5	21.9
Kisumu	102,320	16.9	51.7	31.4
Siaya	11,589	10.1	45.1	44.9
Homa Bay	14,061	9.4	37.4	53.2
Kisii	21,307	20.2	53.6	26.2
Kitale	37,697	16.5	52.7	30.8
Eldoret	88,978	35.0	50.3	14.8
Nanyuki	18,032	41.9	49.8	8.3
Nyahururu	17,357	30.8	51.9	17.4
Nakuru	107,842	44.2	48.8	7.1
Naivasha	57,770	21.7	61.9	16.3
Kericho	31,158	15.7	52.5	31.8
Ngong	33,064	34.6	51.4	14.1
Kakamega	23,769	23.9	45.1	31.0
Bungoma	19,564	15.9	53.8	30.3
Webuye	15,597	13.1	40.4	46.5
Busia	14,584	14.1	57.3	28.5

Chapter 6-Summary, Conclusion and Recommendations

Chapters 2 and 3 have presented basic findings of the census data, while Chapters 4 and 5 are interpretative. The number of persons per habitable room was 1.64. The room density index in Kenya is high compared to the developed world where the index ranges from 0.5 to 0.7. The trend for Kenya reveals deterioration since 1999 when the room density index was 1.55.

A reported 62.4 percent of households own houses that they have constructed instead of renting or owning through purchase or inheritance. To improve housing quality in Kenya and especially in the rural areas, Government policy should therefore focus on empowering self-builders through an enabling financial environment and technical expertise.

Analysis of construction materials of the main dwelling unit showed that 81. 6 percent of households live in dwellings with durable roofs. Although the situation pertaining to roof is fairly good, the same cannot be said of walls and floors as only 33.4 percent of households live in dwellings of durable wall materials while 43.3 percent had durable floors. Strategies should therefore be developed to enhance the use of more durable materials for wall and floor. In addition, the situation in ASAL and pastoralist regions was way below the national average even for roof materials.

The water and sewerage situation was also poor, since only 56.1 percent had access to improved drinking water and 65.0 percent to improved modes of human waste disposal. A reported 64.6 percent of households used firewood for cooking, which is categorized as smoky fuel that causes considerable indoor pollution. In case of lighting fuel, 38.5 percent use tin lamp (which is also associated with indoor air pollution, and only 22.7 percent of households had access to electricity for lighting, with a low 5.2 percent in rural areas.
Homelessness is not a severe problem in Kenya as only 0.1 percent of the population is reported homeless. However, one important finding is that homeless persons exist in significant numbers even in rural areas.

The consolidated housing quality index was used as a measure of housing need. A comparison with 1999 Census revealed that there was no improvement in housing quality at the national level. This implies that Kenya has not made much progress in the context of housing welfare.

6.1 Recommendation

For purposes of future censuses, some changes are recommended in the census questionnaire. In H-27, the question is asked about the main type of lighting fuel but there is a mix-up of fuel and appliances in the options. Fuels are electricity, fuel wood and solar, while appliances are pressure lamp, lantern, tin lamp and gas lamp. It is important to note that the first three appliances use the same fuel (paraffin) and with different degrees of indoor pollution. Therefore it would be quite useful if the question only listed appliance options including the appliances for electricity, solar and wood fuel.

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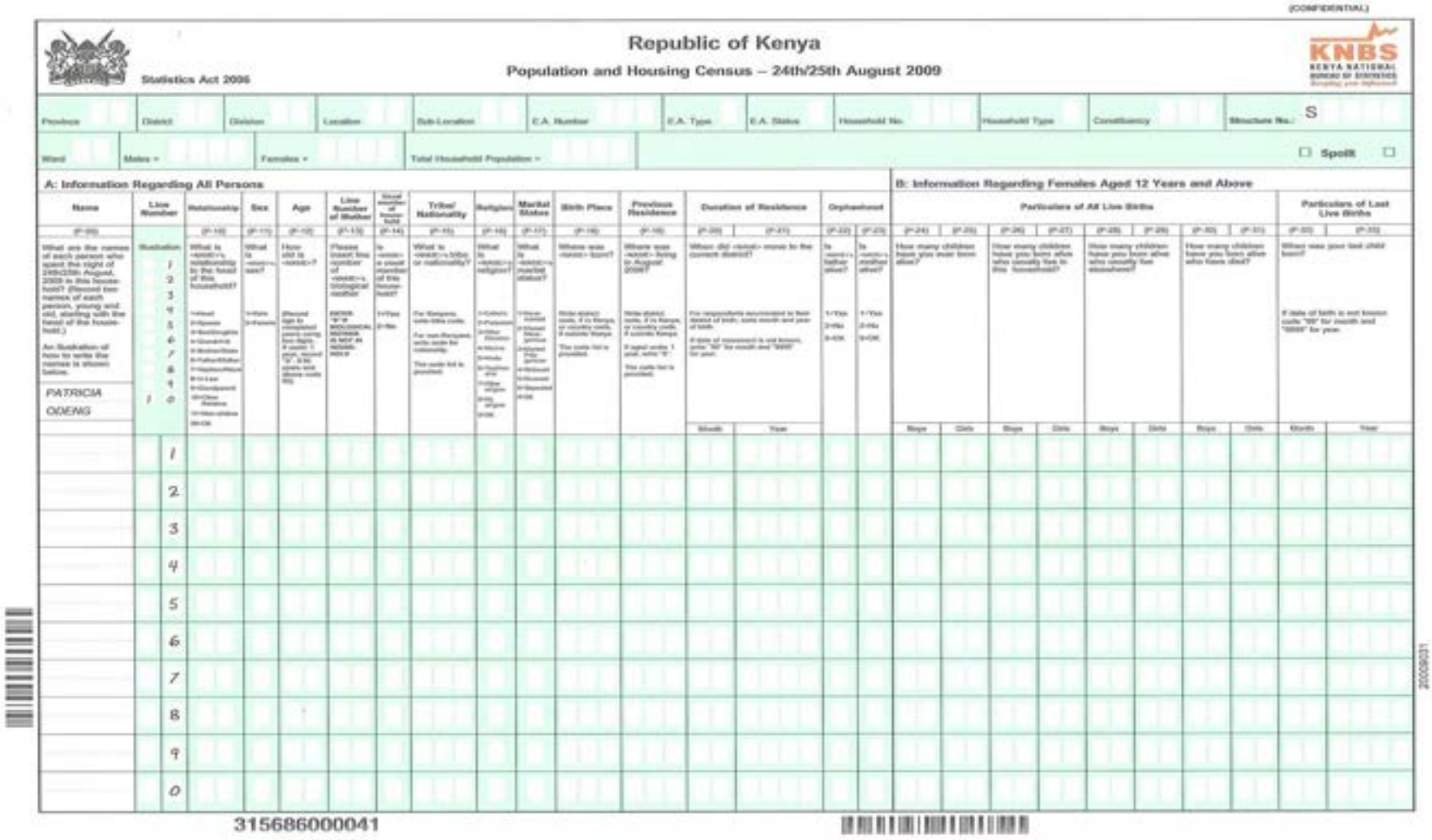
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Appendices

Appendix 1(a): Main Census Questionnaires



(CONFIDENTIAL)

Republic of Kenya

Statistics Act 2006

Population and Housing Census – 24th/25th August 2009

KNBS KENYA NATIONAL BUREAU OF STATISTICS

Province | District | Division | Location | Sub-Location | E.A. Number | E.A. Type | E.A. Status | Household No. | Household Type | Constituency | Structure No.: S

Ward | Males = | Females = | Total Household Population =

☐ Spoilt ☐

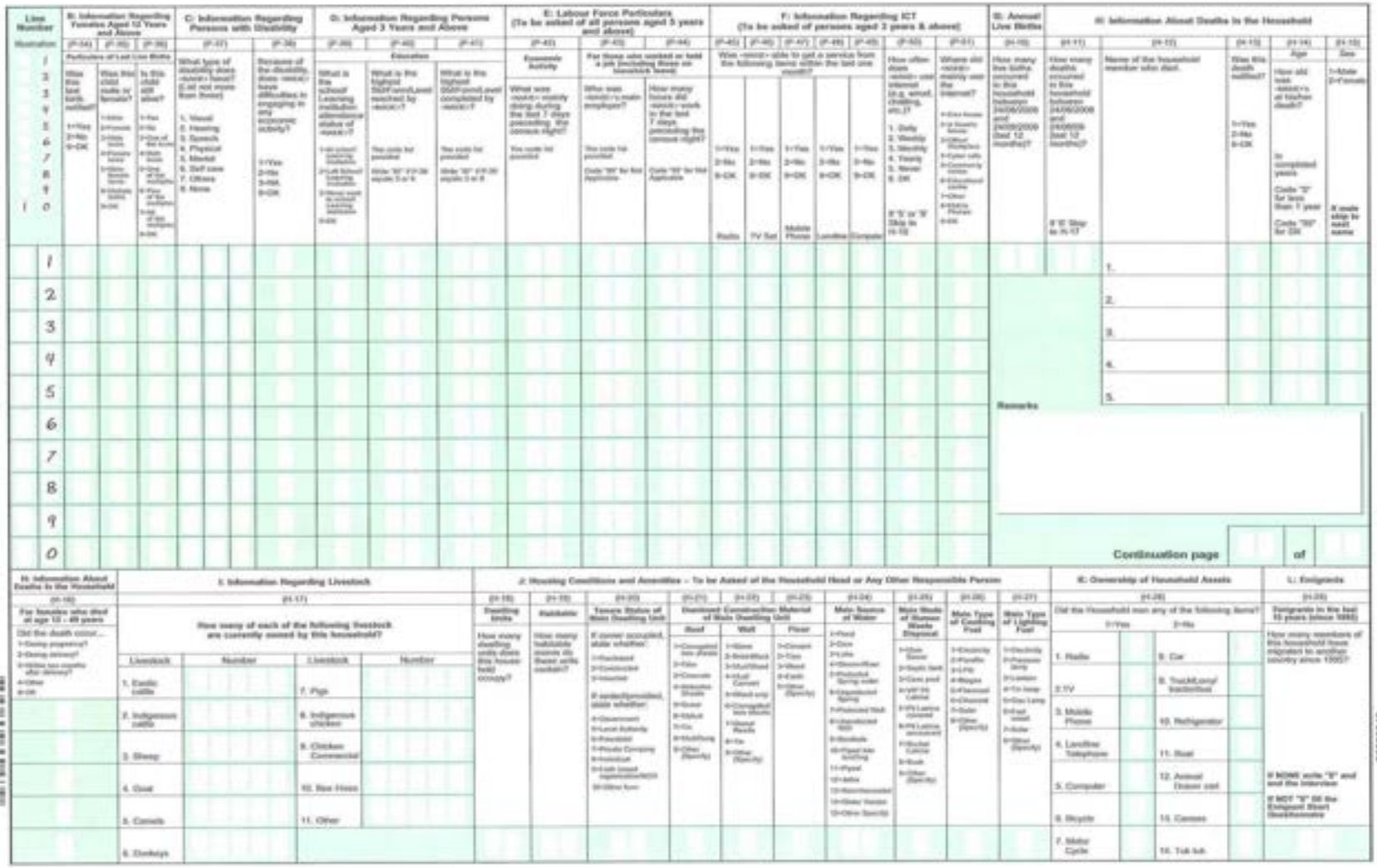
A: Information Regarding All Persons

B: Information Regarding Females Aged 12 Years and Above

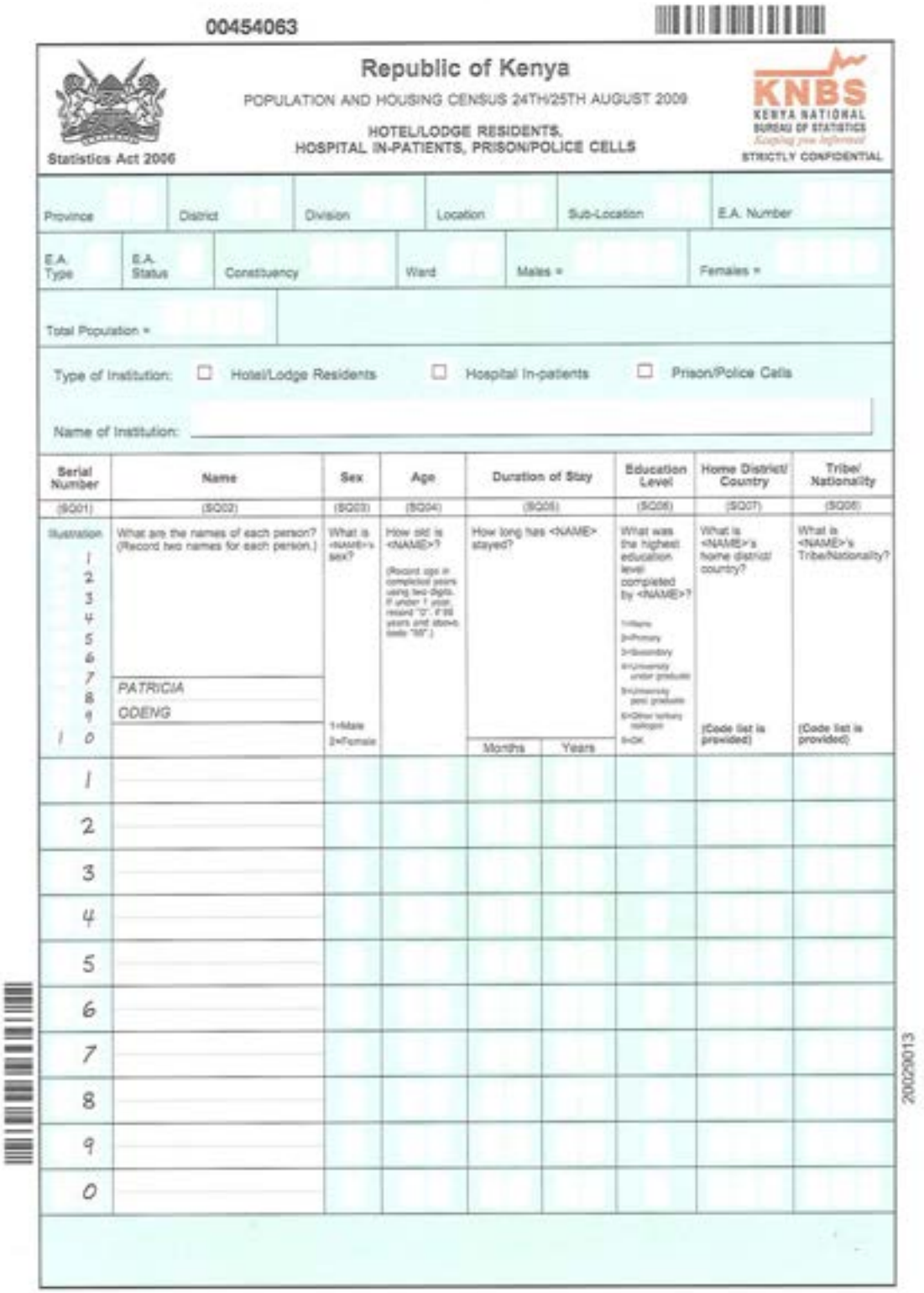
Name	Line Number	Relationship	Sex	Age	Line Number of Mother	Usual member of household	Tribe/ Nationality	Religion	Marital Status	Birth Place	Previous Residence	Duration of Residence		Orphanhood		Particulars of All Live Births								Particulars of Last Live Births	
What are the names of each person who spent the night of 24th/25th August, 2009 in this household? (Record first names of each person, young and old, starting with the head of the household.) An illustration of how to write the names is shown below.	Illustration: 1 2 3 4 5 6 7 8 9 10	What is <name>'s relationship to the head of this household?	What is <name>'s sex?	How old is <name>?	Please insert line number of <name>'s biological mother ENTER "9" IN MECHANICAL MOTHER IS NOT AN HOUSEHOLD MEMBER	Is <name> a usual member of this household?	What is <name>'s tribe or nationality? For Kenyans, write tribe code. For non-Kenyans, write code for nationality. This code list is provided.	What is <name>'s religion?	What is <name>'s marital status?	Where was <name> born? Write district code, if in Kenya, or country code, if outside Kenya. This code list is provided.	Where was <name> living in August 2009? Write district code, if in Kenya, or country code, if outside Kenya. If aged under 1 year, write "0". This code list is provided.	When did <name> move to the current district? For respondents accustomed to their district of birth, state month and year of birth. If date of movement is not known, write "88" for month and "8888" for year.		Is <name>'s father alive? 1=Yes 2=No 9=DK	Is <name>'s mother alive? 1=Yes 2=No 9=DK	How many children have you ever born alive?		How many children have you born alive who usually live in this household?		How many children have you born alive who usually live elsewhere?		How many children have you born alive who have died?		When was your last child born? If date of birth is not known code "88" for month and "8888" for year.	
												Month	Year			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Month	Year
PATRICIA ODENG	1 0																								
	1																								
	2																								
	3																								
	4																								
	5																								
	6																								
	7																								
	8																								
	9																								
	0																								

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Line Number
B: Information Regarding Females Aged 12 Years and Above
C: Information Regarding Persons with Disability
D: Information Regarding Persons Aged 3 Years and Above
E: Labour Force Particulars (To be asked of all persons aged 5 years and above)
F: Information Regarding ICT (To be asked of persons aged 3 years & above)
G: Annual Live Births
H: Information About Deaths in the Household
Particulars of Last Live Births
Education
Radio
TV Set
Mobile Phones
Landline
Computer
Remarks
Continuation page
of
I: Information Regarding Livestock
How many of each of the following livestock are currently owned by this household?
Livestock
Number
1. Exotic cattle
2. Indigenous cattle
3. Sheep
4. Goat
5. Camels
6. Donkeys
7. Pigs
8. Indigenous chicken
9. Chicken Commercial
10. Bee Hives
11. Other
J: Housing Conditions and Amenities – To be Asked of the Household Head or Any Other Responsible Person
K: Ownership of Household Assets
Did the Household own any of the following items?
1. Radio
2.TV
3. Mobile Phone
4. Landline Telephone
5. Computer
6. Bicycle
7. Motor Cycle
8. Car
9. Truck/Lorry/ tractor/boat
10. Refrigerator
11. Boat
12. Animal Drawn cart
13. Canoes
14. Tuk tuk
L: Emigrants
Emigrants in the last 10 years (since 1999)
How many members of this household have migrated to another country since 1999?
If NONE write "0" and end the interview
If NOT "0" fill the Emigrant Short Questionnaire

Appendix 1(b): Hotel/Lodge Residents, Hospital In-Patients, Prison/Police Cells Questionnaires



00454063

Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

HOTEL/LODGE RESIDENTS,
HOSPITAL IN-PATIENTS, PRISON/POLICE CELLS

Statistics Act 2006

KNBS KENYA NATIONAL BUREAU OF STATISTICS

STRICTLY CONFIDENTIAL

Province | District | Division | Location | Sub-Location | E.A. Number

E.A. Type | E.A. Status | Constituency | Ward | Males = | Females =

Total Population =

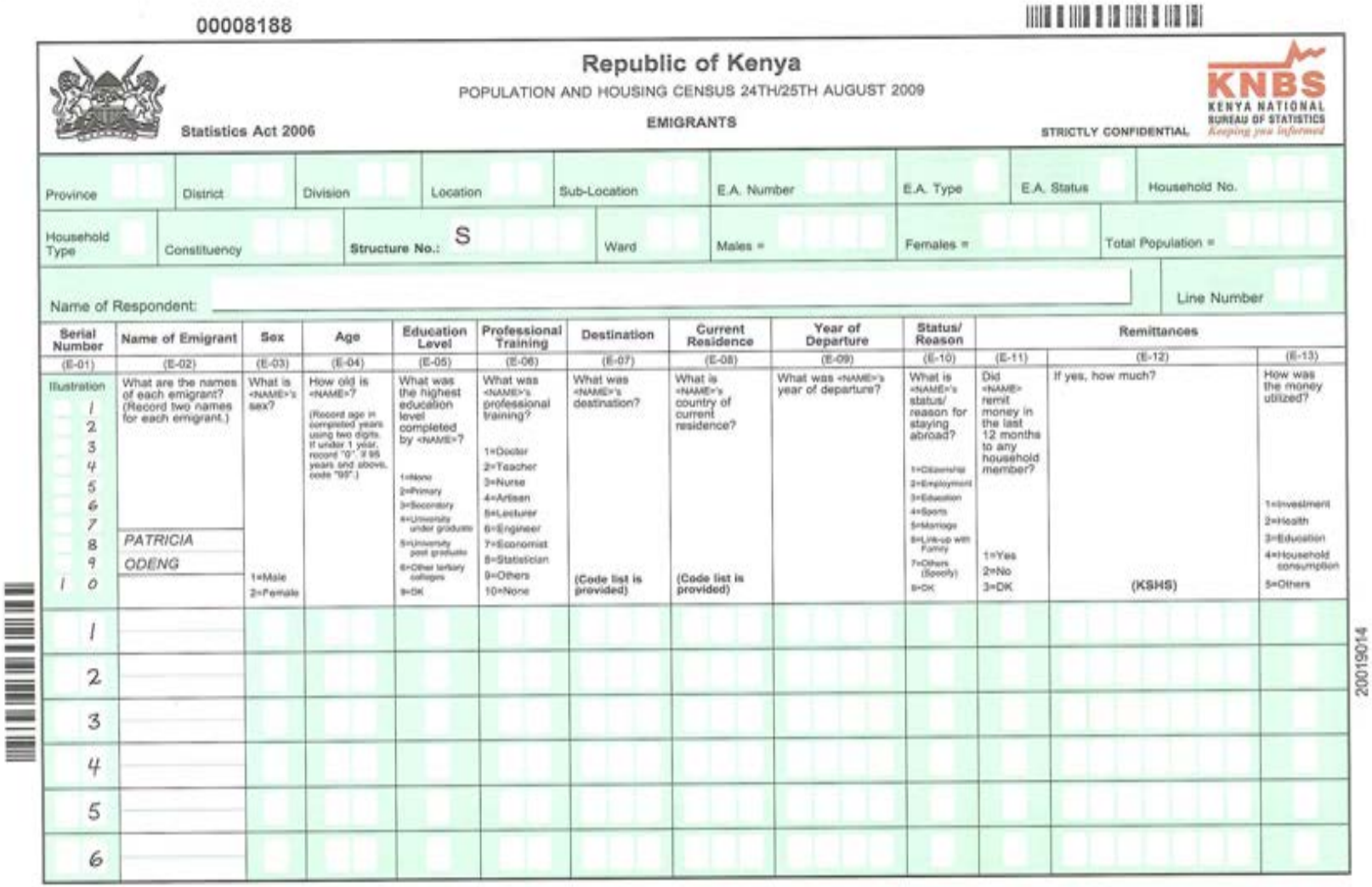
Type of Institution: ☐ Hotel/Lodge Residents ☐ Hospital In-patients ☐ Prison/Police Cells

Name of Institution: _____

Serial Number	Name	Sex	Age	Duration of Stay		Education Level	Home District/ Country	Tribe/ Nationality
(SQ01)	(SQ02)	(SQ03)	(SQ04)	(SQ05)		(SQ06)	(SQ07)	(SQ08)
Illustration	What are the names of each person? (Record two names for each person.)	What is <NAME>'s sex?	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record "0". If 95 years and above, code "95".)	How long has <NAME> stayed?		What was the highest education level completed by <NAME>? 1=None 2=Primary 3=Secondary 4=University under graduate 5=University post graduate 6=Other tertiary colleges 9=DK	What is <NAME>'s home district/ country? (Code list is provided)	What is <NAME>'s Tribe/Nationality? (Code list is provided)
1	PATRICIA	1=Male 2=Female		Months	Years			
2	ODENG							
3								
4								
5								
6								
7								
8								
9								
10								

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Appendix 1(c): Emigrants Questionnaires



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Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

EMIGRANTS

Statistics Act 2006

STRICTLY CONFIDENTIAL

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you Informed*

Province | District | Division | Location | Sub-Location | E.A. Number | E.A. Type | E.A. Status | Household No.

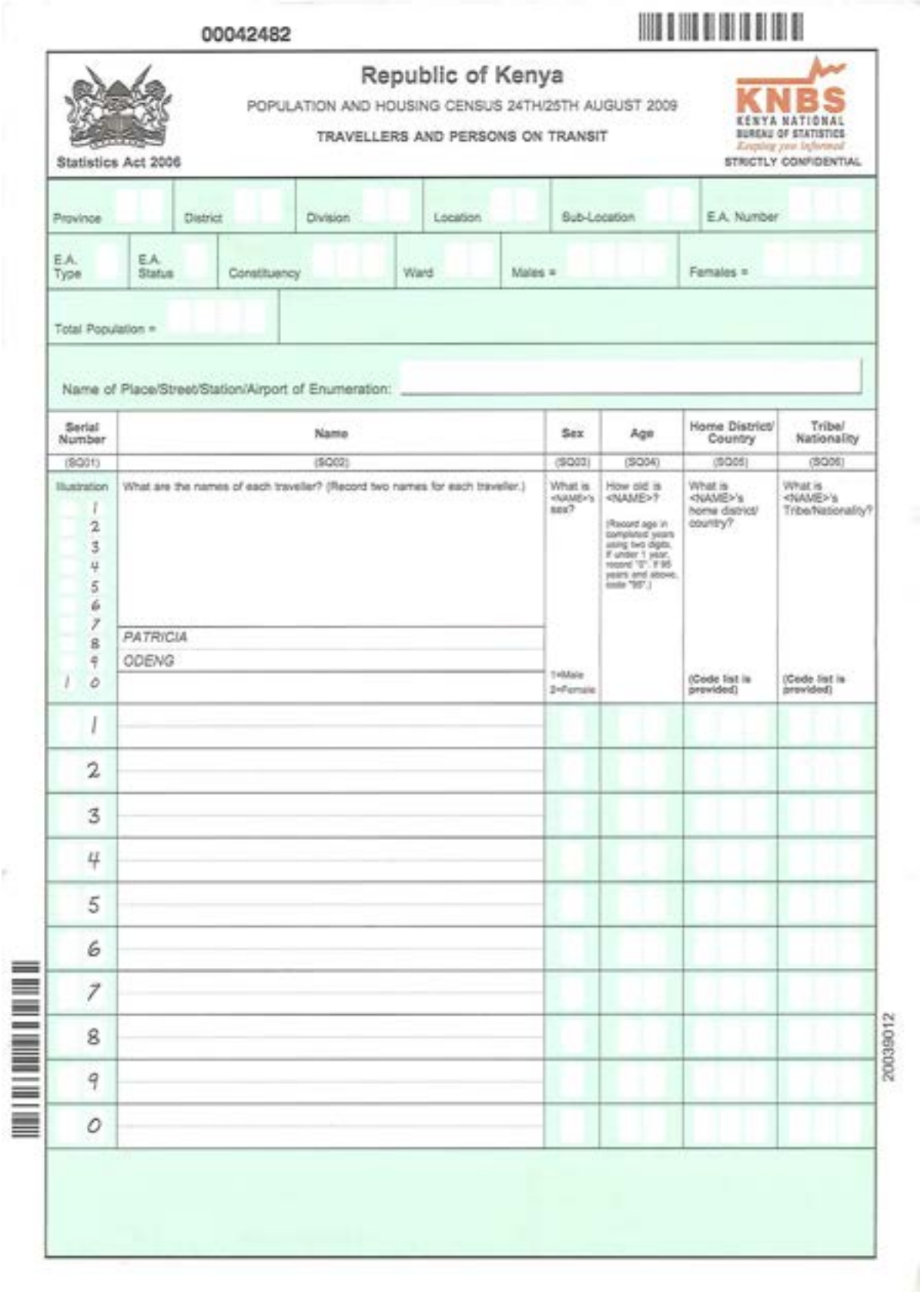
Household Type | Constituency | Structure No.: S | Ward | Males = | Females = | Total Population =

Name of Respondent: | Line Number

Serial Number	Name of Emigrant	Sex	Age	Education Level	Professional Training	Destination	Current Residence	Year of Departure	Status/ Reason	Remittances		
(E-01)	(E-02)	(E-03)	(E-04)	(E-05)	(E-06)	(E-07)	(E-08)	(E-09)	(E-10)	(E-11)	(E-12)	(E-13)
Illustration 1	What are the names of each emigrant? (Record two names for each emigrant.)	What is <NAME>'s sex? 1=Male 2=Female	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record "0". If 95 years and above, code "95".)	What was the highest education level completed by <NAME>? 1=None 2=Primary 3=Secondary 4=University under graduate 5=University post graduate 6=Other tertiary colleges 9=DK	What was <NAME>'s professional training? 1=Doctor 2=Teacher 3=Nurse 4=Artisan 5=Lecturer 6=Engineer 7=Economist 8=Statistician 9=Others 10=None	What was <NAME>'s destination? (Code list is provided)	What is <NAME>'s country of current residence? (Code list is provided)	What was <NAME>'s year of departure?	What is <NAME>'s status/ reason for staying abroad? 1=Citizenship 2=Employment 3=Education 4=Sports 5=Marriage 6=Link-up with Family 7=Others (Specify) 9=DK	Did <NAME> remit money in the last 12 months to any household member? 1=Yes 2=No 3=DK	If yes, how much? (KSHS)	How was the money utilized? 1=Investment 2=Health 3=Education 4=Household consumption 5=Others
1	PATRICIA ODENG											
2												
3												
4												
5												
6												

20019014

Appendix 1(d): Travellers and Persons on Transit Questionnaire



00042482

Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

TRAVELLERS AND PERSONS ON TRANSIT

Statistics Act 2006

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you Informed*

STRICTLY CONFIDENTIAL

Province | District | Division | Location | Sub-Location | E.A. Number

E.A. Type | E.A. Status | Constituency | Ward | Males = | Females =

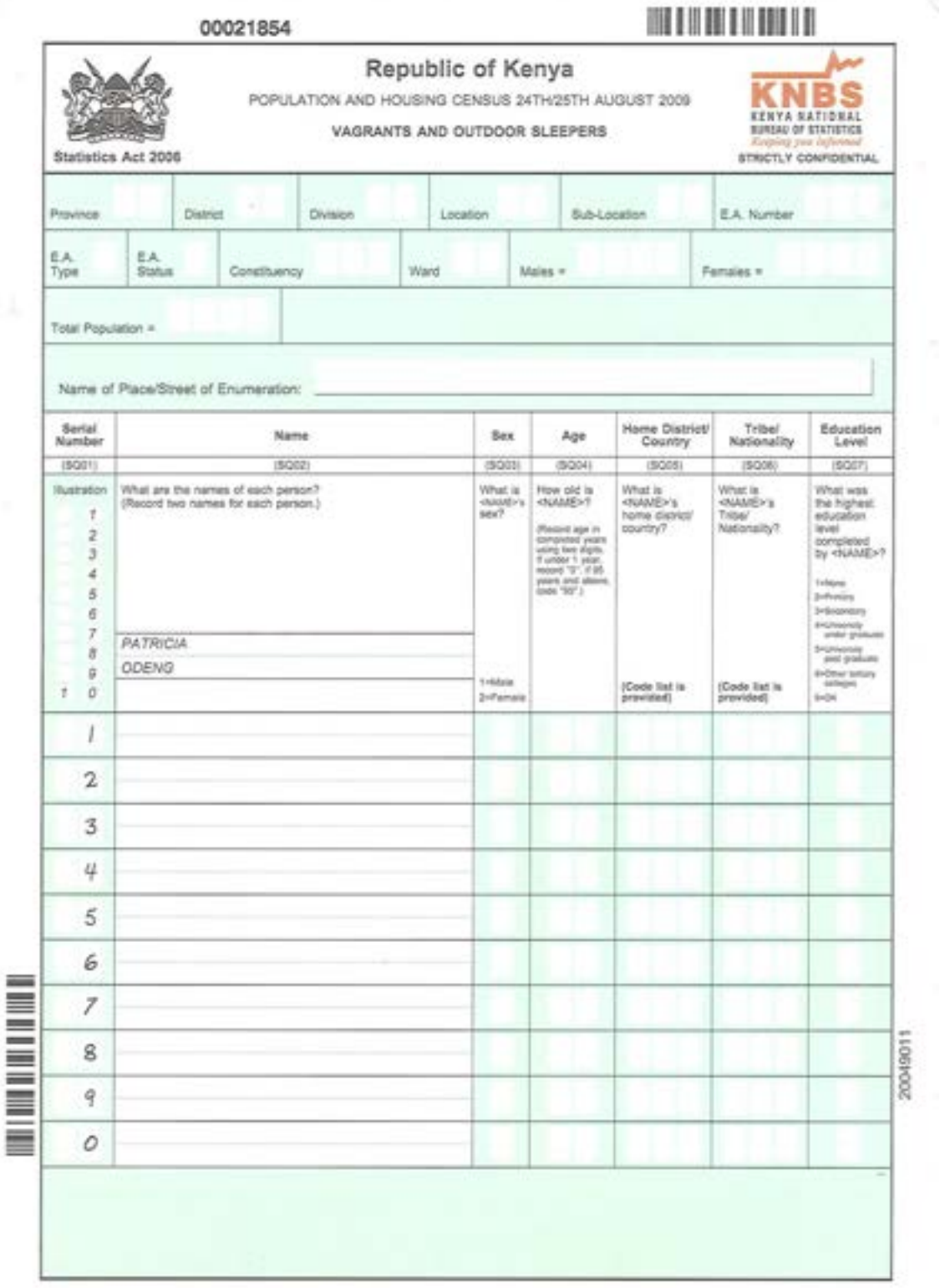
Total Population =

Name of Place/Street/Station/Airport of Enumeration:

Serial Number	Name	Sex	Age	Home District/ Country	Tribe/ Nationality
(SQ01)	(SQ02)	(SQ03)	(SQ04)	(SQ05)	(SQ06)
Illustration	What are the names of each traveller? (Record two names for each traveller.)	What is <NAME>'s sex? 1=Male 2=Female	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record '0'. If 95 years and above, code '95'.)	What is <NAME>'s home district/ country? (Code list is provided)	What is <NAME>'s Tribe/Nationality? (Code list is provided)
1					
2					
3					
4					
5					
6					
7					
8	PATRICIA				
9	ODENG				
10					
1					
2					
3					
4					
5					
6					
7					
8					
9					
0					

20039012

Appendix 1(e): Vagrants and Outdoor Sleepers Questionnaire



00021854

Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

VAGRANTS AND OUTDOOR SLEEPERS

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

Statistics Act 2006

STRICTLY CONFIDENTIAL

Province	District	Division	Location	Sub-Location	E.A. Number

E.A. Type	E.A. Status	Constituency	Ward	Males =	Females =

Total Population =

Name of Place/Street of Enumeration: _____

Serial Number	Name	Sex	Age	Home District/ Country	Tribe/ Nationality	Education Level
(SQ01)	(SQ02)	(SQ03)	(SQ04)	(SQ05)	(SQ06)	(SQ07)
Illustration	What are the names of each person? (Record two names for each person.)	What is <NAME>'s sex?	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record "0". If 95 years and above, code "95".)	What is <NAME>'s home district/ country?	What is <NAME>'s Tribe/ Nationality?	What was the highest education level completed by <NAME>? 1=None 2=Primary 3=Secondary 4=University under graduate 5=University post graduate 6=Other tertiary college 9=DK
1	PATRICIA ODENG	1=Male 2=Female		(Code list is provided)	(Code list is provided)	
2						
3						
4						
5						
6						
7						
8						
9						
0						

20049011

Appendix 1(f): Diplomatic Missions Questionnaire

Serial Number of Form: .....

REPUBLIC OF KENYA

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

QUESTIONNAIRE FOR

DIPLOMATIC MISSIONS

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

STATISTICS ACT 2006 **STRICTLY CONFIDENTIAL**

Province		District		Division	
Location		Sub-Location		E. A. Number	
E.A. Type		E.A. Status		Household Type	
Constituency		Ward		Males	
Females				Total Population	

Name of Hotel/Institution _____

Sno.	Name	Sex	Age	Duration of Stay		Education Level	Home District/ Nationality	Proffessional Training
(D01)		(D02)	(D03)	(D04)		(D05)	(D06)	(D07)
	What are the names of each person who spent the night of 24th/25th August, 2009 in this household ? PATRICIA ODENG	What is <NAME>'s sex ? 1=Male 2=Female	How old is <NAME>? (Record age in completed years using two digits.If under 1 year, record "00". If 95 years and above code 95)	How long has <NAME>'s stayed ? Months	Years	What is the highest education level completed by <NAME> ?	What is <NAME>'s home district/ country?	What is <NAME>'s proffessional training ? 1=Doctor 2=Teacher 3=Nurse 4=Artisan 5=Lecturer 6=Engineer 7=Economis 8=Statistcia 9=Others 10=None
1	.....							
2	.....							
3	.....							
4	.....							
5	.....							
6	.....							
7	.....							
8	.....							
9	.....							
10	.....							
11	.....							
12	.....							

Appendix 2: Households by Number of Dwelling Units and County

				Population			Persons
	Dwelling Units	Households	Habitable Rooms	Male	Female	Total	Per Room
KENYA	15,390,410	8,767,954	23,396,005	19,049,825	19,362,263	38,412,088	1.6
Rural	10,621,370	5,429,236	16,110,418	13,032,731	13,355,787	26,388,518	1.6
Urban	4,769,040	3,338,718	7,285,587	6,017,094	6,006,476	12,023,570	1.7
NAIROBI	1,229,183	985,016	1,741,017	1,584,836	1,525,025	3,109,861	1.8
NYANDARUA	285,036	143,879	501,260	291,574	303,847	595,421	1.2
Rural	234,446	113,470	413,130	235,473	245,341	480,814	1.2
Urban	50,590	30,409	88,130	56,101	58,506	114,607	1.3
NYERI	383,817	201,703	703,951	336,556	352,881	689,437	1.0
Rural	299,876	147,413	569,770	255,974	267,971	523,945	0.9
Urban	83,941	54,290	134,181	80,582	84,910	165,492	1.2
KIRINYAGA	272,617	154,220	518,601	258,953	267,009	525,962	1.0
Rural	234,230	126,861	452,199	219,716	224,554	444,270	1.0
Urban	38,387	27,359	66,402	39,237	42,455	81,692	1.2
MURANG'A	468,333	255,696	927,840	456,512	484,370	940,882	1.0
Rural	406,943	216,444	818,270	391,733	416,593	808,326	1.0
Urban	61,390	39,252	109,570	64,779	67,777	132,556	1.2
KIAMBU	695,381	469,244	1,285,719	799,693	818,729	1,618,422	1.3
Rural	288,966	159,263	565,866	300,722	310,704	611,426	1.1
Urban	406,415	309,981	719,853	498,971	508,025	1,006,996	1.4
MOMBASA	352,471	268,700	489,794	476,684	448,453	925,137	1.9
KWALE	197,851	122,047	361,082	313,537	332,418	645,955	1.8
Rural	161,713	92,959	292,047	256,452	275,102	531,554	1.8
Urban	36,138	29,088	69,035	57,085	57,316	114,401	1.7
KILIFI	366,708	199,764	597,073	531,205	571,732	1,102,937	1.9
Rural	267,471	127,790	442,735	393,137	430,658	823,795	1.9
Urban	99,237	71,974	154,338	138,068	141,074	279,142	1.8
TANA RIVER	74,982	47,414	99,062	119,215	120,108	239,323	2.4
Rural	63,846	39,535	83,260	101,462	102,225	203,687	2.5
Urban	11,136	7,879	15,802	17,753	17,883	35,636	2.3
LAMU	34,879	22,184	65,205	52,261	48,137	100,398	1.5
Rural	28,796	17,391	52,181	42,371	38,402	80,773	1.6
Urban	6,083	4,793	13,024	9,890	9,735	19,625	1.5
TAITA TAVETA	112,075	71,090	220,905	139,952	137,523	277,475	1.3
Rural	92,823	57,213	188,730	116,432	113,473	229,905	1.2
Urban	19,252	13,877	32,175	23,520	24,050	47,570	1.5
MARSABIT	72,884	56,941	94,351	149,671	139,666	289,337	3.1
Rural	54,749	45,019	67,015	117,983	107,659	225,642	3.4
Urban	18,135	11,922	27,336	31,688	32,007	63,695	2.3
ISIOLO	45,877	31,326	60,296	72,479	69,232	141,711	2.4
Rural	25,460	16,708	28,076	42,263	37,693	79,956	2.9
Urban	20,417	14,618	32,220	30,216	31,539	61,755	1.9
MERU	635,426	319,616	916,936	666,307	684,174	1,350,481	1.5
Rural	586,810	285,985	846,813	616,079	631,013	1,247,092	1.5
Urban	48,616	33,631	70,123	50,228	53,161	103,389	1.5
THARAKA	204,853	88,803	262,511	177,866	186,424	364,290	1.4
Rural	161,446	66,700	192,780	138,371	145,790	284,161	1.5
Urban	43,407	22,103	69,731	39,495	40,634	80,129	1.2
EMBU	263,859	131,683	425,593	252,381	260,890	513,271	1.2
Rural	222,778	106,621	358,323	212,733	219,008	431,741	1.2
Urban	41,081	25,062	67,270	39,648	41,882	81,530	1.2
KITUI	501,641	205,491	597,140	478,046	530,110	1,008,156	1.7
Rural	426,818	171,712	503,251	411,847	459,626	871,473	1.7
Urban	74,823	33,779	93,889	66,199	70,484	136,683	1.5
MACHAKOS	507,507	264,500	880,675	539,573	553,930	1,093,503	1.2
Rural	261,834	114,920	443,031	254,680	274,432	529,112	1.2
Urban	245,673	149,580	437,644	284,893	279,498	564,391	1.3
MAKUENI	412,590	186,478	687,250	427,355	452,693	880,048	1.3
Rural	364,220	160,147	614,983	377,657	401,938	779,595	1.3
Urban	48,370	26,331	72,267	49,698	50,755	100,453	1.4
GARISSA	198,716	98,590	174,758	332,434	287,137	619,571	3.6
Rural	150,267	73,726	124,894	260,225	219,443	479,668	3.8
Urban	48,449	24,864	49,864	72,209	67,694	139,903	2.8
WAJIR	184,003	88,574	154,138	361,163	297,433	658,596	4.3
Rural	147,380	74,411	124,651	313,634	254,576	568,210	4.6
Urban	36,623	14,163	29,487	47,529	42,857	90,386	3.1
MANDERA	314,212	125,497	243,048	558,353	465,317	1,023,670	4.2
Rural	254,882	102,868	194,402	462,573	382,795	845,368	4.4
Urban	59,330	22,629	48,646	95,780	82,522	178,302	3.7
SIAYA	318,166	199,034	484,991	396,688	442,732	839,420	1.7
Rural	288,991	176,637	433,639	354,323	395,882	750,205	1.7
Urban	29,175	22,397	51,352	42,365	46,850	89,215	1.7
KISUMU	349,191	226,719	582,141	467,416	492,466	959,882	1.7
Rural	177,936	102,908	290,656	221,752	241,041	462,793	1.6
Urban	171,255	123,811	291,485	245,664	251,425	497,089	1.7
HOMA BAY	339,372	206,255	544,836	461,270	500,686	961,956	1.8

	Dwelling Units	Households	Habitable Rooms	Population Male	Female	Total	Persons Per Room
Rural	282,601	174,312	466,525	396,099	429,142	825,241	1.8
Urban	56,771	31,943	78,311	65,171	71,544	136,715	1.8
MIGORI	354,827	180,211	515,990	442,446	471,843	914,289	1.8
Rural	241,451	113,925	341,665	293,981	312,893	606,874	1.8
Urban	113,376	66,286	174,325	148,465	158,950	307,415	1.8
KISII	490,037	245,029	907,140	547,878	600,734	1,148,612	1.3
Rural	394,404	192,234	735,279	438,175	482,902	921,077	1.3
Urban	95,633	52,795	171,861	109,703	117,832	227,535	1.3
NYAMIRA	269,243	131,039	482,762	286,684	311,046	597,730	1.2
Rural	236,724	113,385	425,948	249,612	271,096	520,708	1.2
Urban	32,519	17,654	56,814	37,072	39,950	77,022	1.4
TURKANA	352,521	123,191	278,808	441,104	408,173	849,277	3.1
Rural	315,130	103,827	243,385	390,394	358,266	748,660	3.1
Urban	37,391	19,364	35,423	50,710	49,907	100,617	2.8
WEST POKOT	146,378	93,777	162,378	254,205	257,619	511,824	3.2
Rural	132,457	84,884	142,161	233,886	236,673	470,559	3.3
Urban	13,921	8,893	20,217	20,319	20,946	41,265	2.0
SAMBURU	58,367	47,354	70,329	110,796	111,531	222,327	3.2
Rural	45,319	38,406	54,599	92,600	92,634	185,234	3.4
Urban	13,048	8,948	15,730	18,196	18,897	37,093	2.4
TRANS NZOIA	293,090	170,117	443,000	404,737	411,073	815,810	1.8
Rural	235,049	129,833	356,163	324,974	330,933	655,907	1.8
Urban	58,041	40,284	86,837	79,763	80,140	159,903	1.8
BARINGO	194,150	110,649	235,462	277,624	275,940	553,564	2.4
Rural	168,487	94,327	200,169	247,350	242,971	490,321	2.5
Urban	25,663	16,322	35,293	30,274	32,969	63,243	1.8
UASIN GISHU	335,784	202,291	528,787	444,269	443,774	888,043	1.7
Rural	208,307	105,390	331,499	273,116	272,986	546,102	1.7
Urban	127,477	96,901	197,288	171,153	170,788	341,941	1.7
ELGEYO-MARAKWET	139,660	77,555	191,611	183,271	185,999	369,270	1.9
Rural	120,162	66,107	164,363	157,992	159,364	317,356	1.9
Urban	19,498	11,448	27,248	25,279	26,635	51,914	1.9
NANDI	288,453	154,073	482,557	375,696	376,119	751,815	1.6
Rural	247,249	130,103	418,497	324,795	324,409	649,204	1.6
Urban	41,204	23,970	64,060	50,901	51,710	102,611	1.6
LAIKIPIA	182,356	103,114	288,375	196,156	199,930	396,086	1.4
Rural	150,670	78,406	236,010	157,909	159,835	317,744	1.4
Urban	31,686	24,708	52,365	38,247	40,095	78,342	1.5
NAKURU	656,976	409,836	1,005,392	797,405	796,043	1,593,448	1.6
Rural	373,494	198,582	562,901	438,319	436,806	875,125	1.6
Urban	283,482	211,254	442,491	359,086	359,237	718,323	1.6
NAROK	263,095	169,220	395,642	424,931	420,265	845,196	2.1
Rural	241,847	152,774	366,397	397,193	392,399	789,592	2.2
Urban	21,248	16,446	29,245	27,738	27,866	55,604	1.9
KAJIADO	238,135	173,464	389,760	341,172	340,951	682,123	1.8
Rural	130,865	86,693	213,006	200,709	201,388	402,097	1.9
Urban	107,270	86,771	176,754	140,463	139,563	280,026	1.6
KERICHO	227,039	127,581	318,186	296,471	290,945	587,416	1.9
Rural	140,566	76,811	191,826	183,652	178,576	362,228	1.9
Urban	86,473	50,770	126,360	112,819	112,369	225,188	1.8
BOMET	324,809	174,914	463,398	441,348	448,099	889,447	1.9
Rural	286,135	153,812	411,645	391,478	397,549	789,027	1.9
Urban	38,674	21,102	51,753	49,870	50,550	100,420	1.9
KAKAMEGA	739,691	355,679	1,020,038	796,838	858,175	1,655,013	1.6
Rural	633,122	298,101	878,805	683,545	740,172	1,423,717	1.6
Urban	106,569	57,578	141,233	113,293	118,003	231,296	1.6
VIHIGA	245,703	123,347	463,665	262,046	291,587	553,633	1.2
Rural	171,904	84,123	312,767	178,992	201,094	380,086	1.2
Urban	73,799	39,224	150,898	83,054	90,493	173,547	1.2
BUNGOMA	469,187	270,824	764,508	669,373	702,647	1,372,020	1.8
Rural	395,332	223,126	633,122	566,272	594,011	1,160,283	1.8
Urban	73,855	47,698	131,386	103,101	108,636	211,737	1.6
BUSIA	299,279	154,225	368,044	353,395	386,648	740,043	2.0
Rural	267,414	133,374	322,984	314,096	343,769	657,865	2.0
Urban	31,865	20,851	45,060	39,299	42,879	82,178	1.8

Appendix 3: Number of Persons per Room for Various Countries

Country or area	Average number of persons per room				Country or area	Average number of persons per room			
	Year	Total	Urban	Rural		Year	Total	Urban	Rural
Aruba	1991	0.7	...	...	Kuwait	1985	1.7	...	...
Austria	1997	0.7	0.7	0.7	Lesotho	1996	2.1	...	...
Azerbaijan	1998	2.1	1.9	2.3	Martinique	1990	0.9	0.9	0.9
Bahamas	1990	1.3	1.3	1.1	Mauritius	1990	1.2	1.1	1.3
Belgium	1991	0.6	...	0.6	Mexico	1995	...	1.4	...
Bermuda	1991	0.6	0.6	...	Netherlands	1998	0.7	0.6	0.6
Bolivia	1988	...	1.7	...	New Caledonia	1989	1.2	1.1	1.4
Brazil	1998	0.7	0.7	0.8	New Zealand	1991	0.5	0.5	0.5
Bulgaria	1992	1	1.2	0.8	Nicaragua	1995	2.6	2.2	3.1
Cameroon	1976	1.2	1.2	1.3	Norway	1990	0.6	0.6	0.6
Canada	1996	0.5	0.5	0.5	Pakistan	1998	3	2.8	3.1
China, Macao SAR	1996	1.1	...	...	Panama	1990	1.6	1.4	1.9
Colombia	1993	1.4	1.3	1.7	Peru	1990	2	1.9	2.4
Costa Rica	1997	0.9	0.8	1	Poland	1995	1	0.9	1.1
Croatia	1991	1.2	...	...	Portugal	1991	0.7	0.7	0.7
Cuba	1981	1	1	1	Puerto Rico	1990	0.7	0.6	0.7
Cyprus	1992	0.6	0.6	0.7	Republic of Korea	1995	1.1	1.2	0.9
Czech Republic	1991	1	1.1	1	Reunion	1990	1	1	0.9
Egypt	1996	1.3	1.3	1.4	Romania	1992	1.3	1.3	1.2
Finland	1998	0.8	0.8	1	San Marino	1991	0.7	0.7	0.8
France	1990	0.7	0.7	0.7	Serbia and Montenegro	1991	1.2	3.1	3.3
French Guiana	1990	1.1	1.1	1.5	Slovakia	1991	1.2	1.2	1.2
Gambia	1993	1.5	1.3	1.6	Sri Lanka	1981	2.2	2.3	2.1
Germany	1987	0.5	0.5	0.5	Sweden	1990	0.5	0.5	0.5
Guadeloupe	1990	0.9	0.9	0.9	Switzerland	1990	0.6	0.6	0.6
Guam	1990	0.8	0.7	0.8	Syrian Arab Republic	1994	2	1.8	2.3
Honduras	1988	2.2	1.8	2.6	Turkey	1994	1.3	1.3	1.4
Hungary	1990	0.8	0.8	0.8	United Kingdom	1996	0.5	0.5	0.4
India	1981	2.7	2.6	2.8	United States	1997	0.5	0.5	0.5
Iraq	1987	1.5	1.8	1	Uruguay	1996	1	1	1
Israel	1983	1.2	...	...	US Virgin Islands	1990	0.6	...	...
Japan	1978	0.8	0.8	0.7	Kenya	2009	1.6	1.7	1.6

Source: United Nations Statistics Division (available online), last update: June 2011).

Appendix 4: Distribution of Households by Size and Number of Habitable Rooms in Selected Urban Centres

Urban Centres	Habitable Room 1			Habitable Rooms 2			Habitable Rooms 3+			Total
	HH size 1	HH size 2	HH size 3+	HH size 1	HH size 2	HH size 3+	HH size 1	HH size 2	HH size 3+	
KENYA	821,663	508,901	1,533,992	260,083	247,407	1,589,140	232,677	327,762	3,229,805	8,751,430
Nairobi	214,602	146,653	287,844	22,874	21,828	95,566	18,415	22,798	154,436	985,016
Nyeri	6,928	2,857	4,503	1,695	1,163	3,894	2,108	2,489	13,093	38,730
Murang'a	2,423	925	1,382	390	296	949	422	519	2,948	10,254
Kikuyu	9,270	4,628	8,030	3,118	2,415	8,630	3,744	4,885	32,325	77,045
Ruiru	15,689	8,411	15,863	2,668	2,464	11,030	1,336	1,805	15,918	75,184
Thika	13,716	7,419	13,360	1,242	1,204	5,110	731	1,019	8,135	51,936
Others Central	34,947	15,641	28,225	10,635	8,174	30,585	9,922	12,870	84,738	235,737
Mombasa	56,749	38,959	75,423	5,144	5,709	30,997	3,938	4,843	46,938	268,700
Kilifi	2,680	1,415	3,357	678	631	4,417	537	662	9,746	24,123
Lamu	584	276	538	225	165	737	175	224	1,801	4,725
Voi	2,107	1,011	1,608	503	413	1,748	483	536	3,684	12,093
Malindi	6,074	3,580	7,737	1,019	1,049	6,744	878	926	14,287	42,294
Others Coast	14,836	8,619	18,720	2,972	2,917	16,586	2,154	2,584	30,587	99,975
Embu	3,553	1,767	2,561	855	727	2,360	759	942	5,976	19,500
Meru	3,871	2,074	3,107	687	620	2,008	513	713	5,093	18,686
Machakos	4,147	2,143	3,616	1,230	1,220	5,125	1,319	2,166	19,546	40,512
Mavoko	11,504	6,877	11,271	1,219	1,015	4,459	818	831	7,488	45,482
Others Eastern	29,359	14,435	33,580	8,289	8,049	43,002	7,558	11,424	111,541	267,237
Garissa	1,471	1,556	6,525	194	465	5,435	112	179	5,072	21,009
Others NE	1,085	1,250	12,915	196	405	14,227	171	150	10,900	41,299
Kisumu	11,094	7,231	18,769	4,662	4,307	21,596	2,404	3,366	28,891	102,320
Homa Bay	1,065	722	2,214	697	682	3,994	335	425	3,927	14,061
Kisii	2,754	1,756	3,183	783	710	3,193	627	711	7,590	21,307
Siaya	992	568	1,965	519	522	2,326	510	497	3,690	11,589
Others Nyanza	15,687	9,906	37,100	11,313	11,036	66,506	8,694	12,712	144,979	317,933
Nanyuki	3,734	1,689	2,997	721	585	2,224	641	719	4,722	18,032
Nyahururu	2,975	1,357	2,398	718	610	2,595	564	725	5,415	17,357
Kitale	5,700	3,398	9,076	1,150	1,097	6,772	682	844	8,978	37,697
Eldoret	17,485	10,245	19,698	2,864	2,617	12,678	1,776	2,112	19,503	88,978
Nakuru	20,501	11,323	24,197	3,158	3,133	15,049	2,747	3,347	24,387	107,842
Naivasha	13,200	6,577	12,902	2,295	1,676	6,792	1,383	1,622	11,323	57,770
Kericho	3,810	2,385	5,339	1,297	1,126	6,109	578	706	9,808	31,158
Ngong'	6,336	3,749	7,330	1,276	1,128	4,349	809	984	7,103	33,064
Others R. Valley	47,313	27,910	74,505	11,919	10,971	70,598	8,125	9,763	119,639	380,743
Kakamega	2,990	1,640	2,997	1,213	1,008	3,951	867	976	8,127	23,769
Bungoma	1,980	1,152	2,264	892	822	3,665	669	772	7,348	19,564
Webuye	1,271	794	2,190	546	559	3,354	365	467	6,051	15,597
Busia	1,861	1,149	3,416	441	452	2,759	274	359	3,873	14,584
Others Western	10,294	6,387	22,257	5,863	5,723	35,098	4,522	6,149	69,688	165,981

Appendix 5: Percentage Distribution of Households by Ownership of Dwelling, Sex of Household Head and County

County/Region	Owner Occupied			Rented		
	Male	Female	Sub-total	Male	Female	Sub-total
KENYA	44.4	23.6	68.0	23.5	8.5	32.0
Rural	57.6	31.4	89.0	7.6	3.4	11.0
Urban	23.0	10.9	33.8	49.2	17.0	66.2
NAIROBI	10.0	3.4	13.5	66.3	20.2	86.5
NYANDARUA	50.2	26.5	76.7	15.3	8.0	23.3
Rural	54.2	28.5	82.7	11.2	6.1	17.3
Urban	35.0	19.2	54.2	30.5	15.3	45.8
NYERI	47.3	26.8	74.1	17.0	8.9	25.9
Rural	55.7	31.8	87.4	8.4	4.2	12.6
Urban	24.6	13.2	37.8	40.4	21.8	62.2
KIRINYAGA	56.3	22.2	78.5	13.8	7.8	21.5
Rural	62.7	24.6	87.3	8.1	4.6	12.7
Urban	26.7	10.8	37.5	40.0	22.5	62.5
MURANG'A	52.4	31.8	84.2	10.3	5.5	15.8
Rural	55.8	34.2	90.0	6.7	3.4	10.1
Urban	33.8	18.7	52.5	30.7	16.8	47.5
KIAMBU	34.6	14.6	49.2	37.2	13.6	50.9
Rural	53.0	24.9	77.9	15.5	6.6	22.1
Urban	25.1	9.3	34.4	48.4	17.2	65.6
MOMBASA	16.8	5.6	22.4	61.0	16.7	77.7
KWALE	54.0	28.6	82.6	13.0	4.4	17.4
Rural	60.1	32.9	92.9	5.2	1.9	7.1
Urban	34.7	15.0	49.7	38.0	12.3	50.3
KILIFI	47.7	25.0	72.7	19.8	7.5	27.3
Rural	58.9	32.8	91.7	6.2	2.1	8.3
Urban	27.9	11.2	39.1	43.8	17.1	60.9
TANA RIVER	59.8	26.9	86.7	9.8	3.6	13.3
Rural	63.4	28.3	91.8	6.0	2.3	8.2
Urban	41.4	19.7	61.2	28.7	10.1	38.8
LAMU	56.8	20.1	76.8	18.4	4.8	23.2
Rural	63.2	22.0	85.3	11.9	2.8	14.7
Urban	33.3	12.9	46.1	42.0	11.9	53.9
TAITA TAVETA	47.0	26.6	73.6	19.4	7.1	26.4
Rural	51.8	29.4	81.1	14.0	4.9	18.9
Urban	27.4	15.0	42.4	41.4	16.2	57.6
MARSABIT	55.1	34.6	89.7	6.9	3.4	10.3
Rural	60.3	36.2	96.5	2.4	1.1	3.5
Urban	35.6	28.4	64.0	24.1	11.9	36.0
ISIOLO	42.9	28.9	71.8	18.6	9.6	28.2
Rural	55.8	36.1	91.9	6.0	2.2	8.2
Urban	28.1	20.8	48.8	33.1	18.1	51.2
MERU	59.6	22.6	82.2	11.7	6.1	17.8
Rural	64.2	24.3	88.5	7.4	4.1	11.5
Urban	20.3	8.6	28.9	47.8	23.3	71.1
THARAKA	61.3	27.4	88.7	6.8	4.5	11.3
Rural	63.4	29.4	92.8	4.3	2.9	7.2
Urban	54.9	21.4	76.3	14.4	9.3	23.7
EMBU	54.5	25.7	80.2	12.8	7.0	19.8
Rural	60.0	28.6	88.6	7.1	4.3	11.4
Urban	31.4	13.3	44.7	36.9	18.4	55.3
KITUI	48.4	41.3	89.7	6.5	3.8	10.3
Rural	50.7	44.4	95.1	3.0	2.0	5.0
Urban	36.6	25.9	62.5	24.5	13.0	37.5
MACHAKOS	45.4	30.3	75.7	18.0	6.4	24.3
Rural	52.8	41.8	94.6	3.6	1.8	5.4
Urban	39.8	21.4	61.2	29.0	9.8	38.8
MAKUENI	50.4	37.0	87.4	8.3	4.3	12.6
Rural	53.3	40.0	93.3	4.4	2.3	6.7
Urban	32.6	18.7	51.4	31.8	16.9	48.7

County/Region	Owner Occupied			Rented		
	Male	Female	Sub-total	Male	Female	Sub-total
GARISSA	62.5	20.5	83.0	12.2	4.8	17.0
Rural	69.8	21.6	91.4	6.2	2.4	8.6
Urban	40.6	17.5	58.1	29.9	12.0	41.9
WAJIR	77.5	18.1	95.6	3.5	0.9	4.4
Rural	81.4	16.3	97.6	2.0	0.4	2.4
Urban	57.0	27.7	84.7	11.4	3.9	15.3
MANDERA	77.8	17.6	95.3	3.6	1.1	4.7
Rural	81.3	16.0	97.4	2.3	0.4	2.7
Urban	61.6	24.5	86.2	9.4	4.5	13.9
SIAYA	44.1	40.7	84.7	10.7	4.6	15.3
Rural	46.5	43.5	90.0	7.0	3.0	10.1
Urban	24.8	18.8	43.6	39.3	17.1	56.4
KISUMU	35.6	27.8	63.4	28.0	8.6	36.6
Rural	48.9	41.9	90.8	6.9	2.4	9.2
Urban	24.6	16.0	40.6	45.6	13.9	59.4
HOMA BAY	45.5	39.2	84.7	10.8	4.5	15.3
Rural	48.1	41.7	89.8	7.2	3.1	10.2
Urban	31.4	25.7	57.0	30.7	12.3	43.0
MIGORI	48.9	33.5	82.4	12.8	4.8	17.6
Rural	55.7	36.7	92.4	5.2	2.4	7.6
Urban	37.3	27.8	65.2	25.9	9.0	34.9
KISII	56.8	30.8	87.6	8.9	3.5	12.4
Rural	60.3	33.2	93.5	4.5	2.0	6.5
Urban	43.8	22.1	65.9	25.1	9.0	34.1
NYAMIRA	57.6	29.2	86.7	9.6	3.7	13.3
Rural	58.8	29.9	88.7	8.2	3.1	11.3
Urban	49.7	24.2	73.9	18.3	7.8	26.1
TURKANA	54.7	33.0	87.7	8.3	4.0	12.3
Rural	58.2	33.7	91.9	5.5	2.6	8.1
Urban	36.3	29.0	65.3	23.3	11.4	34.7
WESTPOKOT	57.9	31.4	89.3	7.5	3.2	10.7
Rural	60.6	32.7	93.3	4.7	2.0	6.7
Urban	32.7	18.3	51.0	34.1	14.9	49.0
SAMBURU	43.0	42.6	85.6	9.5	4.9	14.4
Rural	47.4	47.0	94.4	3.9	1.8	5.6
Urban	24.0	24.0	48.0	33.8	18.1	52.0
TRANSNZOIA	47.3	21.5	68.8	23.2	8.0	31.2
Rural	54.8	25.1	79.9	14.7	5.4	20.1
Urban	23.3	9.9	33.2	50.7	16.2	66.8
BARINGO	53.8	29.8	83.7	11.1	5.2	16.3
Rural	58.7	32.6	91.3	6.1	2.6	8.7
Urban	25.8	13.8	39.6	40.2	20.1	60.4
UASINGISHU	39.3	17.1	56.4	32.0	11.6	43.6
Rural	58.8	26.1	84.9	10.7	4.4	15.1
Urban	18.2	7.2	25.4	55.1	19.5	74.6
ELGEYO-MARAKWET	59.9	27.2	87.1	9.2	3.7	12.9
Rural	62.1	28.5	90.5	7.0	2.5	9.5
Urban	47.1	20.0	67.1	22.2	10.7	32.9
NANDI	56.3	22.7	79.0	15.7	5.3	21.0
Rural	59.2	23.9	83.2	12.9	4.0	16.8
Urban	40.1	16.2	56.3	31.3	12.4	43.7
LAIKIPIA	41.3	25.2	66.5	22.8	10.7	33.5
Rural	49.9	31.0	81.0	13.1	5.9	19.1
Urban	13.8	6.9	20.7	53.5	25.8	79.3
NAKURU	33.2	16.7	49.9	35.4	14.7	50.1
Rural	50.6	25.9	76.6	16.2	7.3	23.4
Urban	16.9	8.0	24.9	53.4	21.7	75.1
NAROK	52.8	29.4	82.2	13.0	4.8	17.8
Rural	56.9	31.9	88.7	8.2	3.1	11.3
Urban	14.8	6.6	21.4	57.1	21.5	78.7
KAJIADO	32.7	19.5	52.2	35.9	11.9	47.8
Rural	48.9	33.0	81.9	13.5	4.6	18.1
Urban	16.6	6.0	22.6	58.2	19.2	77.4

County/Region	Owner Occupied			Rented		
	Male	Female	Sub-total	Male	Female	Sub-total
KERICHO	51.3	19.6	70.9	21.7	7.5	29.1
Rural	56.8	20.9	77.6	17.0	5.3	22.4
Urban	43.1	17.6	60.7	28.7	10.7	39.3
BOMET	59.3	25.7	85.0	10.7	4.4	15.0
Rural	60.3	26.5	86.8	9.5	3.7	13.2
Urban	51.7	20.0	71.7	19.3	9.0	28.3
KAKAMEGA	56.1	30.4	86.6	9.4	4.1	13.5
Rural	60.2	32.9	93.1	4.5	2.4	6.9
Urban	35.0	17.6	52.6	34.5	12.9	47.4
VIHIGA	53.9	37.2	91.1	5.7	3.2	8.9
Rural	54.9	38.4	93.3	4.2	2.5	6.7
Urban	51.8	34.4	86.3	9.0	4.7	13.8
BUNGOMA	58.3	26.2	84.5	10.9	4.6	15.5
Rural	62.5	27.9	90.4	6.7	2.9	9.6
Urban	38.7	18.3	57.0	30.7	12.3	43.0
BUSIA	52.4	32.9	85.2	9.8	5.0	14.8
Rural	57.0	36.1	93.0	4.4	2.6	7.0
Urban	23.0	12.3	35.3	44.6	20.1	64.7

Appendix 6: Percentage Distribution of Households by Tenure in Selected Urban Centres

Urban Centre	Own				Rent							
	Purchased	Constructed	Inherited	Sub-Total	Government	Local Authority	Parastatal	Private Company	Individual	FBO/NGO	Other forms	Sub-Total
KENYA	3.0	62.4	2.7	68.0	1.3	0.7	0.5	1.8	26.8	0.4	0.5	32.0
NAIROBI	6.2	5.7	1.6	13.5	2.6	2.6	1.4	3.2	75.2	0.5	1.0	86.5
NYERI	2.1	40.0	4.3	46.4	4.0	1.0	0.4	1.5	44.7	1.1	0.8	53.6
MURANG'A	2.5	27.7	3.0	33.2	4.9	1.2	0.4	1.3	58.3	0.3	0.5	66.8
KIKUYU	2.3	43.9	4.2	50.4	1.0	0.4	1.1	1.0	44.9	0.4	1.0	49.6
RUIRU	3.9	20.8	1.8	26.5	1.6	0.4	0.9	3.9	66.0	0.1	0.6	73.5
THIKA	2.5	12.4	1.3	16.2	1.8	3.7	0.2	3.6	73.4	0.6	0.5	83.8
Others Central	2.8	41.9	3.5	48.2	1.7	0.4	0.4	3.8	43.9	1.0	0.6	51.8
MOMBASA	5.7	13.4	3.3	22.3	1.8	1.6	1.8	2.1	69.3	0.3	0.8	77.7
KILIFI	2.9	60.1	1.9	64.8	1.4	0.5	0.4	5.9	26.1	0.3	0.7	35.2
MALINDI	4.9	48.0	2.6	55.5	1.2	0.5	0.4	2.3	39.2	0.3	0.7	44.5
LAMU	4.0	34.9	10.4	49.2	2.4	1.6	0.5	4.1	40.0	0.4	1.8	50.8
VOI	2.7	41.4	3.9	48.0	2.5	0.3	3.0	1.3	44.1	0.4	0.5	52.0
Others Coast	4.1	47.2	2.9	54.2	2.2	0.7	0.4	1.7	39.7	0.3	0.9	45.8
EMBU	2.7	31.6	2.7	37.0	5.5	0.3	0.3	1.8	53.5	1.2	0.4	63.0
MERU	3.2	24.9	2.9	31.0	3.1	0.7	0.4	0.5	62.5	0.5	1.3	69.0
MAVOKO	3.6	20.1	1.0	24.7	1.3	0.8	2.1	3.7	66.3	0.3	0.9	75.3
MACHAKOS	3.5	62.3	3.5	69.2	2.0	0.3	0.5	0.8	26.5	0.3	0.4	30.8
Others Eastern	2.8	64.8	2.8	70.3	1.5	0.5	0.2	0.9	25.8	0.4	0.4	29.7
GARISSA	4.9	48.4	1.7	55.0	3.1	1.4	0.7	0.6	38.6	0.2	0.5	45.0
Others N. Eastern	7.8	74.2	2.9	84.9	2.5	0.3	0.2	0.3	11.2	0.2	0.6	15.1
KISUMU	3.1	33.7	1.8	38.5	2.1	1.2	1.8	1.1	54.0	0.5	0.8	61.5
HOMA BAY	3.4	52.3	1.2	56.9	3.4	0.7	0.5	0.2	37.8	0.3	0.2	43.1
KISII	0.3	75.4	4.9	80.6	-	-	-	-	16.8	-	2.6	19.4
SIAYA	2.8	55.0	1.9	59.8	2.6	0.4	0.1	0.6	35.5	0.3	0.7	40.3
Others Nyanza	2.5	69.5	2.5	74.4	1.1	0.3	1.0	0.5	22.0	0.3	0.3	25.6
NANYUKI	4.3	21.8	2.5	28.6	6.8	1.0	1.4	4.4	56.0	0.5	1.3	71.4
NYAHURURU	6.8	26.3	4.1	37.3	2.7	1.2	1.1	1.4	55.1	0.4	0.8	62.7
ELDORET	4.0	17.8	2.4	24.2	2.2	2.5	1.2	2.1	66.3	0.8	0.7	75.8
NAKURU	5.0	14.8	2.0	21.7	2.6	4.0	1.2	2.7	66.3	0.5	0.9	78.3
NAIVASHA	3.3	20.9	2.1	26.3	2.0	0.6	1.3	13.8	55.3	0.3	0.4	73.7
KITALE	4.4	25.4	2.5	32.3	2.9	2.5	0.7	2.5	57.4	0.6	1.1	67.7

Urban Centre	Own				Rent							
	Purchased	Constructed	Inherited	Sub-Total	Government	Local Authority	Parastatal	Private Company	Individual	FBO/NGO	Other forms	Sub-Total
KERICHO	2.1	44.4	2.6	49.0	2.9	1.1	0.4	8.8	36.9	0.4	0.5	51.0
NGONG'	5.5	15.2	2.2	22.9	1.4	0.9	0.7	2.6	70.5	0.4	0.7	77.1
Others R. Valley	4.0	46.5	2.9	53.4	2.7	0.5	0.4	3.7	37.2	1.5	0.6	46.6
KAKAMEGA	3.1	33.4	4.0	40.4	5.3	1.5	0.4	1.3	49.1	0.4	1.7	59.6
BUNGOMA	3.0	38.6	2.5	44.0	2.7	0.8	0.5	1.0	50.3	0.3	0.5	56.0
WEBUYE	2.6	55.2	2.8	60.6	1.3	0.8	0.3	3.7	33.1	0.2	0.1	39.4
BUSIA	1.6	35.6	1.8	39.1	3.0	0.4	0.5	0.9	55.6	0.2	0.4	60.9
MALAVA	1.9	86.3	1.8	90.0	0.5	0.1	0.0	0.3	9.0	0.0	0.1	10.0
Others Western	1.6	73.9	2.8	78.3	1.0	0.3	0.1	1.7	18.2	0.2	0.1	21.7

Appendix 7: Percentage Distribution of Households by Main Roof Materials and County, 2009

	Durable Roof Materials						Nondurable Roof Materials				Others
	Corrugated Iron Sheets	Tiles	Concrete	Asbestos Sheets	Tin	Sub-Total	Grass	Makuti	Mud/Dung	Sub-Total	
KENYA	73.2	2.2	3.6	2.3	0.3	81.6	13.7	3.2	0.8	17.7	0.7
Rural	69.8	0.7	0.2	1.9	0.3	72.8	20.7	4.3	1.2	26.2	1.0
Urban	78.9	4.6	9.1	2.9	0.3	95.9	2.2	1.6	0.1	3.8	0.3
NAIROBI	65.3	9.7	21.2	3.1	0.4	99.7	0.0	0.1	0.0	0.1	0.2
NYANDARUA	95.1	0.6	0.2	2.0	0.1	97.9	0.8	0.1	0.0	0.9	1.2
Rural	95.9	0.6	0.1	2.2	0.1	98.8	0.9	0.1	0.0	1.0	0.3
Urban	92.1	0.6	0.6	1.4	0.1	94.7	0.6	0.0	0.0	0.6	4.7
NYERI	94.6	1.2	1.2	2.2	0.2	99.4	0.5	0.1	0.0	0.5	0.1
Rural	96.0	0.9	0.2	1.9	0.2	99.3	0.5	0.1	0.0	0.7	0.1
Urban	90.7	2.0	3.8	2.9	0.2	99.6	0.2	0.1	0.0	0.3	0.1
KIRINYAGA	95.0	0.8	0.8	2.6	0.1	99.2	0.6	0.0	0.0	0.7	0.1
Rural	95.7	0.7	0.2	2.4	0.1	99.1	0.8	0.0	0.0	0.8	0.1
Urban	91.3	0.9	4.0	3.6	0.0	99.8	0.0	0.0	0.0	0.1	0.2
MURANG'A	94.4	1.2	1.7	1.7	0.6	99.6	0.3	0.0	0.0	0.4	0.0
Rural	95.9	1.0	0.5	1.5	0.6	99.6	0.3	0.0	0.1	0.4	0.0
Urban	86.1	2.2	8.4	2.8	0.3	99.7	0.2	0.0	0.0	0.3	0.1
KIAMBU	87.8	3.2	6.6	1.8	0.2	99.6	0.1	0.1	0.0	0.2	0.1
Rural	95.0	2.0	0.7	1.5	0.2	99.4	0.2	0.1	0.0	0.4	0.3
Urban	84.1	3.9	9.7	1.9	0.1	99.8	0.1	0.1	0.0	0.2	0.1
MOMBASA	78.4	3.5	9.6	3.2	0.4	95.2	0.1	4.4	0.1	4.7	0.1
KWALE	37.1	0.6	0.2	1.8	0.2	39.9	10.1	49.8	0.1	59.9	0.2
Rural	30.6	0.4	0.1	1.4	0.2	32.6	13.0	54.0	0.1	67.1	0.2
Urban	58.2	1.2	0.7	3.1	0.2	63.3	0.6	36.1	0.0	36.7	0.0
KILIFI	42.3	1.0	1.8	2.6	0.2	47.8	7.3	44.8	0.0	52.2	0.1
Rural	27.3	0.9	0.3	1.7	0.2	30.4	11.2	58.3	0.0	69.5	0.1
Urban	69.4	1.2	4.5	4.1	0.2	79.3	0.3	20.2	0.1	20.6	0.1
TANA RIVER	26.4	0.4	0.0	1.4	0.1	28.5	56.4	13.9	0.0	70.4	1.2
Rural	17.0	0.5	0.0	0.9	0.2	18.5	64.2	15.9	0.0	80.2	1.3
Urban	74.0	0.2	0.1	4.1	0.1	78.4	17.3	3.8	0.1	21.2	0.5
LAMU	31.6	0.3	11.2	3.0	0.4	46.4	16.4	34.8	0.1	51.3	2.3
Rural	34.7	0.3	2.1	3.0	0.4	40.4	20.8	36.0	0.1	56.8	2.8
Urban	20.3	0.5	44.0	3.0	0.3	68.2	0.7	30.8	0.0	31.5	0.4
TAITA TAVETA	86.0	1.3	0.4	3.0	0.8	91.5	6.7	1.5	0.1	8.3	0.2
Rural	85.5	1.2	0.2	2.3	0.9	90.0	8.0	1.6	0.1	9.7	0.3
Urban	88.2	1.7	1.4	5.8	0.3	97.4	1.4	1.1	0.1	2.6	0.1
MARSABIT	27.5	0.2	0.1	1.0	1.5	30.3	24.3	11.8	0.8	36.9	32.8
Rural	13.5	0.2	0.0	0.7	1.7	16.1	29.5	13.2	0.9	43.6	40.3
Urban	81.3	0.4	0.1	2.3	0.8	84.8	4.5	6.1	0.6	11.2	4.1
ISIOLO	60.8	0.7	0.3	1.5	1.8	65.0	20.8	5.8	3.4	30.0	5.0
Rural	34.1	0.3	0.0	1.0	3.3	38.7	35.4	10.1	6.3	51.9	9.4

	Durable Roof Materials						Nondurable Roof Materials				Others
	Corrugated Iron Sheets	Tiles	Concrete	Asbestos Sheets	Tin	Sub-Total	Grass	Makuti	Mud/Dung	Sub-Total	
Urban	91.3	1.0	0.7	2.0	0.1	95.1	4.0	0.9	0.0	4.9	0.1
MERU	92.8	0.8	0.3	3.1	0.1	97.1	2.4	0.3	0.1	2.8	0.1
Rural	92.9	0.7	0.1	3.0	0.1	96.8	2.7	0.4	0.1	3.1	0.1
Urban	92.0	1.4	2.0	4.2	0.1	99.7	0.2	0.1	0.0	0.3	0.1
THARAKA	87.6	0.7	0.3	2.0	0.1	90.7	9.1	0.2	0.1	9.3	0.0
Rural	85.4	0.7	0.0	2.0	0.1	88.1	11.6	0.2	0.0	11.9	0.1
Urban	94.3	0.9	1.1	1.9	0.3	98.4	1.4	0.1	0.1	1.5	0.0
EMBU	92.4	1.1	0.5	2.4	0.1	96.5	3.3	0.1	0.0	3.5	0.0
Rural	92.3	0.7	0.1	2.5	0.1	95.7	4.0	0.1	0.0	4.2	0.0
Urban	92.9	2.6	2.4	1.8	0.0	99.7	0.2	0.1	0.0	0.3	0.0
KITUI	76.4	1.1	0.2	1.7	0.1	79.4	20.1	0.4	0.1	20.5	0.1
Rural	73.3	1.1	0.1	1.7	0.1	76.3	23.1	0.4	0.1	23.6	0.1
Urban	91.8	1.3	0.5	1.4	0.1	95.0	4.7	0.1	0.0	4.9	0.1
MACHAKOS	88.9	1.6	3.1	1.6	0.1	95.3	4.5	0.1	0.1	4.6	0.1
Rural	90.2	0.9	0.1	0.9	0.1	92.1	7.8	0.1	0.0	7.9	0.0
Urban	88.0	2.2	5.3	2.1	0.2	97.7	1.9	0.1	0.1	2.1	0.2
MAKUENI	86.6	0.8	0.2	1.2	0.1	88.7	11.0	0.2	0.0	11.2	0.0
Rural	86.0	0.7	0.1	1.2	0.1	88.1	11.6	0.3	0.0	11.9	0.0
Urban	89.8	1.0	0.6	1.2	0.1	92.6	7.2	0.1	0.0	7.4	0.0
GARISSA	29.3	0.8	0.2	2.5	0.7	33.4	60.3	4.6	0.8	65.7	0.9
Rural	14.4	0.5	0.2	2.2	0.9	18.1	75.5	4.6	0.8	80.9	1.1
Urban	74.0	1.5	0.3	3.4	0.3	79.5	14.7	4.8	0.8	20.3	0.2
WAJIR	10.4	0.4	0.1	0.5	0.1	11.5	86.2	1.9	0.2	88.3	0.2
Rural	5.7	0.3	0.0	0.4	0.1	6.6	90.8	2.2	0.2	93.2	0.2
Urban	35.3	0.7	0.5	0.7	0.1	37.3	62.0	0.5	0.2	62.7	0.1
MANDERA	11.5	0.5	0.1	0.4	0.1	12.6	61.6	24.8	0.2	86.6	0.8
Rural	4.9	0.5	0.1	0.3	0.1	5.8	66.7	26.4	0.2	93.3	0.9
Urban	41.3	0.5	0.4	1.0	0.2	43.4	38.3	17.5	0.3	56.1	0.6
SIAYA	65.9	0.6	0.1	0.9	0.2	67.7	32.1	0.1	0.0	32.2	0.0
Rural	63.1	0.6	0.1	0.9	0.1	64.7	35.1	0.1	0.0	35.2	0.0
Urban	88.2	1.0	0.3	1.4	0.4	91.3	8.4	0.1	0.1	8.6	0.0
KISUMU	85.1	1.7	1.1	2.7	0.2	90.7	9.1	0.1	0.1	9.2	0.1
Rural	82.0	0.5	0.1	1.5	0.2	84.3	15.5	0.2	0.0	15.7	0.1
Urban	87.7	2.7	1.9	3.6	0.2	96.1	3.8	0.1	0.1	3.9	0.1
HOMA BAY	82.3	0.6	0.1	1.6	0.2	84.7	15.1	0.1	0.0	15.3	0.0
Rural	80.3	0.5	0.1	1.5	0.2	82.5	17.3	0.1	0.0	17.5	0.0
Urban	93.2	0.8	0.1	2.4	0.1	96.7	3.2	0.1	0.1	3.3	0.0
MIGORI	75.9	0.6	0.1	2.4	0.1	79.1	20.7	0.1	0.1	20.9	0.0
Rural	66.8	0.5	0.0	2.4	0.1	69.8	30.0	0.1	0.0	30.1	0.0
Urban	91.5	0.7	0.3	2.5	0.1	95.1	4.8	0.1	0.1	4.9	0.0
KISII	83.5	0.6	0.7	3.3	0.3	88.4	11.4	0.2	0.1	11.6	0.0
Rural	82.7	0.5	0.1	3.3	0.3	86.9	12.9	0.2	0.0	13.1	0.0

	Durable Roof Materials						Nondurable Roof Materials				Others
	Corrugated Iron Sheets	Tiles	Concrete	Asbestos Sheets	Tin	Sub-Total	Grass	Makuti	Mud/Dung	Sub-Total	
Urban	86.7	0.8	2.7	3.2	0.3	93.8	5.9	0.2	0.1	6.2	0.1
NYAMIRA	89.8	0.8	0.2	1.8	0.1	92.7	7.1	0.1	0.0	7.3	0.0
Rural	89.5	0.8	0.1	1.6	0.1	92.1	7.7	0.1	0.0	7.9	0.0
Urban	91.5	0.7	1.1	3.1	0.1	96.5	3.4	0.1	0.1	3.5	0.0
TURKANA	13.8	0.4	0.0	1.2	1.5	16.8	34.5	35.5	0.2	70.1	13.1
Rural	7.5	0.4	0.0	0.9	1.4	10.3	38.0	37.0	0.2	75.1	14.6
Urban	47.4	0.3	0.1	2.5	1.6	51.8	15.4	27.5	0.2	43.0	5.2
WEST POKOT	25.0	0.6	0.0	0.8	0.1	26.5	67.0	0.3	6.1	73.4	0.2
Rural	19.4	0.4	0.0	0.8	0.1	20.6	72.2	0.3	6.8	79.2	0.2
Urban	79.0	1.8	0.1	1.1	0.1	82.2	17.6	0.1	0.1	17.8	0.1
SAMBURU	22.8	0.7	0.1	0.9	2.4	26.9	11.1	11.8	38.0	61.0	12.1
Rural	10.8	0.8	0.1	0.7	2.3	14.7	13.0	13.7	45.1	71.8	13.4
Urban	74.4	0.3	0.1	1.8	3.2	79.7	3.2	3.5	7.3	13.9	6.4
TRANS-NZOIA	81.6	1.0	0.2	2.9	0.1	85.7	13.6	0.2	0.1	13.8	0.5
Rural	78.6	0.7	0.1	2.5	0.1	82.0	17.2	0.2	0.0	17.5	0.6
Urban	91.3	1.9	0.6	4.1	0.1	98.0	1.7	0.0	0.1	1.8	0.2
BARINGO	58.0	1.0	0.1	1.5	0.1	60.7	38.8	0.2	0.1	39.1	0.2
Rural	52.5	0.8	0.0	0.9	0.1	54.4	45.1	0.2	0.1	45.4	0.3
Urban	89.9	2.2	0.5	4.5	0.2	97.4	2.3	0.1	0.1	2.5	0.2
UASIN GISHU	84.4	3.2	0.6	2.5	0.2	90.9	7.7	0.1	0.1	7.9	1.2
Rural	81.2	1.0	0.1	1.6	0.1	84.1	14.3	0.1	0.1	14.5	1.5
Urban	88.0	5.6	1.1	3.5	0.3	98.4	0.6	0.0	0.1	0.7	0.9
ELGEYO-MARAKWET	57.9	0.9	0.1	1.2	0.1	60.2	38.9	0.2	0.1	39.2	0.6
Rural	54.4	0.8	0.0	1.2	0.1	56.6	42.4	0.2	0.1	42.7	0.7
Urban	78.1	1.7	0.3	0.9	0.2	81.3	18.6	0.1	0.0	18.8	-
NANDI	82.6	0.8	0.1	1.4	0.2	84.9	14.8	0.1	0.0	14.9	0.1
Rural	80.5	0.6	0.1	1.4	0.1	82.7	17.1	0.1	0.0	17.2	0.1
Urban	93.9	1.6	0.2	1.2	0.3	97.2	2.6	0.1	0.0	2.7	0.1
LAIKIPIA	80.7	1.4	1.4	2.7	0.6	86.8	9.3	0.4	2.6	12.3	0.9
Rural	79.8	0.5	0.0	2.3	0.1	82.7	12.2	0.5	3.4	16.1	1.2
Urban	83.4	4.1	5.7	3.9	2.4	99.6	0.3	0.1	-	0.4	0.0
NAKURU	86.7	2.1	0.9	3.2	0.3	93.2	5.8	0.2	0.1	6.1	0.7
Rural	82.9	0.9	0.1	2.4	0.1	86.5	11.7	0.3	0.2	12.2	1.3
Urban	90.3	3.2	1.6	3.9	0.4	99.5	0.3	0.0	0.1	0.4	0.2
NAROK	48.7	0.5	0.1	3.0	0.4	52.6	33.6	1.2	11.1	45.8	1.6
Rural	43.7	0.5	0.1	3.0	0.4	47.6	37.2	1.3	12.2	50.6	1.8
Urban	94.6	0.7	0.6	2.3	0.7	99.0	0.6	0.2	0.2	0.9	0.1
KAJIADO	67.0	4.0	3.4	3.2	0.4	78.0	10.6	0.4	10.3	21.4	0.7
Rural	50.8	2.4	0.5	2.3	0.6	56.6	21.1	0.7	20.3	42.2	1.2
Urban	83.3	5.5	6.2	4.1	0.3	99.3	0.1	0.1	0.3	0.5	0.2
KERICHO	81.6	0.8	1.2	1.2	0.2	85.1	14.7	0.1	0.1	14.9	0.1

	Durable Roof Materials						Nondurable Roof Materials				Others
	Corrugated Iron Sheets	Tiles	Concrete	Asbestos Sheets	Tin	Sub-Total	Grass	Makuti	Mud/Dung	Sub-Total	
Rural	76.6	0.6	1.5	1.1	0.0	79.9	19.9	0.1	0.1	20.1	0.1
Urban	89.2	1.2	0.6	1.4	0.4	92.9	6.8	0.1	0.0	6.9	0.2
BOMET	72.6	0.9	0.7	1.4	0.3	76.0	23.7	0.2	0.1	24.0	0.0
Rural	71.4	1.0	0.7	1.4	0.3	74.8	24.9	0.2	0.1	25.2	0.0
Urban	81.7	0.7	0.9	1.1	0.1	84.4	15.1	0.3	0.2	15.6	0.0
KAKAMEGA	76.7	0.6	0.1	2.4	0.2	80.0	19.9	0.1	0.0	20.0	0.1
Rural	74.6	0.5	0.1	2.2	0.2	77.5	22.3	0.1	0.0	22.4	0.1
Urban	87.4	0.8	0.5	3.8	0.3	92.8	7.1	0.0	0.1	7.2	0.0
VIHIGA	92.4	0.7	0.2	2.5	0.3	96.1	3.8	0.1	0.0	3.9	0.0
Rural	92.7	0.6	0.1	1.9	0.3	95.7	4.2	0.1	0.0	4.3	0.0
Urban	91.8	0.9	0.4	3.6	0.3	96.9	2.9	0.1	0.0	3.1	0.0
BUNGOMA	77.8	0.6	0.1	2.6	0.2	81.3	18.5	0.1	0.0	18.6	0.1
Rural	74.9	0.5	0.1	2.8	0.2	78.4	21.4	0.1	0.0	21.5	0.1
Urban	91.1	0.9	0.5	1.9	0.4	94.9	4.9	0.1	0.0	5.0	0.1
BUSIA	50.2	0.5	0.1	1.7	0.1	52.5	47.2	0.1	0.0	47.4	0.1
Rural	44.7	0.5	0.0	1.7	0.1	47.0	52.8	0.1	0.0	52.9	0.1
Urban	85.6	0.7	0.5	1.5	0.0	88.3	11.5	0.1	0.0	11.7	0.0

Appendix 8: Percentage Distribution of Households by Roof Materials in Selected Urban Centres

	Durable Materials						Nondurable materials				Others
	Corrugated Iron Sheets	Tiles	Concrete	Asbestos Sheets	Tin	Sub-Total	Grass	Makuti	Mud/Dung	Sub-Total	
KENYA	78.9	4.6	9.1	2.9	0.3	95.9	2.2	1.6	0.1	3.8	0.3
Nairobi	65.3	9.7	21.2	3.1	0.4	99.7	0.0	0.1	0.0	0.1	0.2
CENTRAL	86.0	3.1	7.9	2.2	0.2	99.4	0.1	0.1	0.0	0.2	0.4
Nyeri	90.9	2.4	2.9	3.2	0.2	99.7	0.1	0.1	0.0	0.2	0.2
Murang'a	75.7	2.0	17.6	4.0	0.5	99.8	0.0	0.0	0.0	0.0	0.1
Thika	84.4	5.5	7.2	2.6	0.1	99.7	0.1	0.1	0.0	0.2	0.1
Ruiru	74.8	4.3	18.1	2.2	0.2	99.6	0.1	0.2	0.1	0.4	0.1
Kikuyu	88.5	3.7	6.2	1.5	0.1	99.9	0.0	0.1	0.0	0.1	0.1
Others	89.1	2.2	5.5	2.1	0.2	99.1	0.2	0.1	0.0	0.2	0.7
COAST	74.7	2.8	7.9	3.5	0.4	89.3	0.6	9.9	0.1	10.6	0.1
Mombasa	78.4	3.5	9.6	3.2	0.4	95.2	0.1	4.4	0.1	4.7	0.1
Kilifi	63.1	1.5	0.5	3.7	0.1	68.8	0.3	30.8	0.0	31.1	0.1
Malindi	62.2	1.1	7.7	5.1	0.2	76.3	0.3	23.2	0.1	23.6	0.1
Lamu	14.5	0.6	46.5	3.2	0.3	65.1	0.7	33.9	0.0	34.7	0.3
Voi	87.3	1.3	3.2	8.1	0.1	99.9	0.0	-	0.0	0.1	0.1
Others	71.5	1.2	1.6	3.4	0.2	77.7	2.3	19.8	0.0	22.2	0.1
EASTERN	89.7	1.7	3.1	2.1	0.2	96.8	2.5	0.4	0.1	2.9	0.3
Embu	91.5	2.9	3.1	2.3	0.1	99.8	0.1	0.1	0.0	0.2	0.1
Meru	89.0	2.2	3.1	5.5	0.1	99.9	0.1	0.0	0.0	0.1	0.1
Mavoko	75.6	4.6	15.3	2.5	0.3	98.3	0.9	0.1	0.2	1.2	0.5
Machakos	93.2	1.9	1.8	2.4	0.1	99.4	0.5	0.0	0.0	0.6	0.0
Others	92.2	0.9	0.6	1.6	0.2	95.5	3.7	0.6	0.1	4.3	0.3
NORTH EASTERN	53.0	0.9	0.4	1.9	0.2	56.4	34.3	8.5	0.5	43.3	0.3
Garissa	75.9	1.6	0.4	3.6	0.2	81.7	11.7	5.5	0.9	18.0	0.3
Others	41.4	0.6	0.4	1.0	0.2	43.6	45.8	10.0	0.3	56.0	0.3
NYANZA	89.1	1.5	1.3	3.0	0.2	95.2	4.6	0.1	0.1	4.7	0.0
city	88.3	3.0	2.3	3.8	0.2	97.6	2.2	0.1	0.1	2.3	0.1
Siaya	86.6	0.9	0.9	3.8	0.0	92.2	7.6	0.0	0.2	7.8	0.0
Homa Bay	92.5	1.3	0.1	1.3	0.1	95.3	4.6	0.1	0.0	4.7	0.0
Kisii	88.2	1.2	6.1	2.1	0.7	98.3	1.3	0.1	0.1	1.6	0.1
Others	89.5	0.8	0.4	2.8	0.2	93.7	6.2	0.1	0.1	6.3	0.0
RIFT VALLEY	86.7	3.3	1.9	3.3	0.5	95.7	2.6	1.0	0.2	3.8	0.5
Kitale	91.0	2.0	0.6	4.2	0.1	97.9	1.8	0.0	0.1	1.9	0.3
Eldoret	87.9	6.0	1.1	3.3	0.3	98.6	0.5	0.0	0.1	0.6	0.8
Nanyuki	78.0	5.7	7.6	3.1	5.0	99.4	0.4	0.2	-	0.6	0.0
Nyahururu	87.8	2.8	4.5	4.6	0.1	99.8	0.1	0.1	-	0.2	-
Nakuru	87.7	4.7	2.2	4.6	0.5	99.8	0.1	0.0	0.1	0.2	0.0
Naivasha	92.5	1.3	1.3	3.9	0.1	99.2	0.6	0.1	0.1	0.7	0.2
Kericho	91.2	1.5	1.0	2.0	0.6	96.1	3.5	0.1	0.0	3.6	0.2
Ngong'	84.6	5.9	5.4	3.3	0.3	99.6	0.0	0.1	0.1	0.2	0.2
Others	84.3	2.1	1.7	2.6	0.5	91.2	5.4	2.2	0.4	8.0	0.8
WESTERN	89.3	0.8	0.5	2.9	0.3	93.8	6.0	0.1	0.1	6.1	0.0
Kakamega	94.0	1.2	0.9	2.7	0.1	98.8	1.0	0.0	0.1	1.2	0.0
Bungoma	95.3	1.1	1.2	1.8	0.1	99.5	0.4	0.0	0.1	0.4	0.0
Webuye	91.0	1.5	0.5	2.2	0.0	95.2	4.7	0.0	0.0	4.8	-
Busia	89.6	0.9	0.3	1.8	0.0	92.6	7.3	0.1	0.0	7.4	0.0
Others	87.1	0.6	0.3	3.4	0.4	91.9	8.0	0.1	0.1	8.1	0.1

Appendix 9: Percentage Distribution of Households by Wall Materials and County

County	Durable Materials			Nondurable Materials							Other
	Stone	Brick/Block	Sub-Total	Mud/Wood	Mud/Cement	Wood Only	Corrugated Iron Sheets	Grass/Reeds	Tin	Sub-Total	
KENYA	16.6	16.8	33.4	36.7	7.7	11.1	6.6	3.2	0.3	65.7	0.9
Rural	5.6	13.7	19.3	50.0	7.6	14.4	2.5	4.6	0.3	79.4	1.3
Urban	34.5	22.0	56.6	15.1	7.9	5.8	13.3	0.8	0.3	43.2	0.3
NAIROBI	47.4	14.0	61.4	3.7	5.3	1.9	26.9	0.0	0.6	38.5	0.1
NYANDARUA	13.5	2.6	16.1	33.4	3.0	42.9	3.1	0.0	0.1	82.5	1.4
Rural	9.5	2.5	12.0	35.7	3.2	45.3	3.2	0.0	0.1	87.5	0.5
Urban	28.6	3.3	31.9	24.8	2.0	33.9	2.6	0.0	0.1	63.4	4.7
NYERI	21.6	4.7	26.3	10.2	1.3	60.3	1.5	0.1	0.2	73.6	0.1
Rural	13.1	5.5	18.6	11.8	1.5	66.0	1.5	0.2	0.2	81.2	0.2
Urban	44.7	2.6	47.3	5.8	0.6	44.7	1.4	0.1	0.1	52.6	0.1
KIRINYAGA	24.3	16.8	41.1	18.5	3.0	34.5	1.7	0.6	0.1	58.4	0.5
Rural	16.2	18.8	35.0	20.9	3.3	37.8	1.5	0.8	0.1	64.4	0.6
Urban	61.7	7.6	69.3	7.5	1.4	18.9	2.8	0.0	0.1	30.7	0.1
MURANG'A	29.1	13.4	42.6	23.5	2.8	14.6	14.1	0.1	2.0	57.0	0.4
Rural	24.3	13.4	37.7	24.5	2.9	16.7	15.5	0.1	2.3	61.8	0.4
Urban	56.0	13.4	69.3	18.2	2.3	3.0	6.5	0.0	0.4	30.5	0.2
KIAMBU	48.3	4.9	53.2	4.8	1.3	14.6	25.3	0.0	0.7	46.6	0.2
Rural	30.6	5.8	36.4	8.4	2.2	26.1	25.4	0.1	1.2	63.3	0.4
Urban	57.5	4.4	61.9	3.0	0.9	8.6	25.3	0.0	0.4	38.1	0.1
MOMBASA	31.8	42.5	74.3	10.8	13.7	0.2	0.7	0.2	0.1	25.6	0.1
KWALE	15.3	14.5	29.8	56.9	9.8	0.4	0.3	2.2	0.1	69.7	0.6
Rural	7.9	9.7	17.6	67.9	10.6	0.5	0.2	2.6	0.1	81.8	0.7
Urban	39.0	29.9	69.0	21.7	7.4	0.2	0.7	0.9	0.1	30.9	0.2
KILIFI	10.8	23.2	33.9	53.7	8.2	2.2	0.3	1.3	0.1	65.8	0.3
Rural	4.6	10.7	15.3	71.1	8.1	3.0	0.2	1.9	0.1	84.4	0.3
Urban	22.0	45.7	67.7	22.1	8.3	0.7	0.6	0.3	0.1	32.1	0.2
TANA RIVER	1.9	5.7	7.6	41.1	8.2	12.1	0.7	29.5	0.1	91.8	0.6
Rural	0.9	2.3	3.3	40.5	7.1	14.4	0.7	33.3	0.1	96.2	0.6
Urban	6.7	22.7	29.4	43.9	13.9	0.6	0.9	10.7	0.0	70.0	0.6
LAMU	10.9	18.9	29.8	46.9	13.9	0.7	0.4	6.7	0.1	68.8	1.5
Rural	7.7	9.1	16.9	58.8	15.5	0.7	0.4	6.7	0.1	82.2	1.0
Urban	22.3	54.2	76.5	4.2	8.4	0.8	0.2	6.7	0.1	20.3	3.2
TAITA TAVETA	4.5	43.5	48.0	39.9	8.8	1.3	0.9	0.5	0.1	51.5	0.5
Rural	3.0	40.9	43.9	44.1	8.2	1.5	0.9	0.6	0.1	55.5	0.6
Urban	10.6	54.4	65.0	22.4	11.2	0.2	0.8	0.0	0.0	34.8	0.3
MARSABIT	1.6	5.0	6.5	30.0	10.7	8.1	1.0	12.1	3.4	65.3	28.1
Rural	1.1	1.4	2.5	29.0	4.5	9.6	1.0	14.8	4.2	63.0	34.5
Urban	3.5	18.6	22.1	33.9	34.4	2.6	1.4	1.8	0.2	74.1	3.7

County	Durable Materials			Nondurable Materials							Other
	Stone	Brick/Block	Sub-Total	Mud/Wood	Mud/Cement	Wood Only	Corrugated Iron Sheets	Grass/Reeds	Tin	Sub-Total	
ISIOLO	10.3	6.7	17.0	31.5	3.7	22.3	1.2	17.5	4.9	81.0	2.1
Rural	1.5	2.9	4.4	40.6	4.1	6.8	1.0	30.3	9.0	91.9	3.8
Urban	20.3	11.0	31.3	21.0	3.1	40.0	1.5	2.9	0.1	68.6	0.1
MERU	12.1	3.7	15.8	18.6	1.6	62.3	0.4	0.7	0.1	83.7	0.6
Rural	8.2	3.3	11.5	20.1	1.7	64.9	0.4	0.8	0.1	87.9	0.6
Urban	45.3	7.2	52.5	5.4	0.6	40.2	0.8	0.1	0.0	47.1	0.4
THARAKA	13.4	5.6	19.0	42.1	4.0	33.5	0.3	0.3	0.0	80.3	0.7
Rural	8.3	6.6	14.9	50.9	4.8	28.0	0.2	0.3	0.0	84.3	0.8
Urban	28.7	2.5	31.2	15.8	1.7	50.3	0.6	0.1	0.0	68.4	0.4
EMBU	16.8	21.4	38.2	28.7	2.9	25.3	1.9	0.4	0.1	59.2	2.6
Rural	10.1	24.5	34.6	33.3	3.3	25.6	0.8	0.4	0.1	63.4	2.0
Urban	45.4	8.0	53.5	9.1	1.5	24.0	6.8	0.1	0.1	41.6	4.9
KITUI	2.4	64.0	66.4	25.5	6.3	1.0	0.2	0.4	0.0	33.5	0.2
Rural	1.2	60.7	61.9	29.8	6.4	1.1	0.1	0.5	0.0	37.9	0.2
Urban	8.6	80.5	89.1	4.1	5.8	0.2	0.4	0.1	0.1	10.6	0.3
MACHAKOS	24.9	61.3	86.1	4.2	1.8	0.5	7.0	0.1	0.1	13.7	0.1
Rural	8.6	82.7	91.3	5.6	2.2	0.2	0.6	0.1	0.0	8.7	0.1
Urban	37.4	44.8	82.2	3.1	1.6	0.7	12.0	0.1	0.2	17.6	0.2
MAKUENI	2.6	72.6	75.2	19.8	3.8	0.4	0.5	0.2	0.0	24.7	0.1
Rural	2.4	71.3	73.7	21.4	4.0	0.4	0.3	0.2	0.0	26.3	0.1
Urban	3.5	81.0	84.5	10.3	2.9	0.3	1.8	0.1	0.1	15.5	0.1
GARISSA	4.7	13.0	17.7	19.6	9.4	8.3	0.9	43.2	0.3	81.6	0.7
Rural	0.9	1.8	2.6	21.8	8.9	10.6	0.8	54.2	0.3	96.5	0.9
Urban	16.2	46.7	62.8	13.0	10.9	1.3	1.4	10.2	0.2	36.9	0.3
WAJIR	4.2	2.9	7.1	4.9	2.7	8.9	0.2	75.9	0.1	92.7	0.3
Rural	0.5	1.2	1.7	5.7	3.0	9.6	0.2	79.5	0.1	98.0	0.3
Urban	23.3	12.2	35.5	0.9	1.0	5.2	0.4	57.0	0.0	64.4	0.1
MANDERA	2.8	4.6	7.4	6.0	1.9	18.3	0.3	63.7	0.1	90.2	2.4
Rural	0.9	0.9	1.8	4.8	1.2	21.1	0.2	68.1	0.1	95.5	2.7
Urban	11.5	21.5	33.0	11.3	5.2	5.4	0.5	43.4	0.1	65.8	1.2
SIAYA	1.7	13.5	15.2	63.8	19.3	0.2	0.4	0.1	0.1	83.9	1.0
Rural	1.3	9.9	11.1	68.5	18.6	0.2	0.4	0.1	0.0	87.8	1.1
Urban	4.9	42.1	47.0	26.9	24.8	0.1	0.9	0.1	0.2	52.9	0.1
Kisumu	3.3	21.2	24.5	49.6	21.3	0.2	3.1	0.1	0.2	74.4	1.1
Rural	1.0	9.9	10.9	67.9	17.6	0.2	1.0	0.1	0.2	86.9	2.2
Urban	5.2	30.7	35.9	34.4	24.3	0.3	4.8	0.0	0.2	63.9	0.2
HOMA BAY	2.6	8.6	11.2	65.6	16.5	0.3	5.6	0.2	0.1	88.2	0.6
Rural	1.6	6.6	8.2	70.9	16.5	0.3	3.2	0.2	0.1	91.2	0.6
Urban	8.1	19.2	27.4	36.4	16.2	0.3	18.6	0.0	0.4	72.0	0.7
MIGORI	1.0	17.1	18.1	64.5	15.2	0.3	1.6	0.1	0.0	81.7	0.2
Rural	0.7	9.7	10.4	75.1	13.3	0.3	0.6	0.1	0.0	89.4	0.2

County	Durable Materials			Nondurable Materials							Other
	Stone	Brick/Block	Sub-Total	Mud/Wood	Mud/Cement	Wood Only	Corrugated Iron Sheets	Grass/Reeds	Tin	Sub-Total	
Urban	1.5	29.8	31.3	46.3	18.4	0.2	3.4	0.1	0.1	68.7	0.0
KISII	0.9	19.1	20.0	70.5	7.8	0.3	0.7	0.1	0.0	79.4	0.6
Rural	0.6	14.0	14.6	76.8	7.3	0.3	0.3	0.1	0.0	84.7	0.7
Urban	2.3	37.6	39.9	47.6	9.5	0.6	2.3	0.1	0.1	60.1	0.1
NYAMIRA	0.8	20.0	20.8	71.2	6.9	0.6	0.3	0.2	0.0	79.2	0.0
Rural	0.5	17.1	17.6	74.5	6.9	0.5	0.3	0.2	0.0	82.3	0.0
Urban	2.3	38.8	41.1	50.3	6.8	1.0	0.7	0.1	0.1	58.8	0.1
TURKANA	0.6	4.0	4.6	25.1	4.0	29.8	0.6	27.1	0.8	87.4	8.0
Rural	0.3	1.8	2.1	21.1	2.7	34.1	0.4	29.8	0.9	89.0	8.9
Urban	2.2	16.0	18.2	47.1	10.5	6.7	1.8	12.8	0.2	79.1	2.8
WEST POKOT	0.4	5.1	5.5	79.8	10.5	3.0	0.3	0.6	0.1	94.2	0.3
Rural	0.4	2.1	2.5	83.5	9.5	3.2	0.2	0.7	0.0	97.2	0.3
Urban	0.7	33.2	33.9	44.7	19.8	0.5	0.8	0.2	0.1	66.1	-
SAMBURU	3.4	2.9	6.3	59.4	13.1	7.5	0.6	5.2	2.5	88.2	5.4
Rural	1.6	1.3	2.8	65.5	8.1	8.4	0.4	6.1	2.5	91.0	6.2
Urban	11.4	9.9	21.3	33.1	35.0	3.5	1.1	1.2	2.7	76.5	2.2
TRANS NZOIA	1.4	15.8	17.2	68.1	12.9	0.7	0.4	0.1	0.0	82.3	0.6
Rural	0.7	9.6	10.3	77.0	11.2	0.5	0.3	0.1	0.0	89.1	0.7
Urban	3.8	35.6	39.5	39.5	18.5	1.2	1.0	0.2	0.1	60.3	0.3
BARINGO	5.1	3.7	8.8	50.6	6.3	25.8	6.4	1.5	0.1	90.7	0.6
Rural	3.2	2.6	5.7	55.5	6.3	24.4	5.7	1.8	0.1	93.8	0.5
Urban	16.4	10.1	26.5	22.0	6.0	33.8	10.7	0.1	0.1	72.7	0.8
UASIN GISHU	5.8	25.4	31.1	45.6	12.3	6.8	2.6	0.1	0.1	67.5	1.4
Rural	1.3	11.1	12.4	61.8	12.7	9.9	1.4	0.2	0.1	86.0	1.6
Urban	10.7	40.9	51.6	27.8	11.9	3.4	3.9	0.0	0.2	47.2	1.1
ELGEYO-MARAKWET	9.4	6.5	15.9	53.9	6.7	20.5	2.0	0.3	0.1	83.6	0.5
Rural	10.6	3.6	14.2	56.4	6.7	20.2	1.6	0.4	0.1	85.2	0.6
Urban	2.9	23.1	26.0	39.9	6.9	22.6	4.3	0.0	0.2	73.9	0.1
NANDI	1.3	15.2	16.5	63.9	14.5	3.6	0.9	0.1	0.0	83.0	0.5
Rural	1.2	12.9	14.1	66.8	14.2	3.7	0.6	0.1	0.0	85.4	0.5
Urban	2.2	27.6	29.8	48.0	16.2	3.2	2.6	0.0	0.1	70.1	0.1
LAIKIPIA	14.4	2.9	17.3	29.2	3.1	46.0	2.8	0.5	0.1	81.7	1.0
Rural	4.9	2.4	7.3	36.4	3.3	47.9	3.1	0.6	0.1	91.3	1.3
Urban	44.6	4.1	48.7	6.4	2.3	40.3	2.1	0.1	0.1	51.3	0.1
NAKURU	33.0	5.7	38.6	33.7	10.4	13.6	2.9	0.1	0.1	60.7	0.7
Rural	11.8	3.2	15.0	55.9	8.1	16.9	2.7	0.2	0.1	83.8	1.2
Urban	52.9	8.0	60.9	12.7	12.6	10.4	3.1	0.0	0.1	39.0	0.1
NAROK	5.6	3.9	9.5	68.3	7.1	9.8	2.9	0.8	0.4	89.1	1.4
Rural	1.7	2.5	4.2	74.1	7.3	10.0	1.7	0.9	0.3	94.3	1.5
Urban	41.9	16.9	58.8	13.9	5.0	7.3	14.3	0.1	0.6	41.2	0.1

County	Durable Materials			Nondurable Materials							Other
	Stone	Brick/Block	Sub-Total	Mud/Wood	Mud/Cement	Wood Only	Corrugated Iron Sheets	Grass/Reeds	Tin	Sub-Total	
KAJIADO	27.6	7.6	35.2	22.7	3.3	8.3	26.5	2.1	0.5	63.4	1.4
Rural	9.1	5.0	14.1	43.2	5.4	10.8	19.2	4.1	0.6	83.3	2.6
Urban	46.2	10.1	56.3	2.1	1.3	5.7	33.9	0.0	0.4	43.4	0.2
KERICHO	10.6	13.4	24.0	49.0	7.7	12.4	6.0	0.1	0.1	75.2	0.8
Rural	8.6	13.5	22.1	56.4	8.7	9.3	2.1	0.1	0.1	76.7	1.2
Urban	13.6	13.2	26.8	37.8	6.1	17.1	11.8	0.0	0.2	73.0	0.2
BOMET	4.2	9.0	13.2	65.1	7.5	12.1	0.8	0.1	0.1	85.8	1.1
Rural	3.4	8.5	11.9	66.8	7.8	11.6	0.6	0.1	0.1	87.0	1.1
Urban	9.4	12.8	22.3	52.9	5.8	16.4	2.2	0.1	0.0	77.4	0.4
KAKAMEGA	0.8	13.6	14.4	74.5	10.3	0.2	0.3	0.1	0.0	85.3	0.3
RURAL	0.5	9.3	9.8	79.6	10.0	0.2	0.1	0.1	0.0	89.9	0.3
Urban	2.3	35.9	38.2	48.3	11.9	0.2	1.2	0.1	0.1	61.7	0.0
VIHIGA	0.8	15.3	16.0	73.4	10.1	0.1	0.1	0.0	0.0	83.8	0.2
Rural	0.6	12.7	13.3	76.1	10.1	0.1	0.1	0.0	0.0	86.4	0.3
Urban	1.1	20.7	21.8	67.8	10.0	0.1	0.2	0.0	0.1	78.2	0.0
BUNGOMA	1.5	14.4	15.8	70.2	12.4	0.4	0.2	0.1	0.0	83.3	0.8
Rural	1.2	10.1	11.3	74.8	12.3	0.4	0.1	0.1	0.0	87.8	0.9
Urban	3.0	34.3	37.3	48.7	12.9	0.3	0.4	0.0	0.0	62.4	0.3
BUSIA	1.9	16.9	18.8	67.8	10.6	0.2	0.3	0.3	0.1	79.2	2.0
Rural	1.5	11.0	12.5	74.1	10.4	0.2	0.2	0.4	0.1	85.2	2.3
Urban	4.4	54.9	59.3	27.4	11.8	0.3	1.1	0.0	0.0	40.6	0.1

Appendix 10: Percentage Distribution of Households by Wall Materials in Selected Urban Centres

	Durable Materials			Nondurable Materials							Others
	Stone	Brick/Block	Sub-total	Mud/Wood	Mud/Cement	Wood Only	Corrugated Iron Sheets	Grass/Reeds	Tin	Sub-total	
KENYA	34.5	22.0	56.6	15.1	7.9	5.8	13.3	0.8	0.3	43.2	0.3
NAIROBI	47.4	14.0	61.4	3.7	5.3	1.9	26.9	0.0	0.6	38.5	0.1
CENTRAL	54.2	5.1	59.3	6.3	1.1	14.6	18.1	0.0	0.3	40.4	0.4
Nyeri	42.4	2.8	45.2	5.6	0.7	46.8	1.4	0.1	0.1	54.7	0.1
Murang'a	74.6	4.4	79.0	15.1	2.9	0.9	1.9	0.0	0.1	20.9	0.1
Thika	77.3	5.3	82.6	6.3	1.5	5.7	3.6	0.0	0.3	17.3	0.1
Ruiru	78.5	7.9	86.3	1.2	1.3	1.7	9.2	0.0	0.3	13.6	0.0
Kikuyu	33.0	2.3	35.3	3.3	0.6	9.8	50.7	0.0	0.3	64.7	0.0
Others	48.8	5.4	54.2	8.8	1.0	18.2	16.6	0.0	0.4	45.0	0.8
COAST	29.2	42.3	71.5	14.7	12.1	0.3	0.7	0.5	0.1	28.4	0.2
Mombasa	31.8	42.5	74.3	10.8	13.7	0.2	0.7	0.2	0.1	25.6	0.1
Malindi	18.2	48.6	66.7	22.4	9.0	0.8	0.4	0.5	0.0	33.2	0.1
Voi	4.2	62.2	66.4	21.9	10.8	0.2	0.4	0.0	0.1	33.4	0.2
Kilifi	28.6	37.3	65.9	29.5	3.4	0.8	0.4	0.2	0.0	34.1	0.0
Lamu	21.7	56.1	77.8	4.0	6.1	0.9	0.2	7.4	0.1	18.7	3.5
Others	26.6	37.9	64.5	23.0	9.4	0.4	0.8	1.5	0.1	35.2	0.3
EASTERN	30.3	39.3	69.6	7.4	3.3	12.0	6.6	0.3	0.1	29.7	0.7
Embu	52.0	7.1	59.0	7.4	1.8	22.2	8.3	0.0	0.1	39.8	1.2
Meru	44.3	6.7	51.0	3.9	0.3	43.6	0.6	0.1	0.0	48.5	0.5
Mavoko	39.4	16.5	56.0	2.7	1.2	1.7	37.1	0.2	0.7	43.5	0.5
Machakos	32.7	57.9	90.6	5.0	2.3	0.4	1.6	0.1	0.0	9.4	0.1
Others	24.4	47.0	71.3	9.2	4.5	12.6	1.1	0.4	0.1	27.8	0.9
NORTH EASTERN	16.1	29.5	45.5	9.6	6.5	3.7	0.8	33.2	0.1	53.9	0.6
Garissa	17.6	51.7	69.3	13.5	7.4	1.0	0.7	7.7	0.2	30.4	0.3
Others	15.3	18.2	33.5	7.6	6.1	5.0	0.9	46.2	0.1	65.8	0.7
NYANZA	4.0	31.8	35.8	39.7	18.8	0.3	5.0	0.1	0.2	64.0	0.2
Kisumu	5.9	32.2	38.1	30.3	28.4	0.2	2.7	0.0	0.1	61.8	0.1
Siaya	5.5	59.8	65.2	20.1	13.2	0.1	1.0	0.1	0.2	34.7	0.1
Homa Bay	6.9	14.1	21.0	33.9	12.9	0.3	29.4	0.0	0.9	77.5	1.4
Kisii	4.0	55.4	59.4	26.8	7.9	1.1	4.7	0.0	0.2	40.6	0.1
Others	2.7	29.2	31.9	47.5	15.5	0.3	4.5	0.1	0.1	68.0	0.1
RIFT VALLEY	30.7	17.4	48.1	22.2	10.2	10.1	8.3	0.5	0.2	51.5	0.4
Kitale	4.1	35.4	39.5	39.0	18.8	1.3	1.0	0.2	0.1	60.3	0.3
Eldoret	11.4	41.2	52.5	27.3	11.7	3.1	4.1	0.0	0.2	46.4	1.1
Nanyuki	46.4	4.1	50.5	7.4	4.0	35.3	2.4	0.2	0.1	49.4	0.1
Nyahururu	47.9	3.4	51.3	4.7	0.7	41.8	1.5	0.0	0.1	48.7	0.0
Nakuru	56.1	8.6	64.7	11.1	20.8	2.3	1.0	0.0	0.1	35.2	0.0
Naivasha	56.4	10.2	66.6	13.0	4.7	8.3	6.8	0.1	0.3	33.2	0.2
Kericho	18.5	16.5	35.0	27.1	6.6	12.9	18.2	0.0	0.1	64.9	0.2
Ngong'	48.1	6.1	54.2	2.0	1.3	4.3	37.6	0.0	0.2	45.4	0.4
Others	23.2	14.5	37.7	27.9	7.5	15.4	9.8	1.0	0.3	61.8	0.5
WESTERN	2.5	34.2	36.7	50.4	11.7	0.2	0.7	0.0	0.1	63.2	0.1
Kakamega	2.6	43.0	45.6	36.6	15.8	0.2	1.6	0.0	0.1	54.3	0.1
Bungoma	2.1	56.1	58.2	22.8	18.2	0.1	0.6	0.0	0.1	41.8	0.0
Webuye	6.2	38.4	44.6	43.5	10.4	0.1	0.5	0.0	0.1	54.5	0.9
Busia	5.1	56.9	62.0	25.0	11.5	0.2	1.2	0.0	0.0	37.9	0.1
Others	1.8	26.0	27.8	61.2	10.1	0.2	0.6	0.0	0.1	72.2	0.1

Appendix 11: Percentage Distribution of Households by Floor Materials and County

County	Durable Material				Nondurable Material	Other
	Cement	Tiles	Wood	Sub-Total	Earth	
KENYA	41.0	1.6	0.8	43.3	56.5	0.2
Rural	22.0	0.3	0.7	23.0	76.8	0.2
Urban	72.0	3.5	0.9	76.5	23.4	0.2
NAIROBI	82.3	6.7	2.0	91.0	8.9	0.1
NYANDARUA	28.8	0.3	1.6	30.7	68.8	0.6
Rural	23.8	0.3	1.7	25.8	74.0	0.3
Urban	47.9	0.6	0.9	49.3	49.0	1.7
NYERI	41.3	0.5	1.6	43.4	56.5	0.2
Rural	31.2	0.3	1.8	33.3	66.5	0.2
Urban	68.6	1.1	1.2	70.9	29.0	0.1
KIRINYAGA	39.1	0.4	0.5	40.0	59.9	0.1
Rural	31.2	0.3	0.5	32.0	67.8	0.1
Urban	38.9	0.4	0.5	39.8	60.1	0.1
MURANG'A	39.1	0.5	0.5	40.1	59.8	0.1
Rural	35.0	0.4	0.5	35.9	64.0	0.1
Urban	62.0	1.4	0.3	63.7	36.2	0.1
KIAMBU	74.6	2.2	0.5	77.3	22.6	0.1
Rural	54.5	1.1	0.6	56.2	43.7	0.1
Urban	85.0	2.8	0.4	88.2	11.8	0.1
MOMBASA	80.7	4.8	0.3	85.7	14.1	0.2
KWALE	28.9	0.7	0.2	29.7	70.2	0.1
Rural	17.1	0.2	0.2	17.6	82.4	0.1
Urban	66.6	2.1	0.1	68.8	31.1	0.1
KILIFI	33.1	1.2	0.3	34.5	65.3	0.2
Rural	13.4	0.4	0.3	14.0	85.8	0.2
Urban	68.9	2.5	0.3	71.7	28.0	0.3
TANA RIVER	11.4	0.2	0.3	11.8	88.0	0.2
Rural	6.2	0.2	0.3	6.7	93.1	0.2
Urban	37.0	0.3	0.2	37.5	62.4	0.1
LAMU	37.0	0.3	0.3	37.6	62.3	0.1
Rural	25.1	0.2	0.4	25.7	74.2	0.1
Urban	80.0	0.7	0.2	80.9	19.0	0.2
TAITA TAVETA	43.5	0.6	0.3	44.5	55.4	0.2
Rural	36.2	0.5	0.3	37.0	62.8	0.2
Urban	73.9	1.2	0.2	75.3	24.6	0.1
MARSABIT	16.4	0.3	0.3	16.9	82.7	0.4
Rural	4.6	0.1	0.3	4.9	94.6	0.5
Urban	61.5	1.0	0.3	62.8	37.1	0.1
ISIOLO	28.9	0.5	0.4	29.8	70.0	0.2
Rural	6.4	0.2	0.2	6.8	93.0	0.2
Urban	54.6	1.0	0.6	56.2	43.7	0.1
MERU	37.3	0.5	2.1	39.8	59.9	0.3
Rural	31.9	0.3	2.2	34.5	65.2	0.3
Urban	83.5	1.6	0.6	85.7	14.2	0.1
THARAKA	32.9	0.3	0.9	34.1	65.7	0.1
Rural	24.7	0.2	0.8	25.7	74.1	0.2
Urban	57.5	0.6	1.4	59.5	40.4	0.1
EMBU	40.6	0.5	0.5	41.6	58.3	0.1
Rural	32.8	0.4	0.5	33.7	66.1	0.1
Urban	73.5	1.3	0.3	75.1	24.8	0.1
KITUI	32.7	0.6	0.3	33.6	66.3	0.1
Rural	26.1	0.5	0.3	26.9	72.9	0.2
Urban	66.0	1.0	0.3	67.3	32.6	0.1
MACHAKOS	58.4	1.6	0.2	60.2	39.8	0.1
Rural	45.0	0.7	0.2	45.9	54.0	0.1
Urban	68.6	2.3	0.2	71.1	28.8	0.1
MAKUENI	45.6	0.6	0.2	46.5	53.5	0.1
Rural	41.0	0.6	0.2	41.8	58.1	0.1
Urban	73.7	0.8	0.2	74.7	25.3	0.0
GARISSA	18.7	0.4	0.6	19.7	79.8	0.5
Rural	2.2	0.1	0.6	2.9	96.6	0.5

County	Durable Material				Nondurable Material	Other
	Cement	Tiles	Wood	Sub-Total	Earth	
Urban	68.2	1.3	0.7	70.2	29.3	0.5
WAJIR	7.8	0.2	0.2	8.2	91.5	0.3
Rural	2.8	0.1	0.3	3.2	96.5	0.3
Urban	34.1	0.3	0.1	34.5	65.1	0.4
MANDERA	7.4	0.1	0.5	8.0	91.7	0.3
Rural	1.8	0.1	0.4	2.2	97.6	0.2
Urban	32.8	0.4	1.2	34.4	65.2	0.4
SIAYA	29.0	0.4	0.4	29.8	70.1	0.2
Rural	23.8	0.3	0.4	24.5	75.3	0.2
Urban	69.8	1.0	0.2	71.1	28.8	0.1
KISUMU	42.4	1.6	0.4	44.5	55.3	0.3
Rural	21.3	0.4	0.5	22.1	77.5	0.4
Urban	60.1	2.6	0.3	63.1	36.8	0.1
HOMA BAY	24.4	0.3	0.3	25.1	74.7	0.2
Rural	18.5	0.3	0.3	19.1	80.7	0.3
Urban	56.9	0.6	0.2	57.7	42.2	0.1
MIGORI	27.1	0.4	0.5	27.9	72.0	0.1
Rural	15.7	0.2	0.5	16.4	83.5	0.1
Urban	46.6	0.7	0.4	47.7	52.2	0.1
KISII	21.5	0.4	0.5	22.4	77.4	0.3
Rural	14.8	0.2	0.5	15.5	84.2	0.3
Urban	46.0	0.9	0.6	47.5	52.3	0.2
NYAMIRA	22.7	0.3	0.5	23.5	76.3	0.2
Rural	19.4	0.3	0.5	20.1	79.7	0.2
Urban	43.8	0.7	0.7	45.2	54.7	0.1
TURKANA	6.5	0.2	0.9	7.6	92.0	0.4
Rural	3.0	0.2	1.0	4.1	95.6	0.4
Urban	25.5	0.3	0.7	26.5	73.1	0.4
WEST POKOT	12.4	0.2	0.6	13.1	86.7	0.2
Rural	7.8	0.1	0.5	8.5	91.3	0.2
Urban	55.6	0.7	0.7	57.0	42.9	0.1
SAMBURU	16.6	0.2	0.4	17.1	82.7	0.2
Rural	6.8	0.1	0.4	7.3	92.5	0.2
Urban	58.8	0.4	0.2	59.4	40.3	0.3
TRANS NZOIA	25.8	0.5	0.5	26.8	72.9	0.3
Rural	15.8	0.3	0.5	16.5	83.1	0.4
Urban	58.1	1.4	0.6	60.0	39.9	0.1
BARINGO	24.8	0.3	1.7	26.8	73.0	0.2
Rural	17.8	0.1	1.2	19.2	80.6	0.2
Urban	65.6	1.2	4.5	71.3	28.6	0.1
UASIN GISHU	46.3	1.7	0.8	48.8	50.9	0.3
Rural	25.1	0.5	0.9	26.5	73.4	0.2
Urban	69.6	3.1	0.6	73.3	26.3	0.4
ELGEYO-MARAKWET	21.6	0.2	1.0	22.8	76.7	0.5
Rural	17.2	0.2	1.0	18.4	81.1	0.5
Urban	47.2	0.5	0.5	48.1	51.6	0.3
NANDI	30.0	0.4	0.5	30.8	69.0	0.2
Rural	26.1	0.3	0.5	26.8	73.1	0.2
Urban	51.2	1.3	0.5	53.0	47.0	0.1
LAIKIPIA	32.5	0.6	1.0	34.1	65.7	0.2
Rural	19.0	0.2	1.1	20.3	79.4	0.3
Urban	75.3	1.9	0.8	78.0	21.9	0.1
NAKURU	50.9	1.2	0.9	53.0	46.8	0.2
Rural	23.2	0.5	1.0	24.7	74.9	0.4
Urban	77.0	2.0	0.7	79.6	20.3	0.1
NAROK	14.6	0.3	0.6	15.5	84.1	0.4
Rural	8.2	0.1	0.7	9.0	90.6	0.4
URBAN	74.1	1.5	0.3	75.9	23.9	0.2
KAJIADO	57.3	3.6	0.3	61.2	38.7	0.2
Rural	29.8	1.6	0.3	31.7	68.1	0.2
Urban	84.8	5.6	0.3	90.7	9.2	0.1
KERICHO	38.0	0.4	0.8	39.1	60.8	0.1
Rural	29.6	0.2	0.8	30.7	69.3	0.1

County	Durable Material				Nondurable Material	Other
	Cement	Tiles	Wood	Sub-Total	Earth	
Urban	50.5	0.6	0.7	51.9	48.0	0.1
BOMET	23.6	0.2	0.6	24.4	75.5	0.1
Rural	21.2	0.2	0.6	22.0	77.9	0.1
Urban	40.9	0.4	0.6	41.9	58.0	0.1
KAKAMEGA	18.6	0.3	0.5	19.4	80.3	0.3
Rural	12.6	0.2	0.5	13.3	86.4	0.3
Urban	49.7	1.0	0.5	51.2	48.5	0.4
VIHIGA	19.8	0.4	0.5	20.6	79.2	0.2
Rural	17.2	0.3	0.5	18.0	81.9	0.2
Urban	25.4	0.5	0.4	26.2	73.6	0.2
BUNGOMA	19.9	0.4	0.3	20.6	79.3	0.2
Rural	14.0	0.2	0.3	14.5	85.3	0.2
Urban	47.4	1.1	0.3	48.7	51.1	0.2
BUSIA	24.3	0.4	0.3	25.0	74.9	0.1
Rural	17.0	0.2	0.4	17.6	82.3	0.2
Urban	71.1	1.4	0.2	72.7	27.3	0.1

Appendix 12: Percentage Distribution of Households by Floor Materials in Selected Urban Centres

	Durable				Nondurable	Others
	Cement	Tiles	Wood	Sub-total	Earth	
KENYA	72.0	3.5	0.9	76.5	23.4	0.2
Nairobi	82.3	6.7	2.0	91.0	8.9	0.1
CENTRAL	78.2	2.3	0.5	80.9	18.9	0.2
Nyeri	64.8	1.2	1.4	67.5	32.4	0.1
Murang'a	78.0	1.7	0.2	79.9	19.8	0.3
Ruiru	88.9	3.6	0.3	92.8	7.2	0.1
Thika	81.7	2.5	0.3	84.5	15.4	0.1
Kikuyu	83.1	2.5	0.5	86.0	13.9	0.1
Others	74.0	1.8	0.5	76.3	23.4	0.3
COAST	76.3	3.9	0.2	80.4	19.4	0.2
Mombasa	80.7	4.8	0.3	85.7	14.1	0.2
Malindi	69.7	2.3	0.3	72.2	27.5	0.2
Voi	85.3	1.5	0.3	87.1	12.8	0.1
Kilifi	60.7	1.7	0.3	62.7	37.1	0.2
Lamu	78.5	0.7	0.2	79.4	20.4	0.2
Others	65.5	2.2	0.2	67.9	31.9	0.2
EASTERN	69.0	1.7	0.4	71.1	28.9	0.1
Meru	85.1	2.4	0.5	88.0	11.9	0.1
Embu	80.2	1.5	0.3	82.0	17.9	0.1
Mavoko	82.5	4.9	0.3	87.6	12.3	0.1
Machakos	72.3	2.0	0.2	74.5	25.4	0.1
Others	62.7	0.8	0.4	63.9	36.0	0.1
NORTH EASTERN	47.3	0.7	0.8	48.8	50.8	0.4
Garissa	71.3	1.3	0.6	73.2	26.4	0.4
Others	35.1	0.4	0.8	36.4	63.2	0.4
NYANZA	54.4	1.5	0.4	56.3	43.6	0.1
Kisumu	64.9	3.2	0.3	68.4	31.6	0.1
Siaya	78.2	0.9	0.2	79.3	20.6	0.1
Homa Bay	57.5	0.8	0.2	58.4	41.5	0.0
Kisii	70.5	1.4	0.9	72.8	27.1	0.1
Others	45.6	0.7	0.4	46.7	53.2	0.2
RIFT VALLEY	68.4	2.3	0.7	71.3	28.5	0.2
Kitale	58.7	1.4	0.6	60.6	39.3	0.1
Eldoret	70.4	3.3	0.6	74.3	25.3	0.4
Nanyuki	75.8	2.3	0.6	78.7	21.3	0.0
Nyahururu	74.8	1.4	0.9	77.1	22.8	0.1
Nakuru	84.0	2.5	0.5	87.0	13.0	0.1
Naivasha	75.2	1.5	0.3	77.0	22.9	0.1
Kericho	63.4	0.9	0.5	64.8	35.1	0.1
Ngong'	81.5	5.2	0.3	87.0	12.8	0.2
Others	59.6	1.9	0.9	62.4	37.4	0.1
WESTERN	46.0	1.0	0.4	47.3	52.5	0.2
Kakamega	63.2	1.5	0.5	65.2	34.4	0.4
Bungoma	78.0	1.9	0.3	80.2	19.7	0.2
Busia	73.6	1.7	0.2	75.5	24.5	0.1
Webuye	51.9	1.3	0.2	53.4	46.4	0.1
Others	35.3	0.6	0.4	36.3	63.5	0.2

Appendix 13: Percentage Distribution of Households by Construction Materials of Dwelling Unit and County

	Roof			Wall			Floor		
	Durable	Nondurable	Other	Durable	Nondurable	Other	Durable	Nondurable	Other
KENYA	81.6	17.7	0.7	33.4	65.7	0.9	43.3	56.5	0.2
Rural	72.8	26.2	1.0	19.3	79.4	1.3	23.0	76.8	0.2
Urban	95.9	3.8	0.3	56.6	43.2	0.3	76.5	23.4	0.2
NAIROBI	99.7	0.1	0.2	61.4	38.5	0.1	91.0	8.9	0.1
NYANDARUA	97.9	0.9	1.2	16.1	82.5	1.4	30.7	68.8	0.6
Rural	98.8	1.0	0.3	12.0	87.5	0.5	25.8	74.0	0.3
Urban	94.7	0.6	4.7	31.9	63.4	4.7	49.3	49.0	1.7
NYERI	99.4	0.5	0.1	26.3	73.6	0.1	43.4	56.5	0.2
Rural	99.3	0.7	0.1	18.6	81.2	0.2	33.3	66.5	0.2
Urban	99.6	0.3	0.1	47.3	52.6	0.1	70.9	29.0	0.1
KIRINYAGA	99.2	0.7	0.1	41.1	58.4	0.5	40.0	59.9	0.1
Rural	99.1	0.8	0.1	35.0	64.4	0.6	32.0	67.8	0.1
Urban	99.8	0.1	0.2	69.3	30.7	0.1	39.8	60.1	0.1
MURANG'A	99.6	0.4	0.0	42.6	57.0	0.4	40.1	59.8	0.1
Rural	99.6	0.4	0.0	37.7	61.8	0.4	35.9	64.0	0.1
Urban	99.7	0.3	0.1	69.3	30.5	0.2	63.7	36.2	0.1
KIAMBU	99.6	0.2	0.1	53.2	46.6	0.2	77.3	22.6	0.1
Rural	99.4	0.4	0.3	36.4	63.3	0.4	56.2	43.7	0.1
Urban	99.8	0.2	0.1	61.9	38.1	0.1	88.2	11.8	0.1
MOMBASA	95.2	4.7	0.1	74.3	25.6	0.1	85.7	14.1	0.2
KWALE	39.9	59.9	0.2	29.8	69.7	0.6	29.7	70.2	0.1
Rural	32.6	67.1	0.2	17.6	81.8	0.7	17.6	82.4	0.1
Urban	63.3	36.7	0.0	69.0	30.9	0.2	68.8	31.1	0.1
KILIFI	47.8	52.2	0.1	33.9	65.8	0.3	34.5	65.3	0.2
Rural	30.4	69.5	0.1	15.3	84.4	0.3	14.0	85.8	0.2
Urban	79.3	20.6	0.1	67.7	32.1	0.2	71.7	28.0	0.3
TANA RIVER	28.5	70.4	1.2	7.6	91.8	0.6	11.8	88.0	0.2
Rural	18.5	80.2	1.3	3.3	96.2	0.6	6.7	93.1	0.2
Urban	78.4	21.2	0.5	29.4	70.0	0.6	37.5	62.4	0.1
LAMU	46.4	51.3	2.3	29.8	68.8	1.5	37.6	62.3	0.1
Rural	40.4	56.8	2.8	16.9	82.2	1.0	25.7	74.2	0.1
Urban	68.2	31.5	0.4	76.5	20.3	3.2	80.9	19.0	0.2
TAITA TAVETA	91.5	8.3	0.2	48.0	51.5	0.5	44.5	55.4	0.2
Rural	90.0	9.7	0.3	43.9	55.5	0.6	37.0	62.8	0.2
Urban	97.4	2.6	0.1	65.0	34.8	0.3	75.3	24.6	0.1
MARSABIT	30.3	36.9	32.8	6.5	65.3	28.1	16.9	82.7	0.4
Rural	16.1	43.6	40.3	2.5	63.0	34.5	4.9	94.6	0.5
Urban	84.8	11.2	4.1	22.1	74.1	3.7	62.8	37.1	0.1
ISIOLO	65.0	30.0	5.0	17.0	81.0	2.1	29.8	70.0	0.2

	Roof			Wall			Floor		
	Durable	Nondurable	Other	Durable	Nondurable	Other	Durable	Nondurable	Other
Rural	38.7	51.9	9.4	4.4	91.9	3.8	6.8	93.0	0.2
Urban	95.1	4.9	0.1	31.3	68.6	0.1	56.2	43.7	0.1
MERU	97.1	2.8	0.1	15.8	83.7	0.6	39.8	59.9	0.3
Rural	96.8	3.1	0.1	11.5	87.9	0.6	34.5	65.2	0.3
Urban	99.7	0.3	0.1	52.5	47.1	0.4	85.7	14.2	0.1
THARAKA	90.7	9.3	0.0	19.0	80.3	0.7	34.1	65.7	0.1
Rural	88.1	11.9	0.1	14.9	84.3	0.8	25.7	74.1	0.2
Urban	98.4	1.5	0.0	31.2	68.4	0.4	59.5	40.4	0.1
EMBU	96.5	3.5	0.0	38.2	59.2	2.6	41.6	58.3	0.1
Rural	95.7	4.2	0.0	34.6	63.4	2.0	33.7	66.1	0.1
Urban	99.7	0.3	0.0	53.5	41.6	4.9	75.1	24.8	0.1
KITUI	79.4	20.5	0.1	66.4	33.5	0.2	33.6	66.3	0.1
Rural	76.3	23.6	0.1	61.9	37.9	0.2	26.9	72.9	0.2
Urban	95.0	4.9	0.1	89.1	10.6	0.3	67.3	32.6	0.1
MACHAKOS	95.3	4.6	0.1	86.1	13.7	0.1	60.2	39.8	0.1
Rural	92.1	7.9	0.0	91.3	8.7	0.1	45.9	54.0	0.1
Urban	97.7	2.1	0.2	82.2	17.6	0.2	71.1	28.8	0.1
MAKUENI	88.7	11.2	0.0	75.2	24.7	0.1	46.5	53.5	0.1
Rural	88.1	11.9	0.0	73.7	26.3	0.1	41.8	58.1	0.1
Urban	92.6	7.4	0.0	84.5	15.5	0.1	74.7	25.3	0.0
GARISSA	33.4	65.7	0.9	17.7	81.6	0.7	19.7	79.8	0.5
Rural	18.1	80.9	1.1	2.6	96.5	0.9	2.9	96.6	0.5
Urban	79.5	20.3	0.2	62.8	36.9	0.3	70.2	29.3	0.5
WAJIR	11.5	88.3	0.2	7.1	92.7	0.3	8.2	91.5	0.3
Rural	6.6	93.2	0.2	1.7	98.0	0.3	3.2	96.5	0.3
Urban	37.3	62.7	0.1	35.5	64.4	0.1	34.5	65.1	0.4
MANDERA	12.6	86.6	0.8	7.4	90.2	2.4	8.0	91.7	0.3
Rural	5.8	93.3	0.9	1.8	95.5	2.7	2.2	97.6	0.2
Urban	43.4	56.1	0.6	33.0	65.8	1.2	34.4	65.2	0.4
SIAYA	67.7	32.2	0.0	15.2	83.9	1.0	29.8	70.1	0.2
Rural	64.7	35.2	0.0	11.1	87.8	1.1	24.5	75.3	0.2
Urban	91.3	8.6	0.0	47.0	52.9	0.1	71.1	28.8	0.1
KISUMU	90.7	9.2	0.1	24.5	74.4	1.1	44.5	55.3	0.3
Rural	84.3	15.7	0.1	10.9	86.9	2.2	22.1	77.5	0.4
Urban	96.1	3.9	0.1	35.9	63.9	0.2	63.1	36.8	0.1
HOMA BAY	84.7	15.3	0.0	11.2	88.2	0.6	25.1	74.7	0.2
Rural	82.5	17.5	0.0	8.2	91.2	0.6	19.1	80.7	0.3
Urban	96.7	3.3	0.0	27.4	72.0	0.7	57.7	42.2	0.1
MIGORI	79.1	20.9	0.0	18.1	81.7	0.2	27.9	72.0	0.1
Rural	69.8	30.1	0.0	10.4	89.4	0.2	16.4	83.5	0.1
Urban	95.1	4.9	0.0	31.3	68.7	0.0	47.7	52.2	0.1
KISII	88.4	11.6	0.0	20.0	79.4	0.6	22.4	77.4	0.3

	Roof			Wall			Floor		
	Durable	Nondurable	Other	Durable	Nondurable	Other	Durable	Nondurable	Other
Rural	86.9	13.1	0.0	14.6	84.7	0.7	15.5	84.2	0.3
Urban	93.8	6.2	0.1	39.9	60.1	0.1	47.5	52.3	0.2
NYAMIRA	92.7	7.3	0.0	20.8	79.2	0.0	23.5	76.3	0.2
Rural	92.1	7.9	0.0	17.6	82.3	0.0	20.1	79.7	0.2
Urban	96.5	3.5	0.0	41.1	58.8	0.1	45.2	54.7	0.1
TURKANA	16.8	70.1	13.1	4.6	87.4	8.0	7.6	92.0	0.4
Rural	10.3	75.1	14.6	2.1	89.0	8.9	4.1	95.6	0.4
Urban	51.8	43.0	5.2	18.2	79.1	2.8	26.5	73.1	0.4
WEST POKOT	26.5	73.4	0.2	5.5	94.2	0.3	13.1	86.7	0.2
Rural	20.6	79.2	0.2	2.5	97.2	0.3	8.5	91.3	0.2
Urban	82.2	17.8	0.1	33.9	66.1	-	57.0	42.9	0.1
SAMBURU	26.9	61.0	12.1	6.3	88.2	5.4	17.1	82.7	0.2
Rural	14.7	71.8	13.4	2.8	91.0	6.2	7.3	92.5	0.2
Urban	79.7	13.9	6.4	21.3	76.5	2.2	59.4	40.3	0.3
TRANS NZOIA	85.7	13.8	0.5	17.2	82.3	0.6	26.8	72.9	0.3
Rural	82.0	17.5	0.6	10.3	89.1	0.7	16.5	83.1	0.4
Urban	98.0	1.8	0.2	39.5	60.3	0.3	60.0	39.9	0.1
BARINGO	60.7	39.1	0.2	8.8	90.7	0.6	26.8	73.0	0.2
Rural	54.4	45.4	0.3	5.7	93.8	0.5	19.2	80.6	0.2
Urban	97.4	2.5	0.2	26.5	72.7	0.8	71.3	28.6	0.1
UASIN GISHU	90.9	7.9	1.2	31.1	67.5	1.4	48.8	50.9	0.3
Rural	84.1	14.5	1.5	12.4	86.0	1.6	26.5	73.4	0.2
Urban	98.4	0.7	0.9	51.6	47.2	1.1	73.3	26.3	0.4
ELGEYO-MARAKWET	60.2	39.2	0.6	15.9	83.6	0.5	22.8	76.7	0.5
Rural	56.6	42.7	0.7	14.2	85.2	0.6	18.4	81.1	0.5
Urban	81.3	18.8	-	26.0	73.9	0.1	48.1	51.6	0.3
NANDI	84.9	14.9	0.1	16.5	83.0	0.5	30.8	69.0	0.2
Rural	82.7	17.2	0.1	14.1	85.4	0.5	26.8	73.1	0.2
Urban	97.2	2.7	0.1	29.8	70.1	0.1	53.0	47.0	0.1
LAIKIPIA	86.8	12.3	0.9	17.3	81.7	1.0	34.1	65.7	0.2
Rural	82.7	16.1	1.2	7.3	91.3	1.3	20.3	79.4	0.3
Urban	99.6	0.4	0.0	48.7	51.3	0.1	78.0	21.9	0.1
NAKURU	93.2	6.1	0.7	38.6	60.7	0.7	53.0	46.8	0.2
Rural	86.5	12.2	1.3	15.0	83.8	1.2	24.7	74.9	0.4
Urban	99.5	0.4	0.2	60.9	39.0	0.1	79.6	20.3	0.1
NAROK	52.6	45.8	1.6	9.5	89.1	1.4	15.5	84.1	0.4
Rural	47.6	50.6	1.8	4.2	94.3	1.5	9.0	90.6	0.4
Urban	99.0	0.9	0.1	58.8	41.2	0.1	75.9	23.9	0.2
KAJIADO	78.0	21.4	0.7	35.2	63.4	1.4	61.2	38.7	0.2
Rural	56.6	42.2	1.2	14.1	83.3	2.6	31.7	68.1	0.2
Urban	99.3	0.5	0.2	56.3	43.4	0.2	90.7	9.2	0.1
KERICHO	85.1	14.9	0.1	24.0	75.2	0.8	39.1	60.8	0.1

	Roof			Wall			Floor		
	Durable	Nondurable	Other	Durable	Nondurable	Other	Durable	Nondurable	Other
Rural	79.9	20.1	0.1	22.1	76.7	1.2	30.7	69.3	0.1
Urban	92.9	6.9	0.2	26.8	73.0	0.2	51.9	48.0	0.1
BOMET	76.0	24.0	0.0	13.2	85.8	1.1	24.4	75.5	0.1
Rural	74.8	25.2	0.0	11.9	87.0	1.1	22.0	77.9	0.1
Urban	84.4	15.6	0.0	22.3	77.4	0.4	41.9	58.0	0.1
KAKAMEGA	80.0	20.0	0.1	14.4	85.3	0.3	19.4	80.3	0.3
Rural	77.5	22.4	0.1	9.8	89.9	0.3	13.3	86.4	0.3
Urban	92.8	7.2	0.0	38.2	61.7	0.0	51.2	48.5	0.4
VIHIGA	96.1	3.9	0.0	16.0	83.8	0.2	20.6	79.2	0.2
Rural	95.7	4.3	0.0	13.3	86.4	0.3	18.0	81.9	0.2
Urban	96.9	3.1	0.0	21.8	78.2	0.0	26.2	73.6	0.2
BUNGOMA	81.3	18.6	0.1	15.8	83.3	0.8	20.6	79.3	0.2
Rural	78.4	21.5	0.1	11.3	87.8	0.9	14.5	85.3	0.2
Urban	94.9	5.0	0.1	37.3	62.4	0.3	48.7	51.1	0.2
BUSIA	52.5	47.4	0.1	18.8	79.2	2.0	25.0	74.9	0.1
Rural	47.0	52.9	0.1	12.5	85.2	2.3	17.6	82.3	0.2
Urban	88.3	11.7	0.0	59.3	40.6	0.1	72.7	27.3	0.1

Appendix 14: Percentage Distribution of Households by Construction Materials of Dwelling Unit in Selected Urban Centres

	Roof			Wall			Floor		
	Durable	Nondurable	Other	Durable	Nondurable	Other	Durable	Nondurable	Other
KENYA	95.9	3.8	0.3	56.6	43.2	0.3	76.5	23.4	0.2
Nairobi	99.7	0.1	0.2	61.4	38.5	0.1	91.0	8.9	0.1
CENTRAL	99.4	0.2	0.4	59.3	40.4	0.4	80.9	18.9	0.2
Nyeri	99.7	0.2	0.2	45.2	54.7	0.1	67.5	32.4	0.1
Murang'a	99.8	0.0	0.1	79.0	20.9	0.1	79.9	19.8	0.3
Thika	99.7	0.2	0.1	82.6	17.3	0.1	84.5	15.4	0.1
Ruiru	99.6	0.4	0.1	86.3	13.6	0.0	92.8	7.2	0.1
Kikuyu	99.9	0.1	0.1	35.3	64.7	0.0	86.0	13.9	0.1
Others	99.1	0.2	0.7	54.2	45.0	0.8	76.3	23.4	0.3
COAST	89.3	10.6	0.1	71.5	28.4	0.2	80.4	19.4	0.2
Mombasa	95.2	4.7	0.1	74.3	25.6	0.1	85.7	14.1	0.2
Malindi	76.3	23.6	0.1	66.7	33.2	0.1	72.2	27.5	0.2
Voi	99.9	0.1	0.1	66.4	33.4	0.2	87.1	12.8	0.1
Kilifi	68.8	31.1	0.1	65.9	34.1	0.0	62.7	37.1	0.2
Lamu	65.1	34.7	0.3	77.8	18.7	3.5	79.4	20.4	0.2
Others	77.7	22.2	0.1	64.5	35.2	0.3	67.9	31.9	0.2
EASTERN	96.8	2.9	0.3	69.6	29.7	0.7	71.1	28.9	0.1
Embu	99.8	0.2	0.1	59.0	39.8	1.2	82.0	17.9	0.1
Meru	99.9	0.1	0.1	51.0	48.5	0.5	88.0	11.9	0.1
Mavoko	98.3	1.2	0.5	56.0	43.5	0.5	87.6	12.3	0.1
Machakos	99.4	0.6	0.0	90.6	9.4	0.1	74.5	25.4	0.1
Others	95.5	4.3	0.3	71.3	27.8	0.9	63.9	36.0	0.1
NORTH EASTERN	56.4	43.3	0.3	45.5	53.9	0.6	48.8	50.8	0.4
Garissa	81.7	18.0	0.3	69.3	30.4	0.3	73.2	26.4	0.4
Others	43.6	56.0	0.3	33.5	65.8	0.7	36.4	63.2	0.4
NYANZA	95.2	4.7	0.0	35.8	64.0	0.2	56.3	43.6	0.1
Kisumu	97.6	2.3	0.1	38.1	61.8	0.1	68.4	31.6	0.1
Siaya	92.2	7.8	0.0	65.2	34.7	0.1	79.3	20.6	0.1
Homa Bay	95.3	4.7	0.0	21.0	77.5	1.4	58.4	41.5	0.0
Kisii	98.3	1.6	0.1	59.4	40.6	0.1	72.8	27.1	0.1
Others	93.7	6.3	0.0	31.9	68.0	0.1	46.7	53.2	0.2
RIFT VALLEY	95.7	3.8	0.5	48.1	51.5	0.4	71.3	28.5	0.2
Kitale	97.9	1.9	0.3	39.5	60.3	0.3	60.6	39.3	0.1
Eldoret	98.6	0.6	0.8	52.5	46.4	1.1	74.3	25.3	0.4
Nanyuki	99.4	0.6	0.0	50.5	49.4	0.1	78.7	21.3	0.0
Nyahururu	99.8	0.2	-	51.3	48.7	0.0	77.1	22.8	0.1
Nakuru	99.8	0.2	0.0	64.7	35.2	0.0	87.0	13.0	0.1
Naivasha	99.2	0.7	0.2	66.6	33.2	0.2	77.0	22.9	0.1
Kericho	96.1	3.6	0.2	35.0	64.9	0.2	64.8	35.1	0.1
Ngong'	99.6	0.2	0.2	54.2	45.4	0.4	87.0	12.8	0.2

	Roof			Wall			Floor		
	Durable	Nondurable	Other	Durable	Nondurable	Other	Durable	Nondurable	Other
Others	91.2	8.0	0.8	37.7	61.8	0.5	62.4	37.4	0.1
WESTERN	93.8	6.1	0.0	36.7	63.2	0.1	47.3	52.5	0.2
Kakamega	98.8	1.2	0.0	45.6	54.3	0.1	65.2	34.4	0.4
Bungoma	99.5	0.4	0.0	58.2	41.8	0.0	80.2	19.7	0.2
Webuye	95.2	4.8	-	44.6	54.5	0.9	53.4	46.4	0.1
Busia	92.6	7.4	0.0	62.0	37.9	0.1	75.5	24.5	0.1
Others	91.9	8.1	0.1	27.8	72.2	0.1	36.3	63.5	0.2

Appendix 15: Percentage Distribution of Households by Main Source of Water and County

	Improved							Unimproved									Other
	Piped into dwelling	Piped	Rain/Harvested	Borehole	Protected Well	Protected Spring	Sub-total	Unprotected Well	Unprotected Spring	Stream	Jabias	Water Vendor	Pond	Dam	Lake	Sub-total	
KENYA	6.9	23.1	0.8	11.0	7.4	7.0	56.1	5.7	4.4	21.6	0.3	6.5	2.1	2.0	1.1	43.7	0.3
Rural	2.3	13.5	1.0	11.3	8.1	9.3	45.4	7.8	6.2	30.3	0.4	2.3	3.0	2.8	1.5	54.3	0.4
Urban	14.4	38.7	0.5	10.5	6.1	3.3	73.5	2.2	1.5	7.5	0.2	13.4	0.6	0.5	0.5	26.5	0.1
NAIROBI	23.4	52.3	0.1	6.0	0.6	0.4	82.7	0.2	0.1	0.1	0.1	16.5	0.2	0.1	0.0	17.3	0.1
NYANDARUA	4.0	20.6	5.6	6.9	20.9	1.4	59.3	4.8	2.8	20.3	1.2	3.4	1.7	6.7	0.1	40.7	0.0
Rural	3.2	20.4	6.0	6.9	22.5	1.2	60.2	4.6	3.0	20.9	1.1	2.5	2.0	5.6	0.1	39.8	0.0
Urban	6.7	21.3	3.7	7.2	15.1	1.9	55.9	5.2	1.8	18.1	1.5	6.7	0.3	10.6	0.1	44.1	0.1
NYERI	12.2	43.8	3.3	1.9	3.0	1.0	65.1	2.4	1.0	27.7	0.8	2.4	0.2	0.4	0.0	34.8	0.1
Rural	8.8	38.4	4.2	2.4	3.9	1.2	58.8	3.3	1.3	33.7	1.0	1.2	0.2	0.5	0.0	41.1	0.1
Urban	21.3	58.6	0.6	0.7	0.7	0.4	82.2	0.1	0.1	11.3	0.2	5.8	0.1	0.0	0.0	17.8	0.0
KIRINYAGA	7.1	33.4	0.3	4.8	6.7	1.6	53.9	1.9	0.9	41.0	0.2	1.9	0.1	0.1	0.0	46.1	0.1
Rural	5.6	31.0	0.4	4.6	6.4	1.9	49.9	2.0	1.0	44.9	0.2	1.8	0.2	0.1	0.0	50.0	0.0
Urban	14.0	44.4	0.1	5.5	7.7	0.6	72.2	1.4	0.4	23.1	0.1	2.6	0.1	0.0	0.0	27.7	0.1
MURANGA	4.4	19.6	3.0	6.1	8.6	1.4	43.2	5.1	2.8	45.6	0.4	1.8	0.4	0.6	0.1	56.8	0.0
Rural	3.0	17.9	3.4	5.4	8.4	1.5	39.6	5.2	2.8	49.8	0.4	1.3	0.3	0.6	0.1	60.4	0.0
Urban	12.1	29.2	0.7	10.0	9.9	1.1	62.9	4.6	3.1	22.5	0.3	4.7	0.8	0.8	0.0	37.0	0.1
KIAMBU	12.7	33.1	0.8	11.2	17.5	0.7	75.9	1.5	1.0	11.4	0.2	9.3	0.2	0.5	0.0	24.1	0.0
Rural	5.3	24.8	1.2	6.3	24.5	1.0	63.1	2.4	1.8	26.2	0.2	5.4	0.2	0.6	0.1	36.8	0.1
Urban	16.5	37.4	0.6	13.7	13.9	0.5	82.5	1.1	0.6	3.8	0.2	11.3	0.2	0.4	0.0	17.5	0.0
MOMBASA	11.6	41.3	0.1	13.6	6.0	1.5	74.0	0.8	0.2	0.1	0.1	24.4	0.3	0.1	0.0	26.0	0.1
KWALE	2.5	25.7	0.2	16.0	5.9	1.2	51.5	11.0	3.0	11.0	0.3	2.1	14.1	6.7	0.2	48.4	0.1
Rural	1.2	23.0	0.3	11.7	4.6	1.2	42.0	12.6	3.7	13.0	0.4	1.0	18.1	8.8	0.3	57.8	0.2
Urban	6.7	34.2	0.1	29.6	10.2	0.9	81.7	6.1	0.5	4.7	0.3	5.5	1.1	0.2	0.0	18.3	0.0
KILIFI	7.1	46.8	0.1	6.5	6.5	0.9	67.9	6.4	1.0	4.3	0.6	6.1	3.9	9.2	0.3	31.8	0.3
Rural	2.1	45.7	0.1	5.4	5.2	0.9	59.4	9.2	1.5	6.6	0.3	2.1	5.8	14.4	0.4	40.2	0.4
Urban	16.0	48.9	0.1	8.6	8.6	1.0	83.1	1.4	0.1	0.2	1.2	13.3	0.4	0.1	0.0	16.8	0.0
TANA RIVER	1.7	10.6	0.1	17.9	11.5	0.5	42.3	12.4	0.7	26.8	0.1	3.6	1.1	6.7	1.0	52.3	5.4
Rural	0.3	3.9	0.1	16.4	13.5	0.5	34.7	14.8	0.8	29.6	0.1	3.4	1.3	7.8	1.2	58.9	6.5
Urban	8.8	44.4	0.0	25.5	1.7	0.3	80.7	0.5	0.2	13.0	0.0	4.7	0.2	0.7	0.1	19.2	0.1
LAMU	7.8	22.7	0.3	7.5	16.0	0.6	54.9	26.7	0.6	2.4	7.2	1.2	5.1	1.2	0.7	45.0	0.1
Rural	1.5	20.1	0.4	7.2	16.2	0.7	46.0	31.1	0.7	3.1	9.1	1.2	6.4	1.5	0.8	53.9	0.1
Urban	30.6	32.2	-	8.7	15.3	0.4	87.1	10.8	0.3	0.0	0.1	1.3	0.4	0.1	-	12.8	0.1
TAITA TAVETA	6.5	52.7	0.1	3.5	0.9	2.3	66.1	1.2	2.7	23.0	0.1	5.7	0.4	0.5	0.3	33.8	0.1
Rural	4.4	48.7	0.1	4.4	1.2	2.2	60.9	1.5	2.9	27.6	0.1	5.6	0.5	0.6	0.4	39.0	0.1
Urban	15.3	69.0	0.1	0.1	0.0	2.9	87.4	0.0	1.7	4.4	0.1	6.4	0.1	0.0	0.0	12.6	0.0
MARSABIT	0.3	6.6	0.5	19.3	9.7	1.9	38.2	36.8	1.3	0.6	1.3	10.6	6.4	3.4	1.3	61.7	0.1
Rural	0.2	5.3	0.3	22.0	7.5	2.2	37.4	42.6	1.4	0.8	1.5	4.3	6.9	3.5	1.5	62.5	0.1
Urban	0.6	11.6	1.2	8.9	18.0	0.8	41.1	15.1	0.8	0.1	0.3	34.5	4.4	3.2	0.2	58.7	0.2
ISIOLO	6.4	42.8	0.0	9.9	1.0	0.8	60.9	21.6	2.0	10.8	0.2	3.4	0.2	0.5	0.0	38.6	0.5
Rural	0.4	17.5	0.0	16.2	1.6	1.3	37.0	40.1	2.7	17.4	0.3	0.9	0.2	1.0	0.0	62.5	0.5
Urban	13.3	71.8	0.1	2.6	0.3	0.2	88.2	0.4	1.1	3.2	0.1	6.2	0.1	0.0	0.0	11.2	0.6
MERU	6.9	47.9	0.8	2.7	1.3	1.8	61.4	1.9	2.3	24.7	0.2	8.8	0.2	0.1	0.1	38.4	0.2
Rural	5.6	45.9	0.9	3.0	1.3	1.6	58.3	2.1	2.5	26.6	0.2	9.5	0.2	0.1	0.2	41.4	0.2
Urban	17.5	65.1	0.1	0.7	0.9	3.2	87.5	0.4	0.4	8.2	0.1	3.0	0.2	0.1	0.0	12.4	0.1
THARAKA	9.2	23.2	0.1	9.9	4.8	1.1	48.2	4.5	1.5	44.5	0.0	0.7	0.3	0.0	0.0	51.6	0.2
Rural	5.0	19.0	0.1	10.7	5.1	1.2	41.0	5.6	1.8	50.3	0.0	0.6	0.4	0.0	0.1	58.8	0.2
Urban	21.8	36.0	0.1	7.5	3.7	0.9	69.9	1.2	0.8	27.2	0.1	0.7	0.2	-	-	30.1	0.0
EMBU	9.0	28.3	0.2	8.1	4.2	1.2	51.1	8.5	2.4	31.0	0.2	3.1	0.5	3.0	0.1	48.8	0.1
Rural	5.8	24.0	0.3	9.5	4.8	1.1	45.4	9.9	2.6	34.6	0.1	2.9	0.6	3.7	0.1	54.5	0.1

	Improved							Unimproved									Other
	Piped into dwelling	Piped	Rain/Harvested	Borehole	Protected Well	Protected Spring	Sub-total	Unprotected Well	Unprotected Spring	Stream	Jabias	Water Vendor	Pond	Dam	Lake	Sub-total	
Urban	22.4	46.7	0.2	2.2	2.0	1.7	75.1	2.6	1.4	15.9	0.6	4.0	0.2	0.0	0.0	24.7	0.1
KITUI	1.0	6.7	0.2	10.9	7.9	0.6	27.2	21.5	1.6	40.9	0.5	3.6	0.4	4.3	0.1	72.8	0.0
Rural	0.4	5.6	0.2	11.0	7.3	0.6	25.0	24.2	1.5	41.5	0.5	1.9	0.4	4.9	0.2	74.9	0.0
Urban	3.9	12.2	0.4	10.1	10.7	0.9	38.3	7.6	2.5	37.8	0.1	12.1	0.5	1.0	0.0	61.6	0.1
MACHAKOS	3.7	10.5	0.6	13.0	6.8	4.8	39.4	10.1	8.4	23.1	0.2	10.9	1.1	6.8	0.1	60.6	0.1
Rural	1.2	5.6	0.5	8.4	3.0	4.4	23.0	11.7	11.4	39.5	0.1	1.6	0.7	11.9	0.1	76.9	0.0
Urban	5.7	14.3	0.6	16.6	9.8	5.0	51.9	9.0	6.1	10.5	0.2	18.1	1.3	2.8	0.0	48.0	0.1
MAKUENI	2.4	19.3	0.5	4.9	6.8	2.9	36.9	10.1	9.8	33.4	0.2	4.6	0.3	4.8	0.0	63.1	0.0
Rural	1.7	18.0	0.5	5.2	7.4	3.3	36.0	10.3	11.0	35.3	0.2	2.3	0.3	4.5	0.0	64.0	0.0
Urban	6.9	27.5	0.2	3.4	3.4	0.8	42.2	8.9	2.2	21.5	0.2	18.7	0.1	6.2	0.0	57.8	0.0
GARISA	3.3	24.8	0.2	33.1	1.9	0.8	64.1	10.3	1.0	7.6	0.4	3.0	0.2	3.6	0.1	26.3	9.7
Rural	1.1	8.0	0.3	42.9	2.4	0.9	55.5	13.8	1.2	8.7	0.5	3.1	0.2	4.5	0.1	32.2	12.3
Urban	9.8	74.9	0.1	4.0	0.2	0.5	89.4	0.2	0.2	4.3	0.2	2.7	0.3	0.9	0.2	8.9	1.7
WAJIR	0.3	1.2	0.3	32.6	11.3	0.3	46.0	26.4	0.4	0.1	0.8	12.5	1.6	12.0	0.0	53.8	0.3
Rural	0.2	1.1	0.3	38.0	7.0	0.2	46.8	21.8	0.3	0.1	1.0	13.8	1.9	14.3	0.0	53.1	0.1
Urban	0.7	1.8	0.0	4.6	34.2	0.4	41.7	50.6	1.0	0.0	0.0	5.7	0.1	0.0	0.0	57.5	0.8
MANDERA	1.1	4.6	1.1	27.0	3.6	0.2	37.6	10.1	0.3	6.7	3.9	13.2	24.2	3.7	0.1	62.1	0.3
Rural	0.3	3.5	1.2	32.6	2.6	0.2	40.2	9.5	0.3	5.9	4.2	8.3	27.0	4.3	0.1	59.6	0.2
Urban	5.2	9.7	0.5	1.7	8.2	0.5	25.9	12.8	0.3	10.2	2.2	35.7	11.4	1.1	0.0	73.6	0.5
SIAYA	0.9	5.9	0.7	14.7	3.3	10.7	36.1	3.0	7.2	23.6	0.3	1.8	11.4	2.8	13.8	63.9	0.0
Rural	0.4	3.9	0.7	14.5	3.4	11.6	34.5	3.3	8.0	25.4	0.3	0.7	10.7	2.9	14.1	65.5	0.0
Urban	4.9	21.3	0.7	16.0	2.5	3.3	48.7	0.9	0.7	9.0	0.3	10.4	16.9	1.9	11.4	51.3	0.0
KISUMU	3.4	21.9	0.9	18.0	8.3	2.3	54.8	3.3	1.8	24.5	0.1	8.8	3.4	0.9	2.3	45.1	0.0
Rural	0.8	7.3	0.8	21.6	9.7	2.6	42.8	5.0	2.8	37.4	0.1	0.7	6.6	1.3	3.2	57.2	0.0
Urban	5.5	34.1	1.0	15.1	7.2	2.0	64.9	2.0	1.0	13.7	0.1	15.5	0.8	0.5	1.6	35.1	0.0
HOMABAY	0.8	4.8	0.5	12.8	5.3	4.1	28.4	5.3	4.8	31.4	0.2	1.3	8.6	3.1	16.9	71.6	0.0
Rural	0.2	1.5	0.5	13.5	5.3	3.9	24.8	5.6	5.3	33.7	0.2	0.4	9.8	3.4	16.9	75.2	0.0
Urban	4.0	23.3	0.5	8.9	5.4	5.3	47.4	3.5	2.3	18.7	0.1	6.2	2.6	1.6	17.2	52.3	0.3
MIGORI	0.6	1.3	0.4	11.6	7.4	5.5	26.7	8.2	11.5	40.9	0.1	0.6	3.2	2.4	6.3	73.2	0.1
Rural	0.3	0.8	0.3	10.7	6.0	5.3	23.5	8.3	11.4	42.3	0.1	0.4	3.9	3.2	6.8	76.3	0.2
Urban	1.9	4.0	0.6	20.1	11.4	5.6	43.5	7.2	8.5	32.1	0.1	1.7	1.3	0.5	5.2	56.5	0.1
KISII	0.9	3.1	0.7	2.4	5.4	38.4	50.9	2.8	13.8	31.7	0.2	0.4	0.1	0.1	0.1	49.1	0.0
Rural	0.4	2.4	0.5	1.7	4.2	42.2	51.3	2.7	15.1	30.4	0.1	0.1	0.1	0.1	0.1	48.7	0.0
Urban	2.7	5.7	1.7	5.0	10.0	24.5	49.5	2.8	9.4	36.3	0.3	1.5	0.1	0.1	0.1	50.5	0.0
NYAMIRA	0.7	3.1	1.5	1.8	5.8	35.9	48.9	3.5	16.2	30.2	0.4	0.3	0.2	0.4	0.1	51.1	-
Rural	0.4	2.3	1.3	1.6	5.6	37.4	48.7	3.7	16.6	29.7	0.4	0.3	0.2	0.4	0.1	51.4	-
Urban	2.4	8.2	3.1	3.2	6.9	26.6	50.3	2.0	13.2	33.3	0.3	0.6	0.1	0.2	0.0	49.7	0.0
TURKANA	1.9	10.5	0.0	27.7	3.1	1.2	44.3	26.4	3.6	20.7	0.0	1.5	0.2	0.4	2.6	55.5	0.3
Rural	0.9	5.1	0.1	28.5	3.2	1.0	38.9	29.9	4.1	22.5	-	0.8	0.2	0.3	3.1	60.9	0.3
Urban	7.0	39.4	-	22.9	2.2	1.9	73.4	8.1	0.5	11.1	0.0	5.4	0.2	1.0	0.0	26.3	0.3
WEST POKOT	1.3	7.8	0.1	11.7	1.4	1.7	24.0	10.2	3.1	58.6	0.0	0.5	1.1	2.4	0.1	76.0	0.0
Rural	0.8	7.1	0.1	12.3	1.1	1.2	22.6	11.2	3.2	59.0	0.0	0.1	1.2	2.6	0.1	77.4	0.0
Urban	6.4	14.6	0.2	5.6	4.4	6.4	37.6	0.5	1.9	54.9	0.2	3.9	0.2	0.1	0.8	62.4	-
SAMBURU	0.9	13.5	0.3	15.4	3.9	1.2	35.2	30.5	2.0	24.8	0.1	1.3	1.3	4.3	0.5	64.7	0.1
Rural	0.5	7.5	0.3	15.7	3.1	0.7	27.8	35.7	2.3	26.2	0.1	0.7	1.3	5.2	0.6	72.1	0.0
Urban	2.7	39.4	0.3	14.0	7.4	3.2	67.0	8.1	0.9	18.7	0.3	3.7	1.0	0.4	0.0	33.0	0.1
TRANS NZOIA	1.7	9.9	0.2	21.1	20.8	12.5	66.2	5.9	4.7	20.3	0.0	2.2	0.3	0.4	0.1	33.8	0.0
Rural	0.8	4.8	0.2	20.6	22.0	12.9	61.2	6.9	5.4	24.7	0.0	0.9	0.3	0.5	0.1	38.7	0.1
Urban	4.4	26.5	0.2	22.6	17.1	11.1	82.0	2.6	2.2	6.0	0.1	6.6	0.3	0.2	0.0	17.9	0.1
BARINGO	1.7	12.3	0.3	6.9	2.0	2.7	25.9	5.4	3.8	52.2	0.1	1.1	2.2	4.2	2.1	71.0	3.1
Rural	0.7	6.9	0.3	6.9	2.2	3.0	19.9	6.2	4.3	55.5	0.1	0.5	2.6	4.8	2.5	76.5	3.6

	Improved							Unimproved									Other
	Piped into dwelling	Piped	Rain/Harvested	Borehole	Protected Well	Protected Spring	Sub-total	Unprotected Well	Unprotected Spring	Stream	Jabias	Water Vendor	Pond	Dam	Lake	Sub-total	
Urban	8.0	43.8	0.6	6.4	1.2	0.7	60.6	0.7	0.7	32.6	0.0	4.3	0.1	0.8	0.1	39.3	0.0
UASIN GISHU	7.6	24.8	0.1	20.5	22.2	2.0	77.3	9.8	1.8	8.9	0.0	1.3	0.5	0.3	0.1	22.6	0.1
Rural	1.0	4.6	0.1	25.2	29.9	3.0	63.7	15.5	3.0	16.3	0.0	0.2	0.6	0.4	0.1	36.2	0.1
Urban	14.9	46.8	0.0	15.4	14.0	1.0	92.1	3.5	0.5	0.9	0.0	2.5	0.4	0.2	0.0	7.9	0.1
ELGEYO MARAKWET	2.4	17.3	0.2	6.1	8.3	2.2	36.4	4.1	3.7	54.6	0.0	0.3	0.7	0.1	0.1	63.5	0.0
Rural	2.0	14.3	0.1	3.8	8.4	1.9	30.5	3.6	3.8	60.9	0.0	0.2	0.7	0.1	0.1	69.5	0.0
Urban	4.6	34.8	0.4	19.5	7.6	3.7	70.6	6.9	2.8	18.3	0.0	0.9	0.4	0.1	0.0	29.4	-
NANDI	2.1	11.5	0.5	6.3	9.7	7.5	37.6	5.3	13.3	41.8	0.1	0.9	0.8	0.3	0.1	62.4	-
Rural	2.0	11.5	0.4	5.8	9.7	7.2	36.6	5.8	14.0	42.1	0.1	0.4	0.8	0.2	0.1	63.4	0.0
Urban	2.7	11.7	1.0	9.0	9.7	9.0	43.1	2.7	9.0	40.0	0.1	3.6	0.7	0.7	0.1	56.9	0.0
LAIKIPIA	8.5	21.2	1.2	14.2	7.0	2.0	54.0	5.7	2.7	26.1	0.4	3.5	1.0	6.6	0.0	46.0	0.1
Rural	3.4	11.3	1.5	16.8	8.5	2.6	43.9	7.2	3.3	32.4	0.4	2.7	1.2	8.7	0.0	56.0	0.1
Urban	24.5	52.5	0.3	5.9	2.3	0.3	85.9	0.7	0.9	6.1	0.2	5.9	0.2	0.1	0.0	14.1	0.0
NAKURU	8.0	28.8	3.1	14.2	5.8	1.8	61.7	1.5	2.7	16.9	0.6	14.2	0.4	1.6	0.4	38.2	0.1
Rural	2.7	16.2	4.1	14.8	9.0	2.9	49.7	2.7	4.6	30.9	0.8	7.5	0.3	3.2	0.1	50.1	0.2
Urban	12.9	40.6	2.2	13.6	2.8	0.8	72.8	0.4	0.9	3.7	0.5	20.5	0.4	0.2	0.7	27.1	0.1
NAROK	0.8	6.1	0.7	5.6	2.1	6.2	21.4	3.4	8.6	46.7	0.2	5.7	8.6	4.9	0.2	78.2	0.4
Rural	0.3	3.6	0.6	5.9	2.0	6.6	19.0	3.3	9.4	50.9	0.2	1.8	9.5	5.4	0.2	80.6	0.4
Urban	5.8	28.6	2.0	2.6	3.1	1.8	43.8	5.0	0.5	6.8	0.3	42.1	0.9	0.2	0.0	55.9	0.3
KAJIADO	9.0	27.8	0.6	25.2	2.8	1.9	67.2	3.4	1.4	8.9	0.2	14.5	0.7	3.3	0.2	32.6	0.2
Rural	3.9	19.7	0.9	27.2	4.8	3.3	59.7	6.2	2.7	16.9	0.2	6.5	1.3	6.2	0.3	40.1	0.1
Urban	14.1	35.9	0.3	23.2	0.8	0.4	74.8	0.7	0.1	1.0	0.2	22.5	0.2	0.3	0.0	25.1	0.2
KERICHO	12.0	18.6	0.7	4.4	7.1	4.0	46.8	3.4	5.8	40.8	0.1	2.0	0.3	0.7	0.1	53.2	0.0
Rural	14.1	9.6	0.7	4.0	4.9	4.1	37.4	3.0	7.5	50.9	0.0	0.3	0.2	0.7	0.1	62.5	0.0
Urban	8.7	32.3	0.6	5.0	10.3	4.0	60.9	4.1	3.3	25.6	0.1	4.6	0.5	0.8	0.1	39.1	0.1
BOMET	4.5	9.6	1.1	3.5	3.9	5.6	28.2	2.9	9.5	43.3	0.2	0.7	12.3	2.9	0.1	71.7	0.0
Rural	4.7	8.2	1.0	3.8	4.1	5.2	26.9	3.1	8.8	44.5	0.2	0.3	13.2	2.9	0.1	73.1	0.0
Urban	3.6	20.1	1.8	1.7	2.5	8.7	38.4	1.5	14.1	34.4	0.3	3.1	5.4	2.6	0.1	61.5	0.1
KAKAMEGA	1.8	4.1	0.3	10.5	13.2	31.4	61.2	4.0	10.9	22.6	0.1	0.6	0.5	0.2	0.1	38.8	0.0
Rural	0.4	1.9	0.2	9.8	13.1	34.1	59.4	4.4	12.1	23.0	0.1	0.2	0.5	0.2	0.1	40.5	0.0
Urban	9.1	15.5	0.6	14.3	13.4	17.4	70.3	1.9	4.3	20.5	0.1	2.3	0.4	0.2	0.1	29.7	0.0
VIHIGA	1.1	3.4	1.1	1.1	3.6	53.1	63.2	2.0	11.0	22.2	0.2	1.0	0.3	0.0	0.1	36.7	0.0
Rural	0.8	2.5	1.1	1.1	3.5	50.6	59.5	2.5	13.5	23.0	0.2	0.8	0.4	0.0	0.0	40.5	-
Urban	1.9	5.3	1.0	1.1	3.6	58.3	71.2	0.8	5.8	20.5	0.2	1.4	0.1	0.1	0.1	28.8	0.0
BUNGOMA	1.6	8.8	0.1	14.4	17.4	30.1	72.3	7.3	9.4	9.5	0.0	1.2	0.2	0.1	0.1	27.7	-
Rural	0.7	6.4	0.1	14.2	17.1	31.4	69.9	8.1	10.3	10.4	0.0	1.0	0.2	0.1	0.1	30.1	0.0
Urban	5.6	20.0	0.1	15.2	18.7	24.1	83.6	3.3	5.0	5.4	0.0	2.3	0.2	0.1	0.1	16.4	-
BUSIA	0.6	5.0	0.1	22.9	15.8	17.9	62.3	7.9	12.6	12.2	0.1	0.5	0.9	0.3	3.3	37.7	0.0
Rural	0.4	3.3	0.1	22.9	13.6	19.7	60.1	8.2	14.1	12.6	0.1	0.1	1.0	0.3	3.5	39.9	0.0
Urban	2.2	15.8	0.1	22.7	29.8	5.8	76.3	6.2	3.0	9.5	0.0	2.9	0.2	0.2	1.8	23.7	0.0

Appendix 16: Percentage Distribution of Households by Main Source of Water in Selected Urban Centres

	Improved							Unimproved									
Centre	Piped into dwelling	Piped	Rain/ Harvested	Borehole	Protected Spring	Protected Well	sub-total	Unprotected Spring	Unprotected Well	Stream	Jabia	Water Vendor	Pond	Dam	Lake	sub-total	Other
Nairobi	23.4	52.3	0.1	6.0	0.4	0.6	82.7	0.1	0.2	0.1	0.1	16.5	0.2	0.1	0.0	17.3	0.1
Mombasa	12.1	42.0	0.1	13.2	1.5	5.8	74.5	0.1	0.8	0.1	0.1	23.9	0.3	0.1	0.0	25.5	0.1
Kisumu	5.1	29.7	1.1	14.7	5.2	9.4	65.2	1.9	2.3	14.6	0.2	12.7	0.8	0.6	1.7	34.7	0.1
Nakuru	18.4	57.0	1.5	6.6	0.4	0.4	84.3	0.2	0.1	0.6	0.3	14.1	0.2	0.0	-	15.5	0.2
Eldoret	16.1	50.2	0.0	13.9	0.5	12.1	92.8	0.4	3.0	0.7	0.0	2.4	0.4	0.2	0.0	7.2	0.1
Ruiru	18.5	40.7	0.3	21.1	0.4	2.2	83.1	0.5	0.8	6.1	0.2	8.8	0.1	0.2	0.0	16.9	0.0
Kikuyu	13.6	30.1	0.9	16.3	0.6	17.7	79.1	0.4	1.2	3.9	0.1	14.9	0.1	0.3	0.0	20.9	0.1
Naivasha	5.5	16.4	3.4	26.6	0.9	1.2	54.0	1.3	0.3	2.2	1.1	37.4	0.8	0.2	2.7	46.0	0.0
Kisii	5.4	22.5	1.6	11.4	8.7	9.5	59.0	2.6	2.0	21.6	0.2	12.4	0.5	0.3	1.6	41.0	0.0
Thika	25.0	58.9	0.0	1.1	0.1	0.5	85.6	0.4	0.4	1.4	0.1	11.5	0.5	0.2	0.0	14.3	0.0
Mavoko	10.0	25.6	0.3	24.8	0.7	3.1	64.4	1.0	1.3	0.7	0.4	28.7	0.4	1.2	1.9	35.6	0.0
Kitale	6.6	30.7	0.2	19.7	9.7	14.7	81.6	2.1	2.2	5.5	0.1	7.9	0.3	0.3	0.0	18.4	0.1
Garissa	10.5	70.9	0.0	0.7	0.5	0.6	83.2	0.2	0.2	4.0	0.4	10.6	0.3	0.3	0.1	16.3	0.6
Malindi	20.4	54.7	0.1	1.2	1.1	1.5	78.8	0.1	0.7	1.9	0.7	17.1	0.3	0.3	0.0	21.1	0.1
Ngong	13.4	30.6	0.3	26.1	0.5	0.9	71.9	0.1	0.6	1.4	0.4	25.1	0.2	0.2	-	27.8	0.4
Machakos	7.3	14.9	0.9	14.1	3.0	11.5	51.8	8.7	8.0	7.5	0.2	21.9	0.3	1.6	0.0	48.2	0.0
Nyeri	21.2	61.4	0.7	0.2	0.6	0.1	84.1	0.1	0.1	10.2	0.2	5.1	0.2	0.0	0.0	15.9	0.0
Kericho	11.8	45.0	0.3	3.9	3.4	6.0	70.5	2.2	3.3	17.3	0.0	6.2	0.2	0.1	0.1	29.3	0.1
Kakamega	10.8	23.5	1.0	8.8	8.6	4.1	56.8	3.7	3.8	31.7	0.1	3.0	0.3	0.5	0.1	43.2	0.0
Embu	27.8	51.7	0.1	1.3	1.5	1.1	83.5	0.8	2.3	9.2	0.8	3.0	0.3	0.0	0.0	16.4	0.2
Meru	16.5	52.7	0.3	5.8	3.1	4.8	83.3	1.7	2.0	10.5	0.0	1.6	0.5	0.4	0.0	16.6	0.2
Bungoma	6.3	16.6	0.3	29.1	4.3	30.8	87.3	1.4	2.6	2.1	0.1	6.2	0.3	0.1	0.0	12.7	-
Homa Bay	6.9	35.0	0.8	4.4	0.5	1.6	49.1	0.4	1.2	22.9	0.1	9.2	4.3	3.0	9.1	50.2	0.7
Busia	2.5	12.8	0.1	28.2	8.1	29.4	81.0	3.5	3.1	9.2	0.0	2.8	0.1	0.2	-	19.0	0.0
Nanyuki	27.0	58.0	0.1	0.3	0.2	0.7	86.3	0.0	0.0	8.0	0.2	5.3	0.2	-	0.0	13.7	0.0
Muranga	28.1	58.2	0.4	1.4	1.1	0.9	90.1	0.8	0.8	7.0	0.0	0.8	0.2	-	0.0	9.7	0.2
Webuye	10.1	17.0	0.2	15.7	23.0	15.6	81.7	7.6	5.2	4.1	-	1.3	0.1	0.0	0.0	18.3	0.0
Nyahururu	22.8	47.4	0.7	6.4	0.7	4.6	82.6	1.9	1.8	9.2	0.2	4.0	0.2	0.3	0.0	17.4	0.0
Kilifi	20.3	62.8	0.1	3.9	0.8	0.9	88.9	0.7	0.6	0.0	0.1	9.3	0.2	0.1	0.0	11.1	0.1
Siaya	4.9	16.4	0.5	33.0	2.3	5.6	62.8	0.8	2.4	17.1	0.1	3.9	0.9	2.1	10.0	37.2	0.1
Voi	19.3	65.3	-	2.7	-	0.1	87.4	0.0	2.3	2.0	0.2	7.6	0.5	-	-	12.6	-
Lamu	29.9	37.6	0.0	6.2	0.4	11.8	85.8	0.3	10.0	-	0.5	3.0	0.4	0.0	-	14.2	0.1

Appendix 17: Percentage Distribution of Households by Main Mode of Human Waste Disposal and County

	Improved (Adequate)						Unimproved				Other
	Main Sewer	Septic Tank	Cess Pool	VIP Pit Latrine	Pit Latrine Covered	Sub-total	Pit Latrine Uncovered	Bucket Latrine	Bush	Sub-total	
KENYA	7.7	3.4	0.3	4.9	48.7	65.0	20.9	0.3	13.7	34.8	0.2
Rural	0.2	0.5	0.1	4.3	51.1	56.2	23.1	0.1	20.5	43.7	0.1
Urban	19.9	8.2	0.8	6.0	44.7	79.5	17.3	0.6	2.5	20.4	0.2
NAIROBI	47.7	9.7	1.1	2.7	25.7	86.9	11.9	0.5	0.4	12.8	0.3
NYANDARUA	0.2	0.7	0.1	5.8	67.3	74.1	25.7	0.1	0.2	25.9	0.0
Rural	0.1	0.2	0.0	3.8	72.1	76.3	23.4	0.1	0.2	23.7	0.0
Urban	0.8	2.6	0.2	12.9	49.4	65.8	34.0	0.0	0.2	34.2	0.0
NYERI	4.8	3.5	0.3	5.5	60.2	74.3	25.4	0.1	0.2	25.7	0.0
Rural	0.4	1.1	0.1	5.3	67.7	74.6	25.1	0.0	0.3	25.4	0.0
Urban	16.6	10.2	0.8	5.9	40.1	73.6	26.0	0.2	0.2	26.4	0.0
KIRINYAGA	0.8	3.2	0.2	6.1	72.6	82.9	16.3	0.2	0.5	17.0	0.1
Rural	0.2	1.0	0.1	5.7	75.4	82.4	16.7	0.2	0.6	17.5	0.1
Urban	3.6	13.6	0.4	8.0	59.5	85.0	14.6	0.1	0.1	14.8	0.2
MURANGA	1.6	1.5	0.2	7.1	58.7	69.1	30.6	0.1	0.2	30.9	0.0
Rural	0.3	0.6	0.1	6.7	62.5	70.3	29.5	0.0	0.2	29.7	0.0
Urban	8.7	6.4	0.4	9.5	37.8	62.7	37.0	0.1	0.2	37.3	0.1
KIAMBU	6.7	9.4	0.4	7.8	56.2	80.4	19.2	0.1	0.2	19.5	0.1
Rural	0.5	1.9	0.1	5.7	59.7	67.9	31.8	0.1	0.2	32.1	0.0
Urban	9.8	13.3	0.5	8.9	54.4	86.9	12.7	0.1	0.2	13.0	0.1
MOMBASA	13.9	13.1	1.4	5.9	46.9	81.2	15.4	1.1	2.1	18.6	0.2
KWALE	0.5	2.2	0.5	3.2	27.6	34.0	14.6	0.2	51.1	65.8	0.1
Rural	0.2	0.9	0.4	2.1	21.0	24.5	12.9	0.1	62.4	75.3	0.1
Urban	1.5	6.5	0.8	6.7	48.8	64.3	20.1	0.3	15.0	35.5	0.2
KILIFI	1.6	7.4	0.5	4.8	33.7	48.0	17.5	0.6	33.8	51.9	0.1
Rural	0.4	1.5	0.2	2.2	29.8	34.1	16.2	0.1	49.5	65.8	0.1
Urban	3.8	17.9	0.9	9.3	40.7	72.6	19.9	1.4	6.0	27.2	0.2
TANA RIVER	0.3	0.6	0.1	1.5	20.7	23.1	6.3	0.2	70.2	76.7	0.2
Rural	0.2	0.4	0.1	1.0	15.7	17.3	3.8	0.1	78.6	82.5	0.2
Urban	0.8	1.4	0.1	4.1	45.5	51.8	18.6	0.9	28.4	47.9	0.3
LAMU	0.3	3.4	0.4	3.8	49.1	57.1	20.4	0.4	21.7	42.6	0.4
Rural	0.1	0.7	0.3	1.9	48.5	51.5	21.6	0.3	26.2	48.2	0.4
Urban	1.2	13.4	1.1	10.8	51.1	77.5	16.2	0.7	5.4	22.3	0.2
TAITA TAVETA	1.3	4.5	0.3	11.3	50.4	67.8	26.5	0.0	5.6	32.0	0.1
Rural	0.7	3.3	0.2	12.5	50.3	66.9	26.1	0.0	6.7	32.9	0.1
Urban	4.1	9.6	0.7	6.5	50.7	71.5	27.8	0.1	0.7	28.5	0.0
MARSABIT	0.0	0.2	0.0	2.6	23.0	25.9	9.5	0.0	64.3	73.9	0.2
Rural	0.0	0.1	0.0	1.9	15.1	17.1	4.7	0.0	77.9	82.6	0.2
Urban	0.1	0.7	0.0	5.1	53.0	58.8	27.7	0.0	13.1	40.9	0.3
ISIOLO	5.0	2.0	0.1	2.7	32.4	42.1	13.6	0.1	43.9	57.6	0.4
Rural	0.3	1.8	0.0	2.2	16.5	20.9	5.1	0.1	73.6	78.7	0.4
Urban	10.4	2.2	0.1	3.2	50.5	66.3	23.4	0.2	9.9	33.5	0.3
MERU	0.7	1.6	0.2	8.6	67.0	78.1	19.3	0.1	2.3	21.8	0.2
Rural	0.2	0.7	0.1	7.7	68.1	76.8	20.4	0.1	2.6	23.1	0.2
Urban	4.8	9.1	1.1	16.9	57.6	89.4	10.1	0.3	0.1	10.5	0.1
THARAKA	0.3	1.2	0.3	7.1	51.8	60.6	35.5	0.1	3.7	39.3	0.1
Rural	0.1	0.3	0.2	7.2	49.6	57.4	37.7	0.1	4.8	42.5	0.1
Urban	0.7	3.9	0.6	6.8	58.4	70.4	29.0	0.0	0.5	29.5	0.1
EMBU	2.5	3.1	0.4	9.3	50.3	65.6	32.7	0.1	1.7	34.4	0.1
Rural	0.5	0.9	0.1	9.2	52.2	62.9	35.0	0.1	2.0	37.0	0.1
Urban	10.7	12.7	1.5	9.7	42.3	76.8	22.9	0.1	0.2	23.2	-
KITUI	0.2	0.6	0.1	5.2	47.9	54.0	15.1	0.0	30.8	45.9	0.1
Rural	0.1	0.1	0.1	4.2	45.4	49.9	14.0	0.0	36.0	50.0	0.1
Urban	0.9	3.3	0.3	10.2	60.5	75.1	20.4	0.1	4.3	24.8	0.1
MACHAKOS	4.4	3.4	0.4	8.0	46.5	62.7	34.3	0.1	2.6	37.1	0.2
Rural	0.1	0.4	0.3	6.4	48.5	55.7	40.0	0.1	4.1	44.1	0.2
Urban	7.7	5.7	0.6	9.3	45.0	68.2	30.0	0.2	1.5	31.6	0.2
MAKUENI	0.6	0.3	0.1	6.1	49.2	56.4	41.5	0.0	2.0	43.6	0.1
Rural	0.2	0.2	0.1	4.5	49.9	54.9	42.8	0.0	2.2	45.1	0.0
Urban	2.9	0.9	0.4	15.9	45.0	65.1	33.8	0.1	1.0	34.8	0.0
GARISA	1.1	0.9	0.2	2.6	26.3	31.0	20.5	0.3	47.6	68.4	0.6
Rural	0.2	0.2	0.1	1.0	19.7	21.2	18.4	0.3	59.4	78.2	0.6
Urban	3.9	2.8	0.3	7.5	45.7	60.1	26.6	0.4	12.5	39.5	0.4
WAJIR	0.2	0.4	0.1	0.7	6.2	7.5	8.3	7.5	76.5	92.3	0.3
Rural	0.1	0.0	0.1	0.7	5.9	6.7	9.2	0.2	83.7	93.1	0.2
Urban	0.8	2.2	0.2	0.6	7.9	11.7	3.3	46.1	38.3	87.8	0.6
MANDERA	0.1	0.1	0.2	0.7	15.3	16.4	17.5	0.1	65.7	83.3	0.3
Rural	0.0	0.0	0.1	0.4	9.4	9.9	13.5	0.1	76.2	89.9	0.2
Urban	0.4	0.3	0.8	2.1	42.0	45.5	35.5	0.2	17.8	53.5	1.1
SIAYA	0.2	0.3	0.1	3.8	43.6	47.9	31.9	0.1	20.0	51.9	0.2
Rural	0.1	0.1	0.1	3.5	42.3	46.1	32.2	0.1	21.4	53.7	0.2
Urban	1.0	1.2	0.3	6.3	53.4	62.1	28.8	0.1	8.9	37.9	0.1
KISUMU	4.8	2.4	0.1	3.2	45.7	56.2	31.2	0.1	12.1	43.4	0.3
Rural	0.1	0.3	0.1	2.6	46.0	49.1	31.0	0.1	19.3	50.4	0.5

	Improved (Adequate)						Unimproved				Other
	Main Sewer	Septic Tank	Cess Pool	VIP Pit Latrine	Pit Latrine Covered	Sub-total	Pit Latrine Uncovered	Bucket Latrine	Bush	Sub-total	
Urban	8.7	4.2	0.2	3.7	45.4	62.2	31.4	0.1	6.1	37.6	0.2
HOMABAY	0.9	0.2	0.1	2.5	37.0	40.7	20.4	0.1	38.6	59.1	0.2
Rural	0.1	0.1	0.1	2.2	34.8	37.3	19.5	0.1	42.9	62.5	0.3
Urban	5.2	0.6	0.1	4.2	49.5	59.5	25.6	0.1	14.7	40.4	0.1
MIGORI	0.5	0.3	0.1	2.9	47.6	51.4	15.4	0.1	33.0	48.5	0.1
Rural	0.1	0.1	0.1	2.4	38.9	41.5	15.9	0.1	42.5	58.4	0.1
Urban	1.2	0.7	0.1	3.9	62.5	68.3	14.7	0.2	16.6	31.5	0.2
KISII	0.7	0.5	0.1	4.0	58.7	64.0	35.2	0.1	0.7	35.9	0.1
Rural	0.1	0.1	0.0	3.6	57.8	61.7	37.4	0.0	0.7	38.2	0.1
Urban	2.9	1.6	0.2	5.5	61.9	72.1	27.2	0.1	0.5	27.8	0.1
NYAMIRA	0.1	0.3	0.1	4.9	61.6	66.9	32.6	0.1	0.5	33.1	0.0
Rural	0.0	0.2	0.0	4.8	60.8	65.8	33.6	0.0	0.5	34.2	0.0
Urban	0.2	0.8	0.1	5.4	66.9	73.4	25.8	0.3	0.6	26.6	0.1
TURKANA	0.2	0.2	0.1	0.9	10.8	12.2	5.6	0.1	82.0	87.6	0.2
Rural	0.1	0.1	0.1	0.5	5.8	6.6	3.2	0.1	90.0	93.3	0.2
Urban	0.3	0.7	0.2	3.1	37.9	42.1	18.7	0.1	38.8	57.5	0.4
WEST POKOT	0.1	0.2	0.1	2.1	24.3	26.8	6.1	0.0	67.1	73.2	0.0
Rural	0.1	0.1	0.1	1.5	20.5	22.2	5.1	0.0	72.7	77.8	0.0
Urban	0.4	1.1	0.1	7.7	61.5	70.8	15.4	0.3	13.5	29.2	0.1
SAMBURU	0.2	0.6	0.1	1.7	19.0	21.6	4.9	0.0	73.4	78.3	0.1
Rural	0.0	0.3	0.0	0.6	9.5	10.5	3.2	0.0	86.3	89.5	0.1
Urban	0.9	2.0	0.3	6.6	59.5	69.2	12.6	0.0	18.1	30.6	0.1
TRANS NZOIA	1.7	0.8	0.1	6.7	65.7	75.0	22.2	0.1	2.6	24.9	0.2
Rural	0.1	0.2	0.1	6.0	65.5	71.9	24.9	0.1	3.0	28.0	0.2
Urban	6.7	2.8	0.3	9.1	66.1	85.1	13.6	0.1	1.1	14.9	0.1
BARINGO	0.3	1.0	0.1	4.8	34.9	41.0	15.9	0.0	42.9	58.9	0.1
Rural	0.1	0.2	0.0	3.8	30.7	34.8	15.5	0.0	49.7	65.2	0.1
Urban	1.5	5.7	0.3	11.0	58.9	77.4	18.6	0.1	3.8	22.5	0.1
UASIN GISHU	8.1	3.4	0.2	6.2	60.7	78.6	19.4	0.1	1.7	21.2	0.2
Rural	0.3	0.3	0.0	5.4	65.6	71.7	25.2	0.1	2.8	28.1	0.3
Urban	16.6	6.7	0.3	7.1	55.4	86.1	13.2	0.2	0.4	13.8	0.1
ELGEYO MARAKWET	0.4	0.4	0.0	2.2	45.4	48.4	32.8	0.1	18.7	51.5	0.0
Rural	0.3	0.1	0.0	1.8	46.3	48.6	30.5	0.1	20.8	51.4	0.1
Urban	0.9	2.2	0.1	4.0	40.4	47.7	45.9	0.1	6.2	52.3	0.1
NANDI	0.4	0.4	0.1	7.3	64.5	72.7	22.4	0.0	4.7	27.1	0.2
Rural	0.1	0.2	0.1	6.5	63.2	70.0	24.4	0.0	5.3	29.8	0.2
Urban	2.1	1.6	0.3	11.6	71.5	87.0	11.7	0.1	1.0	12.7	0.2
LAIKIPIA	10.0	1.8	0.2	3.7	56.5	72.3	16.3	0.1	11.3	27.7	0.1
Rural	0.2	0.7	0.1	3.6	60.8	65.3	19.8	0.1	14.8	34.7	0.1
Urban	41.3	5.4	0.6	4.3	42.8	94.4	5.1	0.2	0.2	5.5	0.1
NAKURU	8.0	3.5	0.8	6.5	58.0	76.9	20.2	0.1	2.8	23.1	0.1
Rural	0.3	0.8	0.2	5.0	64.7	71.0	23.5	0.1	5.4	28.9	0.1
Urban	15.2	6.1	1.4	7.9	51.8	82.4	17.1	0.2	0.3	17.5	0.1
NAROK	0.5	0.8	0.1	2.4	33.0	36.7	14.8	0.1	48.3	63.2	0.1
Rural	0.4	0.3	0.1	2.1	29.7	32.6	13.9	0.1	53.3	67.3	0.1
Urban	1.1	5.8	0.1	5.1	62.8	74.8	23.6	0.1	1.5	25.2	0.0
KAJIADO	1.4	9.9	0.3	4.4	45.1	61.0	13.2	0.1	25.5	38.8	0.2
Rural	0.4	2.6	0.2	3.2	33.5	39.9	9.6	0.1	50.2	59.8	0.3
Urban	2.4	17.2	0.4	5.5	56.6	82.0	16.9	0.2	0.8	17.9	0.1
KERICHO	2.1	1.0	0.1	2.3	60.3	65.8	26.1	0.1	7.9	34.1	0.1
Rural	0.1	0.6	0.1	2.1	55.3	58.1	29.7	0.1	12.1	41.9	0.0
Urban	5.1	1.8	0.1	2.8	67.8	77.6	20.7	0.1	1.5	22.3	0.1
BOMET	0.3	0.3	0.1	2.4	64.0	67.1	27.8	0.1	4.9	32.8	0.1
Rural	0.2	0.2	0.1	2.1	64.0	66.7	28.1	0.1	5.1	33.3	0.1
Urban	1.0	1.3	0.2	4.4	63.9	70.7	25.5	0.1	3.7	29.2	0.1
KAKAMEGA	1.5	0.8	0.1	5.9	75.2	83.5	14.9	0.1	1.4	16.4	0.2
Rural	0.2	0.2	0.1	5.6	76.7	82.8	15.5	0.1	1.5	17.1	0.2
Urban	8.3	3.9	0.3	7.2	67.5	87.2	11.4	0.2	1.0	12.7	0.1
VIHIGA	0.3	0.2	0.1	7.6	77.5	85.6	13.5	0.0	0.7	14.3	0.1
Rural	0.1	0.1	0.1	7.0	76.1	83.4	15.6	0.0	0.9	16.5	0.1
Urban	0.7	0.4	0.1	8.9	80.4	90.5	8.9	0.1	0.5	9.5	0.1
BUNGOMA	0.7	0.8	0.1	4.4	65.6	71.5	25.1	0.1	3.0	28.2	0.3
Rural	0.1	0.1	0.1	3.5	65.6	69.3	26.9	0.1	3.4	30.4	0.3
Urban	3.6	3.8	0.4	8.5	65.6	81.8	16.7	0.2	1.1	18.0	0.2
BUSIA	0.4	0.5	0.1	4.5	55.1	60.7	31.3	0.1	7.8	39.2	0.2
Rural	0.1	0.1	0.1	3.8	53.9	58.0	33.0	0.1	8.8	41.8	0.1
Urban	2.3	3.0	0.4	9.0	62.8	77.5	20.4	0.2	1.8	22.4	0.1

Appendix 18: Percentage Distribution of Households by Main Mode of Human Waste Disposal in Selected Urban Centres

	Improved (Adequate)						Unimproved (Inadequate)				Other
	Main Sewer	Septic Tank	Cess Pool	VIP Pit Latrine	Pit Latrine Covered	Sub-total	Pit Latrine Uncovered	Bucket Latrine	Bush	Sub-total	
KENYA	19.9	8.2	0.8	6.0	44.7	79.5	17.3	0.6	2.5	20.4	0.2
Nairobi	47.7	9.7	1.1	2.7	25.7	86.9	11.9	0.5	0.4	12.8	0.3
Nyeri	18.0	9.5	0.4	5.3	34.6	67.7	32.2	0.0	0.1	32.3	0.0
Muranga	28.0	8.8	0.7	6.3	55.1	98.8	0.8	0.3	0.1	1.1	0.1
Ruiru	5.1	22.4	0.6	9.9	51.7	89.7	9.8	0.2	0.2	10.2	0.1
Thika	40.2	10.2	0.4	8.2	27.0	86.0	13.3	0.0	0.6	13.9	0.1
Kikuyu	1.5	10.0	0.7	6.8	66.4	85.4	14.4	0.1	0.1	14.6	0.1
Mombasa	13.9	13.1	1.4	5.9	46.9	81.2	15.4	1.1	2.1	18.6	0.2
Malindi	3.1	24.9	1.2	13.6	34.6	77.4	12.2	1.3	9.0	22.5	0.1
Voi	7.5	14.7	1.6	4.6	38.7	67.0	32.8	0.1	0.0	32.9	0.0
Kilifi	4.5	11.8	0.2	5.8	48.3	70.5	23.4	1.2	4.7	29.3	0.2
Lamu	0.6	13.5	1.1	10.6	49.4	75.2	17.9	0.8	5.9	24.6	0.2
Meru	8.1	11.7	1.6	11.7	59.3	92.5	7.0	0.4	0.1	7.5	0.0
Embu	14.1	16.3	1.9	7.6	36.7	76.6	23.2	0.1	0.2	23.4	0.0
Mavoko	17.5	12.5	1.5	9.3	36.0	76.8	21.3	0.2	1.6	23.1	0.1
Machakos	8.8	6.2	0.3	6.4	42.1	63.9	35.2	0.2	0.5	35.9	0.2
Garissa	4.6	3.2	0.3	8.4	44.8	61.3	28.1	0.5	9.7	38.3	0.4
Kisumu	10.0	4.9	0.2	3.9	46.8	65.8	28.3	0.1	5.6	34.0	0.2
Siaya	2.6	2.6	0.2	3.9	47.8	57.1	40.2	0.2	2.4	42.8	0.1
Homa Bay	11.5	0.7	0.1	6.4	21.1	39.7	38.8	0.1	21.4	60.2	0.1
Kisii	6.8	3.4	0.6	6.1	66.4	83.1	16.4	0.2	0.3	16.8	0.0
Kitale	7.2	2.9	0.3	9.0	65.8	85.2	13.4	0.1	1.2	14.7	0.1
Eldoret	18.1	7.1	0.3	6.3	54.6	86.3	13.1	0.1	0.4	13.6	0.1
Nanyuki	41.9	4.2	0.5	6.0	40.5	93.1	6.0	0.3	0.5	6.8	0.1
Nyahururu	29.2	6.0	0.5	9.6	43.5	88.8	11.0	0.0	0.2	11.2	0.0
Nakuru	23.1	7.9	0.4	8.2	41.9	81.5	18.0	0.3	0.1	18.5	0.1
Naivasha	9.5	4.1	4.3	5.1	67.1	90.1	9.0	0.1	0.7	9.9	0.1
Kericho	8.1	2.5	0.2	2.8	66.9	80.6	18.1	0.2	1.1	19.4	0.1
Ngong	2.7	16.2	0.6	6.4	54.4	80.3	19.2	0.3	0.2	19.7	0.1
Kakamega	10.5	7.5	0.4	6.3	62.3	86.9	12.4	0.4	0.3	13.1	0.0
Bungoma	2.2	6.6	0.6	9.3	66.5	85.2	14.0	0.3	0.3	14.6	0.2
Webuye	11.0	4.4	0.5	7.6	61.2	84.6	13.4	0.1	1.6	15.2	0.3
Busia	3.7	3.1	0.3	10.1	66.5	83.7	14.8	0.2	1.1	16.1	0.2

Appendix 19: Percentage Distribution of Households by Type of Cooking Fuel and County

	Clean (smokeless) Fuel					Dirty (smoky) Fuel				Other
	Electricity	LPG	Biogas	Solar	Sub-total	Paraffin	Firewood	Charcoal	Sub-total	
KENYA	0.8	5.0	0.7	0.1	6.6	11.6	64.6	16.9	93.1	0.3
Rural	0.2	0.6	0.3	0.1	1.1	1.4	90.2	7.2	98.8	0.1
Urban	1.8	12.2	1.4	0.0	15.5	28.1	23.0	32.8	83.9	0.6
NAIROBI	2.9	22.5	2.2	0.0	27.6	53.9	1.4	16.5	71.8	0.6
NYANDARUA	0.2	1.0	0.3	0.1	1.5	1.4	77.8	19.3	98.4	0.1
Rural	0.2	0.5	0.2	0.1	1.0	0.8	83.6	14.5	99.0	0.1
Urban	0.5	2.7	0.3	0.1	3.6	3.5	55.8	37.1	96.3	0.1
NYERI	0.7	4.7	0.5	0.1	6.0	5.4	72.7	15.8	93.8	0.2
Rural	0.4	1.2	0.3	0.1	2.1	1.9	87.7	8.3	97.8	0.1
Urban	1.4	14.2	0.9	0.0	16.5	14.8	31.9	36.2	82.9	0.6
KIRINYAGA	0.5	2.7	0.8	0.1	4.1	5.4	75.4	14.8	95.7	0.2
Rural	0.3	1.1	0.6	0.1	2.1	2.4	85.3	10.2	97.9	0.1
Urban	1.3	10.4	2.0	0.0	13.7	19.6	29.5	36.5	85.6	0.7
MURANG'A	0.3	2.1	0.4	0.1	2.8	5.9	84.5	6.7	97.0	0.1
Rural	0.2	0.9	0.3	0.1	1.5	3.3	90.2	4.9	98.4	0.1
Urban	1.0	8.6	0.7	0.1	10.3	19.8	52.8	16.6	89.2	0.4
KIAMBU	1.1	13.3	0.9	0.0	15.3	22.2	35.7	26.4	84.3	0.4
Rural	0.5	2.9	0.5	0.0	4.0	4.4	75.4	15.9	95.7	0.2
Urban	1.4	18.6	1.1	0.0	21.1	31.4	15.2	31.9	78.4	0.5
MOMBASA	2.0	8.9	1.8	0.0	12.8	38.4	6.4	41.1	85.9	1.3
KWALE	0.4	1.5	0.4	0.1	2.3	5.7	80.2	11.5	97.5	0.2
Rural	0.1	0.3	0.2	0.1	0.7	1.1	92.2	5.9	99.2	0.1
Urban	1.3	5.2	1.0	0.1	7.6	20.7	42.0	29.2	91.9	0.6
KILIFI	1.0	2.2	0.8	0.1	4.0	7.7	67.0	20.8	95.6	0.5
Rural	0.3	0.5	0.3	0.0	1.1	1.6	91.8	5.4	98.8	0.2
Urban	2.1	5.2	1.8	0.1	9.1	18.6	23.0	48.3	89.9	1.0
TANA RIVER	0.1	0.2	0.2	0.0	0.6	1.2	81.0	17.0	99.1	0.3
Rural	0.1	0.1	0.2	0.0	0.4	0.7	89.8	8.9	99.4	0.2
Urban	0.5	0.5	0.4	0.1	1.6	3.5	36.8	57.6	97.9	0.5
LAMU	0.5	1.0	0.5	0.2	2.2	3.3	70.9	22.8	97.0	0.8
Rural	0.3	0.5	0.2	0.2	1.2	1.7	83.7	13.1	98.4	0.4
Urban	1.2	2.9	1.7	0.0	5.7	9.1	24.7	58.2	92.0	2.3
TAITA TAVETA	0.6	1.5	0.4	0.0	2.5	5.0	68.7	23.5	97.2	0.3
Rural	0.5	1.0	0.4	0.0	2.0	3.3	79.3	15.3	97.9	0.2
Urban	0.7	3.5	0.7	0.0	4.9	12.3	24.8	57.3	94.3	0.7
MARSABIT	0.2	0.2	0.1	0.0	0.6	1.4	91.7	6.1	99.2	0.2
Rural	0.0	0.1	0.1	0.0	0.3	0.3	97.8	1.4	99.5	0.2
Urban	0.7	0.7	0.3	0.1	1.8	5.8	68.5	23.6	97.9	0.3
ISIOLO	0.4	2.1	0.4	0.1	3.0	2.7	65.0	29.1	96.7	0.3
Rural	0.2	1.3	0.2	0.1	1.8	0.4	92.8	4.9	98.1	0.2
Urban	0.7	3.0	0.6	0.1	4.4	5.2	33.3	56.7	95.2	0.4
MERU	0.4	1.5	0.5	0.1	2.6	2.6	81.9	12.6	97.2	0.3
Rural	0.2	0.6	0.4	0.1	1.4	1.3	89.1	8.1	98.5	0.2
Urban	1.6	9.6	1.7	0.1	12.9	13.8	20.8	51.3	85.9	1.2
THARAKA	0.2	1.2	0.3	0.1	1.8	1.8	88.8	7.5	98.1	0.2
Rural	0.1	0.4	0.3	0.1	0.9	0.7	93.6	4.6	99.0	0.1
Urban	0.4	3.5	0.5	0.1	4.4	4.8	74.2	16.3	95.2	0.4
EMBU	0.5	2.5	0.5	0.1	3.6	4.2	80.4	11.5	96.1	0.3
Rural	0.3	0.7	0.3	0.1	1.5	1.8	89.9	6.7	98.4	0.2
Urban	1.3	10.0	1.4	0.0	12.8	14.5	40.4	31.7	86.6	0.7
KITUI	0.1	0.6	0.3	0.1	1.1	2.0	88.4	8.4	98.8	0.2
Rural	0.1	0.2	0.2	0.1	0.6	0.7	94.3	4.3	99.3	0.1
Urban	0.5	2.5	0.7	0.1	3.7	8.8	58.0	29.2	95.9	0.4
MACHAKOS	0.5	3.2	0.7	0.1	4.5	11.2	68.4	15.6	95.2	0.3
Rural	0.3	0.4	0.2	0.1	1.0	1.7	91.4	5.8	98.9	0.1
Urban	0.7	5.3	1.1	0.1	7.1	18.5	50.8	23.1	92.4	0.5
MAKUENI	0.2	0.6	0.3	0.1	1.1	2.9	84.8	11.1	98.8	0.2
Rural	0.1	0.4	0.2	0.1	0.7	1.3	91.2	6.7	99.3	0.0
Urban	0.4	2.3	0.8	0.0	3.5	12.2	45.5	38.0	95.7	0.8
GARISA	0.7	0.4	0.3	0.1	1.5	1.0	78.8	18.2	98.0	0.5
Rural	0.1	0.3	0.2	0.1	0.6	0.3	96.4	2.3	98.9	0.5
Urban	2.6	0.8	0.7	0.1	4.1	2.9	26.7	65.5	95.2	0.8
WAJIR	0.2	0.2	0.2	0.1	0.7	0.7	94.9	3.5	99.1	0.3
Rural	0.0	0.2	0.1	0.1	0.4	0.3	97.8	1.2	99.3	0.2
Urban	1.3	0.3	0.3	0.1	2.1	2.4	80.0	15.3	97.6	0.3

	Clean (smokeless) Fuel					Dirty (smoky) Fuel				Other
	Electricity	LPG	Biogas	Solar	Sub-total	Paraffin	Firewood	Charcoal	Sub-total	
MANDERA	0.2	0.1	0.2	0.1	0.5	0.4	93.3	5.6	99.3	0.2
Rural	0.0	0.1	0.2	0.1	0.3	0.2	98.0	1.2	99.4	0.2
Urban	0.7	0.2	0.2	0.1	1.3	1.0	71.9	25.5	98.4	0.3
SIAYA	0.2	0.4	0.3	0.1	1.0	1.8	82.5	14.6	98.9	0.1
Rural	0.1	0.2	0.3	0.1	0.7	1.2	88.1	9.8	99.2	0.1
Urban	0.7	1.9	0.4	0.1	3.1	6.3	38.1	52.3	96.7	0.3
	1.0	3.0	0.9	0.1	4.9	7.2	58.3	29.4	94.8	0.3
Rural	0.3	0.3	0.4	0.1	1.0	1.3	89.5	8.2	98.9	0.1
Urban	1.5	5.1	1.4	0.1	8.1	12.1	32.4	47.0	91.4	0.5
HOMA BAY	0.2	0.4	0.4	0.1	1.0	1.5	84.0	13.4	98.9	0.1
Rural	0.1	0.2	0.4	0.1	0.8	0.9	90.2	8.1	99.2	0.1
Urban	0.6	1.4	0.6	0.0	2.5	4.4	50.3	42.6	97.2	0.2
MIGORI	0.5	0.5	0.4	0.1	1.5	2.0	79.7	16.7	98.4	0.2
Rural	0.1	0.2	0.3	0.1	0.6	1.0	91.5	6.8	99.3	0.1
Urban	1.3	0.9	0.5	0.1	2.8	3.8	59.4	33.7	96.9	0.3
KISII	0.3	1.1	0.5	0.0	1.9	2.4	86.3	9.3	98.0	0.1
Rural	0.2	0.3	0.3	0.0	0.8	1.4	93.3	4.4	99.1	0.0
Urban	0.8	4.1	0.9	0.0	5.8	5.6	60.9	27.4	94.0	0.2
NYAMIRA	0.2	0.7	0.3	0.0	1.2	1.4	90.7	6.6	98.7	0.1
Rural	0.2	0.4	0.3	0.0	0.8	1.1	94.2	3.9	99.1	0.1
Urban	0.6	2.6	0.5	0.1	3.8	3.6	68.8	23.7	96.1	0.2
TURKANA	0.3	0.1	0.1	0.1	0.6	0.5	86.7	11.7	98.9	0.4
Rural	0.2	0.1	0.1	0.1	0.5	0.2	93.5	5.5	99.2	0.3
Urban	0.6	0.4	0.3	0.2	1.4	2.4	50.5	44.8	97.7	0.9
WEST POKOT	0.2	0.2	0.1	0.0	0.5	0.7	91.9	6.8	99.4	0.1
Rural	0.1	0.1	0.1	0.0	0.4	0.4	96.1	3.0	99.5	0.1
Urban	0.4	1.0	0.4	0.1	1.9	3.3	51.8	42.7	97.8	0.3
SAMBURU	0.2	0.4	0.2	0.1	0.9	0.6	80.5	17.8	98.9	0.3
Rural	0.1	0.1	0.1	0.1	0.3	0.3	92.0	7.2	99.4	0.2
Urban	0.5	1.9	0.6	0.0	3.0	2.0	31.3	63.4	96.7	0.4
TRANS NZOIA	0.3	0.9	0.5	0.0	1.7	3.4	76.8	18.0	98.1	0.2
Rural	0.2	0.3	0.3	0.0	0.8	1.6	91.1	6.4	99.1	0.1
Urban	0.8	2.8	1.0	0.0	4.6	9.0	30.4	55.5	94.9	0.5
BARINGO	0.2	0.5	0.3	0.0	1.0	1.0	86.4	11.4	98.9	0.1
Rural	0.1	0.2	0.2	0.1	0.5	0.5	94.1	4.8	99.4	0.1
Urban	0.8	2.5	0.7	0.0	4.0	3.6	42.2	49.9	95.7	0.3
UASIN GISHU	0.7	4.8	0.8	0.0	6.3	7.3	54.5	31.6	93.4	0.3
Rural	0.3	0.5	0.3	0.1	1.1	1.1	90.0	7.8	98.8	0.1
Urban	1.2	9.4	1.3	0.0	11.9	14.0	16.0	57.4	87.5	0.6
ELGEYO MARAKWET	0.3	0.3	0.2	0.1	0.8	0.8	90.2	8.1	99.2	0.1
Rural	0.3	0.1	0.1	0.1	0.6	0.6	94.0	4.9	99.4	0.1
Urban	0.3	1.2	0.5	0.0	2.1	2.3	68.6	26.9	97.8	0.1
NANDI	0.2	0.7	0.3	0.0	1.3	1.1	89.0	8.5	98.6	0.1
Rural	0.1	0.3	0.3	0.0	0.8	0.6	93.9	4.7	99.2	0.1
Urban	0.7	2.7	0.9	0.0	4.3	3.7	62.6	29.2	95.4	0.3
LAIKIPIA	0.6	3.5	0.4	0.1	4.5	3.0	66.9	25.3	95.2	0.3
Rural	0.2	0.8	0.2	0.1	1.3	0.7	84.0	13.8	98.5	0.2
Urban	1.8	12.1	0.7	0.0	14.6	10.3	12.7	61.9	84.9	0.5
NAKURU	1.1	4.6	0.7	0.1	6.5	7.8	45.6	39.9	93.2	0.3
Rural	0.4	0.9	0.3	0.1	1.6	1.5	79.3	17.6	98.4	0.1
Urban	1.7	8.2	1.2	0.0	11.1	13.6	13.9	60.9	88.4	0.5
NAROK	0.2	1.2	0.3	0.1	1.7	1.8	79.4	16.8	98.0	0.3
Rural	0.1	0.8	0.3	0.1	1.2	1.3	87.3	10.0	98.6	0.3
Urban	0.7	5.1	0.8	0.0	6.6	7.1	5.9	79.7	92.7	0.7
KAJIADO	1.2	12.7	1.1	0.1	15.0	18.4	41.0	25.1	84.5	0.5
Rural	0.4	4.1	0.6	0.1	5.1	4.6	75.3	14.6	94.6	0.4
Urban	2.0	21.4	1.6	0.0	24.9	32.2	6.6	35.6	74.5	0.6
KERICHO	0.5	1.0	0.4	0.0	1.9	2.2	83.1	12.7	98.0	0.1
Rural	0.2	0.3	0.3	0.0	0.9	1.2	94.6	3.3	99.1	0.1
Urban	0.8	2.0	0.7	0.0	3.5	3.6	65.8	26.9	96.3	0.2
BOMET	0.3	0.4	0.2	0.1	1.0	1.6	91.0	6.3	98.9	0.1
Rural	0.2	0.3	0.2	0.1	0.7	1.3	94.0	4.0	99.2	0.1
Urban	0.7	1.8	0.6	0.1	3.2	4.1	69.3	23.1	96.5	0.4
KAKAMEGA	0.5	0.8	0.5	0.0	1.8	2.4	86.6	9.0	98.1	0.2
Rural	0.1	0.3	0.3	0.0	0.8	1.3	93.9	4.0	99.2	0.1
Urban	2.5	3.6	1.1	0.0	7.2	8.3	48.9	34.9	92.2	0.6
VIHIGA	0.3	0.7	0.4	0.0	1.3	2.1	91.0	5.6	98.6	0.1
Rural	0.2	0.4	0.3	0.0	1.0	1.3	94.0	3.7	99.0	0.1

	Clean (smokeless) Fuel					Dirty (smoky) Fuel				Other
	Electricity	LPG	Biogas	Solar	Sub-total	Paraffin	Firewood	Charcoal	Sub-total	
Urban	0.4	1.1	0.6	0.0	2.2	3.7	84.4	9.7	97.8	0.1
BUNGOMA	0.2	0.6	0.4	0.0	1.3	2.2	85.1	11.3	98.6	0.1
Rural	0.1	0.2	0.3	0.0	0.7	1.3	92.0	6.0	99.2	0.1
Urban	0.7	2.6	0.9	0.0	4.2	6.4	52.8	36.3	95.4	0.4
BUSIA	0.2	0.5	0.3	0.0	1.0	1.8	83.3	13.7	98.8	0.2
Rural	0.1	0.2	0.2	0.0	0.6	1.0	92.3	6.0	99.4	0.1
Urban	0.8	2.2	0.8	0.1	3.9	7.0	25.6	62.5	95.1	1.0

Appendix 20: Percentage Distribution of Households by Type of Cooking Fuel in Selected Urban Centres

	Clean (Smokeless) Fuel					Dirty (Smoky) Fuel				Other
	Electricity	LPG	Biogas	Solar	Sub-total	Paraffin	Fire-wood	Charcoal	Sub-total	
KENYA	1.8	12.2	1.4	0.0	15.5	28.1	23.0	32.8	83.9	0.6
Nairobi	2.9	22.5	2.2	0.0	27.6	53.9	1.4	16.5	71.8	0.6
Mombasa	2.0	8.9	1.8	0.0	12.8	38.4	6.4	41.1	85.9	1.3
Kisumu	1.2	6.0	1.6	0.1	8.8	14.2	26.0	50.4	90.6	0.6
Nyeri	1.2	14.6	1.1	0.0	17.0	12.9	38.4	31.1	82.4	0.6
Murang'a	1.1	16.4	0.6	0.0	18.1	28.5	27.7	24.6	80.8	1.0
Ruiru	2.3	22.7	1.6	0.0	26.6	42.7	8.9	21.5	73.1	0.3
Thika	1.1	17.6	0.8	0.0	19.4	50.3	4.6	25.1	80.1	0.5
Kikuyu	1.1	16.9	1.1	0.0	19.1	16.1	23.4	41.0	80.4	0.5
Malindi	2.4	5.4	1.6	0.1	9.5	14.8	22.7	52.0	89.6	1.0
Voi	0.9	5.9	1.4	0.1	8.2	17.3	11.3	62.5	91.2	0.7
Kilifi	1.1	3.6	1.6	0.0	6.3	10.2	32.7	50.0	92.9	0.8
Lamu	1.2	2.2	1.8	0.0	5.3	9.1	26.6	57.7	93.5	1.3
Meru	2.1	12.3	2.0	0.1	16.5	14.4	22.2	46.1	82.7	0.8
Embu	1.6	12.1	1.8	0.0	15.5	17.0	30.7	36.1	83.8	0.7
Mavoko	1.4	10.9	2.0	0.1	14.4	41.9	11.8	31.4	85.0	0.6
Machakos	0.6	4.9	1.2	0.1	6.8	12.4	53.5	27.0	92.9	0.3
Garissa	3.0	0.9	0.8	0.1	4.7	3.1	21.5	70.0	94.6	0.8
Siaya	0.8	1.8	0.6	0.1	3.3	7.5	30.0	59.1	96.6	0.2
Homa Bay	0.7	1.8	0.6	0.1	3.1	4.3	48.3	44.1	96.6	0.3
Kisii	1.3	8.3	1.7	0.0	11.3	10.1	29.9	48.4	88.3	0.4
Kitale	0.9	2.8	1.0	0.0	4.8	9.2	28.9	56.7	94.8	0.5
Eldoret	1.2	10.1	1.4	0.0	12.7	14.5	14.1	58.2	86.8	0.6
Nanyuki	1.8	13.0	0.6	0.0	15.5	15.3	11.9	56.6	83.8	0.7
Nyahururu	1.5	9.1	0.7	0.1	11.3	4.9	17.1	66.3	88.3	0.4
Nakuru	2.0	10.3	1.6	0.0	13.9	15.5	7.9	62.2	85.5	0.5
Naivasha	1.6	7.6	0.8	0.1	10.0	16.3	18.8	54.5	89.5	0.4
Kericho	1.2	3.1	1.0	0.0	5.3	4.8	56.3	33.4	94.5	0.2
Ngong'	2.0	22.9	2.1	0.1	27.0	37.2	5.8	29.5	72.6	0.4
Kakamega	1.3	5.6	1.9	0.0	8.8	11.1	31.3	47.8	90.2	1.1
Bungoma	1.6	5.1	1.6	0.0	8.2	10.6	17.0	63.6	91.2	0.6
Webuye	0.5	3.0	0.7	0.0	4.2	6.8	51.3	37.2	95.3	0.5
Busia	1.0	2.4	0.8	0.1	4.2	6.5	20.5	67.8	94.8	1.0

Appendix 21: Percentage Distribution of Households by Type of Lighting and County

	Clean (smokeless) Appliances					Dirty (smoky) Appliances				Other
	Electricity	Solar	Gas Lamp	Pressure Lamp	Sub-total	Lantern	Tin Lamp	Fuel wood	Sub-total	
KENYA	22.7	1.6	1.0	0.6	25.9	30.5	38.5	4.5	73.5	0.7
Rural	5.2	2.2	1.2	0.4	9.0	34.5	48.8	7.0	90.3	0.7
Urban	51.2	0.7	0.6	0.8	53.4	23.9	21.7	0.5	46.0	0.6
NAIROBI	72.4	0.1	0.1	1.1	73.7	13.0	12.5	0.1	25.6	0.7
NYANDARUA	10.5	6.0	0.6	0.6	17.7	55.2	26.6	0.3	82.0	0.3
Rural	6.4	6.4	0.7	0.6	14.0	58.0	27.5	0.3	85.8	0.2
Urban	25.9	4.6	0.5	0.7	31.6	44.6	23.0	0.3	67.9	0.6
NYERI	26.3	4.3	0.5	0.8	31.9	34.5	32.9	0.5	67.8	0.2
Rural	15.7	5.4	0.6	0.9	22.6	39.2	37.5	0.6	77.3	0.1
Urban	55.3	1.2	0.3	0.6	57.3	21.6	20.4	0.2	42.2	0.5
KIRINYAGA	16.4	3.5	0.7	0.7	21.2	33.5	44.8	0.3	78.5	0.2
Rural	9.8	3.9	0.7	0.5	14.9	34.9	49.8	0.3	85.0	0.1
Urban	47.3	1.4	0.6	1.2	50.5	26.8	21.8	0.2	48.8	0.7
MURANG'A	13.9	2.3	0.5	0.6	17.3	39.5	42.8	0.2	82.5	0.2
Rural	9.5	2.5	0.6	0.5	13.1	41.9	44.7	0.2	86.8	0.1
Urban	38.3	1.3	0.4	0.7	40.7	25.9	32.8	0.2	58.9	0.4
KIAMBU	54.1	0.8	0.3	0.7	55.9	25.7	17.9	0.2	43.8	0.4
Rural	28.6	1.6	0.5	0.6	31.2	38.1	30.4	0.2	68.7	0.2
Urban	67.3	0.3	0.2	0.7	68.5	19.4	11.4	0.2	31.0	0.5
MOMBASA	59.0	0.1	0.2	1.0	60.4	16.0	22.8	0.2	39.0	0.6
KWALE	10.6	0.8	0.3	0.6	12.3	13.2	73.0	1.3	87.4	0.3
Rural	3.4	0.9	0.4	0.4	5.1	11.3	81.9	1.6	94.7	0.2
Urban	33.5	0.5	0.3	1.1	35.4	19.2	44.7	0.3	64.2	0.5
KILIFI	16.7	0.6	0.5	0.7	18.5	16.9	62.6	1.7	81.2	0.3
Rural	3.9	0.7	0.5	0.4	5.4	13.7	78.2	2.6	94.5	0.1
Urban	39.5	0.4	0.4	1.4	41.7	22.5	34.9	0.3	57.7	0.7
TANA RIVER	2.5	0.9	1.3	0.2	4.9	20.2	66.3	5.9	92.4	2.7
Rural	1.0	0.9	1.3	0.2	3.4	16.8	69.9	6.8	93.5	3.2
Urban	10.1	1.1	1.0	0.3	12.5	37.6	48.3	1.2	87.1	0.4
LAMU	17.0	5.3	0.7	0.6	23.6	32.5	39.5	2.5	74.5	1.9
Rural	4.4	6.5	0.8	0.4	12.1	37.0	45.6	3.1	85.7	2.2
Urban	62.8	0.9	0.4	1.3	65.3	16.1	17.2	0.4	33.8	0.9
TAITA TAVETA	15.0	2.3	0.4	0.5	18.2	45.9	34.8	0.6	81.2	0.6
Rural	9.9	2.6	0.4	0.4	13.3	47.2	38.2	0.7	86.0	0.7
Urban	35.9	1.0	0.3	1.0	38.2	40.5	20.8	0.1	61.4	0.4
MARSABIT	7.5	1.2	2.9	0.1	11.7	23.0	12.2	48.0	83.2	5.1

	Clean (smokeless) Appliances					Dirty (smoky) Appliances				Other
	Electricity	Solar	Gas Lamp	Pressure Lamp	Sub-total	Lantern	Tin Lamp	Fuel wood	Sub-total	
Rural	0.6	1.1	2.3	0.1	4.1	19.5	11.8	58.9	90.2	5.8
Urban	33.4	1.6	5.5	0.2	40.6	36.2	13.7	7.2	57.1	2.3
ISIOLO	18.5	1.4	2.5	0.5	22.9	31.1	19.5	23.3	73.9	3.3
Rural	2.6	0.9	1.7	0.1	5.3	29.7	16.7	42.5	88.9	5.8
Urban	36.7	1.9	3.4	1.0	42.9	32.7	22.8	1.3	56.8	0.3
MERU	13.6	5.5	0.8	0.7	20.5	27.8	49.5	1.9	79.1	0.4
Rural	7.9	6.0	0.8	0.6	15.4	28.6	53.6	2.1	84.3	0.4
Urban	61.6	1.1	0.6	1.3	64.6	20.8	13.8	0.3	34.9	0.6
THARAKA	8.4	6.5	0.6	0.4	15.9	31.6	48.8	3.0	83.4	0.7
Rural	4.0	6.6	0.6	0.3	11.6	27.2	56.8	3.7	87.8	0.7
Urban	21.4	6.1	0.7	0.7	29.0	44.7	24.6	0.9	70.2	0.8
EMBU	14.9	3.4	0.6	0.8	19.7	35.3	43.7	0.9	79.9	0.5
Rural	7.3	3.9	0.6	0.7	12.5	37.8	48.3	0.9	87.0	0.5
Urban	47.3	1.5	0.6	0.9	50.2	24.8	24.1	0.5	49.3	0.5
KITUI	4.8	2.9	0.7	0.6	9.0	54.0	31.4	5.0	90.4	0.6
Rural	1.1	3.0	0.7	0.6	5.4	55.8	32.3	5.9	94.0	0.6
Urban	23.5	2.5	0.4	0.6	27.0	45.3	26.6	0.5	72.4	0.6
MACHAKOS	17.0	2.6	0.5	0.7	20.9	54.3	24.2	0.2	78.7	0.4
Rural	3.6	3.3	0.5	0.5	7.9	61.9	29.6	0.3	91.9	0.2
Urban	27.4	2.1	0.5	0.9	30.8	48.4	20.0	0.2	68.5	0.6
MAKUENI	5.9	3.8	0.5	0.4	10.5	63.3	25.3	0.6	89.2	0.3
Rural	2.8	4.0	0.5	0.4	7.7	64.7	26.8	0.7	92.1	0.2
Urban	24.5	2.4	0.4	0.7	27.9	54.3	16.8	0.3	71.4	0.7
GARISA	11.6	0.4	17.5	0.6	30.0	20.6	32.1	10.4	63.1	6.9
Rural	0.5	0.2	18.1	0.6	19.4	21.1	37.3	13.1	71.5	9.1
Urban	44.5	0.8	15.8	0.5	61.5	18.9	16.7	2.4	37.9	0.5
WAJIR	3.4	0.2	11.0	0.1	14.7	31.5	16.9	29.7	78.1	7.2
Rural	0.2	0.2	9.7	0.1	10.1	29.9	16.7	34.9	81.5	8.4
Urban	20.7	0.1	18.0	0.3	39.2	40.2	17.6	2.3	60.0	0.8
MANDERA	2.6	0.2	11.0	0.2	14.0	32.9	13.5	36.1	82.5	3.5
Rural	0.2	0.2	9.3	0.1	9.8	31.8	11.7	42.8	86.3	3.9
Urban	13.1	0.5	19.0	0.7	33.2	38.0	22.1	5.5	65.5	1.3
SIAYA	4.3	0.9	0.4	0.4	6.1	20.7	72.9	0.2	93.8	0.1
Rural	2.4	0.9	0.5	0.4	4.1	19.4	76.1	0.2	95.8	0.1
Urban	19.6	0.7	0.4	0.8	21.6	30.3	47.5	0.2	78.0	0.5
	18.3	1.0	0.4	0.6	20.3	23.2	56.1	0.2	79.6	0.2
Rural	3.2	1.5	0.6	0.5	5.8	22.0	71.8	0.3	94.1	0.1
Urban	30.9	0.6	0.3	0.6	32.3	24.2	43.1	0.2	67.4	0.3
HOMA BAY	3.3	1.0	0.5	0.5	5.3	21.2	72.9	0.4	94.6	0.1

	Clean (smokeless) Appliances					Dirty (smoky) Appliances				Other
	Electricity	Solar	Gas Lamp	Pressure Lamp	Sub-total	Lantern	Tin Lamp	Fuel wood	Sub-total	
Rural	1.6	1.0	0.5	0.4	3.5	19.2	76.7	0.4	96.4	0.1
Urban	12.6	1.1	0.5	0.8	15.0	32.2	52.3	0.2	84.7	0.3
MIGORI	5.3	0.8	0.6	0.6	7.3	25.6	66.4	0.6	92.6	0.2
Rural	1.1	0.7	0.6	0.4	2.9	23.5	72.8	0.8	97.0	0.1
Urban	12.4	1.0	0.6	0.8	14.8	29.2	55.4	0.3	84.9	0.3
KISII	8.1	0.9	0.6	0.4	9.9	31.7	57.9	0.3	89.9	0.1
Rural	3.6	0.9	0.6	0.3	5.5	31.9	62.2	0.3	94.4	0.1
Urban	24.5	0.8	0.4	0.5	26.2	31.3	42.2	0.1	73.6	0.3
NYAMIRA	5.8	1.0	0.5	0.4	7.8	40.4	51.5	0.3	92.1	0.1
Rural	4.0	1.0	0.6	0.4	6.0	40.6	53.1	0.3	94.0	0.1
Urban	17.6	1.0	0.4	0.7	19.7	38.8	41.2	0.2	80.2	0.2
TURKANA	2.5	0.8	0.6	0.2	4.0	8.6	11.0	73.0	92.5	3.5
Rural	0.6	0.5	0.6	0.1	1.8	5.6	7.4	82.1	95.1	3.1
Urban	12.2	2.2	0.7	0.7	15.7	24.8	30.1	23.8	78.7	5.6
WEST POKOT	2.6	0.5	0.5	0.1	3.7	22.3	23.5	50.1	95.9	0.4
Rural	0.6	0.5	0.5	0.1	1.7	20.1	22.6	55.1	97.8	0.5
Urban	21.5	0.5	0.4	0.5	22.9	42.7	32.1	2.2	76.9	0.2
SAMBURU	6.2	1.4	0.9	0.4	8.9	10.7	19.5	60.1	90.3	0.8
Rural	1.4	1.0	0.6	0.3	3.4	6.8	18.1	70.9	95.8	0.8
Urban	26.8	3.1	2.2	0.4	32.5	27.6	25.5	13.8	66.8	0.7
TRANS NZOIA	8.9	0.9	0.6	0.6	11.0	38.8	49.4	0.6	88.8	0.3
Rural	3.0	1.0	0.7	0.5	5.2	38.7	55.2	0.6	94.6	0.3
Urban	28.0	0.5	0.4	0.8	29.6	39.0	30.6	0.5	70.1	0.3
BARINGO	9.6	1.7	0.7	0.4	12.4	39.3	20.1	27.8	87.2	0.4
Rural	4.6	1.8	0.8	0.4	7.6	39.5	20.0	32.4	92.0	0.4
Urban	38.2	1.2	0.3	0.4	40.0	37.9	20.5	1.2	59.6	0.4
UASIN GISHU	28.0	1.2	0.4	0.6	30.1	44.1	25.0	0.3	69.4	0.5
Rural	6.6	1.9	0.6	0.5	9.5	58.5	31.4	0.4	90.3	0.2
Urban	51.2	0.4	0.2	0.7	52.5	28.5	18.0	0.2	46.6	0.9
ELGEYO MARAKWET	7.2	1.5	0.6	0.3	9.5	46.8	28.2	15.1	90.2	0.3
Rural	4.6	1.5	0.6	0.3	7.0	45.9	29.2	17.5	92.7	0.3
Urban	21.8	1.5	0.3	0.2	23.7	52.1	22.4	1.7	76.1	0.2
NANDI	6.4	1.3	0.5	0.3	8.5	42.1	49.1	0.2	91.4	0.2
Rural	3.6	1.3	0.5	0.3	5.8	41.9	52.0	0.2	94.1	0.1
Urban	21.2	0.9	0.4	0.5	23.0	43.3	33.2	0.2	76.7	0.4
LAIKIPIA	17.7	5.9	0.7	0.5	24.9	35.3	34.3	5.1	74.7	0.4
Rural	5.3	7.4	0.8	0.5	14.0	38.0	41.0	6.7	85.6	0.4
Urban	56.9	1.4	0.4	0.8	59.4	26.6	13.3	0.2	40.1	0.5
NAKURU	34.0	2.3	0.5	0.6	37.3	36.1	25.3	0.8	62.2	0.5

	Clean (smokeless) Appliances					Dirty (smoky) Appliances				Other
	Electricity	Solar	Gas Lamp	Pressure Lamp	Sub-total	Lantern	Tin Lamp	Fuel wood	Sub-total	
Rural	10.4	3.5	0.7	0.5	15.1	46.8	36.2	1.5	84.5	0.4
Urban	56.2	1.1	0.3	0.6	58.3	26.0	15.0	0.2	41.2	0.5
NAROK	5.9	1.4	0.5	0.5	8.2	29.0	54.0	7.7	90.7	1.1
Rural	1.7	1.4	0.5	0.5	4.1	28.6	57.6	8.5	94.7	1.2
Urban	44.2	0.8	0.5	0.6	46.1	32.1	20.7	0.2	53.0	0.9
KAJIADO	39.8	1.1	0.4	0.8	42.1	18.9	35.8	2.2	56.9	1.0
Rural	12.5	1.8	0.5	0.8	15.6	20.4	58.5	4.2	83.0	1.4
Urban	67.1	0.3	0.3	0.9	68.6	17.5	13.1	0.2	30.7	0.6
KERICHO	11.8	1.7	0.5	0.4	14.3	46.1	39.1	0.3	85.5	0.2
Rural	4.6	1.8	0.5	0.4	7.3	44.3	47.9	0.4	92.6	0.1
Urban	22.6	1.6	0.4	0.4	25.0	48.9	25.8	0.1	74.8	0.3
BOMET	4.3	2.8	0.7	0.3	8.1	64.8	26.0	0.8	91.6	0.3
Rural	3.0	2.9	0.6	0.3	6.8	64.7	27.4	0.8	92.9	0.3
Urban	14.3	2.3	0.9	0.5	18.0	65.1	15.7	0.9	81.7	0.4
KAKAMEGA	5.6	0.7	0.8	0.5	7.6	28.2	63.7	0.4	92.3	0.2
Rural	2.3	0.8	0.8	0.5	4.3	27.7	67.4	0.4	95.6	0.1
Urban	22.6	0.5	0.6	0.8	24.5	30.4	44.6	0.2	75.2	0.4
VIHIGA	7.0	0.6	0.8	0.4	8.9	28.5	62.0	0.5	91.0	0.1
Rural	5.3	0.7	0.9	0.4	7.2	27.4	64.8	0.5	92.7	0.1
Urban	10.8	0.5	0.8	0.6	12.6	30.9	56.0	0.3	87.2	0.1
BUNGOMA	4.5	0.5	0.6	0.5	6.1	26.7	66.5	0.6	93.7	0.2
Rural	1.7	0.5	0.7	0.5	3.3	25.2	70.7	0.6	96.6	0.1
Urban	17.7	0.4	0.5	0.6	19.3	33.4	46.8	0.2	80.4	0.3
BUSIA	6.0	0.4	0.5	0.3	7.2	21.6	70.6	0.4	92.6	0.2
Rural	2.3	0.4	0.5	0.3	3.5	19.7	76.3	0.4	96.4	0.1
Urban	29.9	0.3	0.2	0.5	30.8	33.8	34.5	0.1	68.4	0.8

Appendix 22: Percentage Distribution of Households by Type of Lighting in Selected Urban Centres

	Clean (Smokeless) Lighting Appliances					Dirty (Smoky) Lighting Appliances				Other
	Electricity	Solar	Gas Lamp	Pressure Lamp	Sub-total	Lantern	Tin Lamp	Fuel wood	Sub-total	
KENYA	51.2	0.7	0.6	0.8	53.4	23.9	21.7	0.5	46.0	0.6
Nairobi	72.4	0.1	0.1	1.1	73.7	13.0	12.5	0.1	25.6	0.7
Nyeri	54.2	1.3	0.3	0.6	56.3	20.8	22.2	0.2	43.2	0.5
Murang'a	61.9	1.0	0.3	1.2	64.3	18.4	16.5	0.1	35.1	0.6
Ruiru	70.8	0.4	0.1	0.9	72.2	17.3	9.9	0.2	27.4	0.5
Thika	59.9	0.3	0.2	1.2	61.6	24.9	12.7	0.1	37.7	0.8
Kikuyu	70.5	0.4	0.3	0.6	71.7	17.7	10.1	0.2	28.0	0.3
Mombasa	59.0	0.1	0.2	1.0	60.4	16.0	22.8	0.2	39.0	0.6
Malindi	38.2	0.3	0.5	1.7	40.7	23.2	35.1	0.3	58.6	0.6
Voi	38.7	1.2	0.3	1.3	41.5	44.8	12.9	0.2	57.9	0.6
Kilifi	35.5	0.3	0.4	1.0	37.1	25.5	36.7	0.2	62.3	0.6
Lamu	63.3	0.8	0.4	1.3	65.8	15.5	18.0	0.4	33.9	0.3
Meru	68.2	1.0	0.4	0.9	70.6	15.9	12.9	0.3	29.0	0.4
Embu	55.1	1.3	0.6	0.9	57.9	21.8	19.5	0.2	41.5	0.6
Mavoko	45.8	1.0	0.3	1.1	48.1	32.2	18.6	0.1	51.0	0.9
Machakos	30.4	1.7	0.4	1.0	33.5	50.9	15.0	0.1	66.0	0.5
Garissa	52.2	0.3	13.0	0.5	66.0	16.9	14.2	2.5	33.6	0.4
Kisumu	35.5	0.4	0.3	0.5	36.7	23.3	39.5	0.1	63.0	0.3
Siaya	24.7	0.8	0.3	0.5	26.3	28.4	44.5	0.4	73.3	0.4
Homa Bay	16.1	0.8	0.5	1.0	18.3	28.0	53.2	0.2	81.4	0.3
Kisii	42.6	0.7	0.3	0.5	44.1	31.2	24.3	0.1	55.6	0.4
Kitale	28.9	0.5	0.4	0.7	30.5	38.6	30.3	0.3	69.2	0.3
Eldoret	52.8	0.4	0.2	0.7	54.1	27.6	17.2	0.2	45.1	0.9
Nanyuki	61.6	1.7	0.1	0.9	64.3	24.6	10.1	0.5	35.2	0.5
Nyahururu	51.4	1.1	0.4	0.6	53.5	30.6	15.4	0.1	46.2	0.3
Nakuru	69.0	0.5	0.2	0.6	70.3	17.7	11.3	0.2	29.2	0.5
Naivasha	47.2	2.3	0.4	0.6	50.4	32.5	16.3	0.2	49.1	0.5
Kericho	32.0	0.9	0.3	0.4	33.7	41.9	24.1	0.1	66.0	0.3
Ngong'	66.8	0.2	0.5	1.1	68.5	16.6	14.1	0.1	30.8	0.7
Kakamega	33.0	0.6	0.4	0.8	34.7	33.7	30.8	0.3	64.8	0.5
Bungoma	33.3	0.4	0.3	0.9	34.8	34.9	29.6	0.2	64.6	0.5
Webuye	19.1	0.5	0.4	0.6	20.6	37.4	41.6	0.1	79.1	0.3
Busia	33.2	0.2	0.2	0.7	34.2	35.9	29.0	0.1	65.0	0.8

Appendix 23: Percentage Distribution of Households by Solid Fuel Category and County

County	Non-Solid Fuels						Solid Fuels			Other
	Electricity	Paraffin	LPG	Biogas	Solar	Sub-Total	Firewood	Charcoal	Sub-Total	
KENYA	0.8	11.6	5.0	0.7	0.1	18.2	64.6	16.9	81.5	0.3
Rural	0.2	1.4	0.6	0.3	0.1	2.5	90.2	7.2	97.4	0.1
Urban	1.8	28.1	12.2	1.4	0.0	43.6	23.0	32.8	55.8	0.6
NAIROBI	2.9	53.9	22.5	2.2	0.0	81.5	1.4	16.5	17.9	0.6
NYANDARUA	0.2	1.4	1.0	0.3	0.1	2.9	77.8	19.3	97.0	0.1
Rural	0.2	0.8	0.5	0.2	0.1	1.8	83.6	14.5	98.1	0.1
Urban	0.5	3.5	2.7	0.3	0.1	7.0	55.8	37.1	92.8	0.1
NYERI	0.7	5.4	4.7	0.5	0.1	11.3	72.7	15.8	88.5	0.2
Rural	0.4	1.9	1.2	0.3	0.1	4.0	87.7	8.3	96.0	0.1
Urban	1.4	14.8	14.2	0.9	0.0	31.3	31.9	36.2	68.1	0.6
KIRINYAGA	0.5	5.4	2.7	0.8	0.1	9.6	75.4	14.8	90.2	0.2
Rural	0.3	2.4	1.1	0.6	0.1	4.4	85.3	10.2	95.5	0.1
Urban	1.3	19.6	10.4	2.0	0.0	33.4	29.5	36.5	65.9	0.7
MURANGA	0.3	5.9	2.1	0.4	0.1	8.7	84.5	6.7	91.2	0.1
Rural	0.2	3.3	0.9	0.3	0.1	4.8	90.2	4.9	95.1	0.1
Urban	1.0	19.8	8.6	0.7	0.1	30.1	52.8	16.6	69.4	0.4
KIAMBU	1.1	22.2	13.3	0.9	0.0	37.5	35.7	26.4	62.1	0.4
Rural	0.5	4.4	2.9	0.5	0.0	8.4	75.4	15.9	91.3	0.2
Urban	1.4	31.4	18.6	1.1	0.0	52.5	15.2	31.9	47.1	0.5
MOMBASA	2.0	38.4	8.9	1.8	0.0	51.2	6.4	41.1	47.5	1.3
KWALE	0.4	5.7	1.5	0.4	0.1	8.1	80.2	11.5	91.7	0.2
Rural	0.1	1.1	0.3	0.2	0.1	1.8	92.2	5.9	98.1	0.1
Urban	1.3	20.7	5.2	1.0	0.1	28.3	42.0	29.2	71.2	0.6
KILIFI	1.0	7.7	2.2	0.8	0.1	11.7	67.0	20.8	87.9	0.5
Rural	0.3	1.6	0.5	0.3	0.0	2.7	91.8	5.4	97.2	0.2
Urban	2.1	18.6	5.2	1.8	0.1	27.7	23.0	48.3	71.3	1.0
TANA RIVER	0.1	1.2	0.2	0.2	0.0	1.8	81.0	17.0	97.9	0.3
Rural	0.1	0.7	0.1	0.2	0.0	1.1	89.8	8.9	98.7	0.2
Urban	0.5	3.5	0.5	0.4	0.1	5.0	36.8	57.6	94.5	0.5
LAMU	0.5	3.3	1.0	0.5	0.2	5.5	70.9	22.8	93.7	0.8
Rural	0.3	1.7	0.5	0.2	0.2	2.9	83.7	13.1	96.7	0.4
Urban	1.2	9.1	2.9	1.7	0.0	14.8	24.7	58.2	82.9	2.3
TAITA TAVETA	0.6	5.0	1.5	0.4	0.0	7.6	68.7	23.5	92.2	0.3
Rural	0.5	3.3	1.0	0.4	0.0	5.2	79.3	15.3	94.6	0.2
Urban	0.7	12.3	3.5	0.7	0.0	17.2	24.8	57.3	82.1	0.7
MARSABIT	0.2	1.4	0.2	0.1	0.0	2.0	91.7	6.1	97.8	0.2
Rural	0.0	0.3	0.1	0.1	0.0	0.6	97.8	1.4	99.3	0.2

County	Non-Solid Fuels						Solid Fuels			Other
	Electricity	Paraffin	LPG	Biogas	Solar	Sub-Total	Firewood	Charcoal	Sub-Total	
Urban	0.7	5.8	0.7	0.3	0.1	7.6	68.5	23.6	92.2	0.3
ISIOLO	0.4	2.7	2.1	0.4	0.1	5.6	65.0	29.1	94.1	0.3
Rural	0.2	0.4	1.3	0.2	0.1	2.2	92.8	4.9	97.6	0.2
Urban	0.7	5.2	3.0	0.6	0.1	9.6	33.3	56.7	90.0	0.4
MERU	0.4	2.6	1.5	0.5	0.1	5.2	81.9	12.6	94.6	0.3
Rural	0.2	1.3	0.6	0.4	0.1	2.7	89.1	8.1	97.2	0.2
Urban	1.6	13.8	9.6	1.7	0.1	26.7	20.8	51.3	72.1	1.2
THARAKA	0.2	1.8	1.2	0.3	0.1	3.5	88.8	7.5	96.3	0.2
Rural	0.1	0.7	0.4	0.3	0.1	1.7	93.6	4.6	98.3	0.1
Urban	0.4	4.8	3.5	0.5	0.1	9.2	74.2	16.3	90.5	0.4
EMBU	0.5	4.2	2.5	0.5	0.1	7.9	80.4	11.5	91.9	0.3
Rural	0.3	1.8	0.7	0.3	0.1	3.3	89.9	6.7	96.6	0.2
Urban	1.3	14.5	10.0	1.4	0.0	27.3	40.4	31.7	72.1	0.7
KITUI	0.1	2.0	0.6	0.3	0.1	3.1	88.4	8.4	96.8	0.2
Rural	0.1	0.7	0.2	0.2	0.1	1.3	94.3	4.3	98.6	0.1
Urban	0.5	8.8	2.5	0.7	0.1	12.5	58.0	29.2	87.2	0.4
MACHAKOS	0.5	11.2	3.2	0.7	0.1	15.7	68.4	15.6	84.0	0.3
Rural	0.3	1.7	0.4	0.2	0.1	2.7	91.4	5.8	97.2	0.1
Urban	0.7	18.5	5.3	1.1	0.1	25.6	50.8	23.1	73.9	0.5
MAKUENI	0.2	2.9	0.6	0.3	0.1	4.0	84.8	11.1	95.9	0.2
Rural	0.1	1.3	0.4	0.2	0.1	2.0	91.2	6.7	97.9	0.0
Urban	0.4	12.2	2.3	0.8	0.0	15.7	45.5	38.0	83.5	0.8
GARISA	0.7	1.0	0.4	0.3	0.1	2.5	78.8	18.2	97.0	0.5
Rural	0.1	0.3	0.3	0.2	0.1	0.9	96.4	2.3	98.6	0.5
Urban	2.6	2.9	0.8	0.7	0.1	7.0	26.7	65.5	92.2	0.8
WAJIR	0.2	0.7	0.2	0.2	0.1	1.4	94.9	3.5	98.4	0.3
Rural	0.0	0.3	0.2	0.1	0.1	0.8	97.8	1.2	99.0	0.2
Urban	1.3	2.4	0.3	0.3	0.1	4.4	80.0	15.3	95.3	0.3
MANDERA	0.2	0.4	0.1	0.2	0.1	0.9	93.3	5.6	98.9	0.2
Rural	0.0	0.2	0.1	0.2	0.1	0.6	98.0	1.2	99.2	0.2
Urban	0.7	1.0	0.2	0.2	0.1	2.3	71.9	25.5	97.4	0.3
SIAYA	0.2	1.8	0.4	0.3	0.1	2.8	82.5	14.6	97.1	0.1
Rural	0.1	1.2	0.2	0.3	0.1	2.0	88.1	9.8	98.0	0.1
Urban	0.7	6.3	1.9	0.4	0.1	9.4	38.1	52.3	90.4	0.3
KISUMU	1.0	7.2	3.0	0.9	0.1	12.1	58.3	29.4	87.6	0.3
Rural	0.3	1.3	0.3	0.4	0.1	2.3	89.5	8.2	97.6	0.1
Urban	1.5	12.1	5.1	1.4	0.1	20.2	32.4	47.0	79.3	0.5
HOMABAY	0.2	1.5	0.4	0.4	0.1	2.5	84.0	13.4	97.4	0.1
Rural	0.1	0.9	0.2	0.4	0.1	1.7	90.2	8.1	98.2	0.1
Urban	0.6	4.4	1.4	0.6	0.0	6.9	50.3	42.6	92.9	0.2

County	Non-Solid Fuels						Solid Fuels			Other
	Electricity	Paraffin	LPG	Biogas	Solar	Sub-Total	Firewood	Charcoal	Sub-Total	
MIGORI	0.5	2.0	0.5	0.4	0.1	3.5	79.7	16.7	96.4	0.2
Rural	0.1	1.0	0.2	0.3	0.1	1.6	91.5	6.8	98.3	0.1
Urban	1.3	3.8	0.9	0.5	0.1	6.6	59.4	33.7	93.1	0.3
KISII	0.3	2.4	1.1	0.5	0.0	4.3	86.3	9.3	95.7	0.1
Rural	0.2	1.4	0.3	0.3	0.0	2.3	93.3	4.4	97.7	0.0
Urban	0.8	5.6	4.1	0.9	0.0	11.4	60.9	27.4	88.3	0.2
NYAMIRA	0.2	1.4	0.7	0.3	0.0	2.6	90.7	6.6	97.3	0.1
Rural	0.2	1.1	0.4	0.3	0.0	1.9	94.2	3.9	98.0	0.1
Urban	0.6	3.6	2.6	0.5	0.1	7.4	68.8	23.7	92.5	0.2
TURKANA	0.3	0.5	0.1	0.1	0.1	1.1	86.7	11.7	98.4	0.4
Rural	0.2	0.2	0.1	0.1	0.1	0.6	93.5	5.5	99.0	0.3
Urban	0.6	2.4	0.4	0.3	0.2	3.8	50.5	44.8	95.3	0.9
WEST POKOT	0.2	0.7	0.2	0.1	0.0	1.2	91.9	6.8	98.7	0.1
Rural	0.1	0.4	0.1	0.1	0.0	0.8	96.1	3.0	99.1	0.1
Urban	0.4	3.3	1.0	0.4	0.1	5.2	51.8	42.7	94.5	0.3
SAMBURU	0.2	0.6	0.4	0.2	0.1	1.5	80.5	17.8	98.3	0.3
Rural	0.1	0.3	0.1	0.1	0.1	0.6	92.0	7.2	99.1	0.2
Urban	0.5	2.0	1.9	0.6	0.0	4.9	31.3	63.4	94.7	0.4
TRANS NZOIA	0.3	3.4	0.9	0.5	0.0	5.1	76.8	18.0	94.8	0.2
Rural	0.2	1.6	0.3	0.3	0.0	2.4	91.1	6.4	97.5	0.1
Urban	0.8	9.0	2.8	1.0	0.0	13.6	30.4	55.5	85.9	0.5
BARINGO	0.2	1.0	0.5	0.3	0.0	2.0	86.4	11.4	97.9	0.1
Rural	0.1	0.5	0.2	0.2	0.1	1.0	94.1	4.8	98.9	0.1
Urban	0.8	3.6	2.5	0.7	0.0	7.6	42.2	49.9	92.1	0.3
UASIN GISHU	0.7	7.3	4.8	0.8	0.0	13.6	54.5	31.6	86.1	0.3
Rural	0.3	1.1	0.5	0.3	0.1	2.2	90.0	7.8	97.7	0.1
Urban	1.2	14.0	9.4	1.3	0.0	26.0	16.0	57.4	73.5	0.6
ELGEYO MARAKWET	0.3	0.8	0.3	0.2	0.1	1.6	90.2	8.1	98.3	0.1
Rural	0.3	0.6	0.1	0.1	0.1	1.1	94.0	4.9	98.8	0.1
Urban	0.3	2.3	1.2	0.5	0.0	4.4	68.6	26.9	95.5	0.1
NANDI	0.2	1.1	0.7	0.3	0.0	2.4	89.0	8.5	97.5	0.1
Rural	0.1	0.6	0.3	0.3	0.0	1.4	93.9	4.7	98.6	0.1
Urban	0.7	3.7	2.7	0.9	0.0	8.0	62.6	29.2	91.8	0.3
LAIKIPIA	0.6	3.0	3.5	0.4	0.1	7.5	66.9	25.3	92.2	0.3
Rural	0.2	0.7	0.8	0.2	0.1	2.0	84.0	13.8	97.8	0.2
Urban	1.8	10.3	12.1	0.7	0.0	24.9	12.7	61.9	74.6	0.5
NAKURU	1.1	7.8	4.6	0.7	0.1	14.2	45.6	39.9	85.5	0.3
Rural	0.4	1.5	0.9	0.3	0.1	3.1	79.3	17.6	96.8	0.1
Urban	1.7	13.6	8.2	1.2	0.0	24.7	13.9	60.9	74.8	0.5
NAROK	0.2	1.8	1.2	0.3	0.1	3.5	79.4	16.8	96.2	0.3

County	Non-Solid Fuels						Solid Fuels			Other
	Electricity	Paraffin	LPG	Biogas	Solar	Sub-Total	Firewood	Charcoal	Sub-Total	
Rural	0.1	1.3	0.8	0.3	0.1	2.5	87.3	10.0	97.3	0.3
Urban	0.7	7.1	5.1	0.8	0.0	13.7	5.9	79.7	85.6	0.7
KAJIADO	1.2	18.4	12.7	1.1	0.1	33.4	41.0	25.1	66.1	0.5
Rural	0.4	4.6	4.1	0.6	0.1	9.7	75.3	14.6	89.9	0.4
Urban	2.0	32.2	21.4	1.6	0.0	57.2	6.6	35.6	42.2	0.6
KERICHO	0.5	2.2	1.0	0.4	0.0	4.1	83.1	12.7	95.8	0.1
Rural	0.2	1.2	0.3	0.3	0.0	2.1	94.6	3.3	97.9	0.1
Urban	0.8	3.6	2.0	0.7	0.0	7.2	65.8	26.9	92.6	0.2
BOMET	0.3	1.6	0.4	0.2	0.1	2.6	91.0	6.3	97.3	0.1
Rural	0.2	1.3	0.3	0.2	0.1	2.0	94.0	4.0	98.0	0.1
Urban	0.7	4.1	1.8	0.6	0.1	7.2	69.3	23.1	92.4	0.4
KAKAMEGA	0.5	2.4	0.8	0.5	0.0	4.2	86.6	9.0	95.7	0.2
Rural	0.1	1.3	0.3	0.3	0.0	2.0	93.9	4.0	97.9	0.1
Urban	2.5	8.3	3.6	1.1	0.0	15.5	48.9	34.9	83.8	0.6
VIHIGA	0.3	2.1	0.7	0.4	0.0	3.4	91.0	5.6	96.5	0.1
Rural	0.2	1.3	0.4	0.3	0.0	2.3	94.0	3.7	97.7	0.1
Urban	0.4	3.7	1.1	0.6	0.0	5.9	84.4	9.7	94.0	0.1
BUNGOMA	0.2	2.2	0.6	0.4	0.0	3.5	85.1	11.3	96.4	0.1
Rural	0.1	1.3	0.2	0.3	0.0	2.0	92.0	6.0	97.9	0.1
Urban	0.7	6.4	2.6	0.9	0.0	10.5	52.8	36.3	89.1	0.4
BUSIA	0.2	1.8	0.5	0.3	0.0	2.8	83.3	13.7	97.0	0.2
Rural	0.1	1.0	0.2	0.2	0.0	1.6	92.3	6.0	98.4	0.1
Urban	0.8	7.0	2.2	0.8	0.1	10.9	25.6	62.5	88.1	1.0

Appendix 24: Habitable Rooms and Dwelling Deficits by County

	Dwelling Units	Population	Habitable Rooms Available	Habitable Rooms Required	Habitable Rooms Deficit	Mean No. of Rooms Per Dwelling	Approximate Mean Dwelling Units Deficit
KENYA	**15,390,410**	**38,412,088**	**23,396,005**	**38,412,088**	**15,016,083**	**1.5**	**9,877,912**
Rural	10,621,370	26,388,518	16,110,418	26,388,518	10,278,100	1.5	6,776,205
Urban	4,769,040	12,023,570	7,285,587	12,023,570	4,737,983	1.5	3,101,415
NAIROBI	1,229,183	3,109,861	1,741,017	3,109,861	1,368,844	1.4	966,424
NYANDARUA	285,036	595,421	501,260	595,421	94,161	1.8	53,544
Rural	234,446	480,814	413,130	480,814	67,684	1.8	38,410
Urban	50,590	114,607	88,130	114,607	26,477	1.7	15,199
NYERI	383,817	689,437	703,951	689,437	-14,514	1.8	-7,914
Rural	299,876	523,945	569,770	523,945	-45,825	1.9	-24,118
Urban	83,941	165,492	134,181	165,492	31,311	1.6	19,588
KIRINYAGA	272,617	525,962	518,601	525,962	7,361	1.9	3,870
Rural	234,230	444,270	452,199	444,270	-7,929	1.9	-4,107
Urban	38,387	81,692	66,402	81,692	15,290	1.7	8,839
MURANG'A	468,333	940,882	927,840	940,882	13,042	2.0	6,583
Rural	406,943	808,326	818,270	808,326	-9,944	2.0	-4,945
Urban	61,390	132,556	109,570	132,556	22,986	1.8	12,879
KIAMBU	695,381	1,618,422	1,285,719	1,618,422	332,703	1.9	179,942
Rural	288,966	611,426	565,866	611,426	45,560	2.0	23,266
Urban	406,415	1,006,996	719,853	1,006,996	287,143	1.8	162,115
MOMBASA	352,471	925,137	489,794	925,137	435,343	1.4	313,286
KWALE	197,851	645,955	361,082	645,955	284,873	1.8	156,093
Rural	161,713	531,554	292,047	531,554	239,507	1.8	132,620
Urban	36,138	114,401	69,035	114,401	45,366	1.9	23,748
KILIFI	366,708	1,102,937	597,073	1,102,937	505,864	1.6	310,690
Rural	267,471	823,795	442,735	823,795	381,060	1.7	230,211
Urban	99,237	279,142	154,338	279,142	124,804	1.6	80,247
TANA RIVER	74,982	239,323	99,062	239,323	140,261	1.3	106,166
Rural	63,846	203,687	83,260	203,687	120,427	1.3	92,347
Urban	11,136	35,636	15,802	35,636	19,834	1.4	13,977
LAMU	34,879	100,398	65,205	100,398	35,193	1.9	18,825
Rural	28,796	80,773	52,181	80,773	28,592	1.8	15,778
Urban	6,083	19,625	13,024	19,625	6,601	2.1	3,083
TAITA TAVETA	112,075	277,475	220,905	277,475	56,570	2.0	28,700
Rural	92,823	229,905	188,730	229,905	41,175	2.0	20,251
Urban	19,252	47,570	32,175	47,570	15,395	1.7	9,212
MARSABIT	72,884	289,337	94,351	289,337	194,986	1.3	150,622

	Dwelling Units	Population	Habitable Rooms Available	Habitable Rooms Required	Habitable Rooms Deficit	Mean No. of Rooms Per Dwelling	Approximate Mean Dwelling Units Deficit
Rural	54,749	225,642	67,015	225,642	158,627	1.2	129,593
Urban	18,135	63,695	27,336	63,695	36,359	1.5	24,121
ISIOLO	45,877	141,711	60,296	141,711	81,415	1.3	61,946
Rural	25,460	79,956	28,076	79,956	51,880	1.1	47,046
Urban	20,417	61,755	32,220	61,755	29,535	1.6	18,716
MERU	635,426	1,350,481	916,936	1,350,481	433,545	1.4	300,442
Rural	586,810	1,247,092	846,813	1,247,092	400,279	1.4	277,379
Urban	48,616	103,389	70,123	103,389	33,266	1.4	23,063
THARAKA	204,853	364,290	262,511	364,290	101,779	1.3	79,424
Rural	161,446	284,161	192,780	284,161	91,381	1.2	76,528
Urban	43,407	80,129	69,731	80,129	10,398	1.6	6,473
EMBU	263,859	513,271	425,593	513,271	87,678	1.6	54,359
Rural	222,778	431,741	358,323	431,741	73,418	1.6	45,646
Urban	41,081	81,530	67,270	81,530	14,260	1.6	8,708
KITUI	501,641	1,008,156	597,140	1,008,156	411,016	1.2	345,283
Rural	426,818	871,473	503,251	871,473	368,222	1.2	312,297
Urban	74,823	136,683	93,889	136,683	42,794	1.3	34,104
MACHAKOS	507,507	1,093,503	880,675	1,093,503	212,828	1.7	122,646
Rural	261,834	529,112	443,031	529,112	86,081	1.7	50,874
Urban	245,673	564,391	437,644	564,391	126,747	1.8	71,150
MAKUENI	412,590	880,048	687,250	880,048	192,798	1.7	115,746
Rural	364,220	779,595	614,983	779,595	164,612	1.7	97,490
Urban	48,370	100,453	72,267	100,453	28,186	1.5	18,866
GARISSA	198,716	619,571	174,758	619,571	444,813	0.9	505,793
Rural	150,267	479,668	124,894	479,668	354,774	0.8	426,849
Urban	48,449	139,903	49,864	139,903	90,039	1.0	87,484
WAJIR	184,003	658,596	154,138	658,596	504,458	0.8	602,199
Rural	147,380	568,210	124,651	568,210	443,559	0.9	524,438
Urban	36,623	90,386	29,487	90,386	60,899	0.8	75,637
MANDERA	314,212	1,023,670	243,048	1,023,670	780,622	0.8	1,009,187
Rural	254,882	845,368	194,402	845,368	650,966	0.8	853,487
Urban	59,330	178,302	48,646	178,302	129,656	0.8	158,132
SIAYA	318,166	839,420	484,991	839,420	354,429	1.5	232,514
Rural	288,991	750,205	433,639	750,205	316,566	1.5	210,970
Urban	29,175	89,215	51,352	89,215	37,863	1.8	21,511
KISUMU	349,191	959,882	582,141	959,882	377,741	1.7	226,584
Rural	177,936	462,793	290,656	462,793	172,137	1.6	105,380
Urban	171,255	497,089	291,485	497,089	205,604	1.7	120,798
HOMA BAY	339,372	961,956	544,836	961,956	417,120	1.6	259,819

	Dwelling Units	Population	Habitable Rooms Available	Habitable Rooms Required	Habitable Rooms Deficit	Mean No. of Rooms Per Dwelling	Approximate Mean Dwelling Units Deficit
Rural	282,601	825,241	466,525	825,241	358,716	1.7	217,295
Urban	56,771	136,715	78,311	136,715	58,404	1.4	42,340
MIGORI	354,827	914,289	515,990	914,289	398,299	1.5	273,895
Rural	241,451	606,874	341,665	606,874	265,209	1.4	187,420
Urban	113,376	307,415	174,325	307,415	133,090	1.5	86,558
KISII	490,037	1,148,612	907,140	1,148,612	241,472	1.9	130,443
Rural	394,404	921,077	735,279	921,077	185,798	1.9	99,662
Urban	95,633	227,535	171,861	227,535	55,674	1.8	30,980
NYAMIRA	269,243	597,730	482,762	597,730	114,968	1.8	64,119
Rural	236,724	520,708	425,948	520,708	94,760	1.8	52,664
Urban	32,519	77,022	56,814	77,022	20,208	1.8	11,567
TURKANA	352,521	849,277	278,808	849,277	570,469	0.8	721,293
Rural	315,130	748,660	243,385	748,660	505,275	0.8	654,220
Urban	37,391	100,617	35,423	100,617	65,194	1.0	68,816
WEST POKOT	146,378	511,824	162,378	511,824	349,446	1.1	315,013
Rural	132,457	470,559	142,161	470,559	328,398	1.1	305,981
Urban	13,921	41,265	20,217	41,265	21,048	1.5	14,493
SAMBURU	58,367	222,327	70,329	222,327	151,998	1.2	126,145
Rural	45,319	185,234	54,599	185,234	130,635	1.2	108,431
Urban	13,048	37,093	15,730	37,093	21,363	1.2	17,721
TRANS NZOIA	293,090	815,810	443,000	815,810	372,810	1.5	246,652
Rural	235,049	655,907	356,163	655,907	299,744	1.5	197,815
Urban	58,041	159,903	86,837	159,903	73,066	1.5	48,837
BARINGO	194,150	553,564	235,462	553,564	318,102	1.2	262,291
Rural	168,487	490,321	200,169	490,321	290,152	1.2	244,228
Urban	25,663	63,243	35,293	63,243	27,950	1.4	20,324
UASIN GISHU	335,784	888,043	528,787	888,043	359,256	1.6	228,130
Rural	208,307	546,102	331,499	546,102	214,603	1.6	134,852
Urban	127,477	341,941	197,288	341,941	144,653	1.6	93,467
ELGEYO-MARAKWET	139,660	369,270	191,611	369,270	177,659	1.4	129,491
Rural	120,162	317,356	164,363	317,356	152,993	1.4	111,850
Urban	19,498	51,914	27,248	51,914	24,666	1.4	17,650
NANDI	288,453	751,815	482,557	751,815	269,258	1.7	160,952
Rural	247,249	649,204	418,497	649,204	230,707	1.7	136,302
Urban	41,204	102,611	64,060	102,611	38,551	1.6	24,796
LAIKIPIA	182,356	396,086	288,375	396,086	107,711	1.6	68,112
Rural	150,670	317,744	236,010	317,744	81,734	1.6	52,179
Urban	31,686	78,342	52,365	78,342	25,977	1.7	15,719
NAKURU	656,976	1,593,448	1,005,392	1,593,448	588,056	1.5	384,267

	Dwelling Units	Population	Habitable Rooms Available	Habitable Rooms Required	Habitable Rooms Deficit	Mean No. of Rooms Per Dwelling	Approximate Mean Dwelling Units Deficit
Rural	373,494	875,125	562,901	875,125	312,224	1.5	207,166
Urban	283,482	718,323	442,491	718,323	275,832	1.6	176,712
NAROK	263,095	845,196	395,642	845,196	449,554	1.5	298,946
Rural	241,847	789,592	366,397	789,592	423,195	1.5	279,338
Urban	21,248	55,604	29,245	55,604	26,359	1.4	19,151
KAJIADO	238,135	682,123	389,760	682,123	292,363	1.6	178,628
Rural	130,865	402,097	213,006	402,097	189,091	1.6	116,172
Urban	107,270	280,026	176,754	280,026	103,272	1.7	62,675
KERICHO	227,039	587,416	318,186	587,416	269,230	1.4	192,107
Rural	140,566	362,228	191,826	362,228	170,402	1.4	124,867
Urban	86,473	225,188	126,360	225,188	98,828	1.5	67,632
BOMET	324,809	889,447	463,398	889,447	426,049	1.4	298,630
Rural	286,135	789,027	411,645	789,027	377,382	1.4	262,319
Urban	38,674	100,420	51,753	100,420	48,667	1.3	36,368
KAKAMEGA	739,691	1,655,013	1,020,038	1,655,013	634,975	1.4	460,459
Rural	633,122	1,423,717	878,805	1,423,717	544,912	1.4	392,574
Urban	106,569	231,296	141,233	231,296	90,063	1.3	67,958
VIHIGA	245,703	553,633	463,665	553,633	89,968	1.9	47,675
Rural	171,904	380,086	312,767	380,086	67,319	1.8	37,000
Urban	73,799	173,547	150,898	173,547	22,649	2.0	11,077
BUNGOMA	469,187	1,372,020	764,508	1,372,020	607,512	1.6	372,837
Rural	395,332	1,160,283	633,122	1,160,283	527,161	1.6	329,168
Urban	73,855	211,737	131,386	211,737	80,351	1.8	45,167
BUSIA	299,279	740,043	368,044	740,043	371,999	1.2	302,495
Rural	267,414	657,865	322,984	657,865	334,881	1.2	277,264
Urban	31,865	82,178	45,060	82,178	37,118	1.4	26,249

Appendix 25: Code List for Highest Education Level Reached and Completed, P40 & P41

Not Stated/DK 99
Never Attended 97

PRE-PRIMARY

Pre Primary (ECD) 96

PRIMARY

Standard 1(Incomplete) 0
Standard 1 1
Standard 2 2
Standard 3 3
Standard 4 4
Standard 5 5
Standard 6 6
Standard 7 7
Standard 8 8

SECONDARY

Form 1 9
Form 2 10
Form 3 11
Form 4 12
Form 5 13
Form 6 14

TERTIARY-MIDDLE LEVEL COLLEGES

Not Completed/Attending Post Secondary Education 15
Completed Post Secondary Education 16

UNIVERSITY

Not Completed/ Attending Undergraduate 17
Completed Undergraduate 18
Not Completed/ Attending Masters/PhD Degree 19
Completed Masters/PhD Degree 20

NON-FORMAL EDUCATION

Not Completed/Attending Basic/Post Literacy 21
Completed Basic/Post Literacy 22

YOUTH POLYTECHNIC

Not Completed/Attending Youth Polytechnic 23
Completed Youth Polytechnic 24

OTHER EDUCATION

Attending Madrassa/Duksi 25
Completed Madrassa/Duksi 26

CODE LIST FOR P42-ECONOMIC ACTIVITY CODE

Worked For Pay 1
On Leave 2
Sick Leave 3
Worked On Own/Family Business 4
Worked On Own/Family Agricultural Holding 5
Apprentice/Intern 6
Volunteer 7
Seeking Work (Action Taken) 8
Seeking Work (No Action Taken) 9
No Work Available 10
Retired 11
Homemaker 12
Full Time Student 13
Incapacitated 14
Other (Specify) 15

CODE LIST FOR P43- MAIN EMPLOYER

Private Sector Enterprise 1
Local Authorities 2
Central Government 3
Teachers Service Commission (TSC) 4
State Owned Enterprise 5
International NGO 6
Local NGO/CBO 7
Faith Based Organization 8
Self Modern 9
Informal Sector 'Jua Kali' (Employed) 10
Self Employed - Informal 11
Small Scale Agriculture (Employed) 12
Self Small Scale Agriculture 13
Pastoralist Activities (Employed) 14
Self Pastoralist Activities 15
Individual/Private Household 16
Other (Specify) 17

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