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A photograph of a man in a white shirt and grey trousers walking away from the camera on a dirt path. The path leads towards a large body of water under a clear sky. The foreground is filled with dry, brownish vegetation and a simple wooden fence made of sticks.

MIGRATION AS ADAPTATION TO ENVIRONMENTAL AND CLIMATE CHANGE

The case of Kenya

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Migration, Environment and Climate Change: Evidence for Policy (MECLEP) is a three-year project funded by the European Union, implemented by the International Organization for Migration (IOM) through a consortium with six research partners. The project aims to contribute to the global knowledge base on the relationship between migration and environmental change, including climate change. The innovative research aims to formulate policy options on how migration can benefit adaptation strategies to environmental and climate change. The six project countries are the Dominican Republic, Haiti, Kenya, Mauritius, Papua New Guinea and Viet Nam.

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Prepared for IOM by

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Acronyms

ALNAP	Active Learning Network for Accountability and Performance in Humanitarian Action
ALP	Adaptation Learning Programme
ASALs	arid and semi-arid lands
CBA	community-based adaptation
COP	Conference of the Parties
EA	enumeration area
GIS	Geographic Information System
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
KNBS	Kenya National Bureau of Statistics
MECLEP	Migration, Environment and Climate Change: Evidence for Policy
NCCRS	National Climate Change Response Strategy
NCPD	National Council for Population and Development
NEMA	National Environment Management Authority
NGO	non-governmental organization
TWG	Technical Working Group
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNSD	United Nations Statistics Division



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Executive summary

This report presents the findings of a survey conducted in Kenya as part of the Migration, Environment and Climate Change: Evidence for Policy (MECLEP) project, implemented from January 2014 to March 2017. In Kenya, the National Environment Management Authority and the IOM Kenya Country Office have worked together on the MECLEP project. The overall aim is to contribute to the global knowledge base on the relationship between migration and environment, including climate change, and the formulation of related policy options with an emphasis on migration as an adaptation strategy.

International Organization for Migration (IOM), international research partners and the Technical Working Group (TWG): This report is the result of three main activities carried out under this project, namely, focus group discussions, key informant interviews and a household survey in the three sites of Kisumu County, Kitui County and Nairobi County. Quantitative data were collected using a household questionnaire, while qualitative information was drawn from the focus group discussions and key informant interviews. The household questionnaire was the main tool used for collecting data. The role of IOM, the partners and the TWG, consisting of policymakers, researchers and civil society, in this survey cannot be overstated. It ensured the quality, effectiveness and efficiency of the survey, and it enhanced the participation of such stakeholders as the Kenya National Bureau of Statistics in the production of the survey maps.

Hazard identification and response mechanism:

Floods, droughts and river bank erosion are the major hazards experienced in Kisumu County, Kitui County and Nairobi County, respectively. Of the three counties, only Nairobi currently has an early warning system – although it was reported that the warnings did not reach the residents in good time in that county. Thus, as a matter of policy, it is recommended that the county government of Nairobi, through the Ministry of Environment and Natural Resources, have a policy on climate- and environment-related disasters, as well as a policy on migration that considers environmental factors. This would enable the county to manage environmental migration and/or displacements. As established through the study, most of the migrants in Kisumu, Kitui and Nairobi are internal migrants who engaged in either a short-term movement (three months to one year) or a long-term/permanent movement (over one year). This implies the movements were either intended to escape an environmental hazard or slow-onset process or to seek survival mechanisms that would support the livelihoods of the household members. For instance, there is a need to put in place an integrated real-time hydro-meteorological monitoring system for dealing with the river and wetlands basin flooding. The early warning systems, specifically in the Lake Victoria basin catchment and in the Kitui and Nairobi ecological zones, would be not only managed by the Ministry of Water and Irrigation but also decentralized to sub-county levels for easy access of information and management of and by

community members so that they are in a better position to take appropriate and faster action to mitigate climate and environment hazards at the community level. The early warning system could also be enhanced through the Kenya Water Security and Climate Resilience Project.

Policy frameworks and community participation:

To mitigate migration caused by hazards, it is necessary to have not only comprehensive policy and guidelines on migration and on climate- and environment-related hazards, but also mechanisms to enforce policy and guidelines on early warning systems and on the specific actions to be taken by community members. There is a need for specific and timely early warning systems, together with enhanced capacity of both the government and communities to handle hazard-related migration and displacements. The 2010 National Climate Change Response Strategy (NCCRS) was developed in recognition of this need; it identifies some of the impacts of climate change on human settlements as the displacement and migration of populations from disaster-prone areas due to destabilization of their natural resource-dependent livelihood sources. It is acknowledged that, without assets or adequate skills for income generation, most migrants end up living in squalor. Thus, the NCCRS recommends that there be proper urban planning that takes into consideration the expected increased urban population due to environmental migration from Kisumu and Kitui, among other regions in the country.

Access to services and household capacity:

According to the survey, migrant households have lower rates of access to services than non-migrant households. This is the case for all of the services specified in the survey, namely, water, education, health, employment and security. This calls for a refocus on Kenya's safety, security and social protection measures and strategies. To

enhance the availability of and access to services, the existing social protection policies should not only have a strong focus on poverty reduction and on providing the vulnerable with support – the Government of Kenya and development partners should reflect on lessons learned from the developed countries whose social protection emphasis is on income maintenance and on protecting living standards for all. In Kenya, the main emphasis of social protection is on addressing the causes of poverty and not simply its symptoms; hence, the focus of social protection that would mitigate the impacts of migration should not be restricted to compensating those in poverty for their income shortfall, but to inspire them to have a broader developmental role. This would encompass building their capacity to be resilient and to acquire the skills and knowledge that they would use to improve the livelihoods of their families in times of climate change and environment-related hazards, among others.

Support mechanisms and remittances:

The study reveals that the migrants were provided with few or no support mechanisms, either by the Government or by non-governmental organizations. This implies that the migrants' survival and their integration in their new areas of residence can be hampered. Nonetheless, the study also reveals that migrant households are either members of formal or informal organizations or cooperatives and that they rely on remittances. For policy purposes, the Government of Kenya needs to invigorate these institutions so that they develop footholds in both rural and urban areas and continue providing communities with financial services. These institutions are vital for development, as they do not require as much collateral as banks and other formal financial institutions. Kenya's National Adaptation Plan 2015–2030 (Government of Kenya, 2016) is aimed at enhancing resilience of vulnerable populations to climate shocks

through adaptation and disaster risk reduction strategies. For instance, infrastructure is affected by flooding in urban areas. This is most often the case when droughts drive rural populations to urban areas in search of assistance and employment, thereby putting pressure on public facilities in the urban areas. This is an example of environmental migration and displacement. The National Adaptation Plan refers to the potential role of the Common Programme Framework for Ending Drought Emergencies in contributing to reducing the conditions that perpetuate vulnerability, enhancing productive potential and strengthening institutional capacity.

Migration impacts and skills in households: In Kisumu County, the households affected by hazards reported constructing dykes or protection

embankments around their houses and farms to prevent them from being damaged, as part of preventive measures against future hazards. In Kitui County, the households diversified their economic activities because of the effects of drought; for example, instead of farming and rearing livestock, they began small business activities such as beekeeping. The study also reveals that the migrants have used and taught the new skills that they acquired while away back in the households. Acquisition of skills and knowledge is important for development, particularly for a knowledge/technology-based economy, as innovation is a key component of national development. Innovation is also the engine that drives entrepreneurship, which opens opportunities to create jobs and wealth and to improve well-being.



The survey team during the first pilot testing of the questionnaire in Nairobi.

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1. Introduction

1.1. Geography of the country

Kenya is located in East Africa and bordered by Uganda to the west, South Sudan to the north-west, Ethiopia to the north, Somalia to the east, the Indian Ocean to the south-east and the United Republic of Tanzania to the south. The total area of the country is 582,646 km², of which 571,466 km² is covered by land; the rest is covered by water. Topographically, the country is subdivided into two major regions, namely: the lowlands, which includes the coastal and Lake Basin areas; and the highlands, which comprises much of both sides of the Great Rift Valley. Average temperatures range from 27° C to 31° C. The climatic conditions are mainly influenced by “the long rains” (about March to May) and “the short rains” (about October to December), and a short dry spell from about January to March and a long dry spell from about June to September. The country is characterized as mostly warm with pockets of cool and wet areas, particularly in the highlands, while the coastal areas and the northern parts of the country are mostly arid and hot. There are two significant types of rainfall: there is mainly relief rainfall (found mostly in the highlands) and some convectional rainfall (mostly in the lowlands and around Lake Victoria and the Indian Ocean).

Administratively, Kenya is divided into 47 semi-autonomous counties that are headed by governors who were elected in the last general election (in March 2013) under the new constitution promulgated in August 2012. Under the old constitution, Kenya was comprised of eight provinces, each headed by a provincial

commissioner who was appointed by the president. The provinces were divided into districts, and the districts divided into divisions, locations and sub-locations. Local government authorities are not recognized under the current constitution, whereas under the old constitution, the municipalities were governed by local authorities. Constituencies and wards are the basic electoral subdivision. Currently, there are 210 constituencies in Kenya. Of the 47 counties, 3 are the sites for the Migration, Environment and Climate Change: Evidence for Policy (MECLEP) survey – namely, Kisumu, Kitui and Nairobi counties.

1.2. Organization of the MECLEP survey

The National Environment Management Authority (NEMA) and the International Organization for Migration (IOM) have worked together on the MECLEP project. The overall aim of the project is to contribute to the global knowledge base on the relationship between migration and the environment, including climate change, and to formulate related policy options with an emphasis on migration as an adaptation strategy. One of the project activities was to undertake a household survey in Kisumu County, Kitui County and Nairobi County. These sites were identified by the MECLEP Technical Working Group (TWG), which is comprised of government stakeholders in the environment, migration and policy sectors. The Drylands Development Company, a research company based in Nairobi, was contracted by IOM to carry out the household survey and to draft a report. To conduct the household survey,



focus group discussions and key informant interviews, the study sites, enumeration areas (EAs), households and respondents were sampled based on diverse characteristics to ensure inclusivity and objectivity of the survey results.

In summary, the organization of the survey encompassed the following steps:

1. In close coordination with the TWG, IOM identified the study areas in Kenya.
2. The TWG and IOM met and debriefed the survey team.
3. The survey team sought research authorization.
4. The survey team did a sampling of the EAs.
5. The survey team met and debriefed provincial administrators in the counties (county commissioner, deputy county commissioner, chiefs and assistant chiefs) about the MECLEP survey.
6. The survey team did a listing of households and a sampling of migrant and non-migrant households.
7. The survey team identified key informants and focus group discussion participants.
8. The survey team adapted the survey instruments to the Kenyan context.
9. The survey team recruited and trained research assistants and supervisors, and pretested the survey tools.
10. The survey team performed field work/data collection, data processing and analysis, and drafted reports.

1.3. Mobility as an adaptation strategy

Adaptation to environmental and climate change is a necessary component of planning at all levels. Adaptation is often understood in a broader sense to be all of the activities and measures that are taken by vulnerable groups and individuals to cope with a changed situation that was triggered by events from the environmental, social and political spheres. Adaptation to environmental and climate change is a positive behavioural response mechanism for mitigating the consequences of environmental hazards and slow-onset processes. This study focuses on migration as an adaptation strategy. To mitigate the effects of climate change, the study recommends that the Government of Kenya and the county governments of Kisumu, Kitui and Nairobi integrate human mobility considerations into the National Adaptation Plan (see IOM, 2014; Melde and Lee, 2014), a recommendation that was echoed in the Nansen Initiative consultative process on human mobility in the context of disasters and climate change.

During the seventeenth session of the Conference of the Parties (COP 17) to the United Nations Framework Convention on Climate Change (UNFCCC) it was agreed that national adaptation planning was imperative to ensuring that developing countries and least developed countries were able to assess their vulnerabilities, mainstream climate change risks and address adaptation issues.¹ COP 17 acknowledged that, because of their development status, least developed countries faced increased development challenges, and recognized that there was a need to address adaptation planning in the broader context of sustainable development planning.² Thus, COP 17 also established that the national

¹ *Report of the Conference of the Parties on its Seventeenth Session, Held in Durban from 28 November to 11 December 2011: Addendum. Part Two: Action Taken by the Conference of the Parties at its Seventeenth Session (FCCC/CP/2011/9/Add.1), decision 5/CP.17.* Available from <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf#page=80>

² Ibid.

adaptation planning process was a way to facilitate effective adaptation planning in least developed countries and in other developing countries.

The objectives of the MECLEP survey in Kenya are in harmony with the two objectives of the national adaptation planning process, that is: (a) to reduce vulnerability to the impacts of climate change by building adaptive capacity and resilience; and (b) to facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate.³ The COP 17 decision also states that planning for adaptation at the national level is a continuous, progressive and iterative process, and its implementation should be based on nationally identified priorities, as contained in the relevant national documents, plans and strategies, for purposes of ensuring that they are in line with national sustainable development objectives, plans, policies and programmes.⁴

Various research perspectives recognize that adaptation and coping are rooted in vulnerability research that takes into account the spatial dimensions of risk (Bohle, 2007; Müller-Mahn, 2012; Wisner et al., 2004). The vulnerability framework is embedded in “the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard. It involves a combination of factors that determine the degree to which someone’s life, livelihood, property and other assets are put at risk” (Wisner et al., 2004:11). Bohle (2007:6) pointedly argues that “social vulnerability will have to analyse the options open to the vulnerable for coping and adaptation, and the mechanisms and structures that promote or prevent successful livelihood activities. In risky environments it is necessary to know the existing capacities for sustaining livelihood security, before any political measures can strengthen or support them.” Often, the appropriate mitigation

strategies are not accessed by local people in Kenya’s village settings, but their daily lives are a permanent adaptation to different challenges originating in the ecology, economy and society. This partly explains the country’s emphasis on adaptation over mitigation.

Kenya’s arid and semi-arid lands (ASALs) have been facing frequent and more severe droughts since the 1960s. The Turkana area is one of the most vulnerable and drought-prone regions in the country (Nkedianye et al., 2011), where there are serious challenges for populations as their livelihoods depend mainly on natural resources (Below et al., 2010; Nicholson, 2014). Despite these challenges, the ASAL communities whose livelihoods depend principally on pastoralism, account for 90 per cent of all employment opportunities and 95 per cent of family income and livelihood security (Government of Kenya, 2012a). The compounding changing global climate, exacerbated by increases in evapotranspiration as a result of high temperatures, the ASALs experience frequent climatic extremes, increased aridity and water stress, diminished yields from rain-fed agriculture, and increased food insecurity and malnutrition (Thornton and Lipper, 2014).

To mitigate these adversities, it is imperative that communities in these regions have adaptation and coping strategies in the forms of generational community practices necessary to reduce vulnerability to drought stresses, and prepare for possible future climatic adversities. Reports of the Intergovernmental Panel on Climate Change (IPCC) define adaptation as an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC, 2001). Adaptation therefore involves reducing the vulnerability of households to climatic variability and change (IPCC, 2007). On the other hand, Blaikie et al. (1994) define coping as the mechanism in which people act within existing resources and ranges of expectations in a given context to achieve various ends. Thus, adaptation involves longer-

³ Ibid., paragraph 1.

⁴ Ibid., paragraph 2.

term shifts in livelihood strategies, while coping involves temporary adjustment in response to change or to mitigate shocks and stresses on livelihoods (Eriksen, Brown and Kelly, 2005). However, adaptation to or coping mechanisms for different hazards vary from household to household and region to region based on existing support systems that increase the resilience of affected individuals (Brooks, Adger and Kelly, 2005). Studies on the adaptation strategies of pastoral communities to changing environmental conditions have been undertaken for years (see Gulliver, 1955; Saitoti, 1986; Ellis, 1995; Campbell, 1999; McCabe, 2006). It is worthy to appreciate that pastoral communities in north-western Kenya have over years developed adaptive and coping strategies for extreme climatic conditions as they often face environmental, political and socioeconomic marginalization (Schilling, Opiyo and Scheffran, 2012).

Extreme weather variations have led to severe droughts and flooding, affecting both pastoralists and non-pastoralists alike and their livelihoods, which have led to migration as a coping and survival strategy. Droughts and other natural disasters resulting from adverse climatic changes and environmental degradation have a significant influence on both voluntary and involuntary internal migration (rural–rural, rural–urban, urban–rural and urban–urban). Climate change has had a direct impact on the mobility of people, especially pastoralists, as the extreme temperatures experienced in areas such as Garissa and Turkana lead to loss of livestock. The most environmentally unstable areas in terms of drought are the northern and north-eastern regions of Kenya, while western Kenya is more prone to severe rainfall. Kinuthia-Njenga and Blanco's (2009:3) study on environmental migration to Nairobi established that 44 per cent of the 485 respondents moved because of environmental change.

Pastoralists and communities from environmentally vulnerable regions have adopted migration as both an adaptation and an income diversification strategy (Leighton, Shen and Warner, 2011). This is attributable to changes in climate and environment that have adversely affected their livelihoods. Movements resulting from environmental and climate change are becoming increasingly common, causing conflicts between pastoralists and farmers. Such conflicts characterize the borderlands of north-eastern, eastern and coastal areas of Kenya (IOM, 2011).

The most affected inhabitants of fragile ecological zones, such as pastoralists, are particularly vulnerable to climate change as the loss of their livestock due to famine and drought has pushed about 69 per cent and 85 per cent of the north-eastern and Turkana pastoralists, respectively, to local shopping centres to access welfare services, and about 19.4 per cent of pastoralists in the north-eastern part of Kenya have had to find employment due to the loss of their livestock (IOM, 2010:10). IOM (2010:10) reports that the youth were the most adversely affected, as they were forced to move to urban areas. This trend can be observed among the pastoralists in the north-east and in Turkana, as well as among the Maasai, as 69 per cent, 64 per cent and 97 per cent of whom, respectively, have moved from rural homes to urban centres (IOM, 2010:10).

Studies show that there have been significant climatic impacts on the livelihoods of pastoralists, which have also influenced their decision-making regarding their herd size and composition, which depend on their areas of residence. Garissa County provides a good strategic initiative to enhance resilience, whereby "pastoral communities have well developed coping strategies that they employ to manage shocks, including herd splitting, building herd sizes as a buffer against shocks and loans or redistribution of livestock and other

assets to family or community members” (ALP, 2011:4). However, these strategies are not always effective, as unpredictable weather conditions make them difficult to apply. Pastoralists are unable to easily engage in cross-border mobility, largely due to insecurity in Somalia. In addition, the scarcity of natural resources leads to clashes between local ethnic groups, which often trigger migration as a survival or escape strategy rather than a coping strategy. In flood-prone areas, people move to safer grounds, while those who do not are often exposed to heavy rains, floods, and water-borne and vector-borne diseases.

The increase in urban populations is a major cause of environmental degradation and multiple health hazards in Kenya (NCPD, 2009). Industrial waste and gas emissions from engines and heavy traffic on highways are the greatest contributors of air pollution. This is exacerbated by the pollution of water sources, such as the Nairobi River and its tributaries (UNEP, 2005). The pollution is caused by leaching from dump sites, with the Dandora and Satellite/Kawangware residential areas in Nairobi as the major polluting areas. The limited space available for expansion has led to unhygienic waste disposal in the city estates. The situation is worse in crowded settlements, particularly the city slums that do not have basic facilities such as toilets or latrines, proper drainage, safe and reliable water, and accessible roads for garbage collection. Thus, as migration from rural areas

to Nairobi increases, the effects on the city’s environment become more significant, as does demographic growth more generally.

According to the Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP), the use of firewood in the Dadaab refugee camp dropped from 1.5 kg per person per day in 1998 to 1 kg per person per day in 2010 (ALNAP, 2010). It has noted that, if the number of refugees at Dadaab continued to increase, it could have a devastating impact on the environment, forcing host communities to seek grazing grounds further away (ALNAP, 2010:56). Against this backdrop, organizations operating in the region have been developing strategies to control the use of natural resources to reduce possible conflicts within the camp and with host communities.

Solid waste management is another major environmental concern in areas hosting refugees. Solid waste has negative implications for the environment if it is not disposed properly or recycled. ALNAP (2010) highlights that the increase in the use of plastic bags for waste disposal is a high risk to livestock because they consume them. Several agencies are working on effective mechanisms to ensure that solid waste is recycled, and on educating the refugee population about the risks that solid waste poses to their environment (ALNAP, 2010:63).



Informal settlement in Nairobi County.

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2. Mobility, hazards, links and policy frameworks

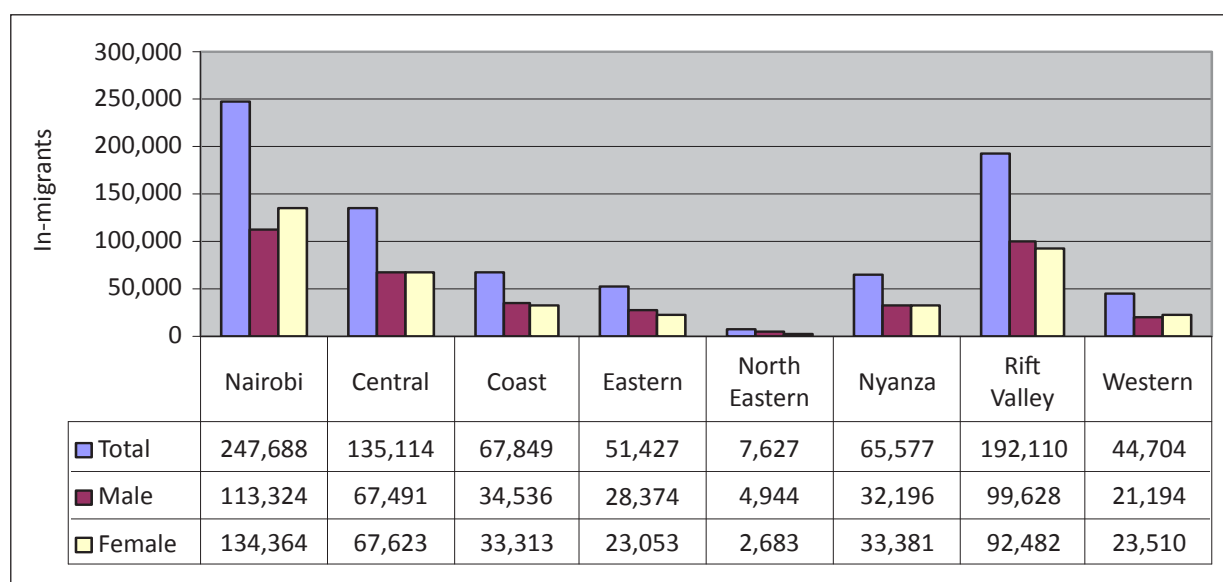
2.1. Introduction

A population and its characteristics such as total size, growth rate and distribution are influenced indirectly through changes in the three basic determinants of population change, namely, fertility, mortality and migration. Of the three demographic components, human beings respond to hazards and other environmental catastrophes through migration or mobility as an adaptation strategy, rather than through either demographic growth or death. The most notable types of internal migration in Kenya are rural–rural, rural–urban, urban–rural and urban–urban,

and they can be categorized as either lifetime or recent migration. For the purposes of this report, lifetime migration occurs whenever there is a change in a person's residence from his or her place of birth, while recent migrants are people whose county of residence in August 2008 was different from their county of enumeration on the census day in August 2009.

Based on the 2009 Kenya census data, there are fewer recent in-migrants in ASALs in Kenya compared with the more ecologically favourable central and western regions of the country. Figure 2.1a depicts the number of recent migrants in Kenya by province.

Figure 2.1a: Distribution of recent in-migrants by province, 2009



Source: KNBS, 2013.

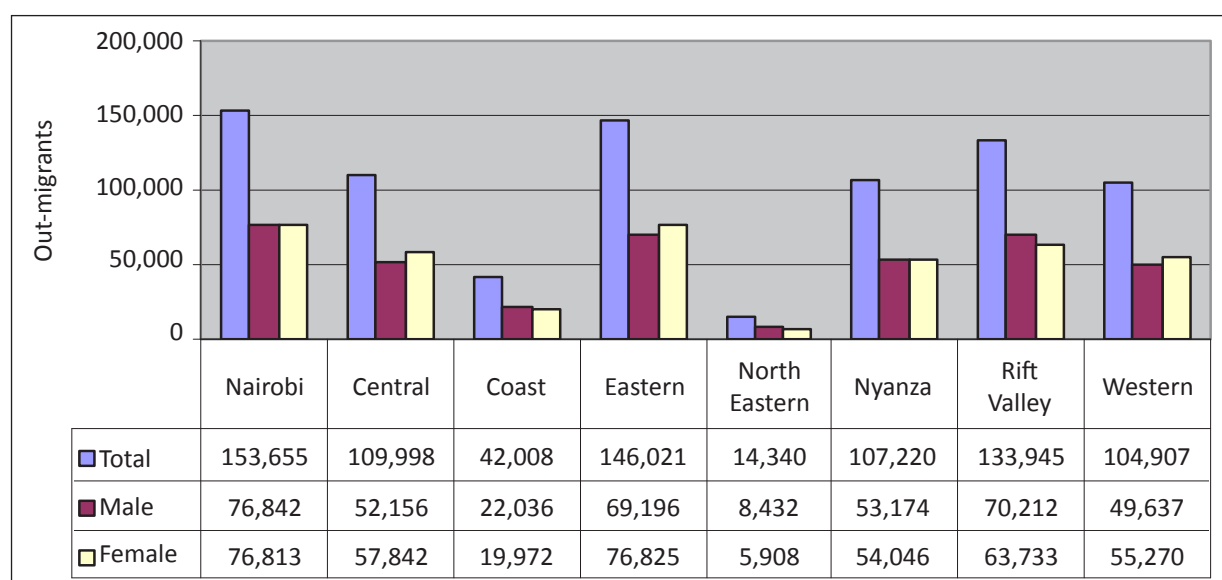
Females make up the highest number of recent in-migrants in Nairobi, Central, Nyanza and Western provinces.

Figure 2.1b shows recent outmigrants in Kenya by province. A comparative analysis by sex shows that, even though there are more male migrants, there is a very small difference between the numbers (76,842 males and 76,813 females). However, Eastern Province has the highest number of recent female outmigrants (76,825), more than even Nairobi (76,813). In Central, Nyanza and Western provinces, it is the female migrants who also dominate recent outmigration.

This could be attributed to equality in educational attainment, and females are therefore moving out just as their male counterparts in search of job and educational opportunities, as well as to join their spouses.

Migration of populations eases environmental pressures in some areas while increasing pressures in others. For example, rapid urbanization has outpaced infrastructural development and environmental resources, resulting in high levels of air pollution and water contamination (NEMA, 2005). Climate change exerts more pressure on the already burdened system.

Figure 2.1b: Distribution of recent outmigrants by province, 2009



Source: KNBS, 2013.

A hazard is the potential occurrence of a natural or human-induced physical event capable of causing injury, loss of life or other health impacts, and damage and loss to property, infrastructure, livelihoods, service provision and environmental resources (IPCC, 2012). Kenya periodically suffers from a number of environmental hazards, such as droughts, floods, earthquakes, epidemics, landslides, lightning, sea waves, tsunamis,

deforestation, desertification, pollution and wildfires (Government of Kenya, 2009). The country is thus disaster prone. The most common disasters are triggered by hydro-meteorological, seismic and environmental processes leading to the above-mentioned hazards. A detailed hazard and risk profile for Kenya is included in the Disaster Risk Reduction Strategy for Kenya 2006–2016 (Government of Kenya, 2006) and the National

Disaster Response Plan 2009 (Government of Kenya, 2009). The National Climate Change Response Strategy (NCCRS) (Government of Kenya, 2010b), the National Climate Change Action Plan 2013–2017 (Government of Kenya, 2013a) and the National Adaptation Plan 2015–2030 (Government of Kenya, 2016) highlight some of the key climatic hazards in Kenya and their socioeconomic impacts. Nyaoro, Schade and Schmidt (2016) have also reviewed some of the key natural hazards in Kenya.

This survey identified most of these hazards, although their rate of occurrence differs depending on the specific locality. The most common environmental hazards in the three survey sites, as well as in the rest of Kenya, are droughts and floods (table 2.1). For

example, 80 per cent of Kisumu residents said they have experienced floods several times, while 91 per cent of Kitui residents have not experienced any flood occurrence, illustrating the flood-prone nature of Kisumu County due to its proximity to the flood plains of Lake Victoria and the drought-prone nature of the ASALs in Kitui County. Severe droughts and irregular rainfall have been experienced by 84 per cent of Kisumu residents and 91 per cent of Kitui residents. A lower percentage of Nairobi County residents have experienced these two common hazards (30% have experienced floods several times while 70% have not experienced any drought or irregular rainfall), confirming its status as an urban destination where the effects of environmental and climate change are less pronounced.

Table 2.1: Types of disasters and their impacts

Disaster subgroup	Disaster type	Occurrence	Total deaths	Affected	Homeless	Total affected
Biological	Epidemic	32	4,856	6,881,995	-	6,881,995
Climatological	Drought	14	196	48,800,000	-	48,800,000
Geophysical	Earthquake	2	1	-	-	-
Hydrological	Flood	48	1,350	2,969,894	6,200	2,976,123
Hydrological	Landslide	4	56	-	-	26
Meteorological	Storm	1	50	-	-	-
Total		101	6,509	58,651,889	6,200	58,661,603

Source: Nyaoro, Schade and Schmidt, 2016, p. 55, based on Methmann and Oels, 2015.

2.2. Environmental and disaster policy frameworks

In 2010, the Cancun Adaptation Framework, which emanated from the COP meeting in Cancun (COP 16), recognized the potential impact of climate change on the movement of people. It called upon Parties to enhance action on adaptation under the Cancun Adaptation Framework by undertaking, among other measures, the following: “enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned

relocation, where appropriate, at national, regional and international levels.”⁵

In 2004, countries in Africa adopted the Africa Regional Strategy for Disaster Risk Reduction, which provides for a common approach to shared

⁵ Report of the Conference of the Parties on its Sixteenth Session, Held in Cancun from 29 November to 10 December 2010: Addendum. Part Two: Action Taken by the Conference of the Parties as its Sixteenth Session. Decision 1/CP.16, paragraph 14(f). Available from <https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>

risks throughout the region (African Union, 2004). The Government of Kenya and civil society organizations have also actively participated in the development of disaster risk reduction and disaster management treaties, policies, strategies and plans, including the Hyogo Framework for Action 2005–2015 under the United Nations Office for Disaster Risk Reduction.

In Kenya, the management of climate change and the environment is guided by a number of policies, laws and strategies. While some identify environmental migration, many propose dealing with the causes of migration in situ rather than encourage migration as a viable adaptation strategy.⁶ This corresponds with the general perception of most of the Kenya survey respondents, who, despite agreeing that migration is indeed a climate change adaptation strategy, nevertheless advocate for addressing the root causes of environmental migration at the source, where possible, with migration only encouraged when all else fails. Critical of the “resilience” discourse, Methmann and Oels (2015) argue that environmental migration is starting to be presented or viewed as a rational adaptation strategy whereby the movement of populations is rendered acceptable and rational. In other words, climate change is now being interpreted and presented as “a matter of fact rather than as a social problem that could still be tackled by significant emission reductions and lifestyle changes by residents in the major developed economies” (Methmann and Oels, 2015:51). Still, adaptation in whatever form is inevitable since the amount of greenhouse gases already emitted into the atmosphere has caused climate change.

The national planning strategy Kenya Vision 2030, which is being implemented through a series of five-year medium-term plans, makes reference to migration. Indeed, migration matters receive more attention under the current Second

Medium Term Plan 2013–2017 (Government of Kenya, 2013b). Under the section on ending drought emergencies, the link between migration and the environment is acknowledged by noting that “competition between communities over natural resources increases insecurity ... [which] in turn increases vulnerability to drought, by impeding migration, curtailing access to services and resources, destroying assets, and damaging intercommunal relations” (Government of Kenya, 2013b:41). The section on the environment, water and sanitation similarly recognizes the relationship between migration and the environment, specifically with regard to land and environmental degradation, stating that “land degradation leads to socioeconomic problems such as food insecurity, insufficient water, regular loss of livestock, limited agricultural development and outmigration, specifically from rural areas” (Government of Kenya, 2013b). The section on population, urbanization and housing recognizes increasing rural–urban migration as an emerging issue and challenge, and improving the knowledge and information base on population issues including migration is one of the strategic priorities identified. The section on infrastructure prioritizes the implementation of the Resettlement Action Plan for persons displaced along the railway reserve in Nairobi (Government of Kenya, 2013b). The need to finalize policies on refugees and migration is recognized under the section on governance and rule of law, while the elimination of child trafficking and the resettlement of internally displaced persons and forest evictees form part of planned activities.

The 2010 NCCRS identifies some of the consequences of climate change for human settlements, including the displacement and migration of populations from disaster-prone areas as a result of the destabilization of their natural resource-dependent livelihood sources. Most of this migration is from rural to urban areas, where assistance, income opportunities and infrastructure may be perceived to be more accessible and readily available. Nevertheless, without assets or adequate skills for urban income generation, most migrants fall into

⁶ The sole exception is the 2012 National Policy for the Sustainable Development of Northern Kenya and other Arid Lands.

urban squalor. The NCCRS recommends proper urban planning that takes into consideration the expected increased urban population resulting from environmental migration. Both urban and rural development plans need to be integrated into one in order to effectively address challenges emanating from both of them. The production of biofuels and charcoal (for example, the use of the invasive *Prosopis juliflora* in northern Kenya) is recommended as a potential adaptation strategy, as it can act as a source of income for poor families and therefore alleviate poverty and stem rural–urban migration, as well as reverse environmental degradation. Research on socioeconomic implications of climate change, such as climate change-related migration, should be promoted.

The 2012 National Policy for the Sustainable Development of Northern Kenya and other Arid Lands addresses three distinct policy challenges particular to northern Kenya and other arid lands. Two of these are relevant to environmental migration and adaptation, namely, “how to protect and promote the mobility and institutional arrangements which are so essential to productive pastoralism”, and how to ensure food and nutrition security across the ASALs “where unpredictability is certain to increase as the impact of climate change deepens” (Government of Kenya, 2012a:v). Population growth rates in the ASALs are noted to be generally higher than in other parts of the country, partly due to in-migration. In this Policy, concern is expressed that “traditional mechanisms for managing climate variability, such as mobility and the use of drought reserve areas, are being closed off” (Government of Kenya, 2012a:20). Restrictions on livestock mobility is identified as a key policy constraint affecting climate resilience of communities in the ASAL areas: “The primary policy challenge is how to protect and promote mobility and, in line with the constitution, support the customary institutions which underpin pastoralism in a society which is otherwise sedentary and tending towards more individualised modes of organisation and production” (Government of Kenya, 2012a:4). This policy dilemma is exactly what the MECLEP project seeks to unlock. Nevertheless, it is

encouraging that the Government recognizes mobility as a rational and sophisticated response to environmental conditions even though its realization is for many pastoralists in Kenya curtailed by settlements, administrative boundaries, conflict and land alienation. The Policy calls on the Government to ensure that devolved structures accommodate mobility and resource-sharing across administrative boundaries and to draw on the knowledge and experience of customary institutions.

The National Climate Change Action Plan 2013–2017 was developed to operationalize the NCCRS. This Action Plan highlights some of the impacts of climate change in Kenya to be prolonged droughts, frost in some productive agricultural areas, hailstorms, extreme flooding, receding lake levels, and drying of rivers and wetlands. Other climate change hazards and impacts, such as widespread disease epidemics and depletion of glaciers on Mount Kenya, are also highlighted. As noted in the Action Plan, many of these extreme climate events have led to displacement of communities and migration of pastoralists into and out of the country, resulting in conflicts over natural resources. Climate drivers, particularly extreme events such as flash floods and severe and persistent droughts, have been identified as being responsible for internally displaced persons. Building capacity to manage climate risks in urban centres will therefore become necessary, particularly since cities such as Nairobi and Mombasa are expected to play a vital role in Kenya’s future economic development. Echoing the NCCRS, the Action Plan recommends that research be conducted to assess migration as an adaptation or coping mechanism for climate variability, and to identify alternatives to allow people to remain in their communities, that is, to discourage environmental migration.

The Climate Change Act, No. 11 of 2016 aims to develop, manage, implement and regulate mechanisms to enhance climate change resilience and low carbon development for Kenya’s sustainable development. This includes building resilience and enhancing adaptive capacity through the formulation of relevant programmes



and plans, and mainstreaming climate change disaster risk reduction into strategies and actions of both public and private entities. The Act makes no specific reference to environmental migration or even to how to deal with the phenomenon. However, pursuant to Article 70 of the constitution (the right to a clean and healthy environment), Section 23 of the Act mandates the Environment and Land Court to enforce rights related to climate change, especially where a petitioner's effort towards adaptation to the effects of climate change is infringed upon. As read with Article 43 of the constitution (the right to water, adequate food, health, social protection and education), these provisions are particularly important in enhancing the adaptive capacity of urban poor migrants and internally displaced pastoral communities. In addition, the Climate Change Fund was established under Section 25 of the Act and shall be applied to, among other things, climate change research (for example, policy formulation and scientific research) and the implementation of climate change adaptation actions.

The National Adaptation Plan 2015–2030 was published in July 2016. The Plan is aimed at, among other things, enhancing resilience of vulnerable populations to climate shocks through adaptation and disaster risk reduction strategies. Under the section on infrastructure, it is noted that increased flooding in urban areas and droughts that drive rural populations to urban areas in search of assistance and employment put pressure on public facilities. This is an acknowledgement of environmental migration and displacement. With regard to population, urbanization and housing, the vulnerability of those living in marginal lands in urban areas to hazards such as floods is noted to be a major concern. The recommended adaptation actions include ensuring that continued population growth is matched with climate-resilient urban development and green housing by enhancing the adaptive capacity of the urban poor through the provision of affordable housing and related infrastructure. The Plan identifies the Common Programme Framework for Ending Drought Emergencies, which focuses on 23 of the most

drought-prone counties. Adaptation actions to be undertaken under this Framework include eliminating the conditions that perpetuate vulnerability, enhancing productive potential and strengthening institutional capacity. Some of the six pillars of the Framework include peace and security, sustainable livelihoods, disaster risk management and human capital.

The Community Land Act, No. 27 of 2016 provides for, among other things, protection of community land rights and the management and administration of community land. This Act responds to failures of individualization of tenure on customary land rights by repealing the Trust Land Act (Cap. 288) and the Land (Group Representatives) Act (Cap. 287). Statutory recognition of community land is particularly significant in the ASALs, where communal tenure and mobile pastoralism remain dominant. Pastoralists move across boundaries and have relied on mobility, within and across national borders, for the optimal use of scarce rangeland resources. Under this Act, converting community land to private land requires approval by a two-thirds majority of the registered community members. The Act provides an elaborate process of adjudication (demarcation and delineation of boundaries) and subsequent registration of community land. By guaranteeing secure tenure, this law can potentially enhance resilience and adaptive capacity of communities through sustainable utilization of resources that accrue on community land. Conversely, registration may discourage migration since unauthorized movement beyond delineated boundaries might be considered trespassing. Ethnicity is a key point in what constitutes “community land”, and in Kenya, ethnic communities claim specific regions. Thus, community land might be claimed as exclusive territory for specific ethnic communities, with conflicts being the potential consequences. Indeed, conflicts contribute to degradation of the rangelands as mobility is constrained. The Act, however, engenders alternative methods of dispute resolution and recognizes the authority of the two levels of government to regulate land use planning, noting the transboundary nature of rangeland ecosystems. It promotes compatible land use both within and across national borders.

Benefit sharing and compensation frameworks are found in various pieces of recent and proposed legislation, including the Land Act (2012), the Wildlife Conservation and Management Act (2013), the Forest Conservation and Management Act (2016), the Natural Resources (Benefit Sharing) Bill (2014), the Mining Act (2016) and the Community Land Act (2016). Benefit sharing and compensation can be seen as an adaptation and coping strategy key, as it acts as a safety net that improves resilience and protection of communities in the context of development-based evictions (one of three major sources of displacement in Kenya) and attendant environmental migrations. For instance, Section 36 of the Community Land Act stipulates that investments thereon shall involve, among others, payment of compensation and royalties, remediation of any negative impacts and technology transfer. Such royalties may be used to increase capacities for in situ adaptation, thereby reducing environmental migration, or to enhance the migration process for those who opt to or have to move. Beneficiaries would thus be better prepared to reduce or absorb the resulting environmental shocks, including climate change. Because victims of development-based evictions often have no choice other than migrating to risk-prone or new sites to establish a new homestead, benefit sharing indirectly contributes to the reduction of the number of persons at risk of being displaced by natural disasters (Schade, 2017).

The Natural Resources (Benefit Sharing) Bill (2014) is the first ever comprehensive attempt by the Government to bring all benefit sharing frameworks under one legislative regime. As the citation suggests, however, it remains a draft law thereby curtailing its otherwise noble objective. The Bill proposes a system of benefit sharing in resource exploitation (ranging from petroleum to fisheries) between resource exploiters, the national Government, county governments and local communities. Unlike the Mining Act, the Bill further proposes the establishment of a benefit sharing authority to coordinate preparation and implementation of benefit sharing agreements and determine the royalties payable. It sets the revenue sharing ratio guidelines between the national and county governments, and between

the county governments and local community projects, which are similar to those under the Mining Act (Government of Kenya, 2014c).

The Mining Act, No. 12 of 2016 applies to all categories of land (public, private and community). In Section 183(5), the Act defines revenue shares for the national Government (70%), and the county (20%) and the community (10%) concerned. The cabinet secretary responsible is authorized to make the regulations necessary to bring into effect the provisions of this Act, including determining the royalties payable and managing the proceeds (Section 223). It should be done within one year of the Act coming into force (Section 224). It remains to be seen whether these regulations will strengthen the benefit sharing provisions in the principal Act and therefore build resilience of local communities. Mining often uproots communities from their ancestral lands and disrupts livelihoods, thereby increasing vulnerability to climate change. In response, the Act allows affected communities to continue grazing and using their land provided it does not affect ongoing mining activities. Further, the Act provides for compensation to landowners in cases where a mineral right (prospecting and/or mining) has been given to someone else. Such compensation can be claimed in cases where the mining activity causes damage to buildings and other immovable property, affects the water table or affects the water supply, or causes any loss of earnings or sustenance in case of land under cultivation or grazing. These provisions are consistent with Part VIII (Compulsory Acquisition of Interests in Land) of the Land Act, No. 6 of 2012. Core migration policy documents include the Kenya Diaspora Policy (Government of Kenya, 2014a), the Kenya National Migration Policy (draft) and the Kenya Labour Migration Policy Draft (Government of Kenya, 2010a). Further policies refer to migration to a certain extent, including the Kenya Foreign Policy (Government of Kenya, 2014b), the Population Policy for National Development (Government of Kenya, 2012b), the NCCRS (Government of Kenya, 2010b), the National Climate Change Action Plan 2013–2017 (Government of Kenya, 2013a) and the National Disaster Management Policy of Kenya (Government of Kenya, 2010c).



Two surveyors during the researcher training.

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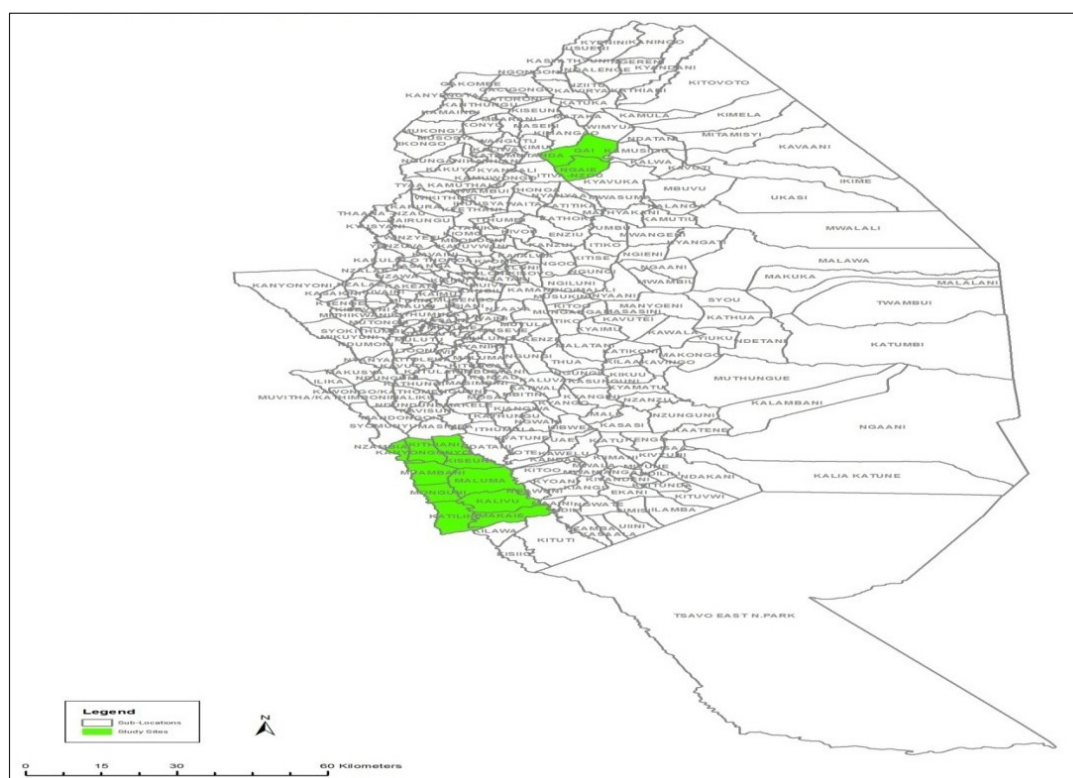
3. Methodology

3.1. Characteristics of the study sites

This section discusses the characteristics of the study sites of Kitui County, Kisumu County and Nairobi County. Moreover, the data collection design, the lessons learned and limitations experienced, and the data collection response rate in the households are also discussed.

Kitui County has a population of 1,012,709 (2009 census) and an area of 24,385 km². The climate is semi-arid; the County receives roughly 71 cm of rainfall annually. Rainfall occurs usually only during the rainy seasons (one long one in about May and June, and one short in about September and October). Figure 3.1a depicts the MECLEP survey sites in Kitui County. The vast majority of the economy is based on sustenance farming, despite the fact that it is an extremely challenging endeavour given the sporadic rainfall.

Figure 3.1a: Kitui County study sites

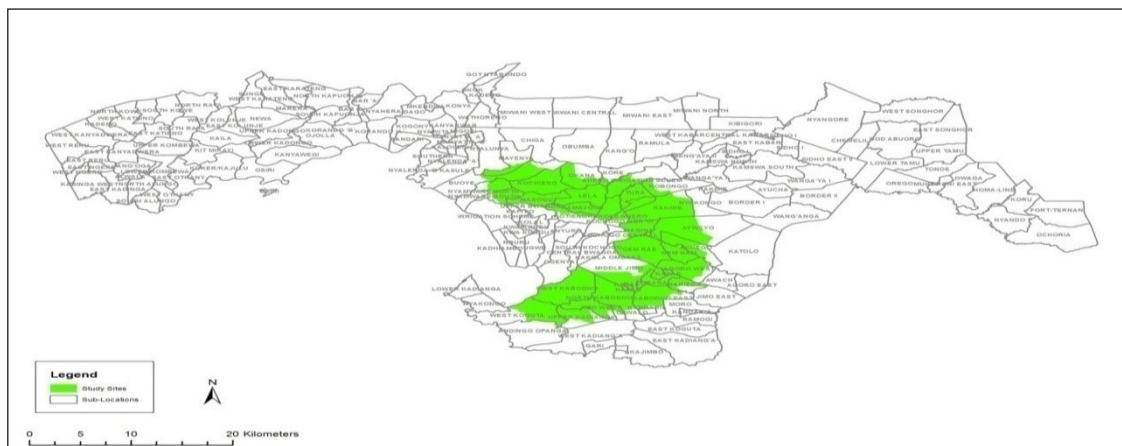


Source: Developed by the authors based on data from the Cartography Section of the Kenya National Bureau of Statistics.

According to the 2009 census, Kisumu County has a population of 968,909 people. The land area of the county totals 2,086 km². It is located at an altitude of 1,131 metres. The climate of the whole county is affected by the presence of Lake Victoria. The county has an annual relief rainfall that ranges between 1,200 mm and 1,300 mm in the different rainy season (that is, the “long” and “short” rains). The rain mainly falls in two seasons (from about March to July and September to November).

Kisumu is known for its thunderstorms, which are the major type of precipitation and normally occur in the mid-afternoon during the rainy season. Kisumu is warm throughout the year, with a mean annual temperature of 23° C. The temperature ranges between 20° C and 35° C but seldom falls below 19° C. The humidity level is relatively high throughout the year. Figure 3.1b shows the survey sites in Kisumu County.

Figure 3.1b: Kisumu County study sites

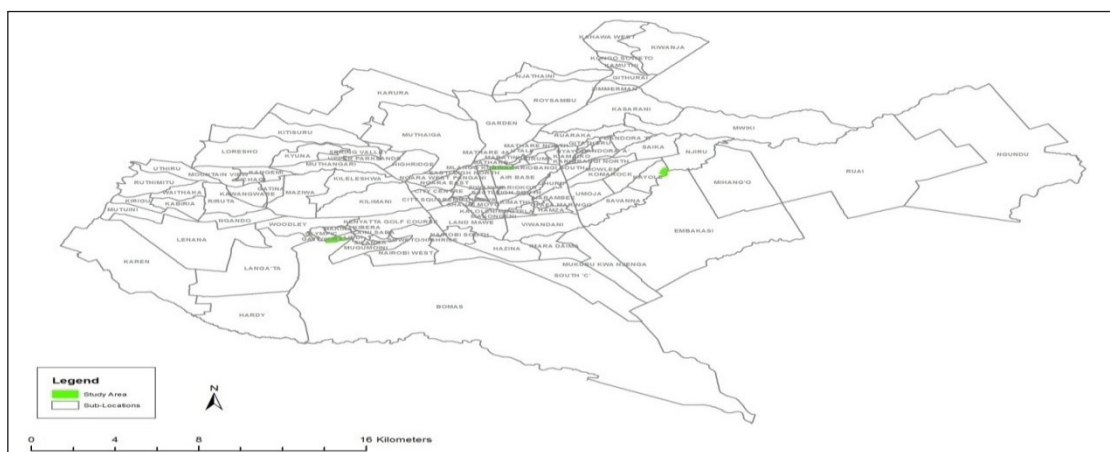


Source: Developed by the authors based on data from the Cartography Section of the Kenya National Bureau of Statistics.

Nairobi County is one of the 47 counties of Kenya and contains the country’s capital city, Nairobi. It is the smallest county in terms of size, yet it is the most populous of all of the counties. It has

an area of 269 km². The population of Nairobi is 3.138 million (2009). It is located at an altitude of 1,795 metres (UNSD, 2016). Figure 3.1c depicts the Nairobi County survey sites.

Figure 3.1c: Nairobi County study sites



Source: Developed by the authors based on data from the Cartography Section of the Kenya National Bureau of Statistics.

3.2. Site selection criteria

The three counties of Kisumu, Kitui and Nairobi were identified by the survey team together with the TWG as MECLEP Kenya study areas. Kisumu County is an area with frequent flooding, but it can also experience a short period (three months) of drought; Kitui County mainly experiences a long period (six months or more) of drought; and Nairobi County is mainly an in-migration area, for various reasons.

The following steps were taken to identify and map the survey sites, and to arrive at the sample:

Step 1: Taking into consideration that the survey was on migration as an adaptation strategy to the environmental and climate change phenomena, institutions working on issues related to environmental and climate change were used to assist in identifying the study sites. As the first step, NEMA, which is the Government of Kenya agency tasked with overseeing environmental matters, assisted in identifying areas within the counties of Kisumu, Kitui and Nairobi that are most prone to climatic and environmental hazards. NEMA regional directors identified affected areas in their counties, as listed below.

Kisumu County: The areas identified in this county were: (a) Kisumu East – usually affected by floods and droughts; (b) Seme – often affected by droughts and some flooding near Lake Victoria; (c) Nyando – most affected by floods and droughts; (d) Nyakach – affected by floods and droughts; and (e) Kisumu Central – affected by floods.

Kitui County: The areas identified were: (a) Lower Yatta – Nzambia Village extending towards Athi Town; (b) Mutomo sub-county – particularly the Mutha and Ikutha areas; and (c) the Kyuso/Tseikuru area. All of the areas identified are usually affected by long periods of drought.

Nairobi County: Nairobi County was selected because it is an area of destination; thus, it was expected that there would be people/households who had moved there from other parts of the country as a result of environmental and climate change. Anecdotal evidence shows that Nairobi's informal residential areas (or sections of them) tend to be populated by members of particular communities or from particular rural places. The following areas were purposely identified: (a) Mathare Division; (b) Kibera Division; (c) Langata Division; and (d) Embakasi Area.

Step 2: As a follow-up to step 1, the Cartography Section of the Kenya National Bureau of Statistics (KNBS) used Geographic Information System (GIS) techniques to map out the areas that had already been identified by NEMA. Using GIS, they also mapped the corresponding EAs. A total of 644 EAs were mapped (that is, GIS determined) in the three counties.

3.3. Sampling design

3.3.1. Sampling of enumeration areas

Step 1: GIS techniques were used to identify the EAs. A total of 174 EAs were identified in the Nairobi County study sites, while there were 293 in the Kisumu County study sites, and 177 were identified in the Kitui County study sites.

Step 2: The random sampling technique was used to sample the EAs for household listing purposes. In Nairobi (34), Kisumu (33) and Kitui (33), the EAs were randomly sampled.

3.3.2. Household listing

In Kisumu, Kitui and Nairobi counties, household listing was done to ascertain the total number of households (sample frame) in the sampled

EAs. The National Commission for Science, Technology and Innovation provided research authorization, which was used to access the study sites. The authorization letter was also useful in ensuring that the survey abided by ethical requirements and principles. Through the county commissioners, chiefs and sub-chiefs and with the guidance of village elders, households in the sampled EAs were listed.

The listing process entailed visiting all existing households in each of the sampled EAs and recording on listing forms the names of the heads of the households. The households were categorized as either a migrant or a non-migrant household, based on the definition adopted by the MECLEP survey team. A total of 2,977 households were listed in Kisumu, 2,113 in Kitui and 2,329 in Nairobi, for a total of 7,419 households in the three counties.

3.3.3. Household sampling

Of the 7,419 households listed, 1,854 were sampled for the questionnaire – 744 in Kisumu County, 528 in Kitui County and 582 in Nairobi County. The households were categorized into 1,298 non-migrant households and 556 migrant households. Of the non-migrant households, 521 were in Kisumu, 370 in Kitui and 408 in Nairobi. Of the migrant households, 223 were in Kisumu, 158 in Kitui and 174 in Nairobi. Migrant households constituted 30 per cent of all of the sampled households.

The listed households in the three counties were first saved in a Microsoft Word file, categorized by the migration or non-migration status of the household. The household sampling took into account the counties' total population sizes, a measure aimed at ensuring the representativeness of the counties' populations, so that the survey results could be used for generalizability, at both the county and country level. This also ensured the enhancement of data validity, making the

survey results comparable with those of the other countries that are part of the global MECLEP survey.

The design was such that, although Nairobi County had a higher total population than the populations of Kitui and Kisumu counties combined, it was purposefully allocated one third of the households, and Kisumu and Kitui shared two thirds of the survey households. With the total populations of the three counties being 951,587 (Kisumu), 979,563 (Kitui) and 3,068,835 (Nairobi), proportional sampling by each county's total population was used. The EAs were randomly sampled taking into consideration proportional representation. There were four times more non-migrant households than migrant households (5,938 and 1,481, respectively); hence, to randomly sample the households by migration status proportionately, every fourth household was sampled in each of the three counties by their total populations (ensuring proportionate representation). The following three steps show how the sampled households were determined.

Step 1: Taking into consideration the above explanation, table A.2 in appendix 1 shows the number of the sampled households by county, which took into account proportionality by sampled county households and migration status. The households that were to be interviewed, as shown in table A.3, were one quarter (25%) of the households listed. In total, however, the sampled migrant households constituted 30 per cent (column 3) of the total number of the households to be interviewed in the survey (column 1), as shown in table A.3.

Step 2: All of the listed households were divided into two categories, namely, migrant households and non-migrant households. All of the migrant households were included in the sample because of the need to attain the 30 per cent to 70 per cent condition (that is, migrant households represent 30% to 70% of the total sample) of the households in the survey.

Step 3: Table A.3 in appendix 1 shows that, in using the random sampling approach, every nth household was chosen, whether they were a non-migrant or migrant household. This was aimed at maintaining the proportional representation of all of the households listed by county and their migration status.

Note: If a household had either been dissolved or had migrated and could not be reached during the survey period (the interviewer having exhausted all possible options), the interviewer in consultation with the survey supervisor replaced the affected household with the next immediate household in the listing (that is, the next number on the list). This ensured that the total number of households surveyed remained constant as sampled. In summary, of the total households listed, every fourth household was sampled, of the non-migrant households listed every fifth household was sampled, and of the migrant households listed every third household was sampled.

3.4. Quantitative and qualitative data

Quantitative data form the core of the MECLEP survey methodology, with the household being the unit of analysis. The household questionnaire was adapted to the local context and used as

the main survey instrument. It was translated into the three languages used by the ethnic groups living in the survey area, namely, Dholuo (Kisumu County), Kamba (Kitui County) and Kiswahili (Nairobi County). The translation of the household questionnaire was first from English into the three aforementioned languages, and then it was translated back into English. This was done to ensure that any mistakes in the translations were cleared up, so as to maintain the meanings of the questions as intended. The household questionnaire was then pretested in households in an area that was not a survey area.

Qualitative data were collected using focus group discussions and key informant interviews in the three counties. Information was collected on the participants' perceptions of their environment, livelihood potential, plans for future and return migration, and the situation of their community of origin.

3.5. Response rate

Tables 3.5a and 3.5b depict the percentage distribution of the households by migrant and non-migrant status and the total number in each county. Table 3.5b shows the number of households sampled, the number interviewed and the response rates for each county and the total.

Table 3.5a: Distribution of households by county

County	Household migration status (%)		Total number
	Non-migrant	Migrant	
Kisumu	56.7	43.3	599
Kitui	81.0	19.0	472
Nairobi	43.9	56.1	510
Total	59.8	40.2	1,581

Source: MECLEP survey, 2016.

Note: Migrant households included households that relocated to a safer place due to experience of environmental hazard in the past one or ten years.

Table 3.5b: Number of households, interviews and response rates by county

County	County			Total
	Kisumu	Kitui	Nairobi	
Households selected (sampled)	744	528	582	1,854
Households interviewed	599	472	510	1,581
Household response rate (%)	80.5	89.4	87.6	85.3

Source: MECLEP survey, 2016.

3.6. Lessons learned and limitations

Technical Working Group (TWG): The TWG helped to ensure the quality, effectiveness and efficiency of the survey. The TWG enhanced the participation of various stakeholders and helped tailor the questionnaire to the Kenyan context. The TWG enhanced the participation of government agencies such as the KNBS, particularly in the production of survey maps. It also facilitated and secured the issuance of the Research Permit by the National Commission for Science, Technology and Innovation.

Trainers manual/enumerators manual: The definition of terms and concepts and how they were used in the field varied by region and profession, despite a standard glossary being made available to the interviewers before the start of the survey. During data collection, it was noted that terms such as migration were understood differently by interviewers and respondents. Hence, to ensure uniformity in

the usage and comprehension of terms, in the future it would be beneficial for the glossary and other possible materials to be made available to the respondents. For instance, terms such as migration and displacement are similar, but they can be understood, applied and used differently.

Managing respondents' expectations: Because it was difficult to find respondents at home during the day, it was often necessary to have callbacks. This made it difficult to schedule other interviews for the following days. There were also many expectations of the interviewees, particularly after the data were collected (for instance, they expected some immediate benefits).

Insecurity: In some areas, the research assistants were linked with devil worshipping.

Refusals: There were a few refusals on the part of the potential interviewees because of research apathy – they claimed that they had never experienced any benefit to their livelihoods or socioeconomic development from data collection activities.



Kisumu, Kenya.

© Drylands Development Co. Ltd. 2016
(Photo: Elmard Omollo)



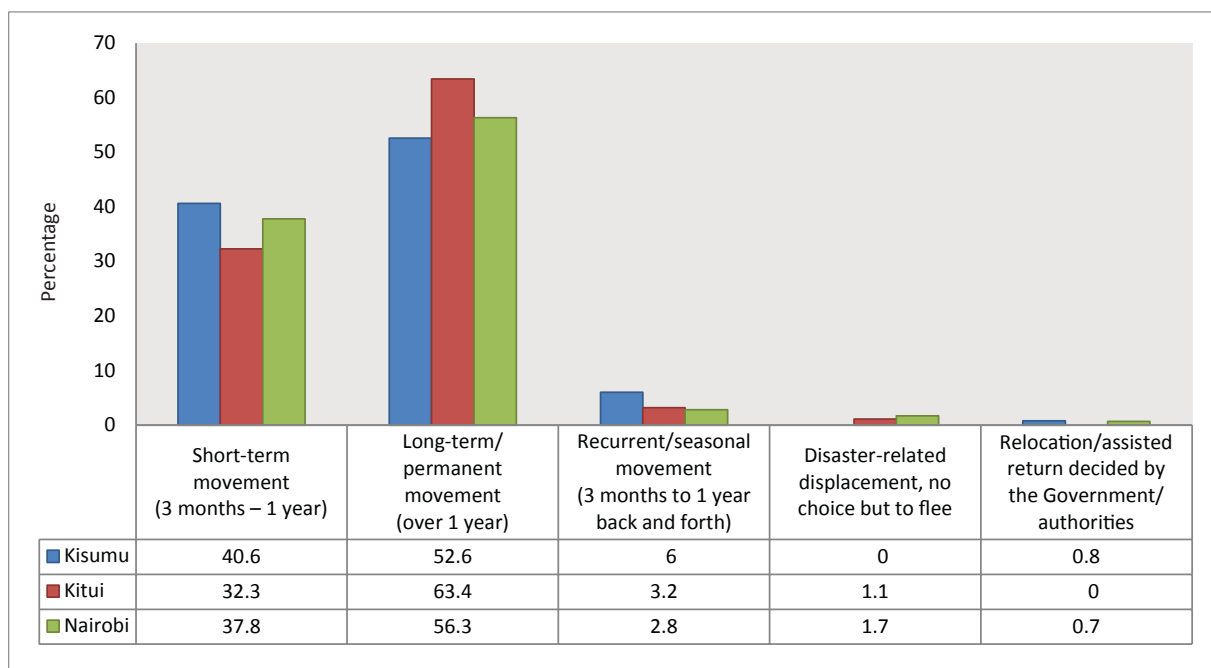
4. Socioeconomic profile of households

4.1. Migration types by duration

There are two major types of migration: internal and international. Internal migration is a mobility process that involves changing the usual place of residence to a new place of residence (that is, migration from the place of origin to the place of destination) within the national boundaries of a country by at least crossing the smallest administrative boundary. International migration, alternatively, refers to movement across

international boundaries (that is, changing one's usual place of residence to another by moving from one country to another country). Figure 4.1 shows that, though different types of migration are experienced in Kisumu, Kitui and Nairobi counties, the most prevalent type recorded in the survey is the "long-term/permanent movement" of at least one year. Short-term movements of between three months and one year are also common. Yet disaster-related displacements, where households have no choice but to flee, though evident, have impacted fewer households.

Figure 4.1: Type and duration of migration



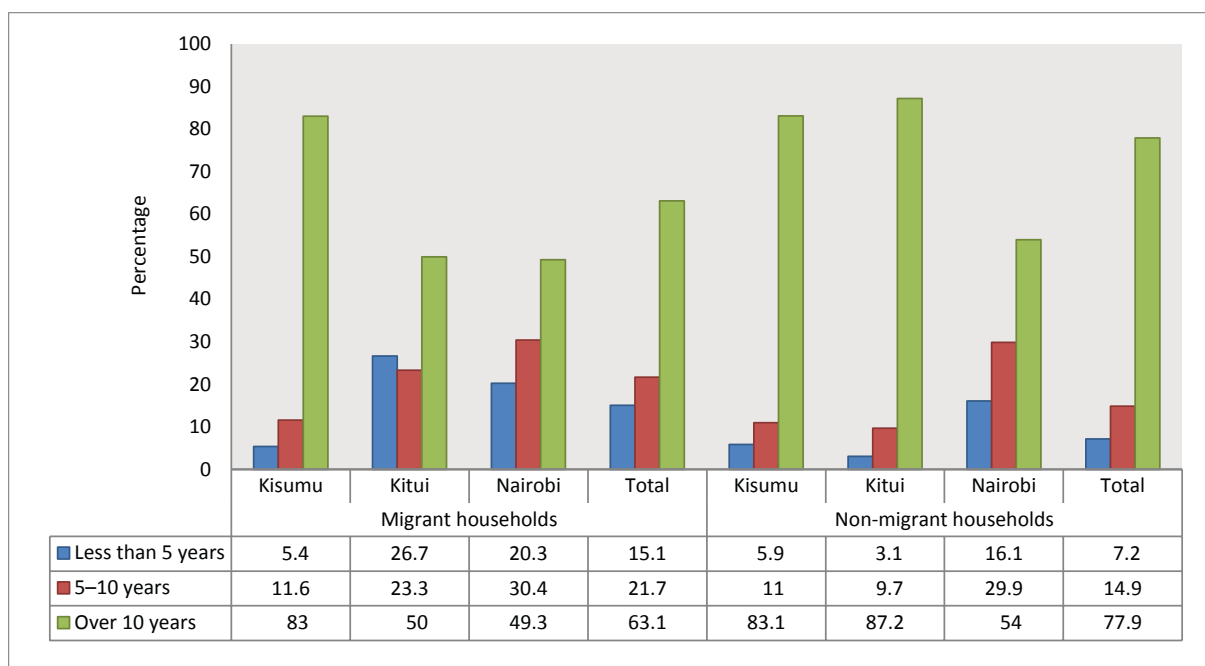
Source: MECLEP survey, 2016.

4.2. Migration history of the households

Socioeconomic characteristics reflect a household's social and economic situation and may interact with the environmental conditions

that trigger migration. At the household level, they mould one's personality, attitudes and lifestyle. Figure 4.2a shows that at least half of both migrant and non-migrant households in Kisumu and Kitui counties have lived for 10 years or more in their current place of residence; in Nairobi County the figure is 49.3 per cent.

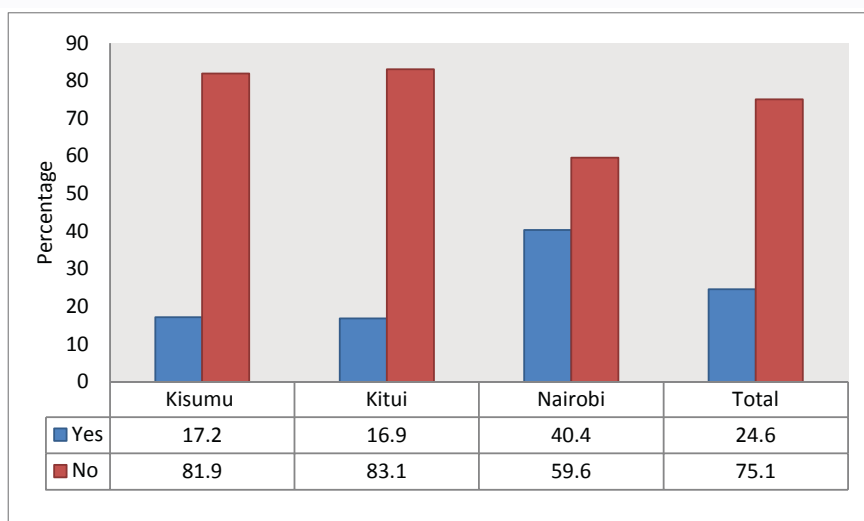
Figure 4.2a: Percentage distribution of migrant and non-migrant households by years lived at current residence



Source: MECLEP survey, 2016.

Figure 4.2b shows that more than three quarters of both migrant and non-migrant household members had not moved in or out of their current districts of residence during the three months prior to the survey.

Figure 4.2b: Percentage distribution of households with members who either moved in or moved out during the 3 months prior to the survey

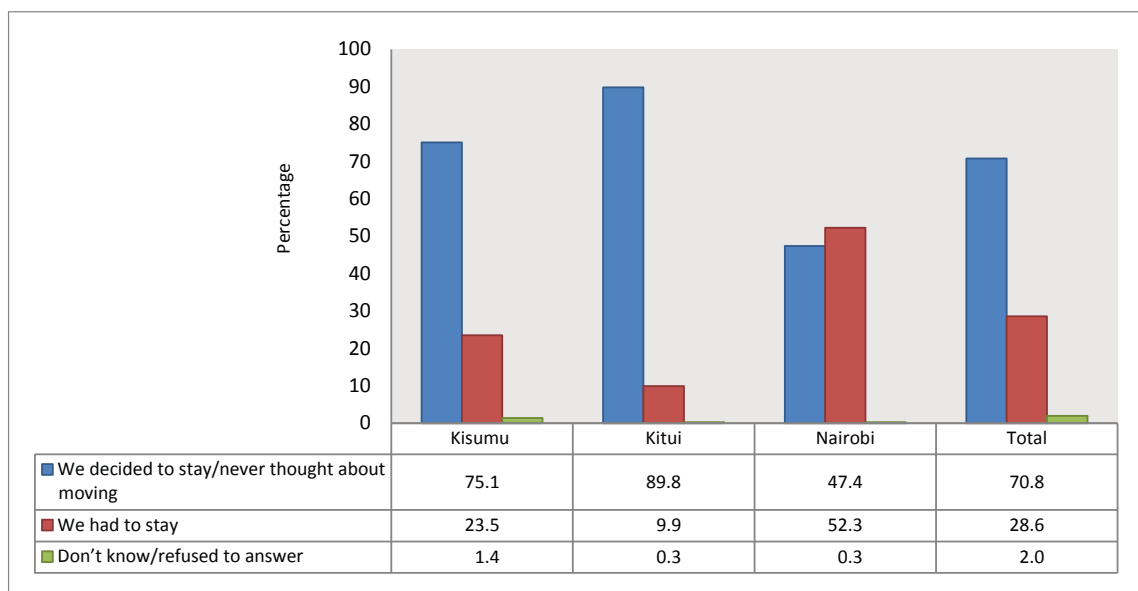


Source: MECLEP survey, 2016.

The survey inquired about why members of the households had decided “to stay”; the majority reported that they “decided to stay and never thought of moving out” from their current places of residence (figure 4.2c). For instance, in Nairobi County more than half of the respondents said

that they could not move. This could be due to the shortage of housing experienced in the city, or to the high rental costs that prohibit those living in informal settlements from moving to more habitable estates.

Figure 4.2c: Percentage distribution of reasons why member(s) never moved out of the household



Source: MECLEP survey, 2016.

The following statement by a focus group participant in Kisumu County confirms the above-mentioned concern that “households do not move out” even during hazards in their localities:

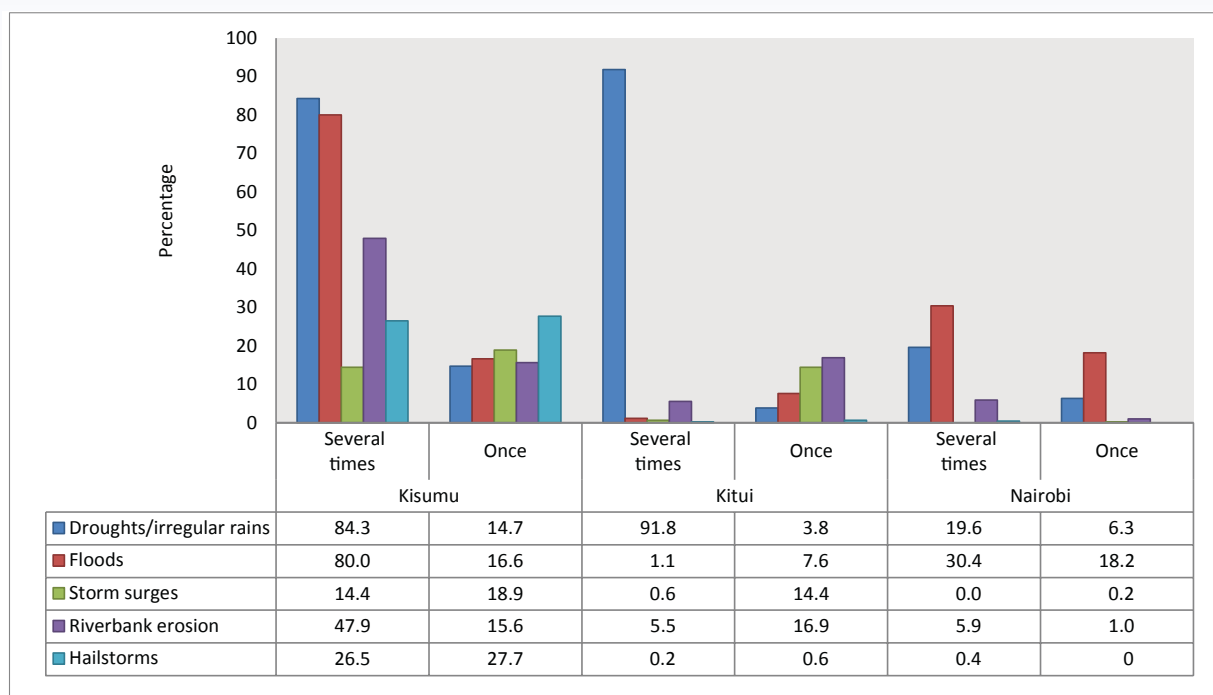
Families have been moving out and back to Bunde village since 1982. That year, the flooding was catastrophic. The last 10 years have seen some families relocate permanently, choosing to buy land and settle in Nyakach, South Nyanza, Tura or even Nyahera in Kisumu County. Those who have resettled elsewhere are mostly well-off families who can purchase land. For poor families like mine, we have no choice but to endure the suffering occasioned by the floods. We move out temporarily, for example, to evacuation centres and return when conditions normalize. People are often displaced and stay away from their homes between three and four months every year. The displacement normally coincides with both the long (April–August) and short (November–January) rains.

4.3. Major hazards in the study areas

A hazard is a situation that poses a level of threat to life, health, property or environment. Hazards can be dormant or a potential risk of harm. Once a hazard becomes “active”, it can create an emergency, as it has the potential to threaten the

surrounding natural environment or adversely affect people’s health. Figure 4.3 depicts the five most common hazards experienced by households in the counties of Kisumu, Kitui and Nairobi. Droughts and floods are prevalent in Kisumu, while droughts are predominant in Kitui, and floods are the most common hazard in Nairobi.

Figure 4.3: Percentage distribution of climatic/environmental hazards by county



Source: MECLEP survey, 2016.

Focus group participants in Kisumu and Nairobi counties confirmed that the hazards depicted in figure 4.3 have been experienced in the current areas of residence. One participant stated:

We always experience floods during the long rains. Our houses are swept away, lives are lost and most people fall into destitution. River bank erosion always occurs during the long rains. Nairobi River cuts through our settlement.

In Kitui County, one of the focus group participants made the following observation:

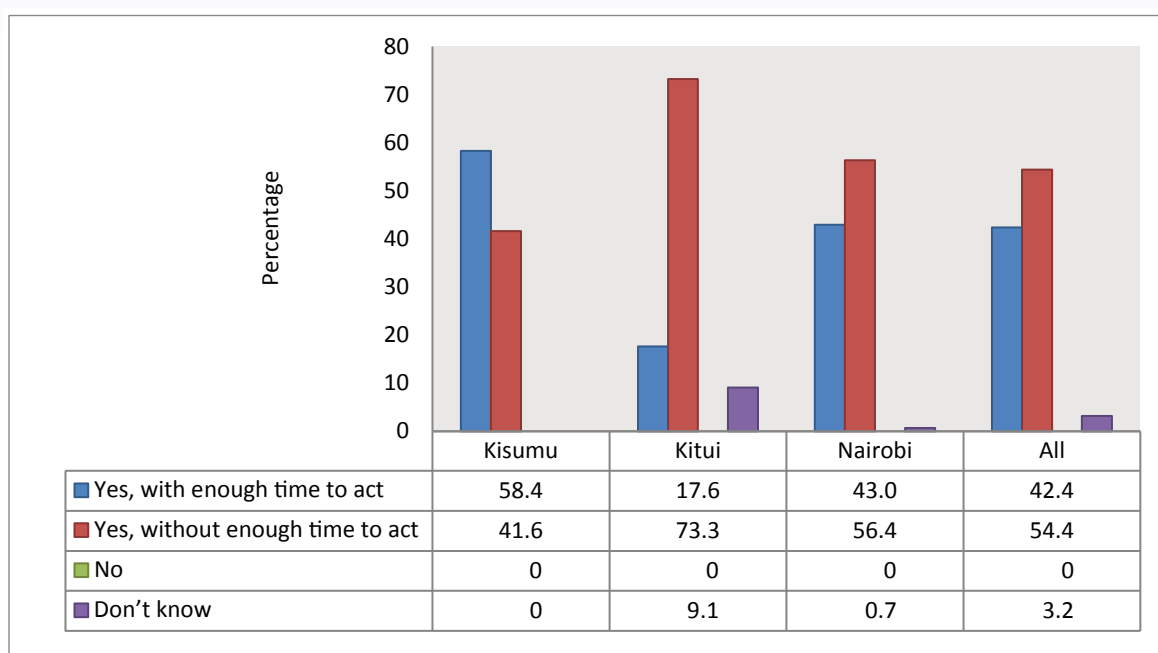
Drought is the greatest hazard, and a major occurrence in this area. At times, we wait for five years before we experience any rain. The last time it rained here was November 2015 [last year]. We had waited for four years without any rains. Even then, we only received light showers. We only have seasonal rivers [Nguni and Mitani]. During flash floods, these rivers destroy our crops, interrupt transport and communication and sweep away our livestock. Lightning struck this village in 2006, destroying several acres of trees. However, landslides mostly affect villages high on the hills, for example Malimba. But landslides only occur following flash floods. Quelea bird invasion is common. The birds destroy crops, affecting our harvest. We have experienced serious floods in the past, particularly villages on black cotton soil are mostly affected. The following years were particularly bad: 1996, 1997, 2006 and 2016. These are mostly flash floods that do not last more than two days.

4.4. Warnings against climatic/ environmental hazards

Risk communication processes against environmental hazards should be based on the forecast intensity and period of time it is expected to last before subsiding, so as to avert loss to life and destruction of property. Thus, early warnings can lead to either a short-term mitigation strategy by households or community members, or a long-term hazard adjustment. The study inquired about the role of the national and local governments,

the support of non-governmental organizations (NGOs) and community associations in reducing hazard impacts, and whether there were other efforts being taken by the community to reduce the impacts of hazards in the future. The households that reported experiencing a climatic/ environmental event that had negatively affected their livelihoods were further asked to indicate if they had received any warning prior to the event. Nearly all households have received warnings on impending climatic/ environmental events either with or without enough time to act (figure 4.4).

Figure 4.4: Percentage distribution of households that received warnings on impending climatic/ environmental events



Source: MECLEP survey, 2016.

Figure 4.4 shows that the households across the three counties feel differently about the warning time given by the Government and NGOs. For instance, in Kisumu 42 per cent of the households feel that, even though they were given warnings, there was not enough time to act. This implies that whenever hazards occur, there is much destruction of property and/or fatalities occur. More than half of the households in Nairobi (56%) and Kitui (73%) stated that they had been given warnings

on impending climatic/environmental events without adequate time to act. This implies that, if any negative impacts of hazards are experienced, it cannot be blamed on a lack of information, but rather on a lack of adequate time or an inability to “take appropriate action” against the hazards, either by not evacuating from the hazardous area or by not preventing the imminent destruction due to a lack of preparedness and resilience to hazards.

Focus group participants in Nairobi and Kisumu counties stated the following, respectively:

The Government issues early warnings on media channels, but people still put up structures in riparian areas. They advise us to move to safer grounds but we have no alternative and therefore stay put. This was not happening 10 years ago. In most cases, both State and non-State actors respond to rather than prevent disasters from occurring. We have tried to plant trees and grass on the river banks but some people clear this vegetation to put up new houses. There is a need for more sensitization in order to enhance disaster risk awareness. The population is growing and land is becoming scarce. Most people therefore opt to rent structures/houses in the riparian areas because such units are cheaper. In so doing, they are exposing themselves to more risk.

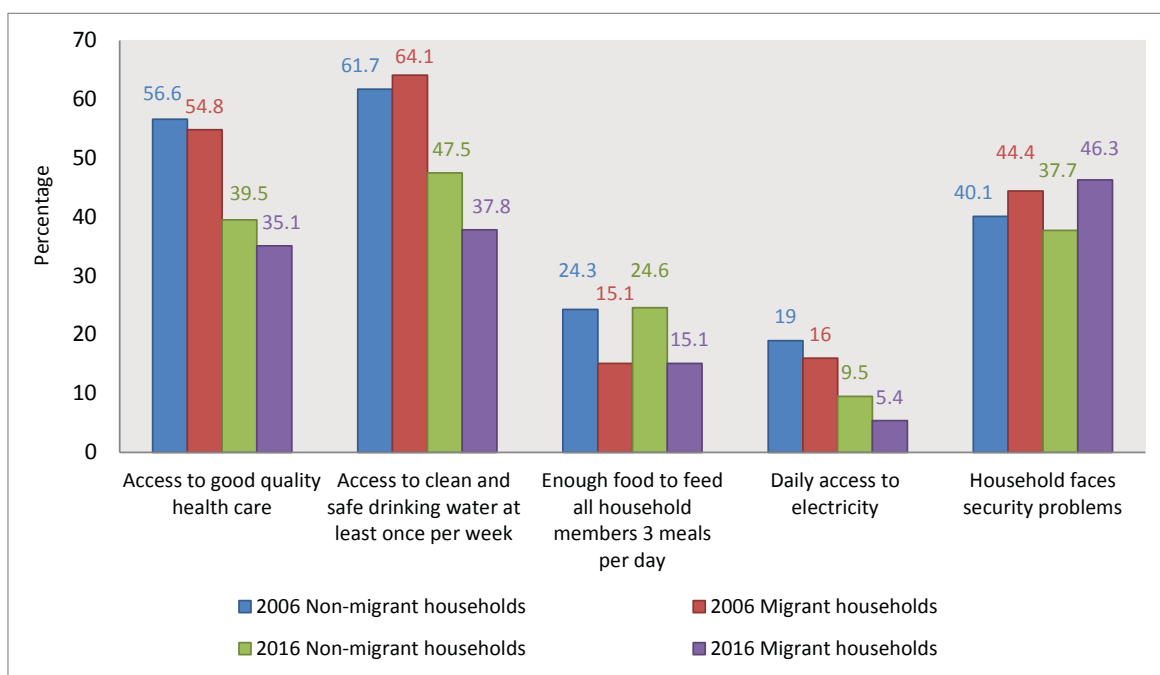
The Kenya Red Cross mostly donates food and non-food items (blankets, clothes, cooking utensils, tents, cooking stoves). Local politicians also mostly help in their individual capacity. Other well-wishers, mostly NGOs, for example, Shining Hope for Communities, Centers for Disease Control, MSF [Doctors without Borders] France/Kibera South, provide support. We always hear the Government has a disaster response plan but we rarely benefit from their assistance. Ten years ago, the Government would donate food and non-food items but not anymore. These donations are not always adequate due to the large number of families that get affected, as the household sizes are large. The extent of damage and lack of proper assessments prior to such assistance are because the Government lacks local structures in order to respond efficiently to disasters and at times relies on “brokers” to distribute donated items. More needs to be done to educate the residents on disaster mitigation and response.

4.5. Access to services

Access to comprehensive, quality services is important to be able to achieve equity for all and to increase the quality of everyone's livelihoods. Four components of access to care and services are availability, timeliness, cost (affordability) and sufficient care workers. Figure 4.5a shows migrant households' and non-migrant households' access

to services in Kisumu County, for the current period and for 10 years ago. It shows that, 10 years ago non-migrant households (57%) had better access to good quality health care than migrant households (55%). Currently, 40 per cent of non-migrant households and 35 per cent of migrant households have access to good quality health care. This is contrary to the experience of migrant and non-migrant households in Kitui County (figure 4.5c).

Figure 4.5a: Migrant and non-migrant households with access to services in Kisumu County (%)

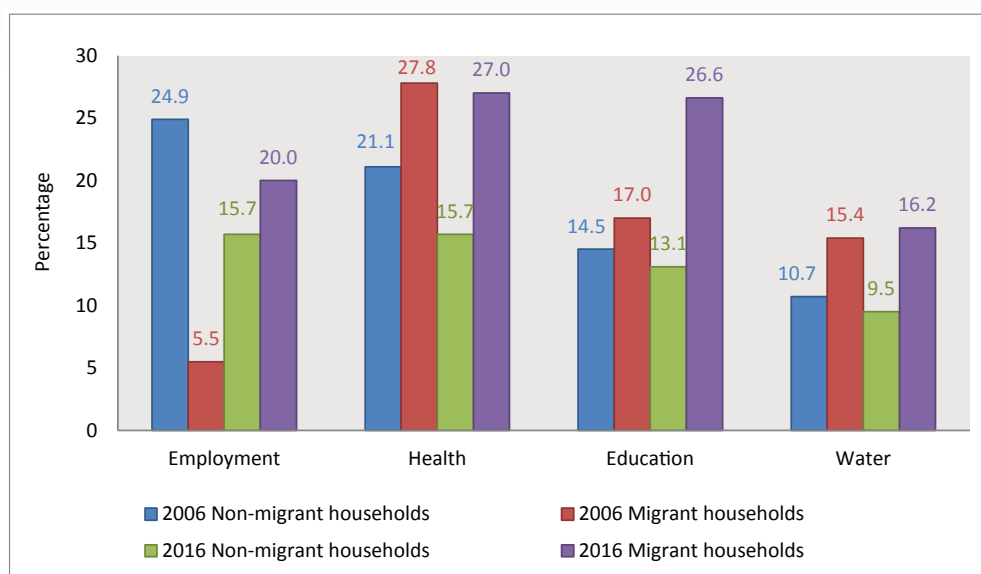


Source: MECLEP survey, 2016.

Figure 4.5b shows that, in Kisumu County 10 years ago, a greater percentage of migrant households than non-migrant households experienced discrimination in accessing services such as health, education and water, and the situation is the same today. Other than in access to employment, 10 years ago migrant households suffered more discrimination than non-migrant

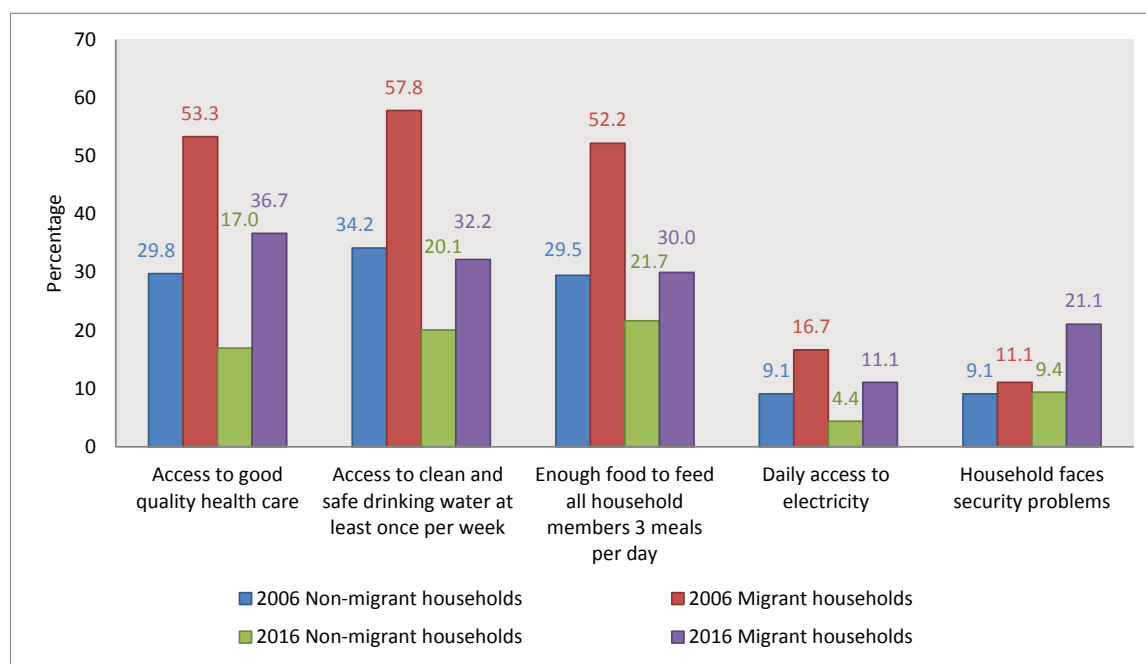
households in Kisumu County. This implies that there is inequality between migrant and non-migrant households in accessing services. There is need for the national and county governments in Kenya to put in place deliberate guidelines and policies that would ensure migrant households equal access to services.

Figure 4.5b: Migrant and non-migrant households that have suffered discrimination/exclusion in accessing services in Kisumu County (%)



Source: MECLEP survey, 2016.

Figure 4.5c: Migrant and non-migrant households with access to services in Kitui County (%)

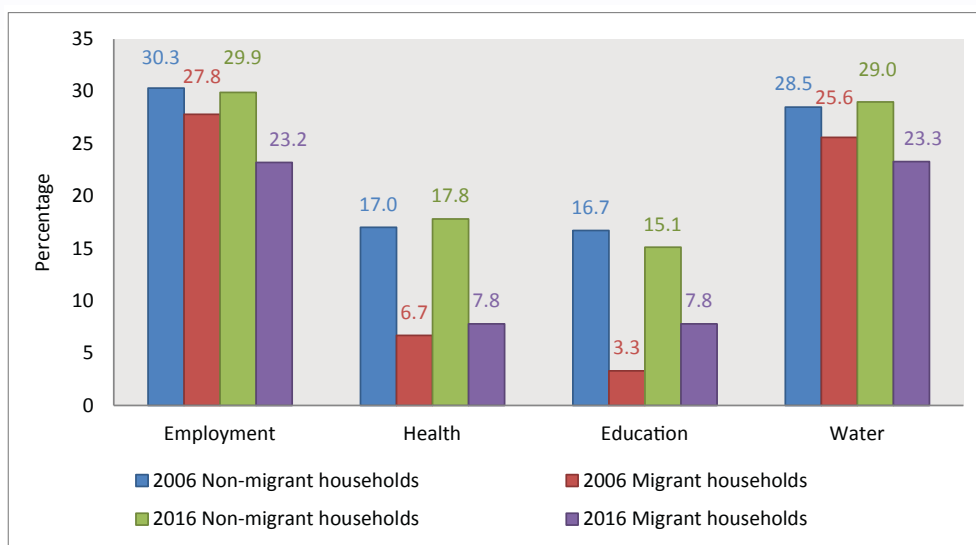


Source: MECLEP survey, 2016.

Non-migrant households have less access to services than migrant households. This is evident across the different sites and services in “access to clean and safe drinking water at least once per week”, “enough food to feed all household members three meals per day”, “daily access

to electricity”, and “household faces security problems”. In Kitui County, although the migrant households had better access than the non-migrant households to the aforementioned services, they also “faced more security problems” (figure 4.5c).

Figure 4.5d: Migrant and non-migrant households that have suffered discrimination/exclusion in accessing services in Kitui County (%)

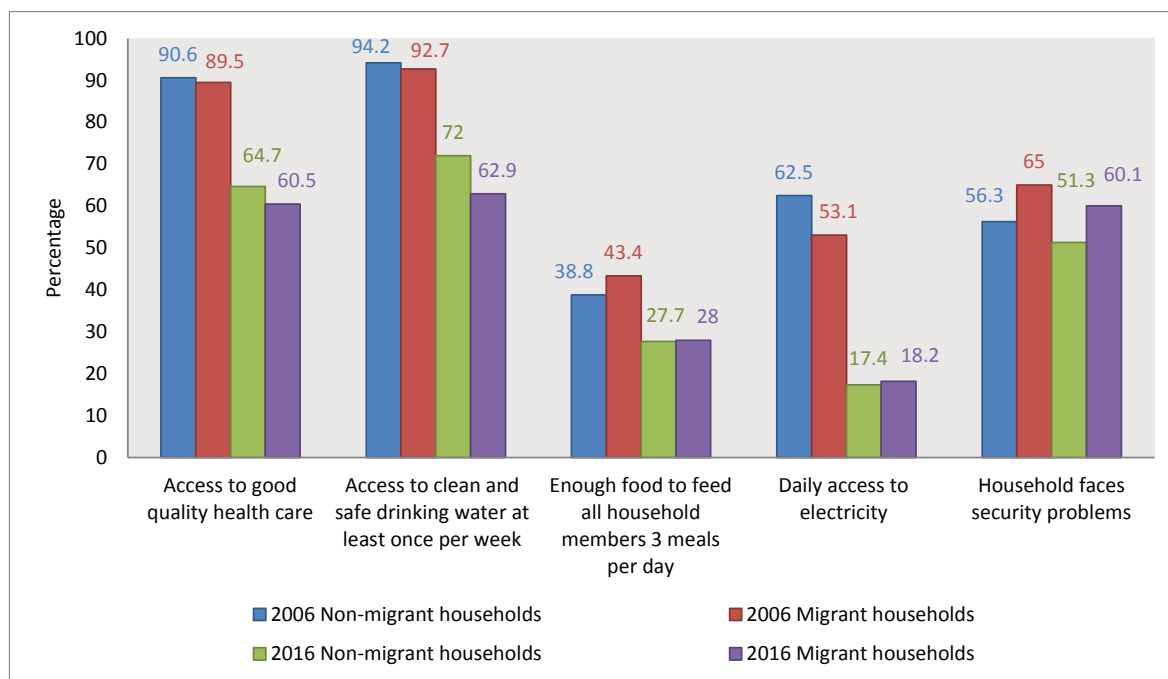


Source: MECLEP survey, 2016.

Access to services by migrant and non-migrant households in Nairobi County 10 years ago compared with the current situation mirrors the pattern observed in Kisumu County. The difference is in the reduced gap in inequality (figure 4.5e) between the two types of households. Equally,

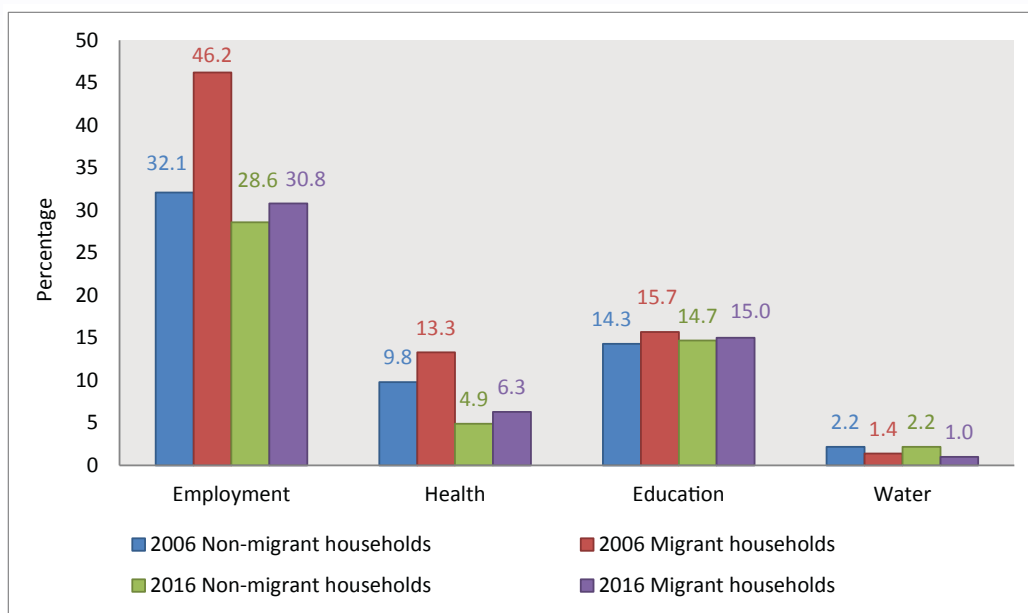
a greater percentage of migrant households suffered discrimination than non-migrant households in accessing employment, health and education; the exception was in access to water (figure 4.5f).

Figure 4.5e: Migrant and non-migrant households with access to services in Nairobi County (%)



Source: MECLEP survey, 2016.

Figure 4.5f: Migrant and non-migrant households that have suffered discrimination/exclusion in accessing services in Nairobi County (%)



Source: MECLEP survey, 2016.

Focus group participants in Nairobi made the following statements about their access to services:

We have had piped water for more than 10 years. However, we are mainly served by private water service providers. The public water supply system collapsed many years ago. The Government, with funding from the World Bank, has laid water pipes but these remain dry.

We do not have a public health facility in Sarang'ombe village, Kibera. Private health facilities have been in existence for more than 10 years. We have both private and public toilets as well as ablution blocks, but we pay to use these facilities. We did not have these 10 years ago.

Public primary schools exist, including Olympic and Ayany primary schools. Olympic High School is the only public secondary school, which started in 2002. We have also had private secondary schools for more than 10 years. The main road linking the slum to the city is tarmac. This was done more

than 10 years ago. However, access roads within the settlement remain inaccessible in poor weather.

We do not have officially designated markets. We do not have a social hall, playgrounds or recreational parks. Most public spaces have been grabbed by private developers.

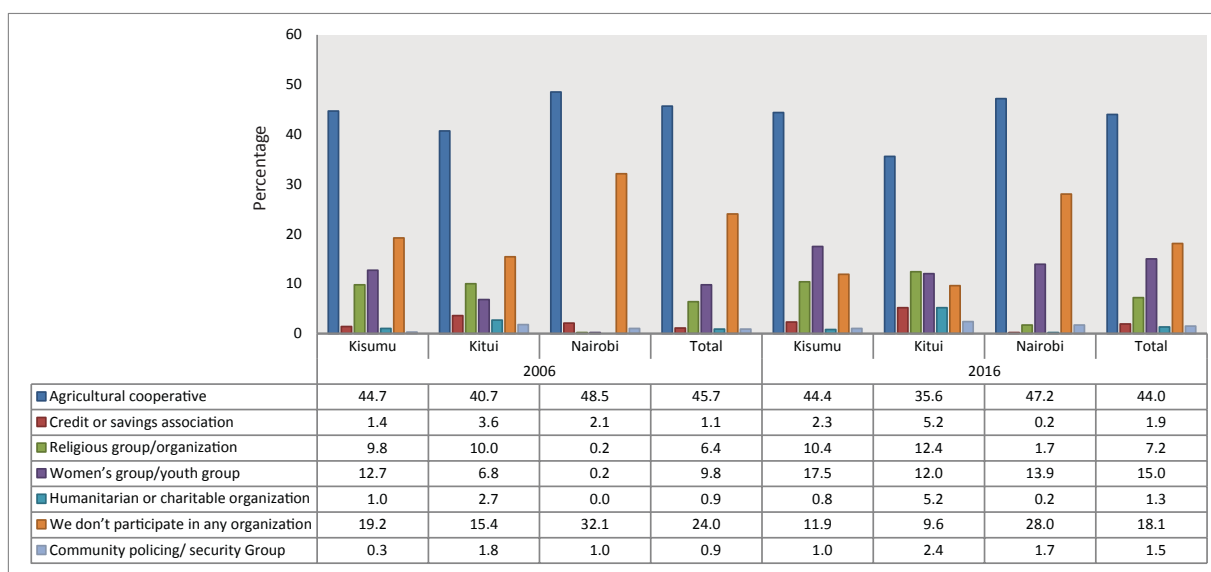
Though we have had access to electricity for the past 10 years, power outages are common due to illegal connections and a burgeoning population. Telecommunication masts are available and we can communicate easily on our mobile phones.

4.6. Membership in organizations

Organizations can be categorized as either formal or informal. Formal organizations are goal oriented and have well-defined job structures, positions and functions. On the other hand, informal groups are characterized by personal relationships that unite the members. Figures 4.6a and 4.6b show that, 10 years ago and currently,

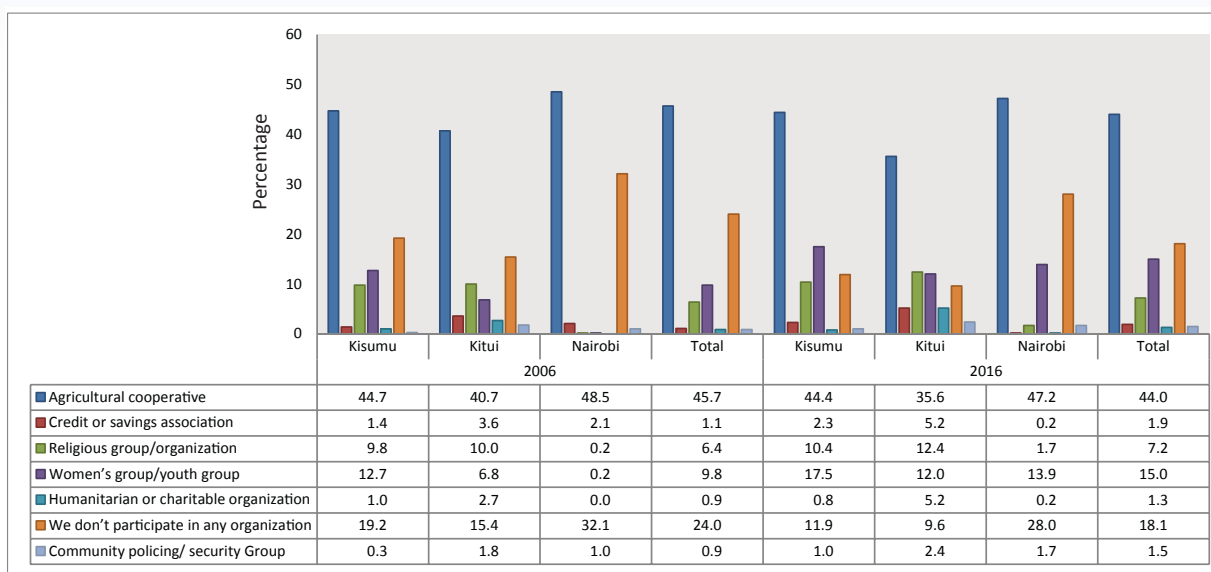
non-migrant households enrolled as members mostly in three institutions or organizations, namely, agricultural cooperatives, religious groups or organizations, and women's groups or youth groups. Equally, 10 years ago, migrant households enrolled most often in agricultural cooperatives, women's or youth groups, and religious groups or organizations, and the situation continues today. Notably, there seem to be no differences in membership percentages, irrespective of mobility status.

Figure 4.6a: Percentage distribution of non-migrant households' membership in organizations by county



Source: MECLEP survey, 2016.

Figure 4.6b: Percentage distribution of migrant households' membership in organizations by county



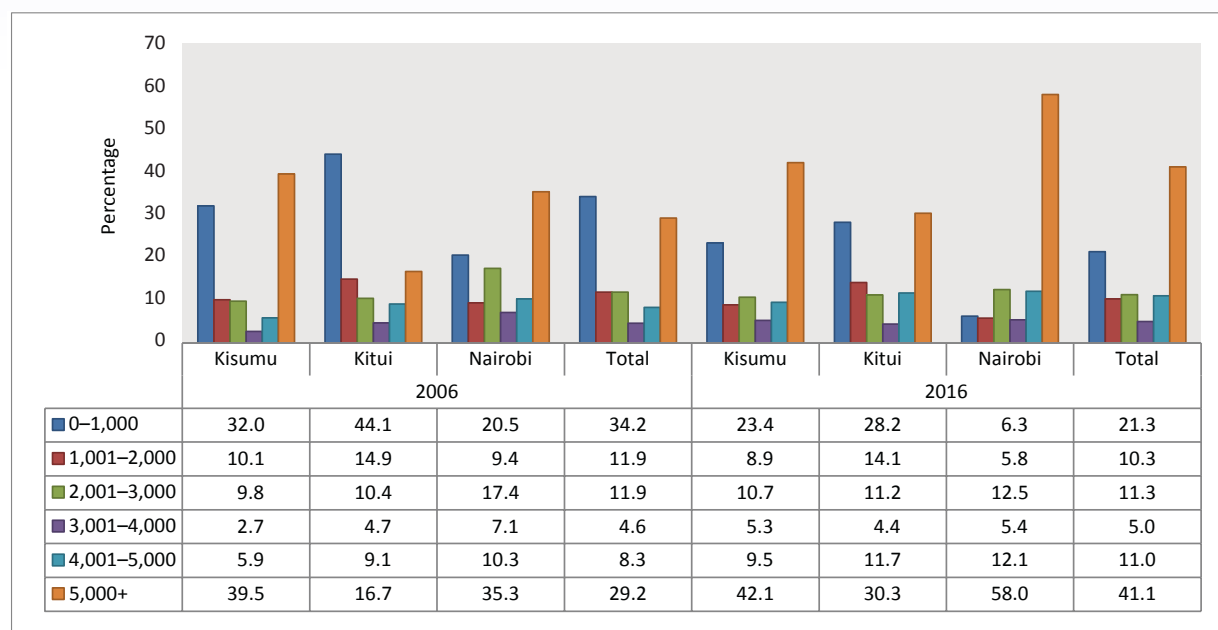
Source: MECLEP survey, 2016.

4.7. Household financial status

Households were asked questions about their financial status, including their monthly income, their use of banks or financial institutions, and their use of informal associations or cooperatives. Figure 4.7a shows that there has been an increase in non-migrant households' monthly income from

10 years ago to the present in the three counties of Kisumu, Kitui and Nairobi, particularly for those earning 5,000 Kenyan shillings or more. There has also been a reduction in the percentage of those households earning up to 1,000 Kenyan shillings per month. This implies that in the past 10 years there has been an increase in the households' disposable income.

Figure 4.7a: Percentage distribution of non-migrant households' monthly income by county (Kenyan shillings)



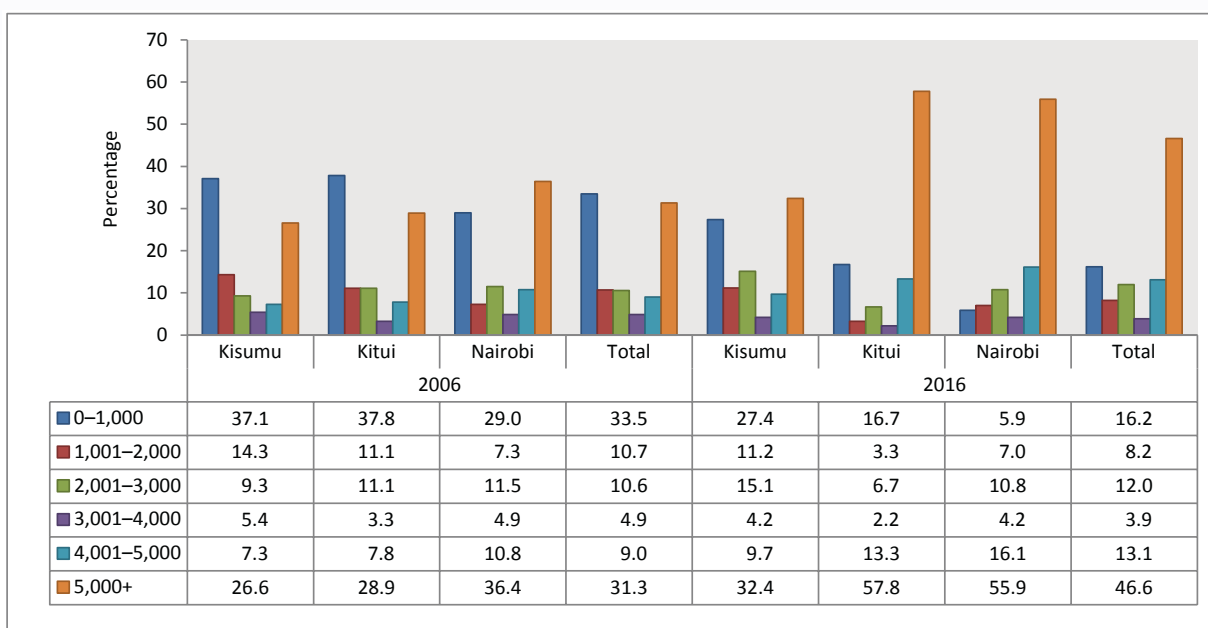
Source: MECLEP survey, 2016.

Note: United Nations exchange rate average in 2016: 1 USD = 101,513 Kenyan shillings.

Figure 4.7b shows a similar pattern in monthly household income among migrant households. The percentage of migrant households earning 5,000 Kenyan shillings or more has increased from 10 years ago. Moreover, the percentage of migrant households earning up to 1,000 Kenyan shillings per month has dropped from 10 years ago. Of the total migrant households surveyed, 16.2 per cent currently earn less than 1,000 Kenyan shillings per month, compared with 21.3 per cent of the non-

migrant households. Compared with the non-migrant households, there was an increase in the percentage of migrant households with income earnings in the highest income quintile. For instance, in Kisumu, Kitui and Nairobi counties, there has been a considerable increase from 26.6 per cent to 32.4 per cent, 28.9 per cent to 57.8 per cent and 36.4 per cent to 55.9 per cent, respectively.

Figure 4.7b: Percentage distribution of migrant households' monthly income by county (Kenyan shillings)



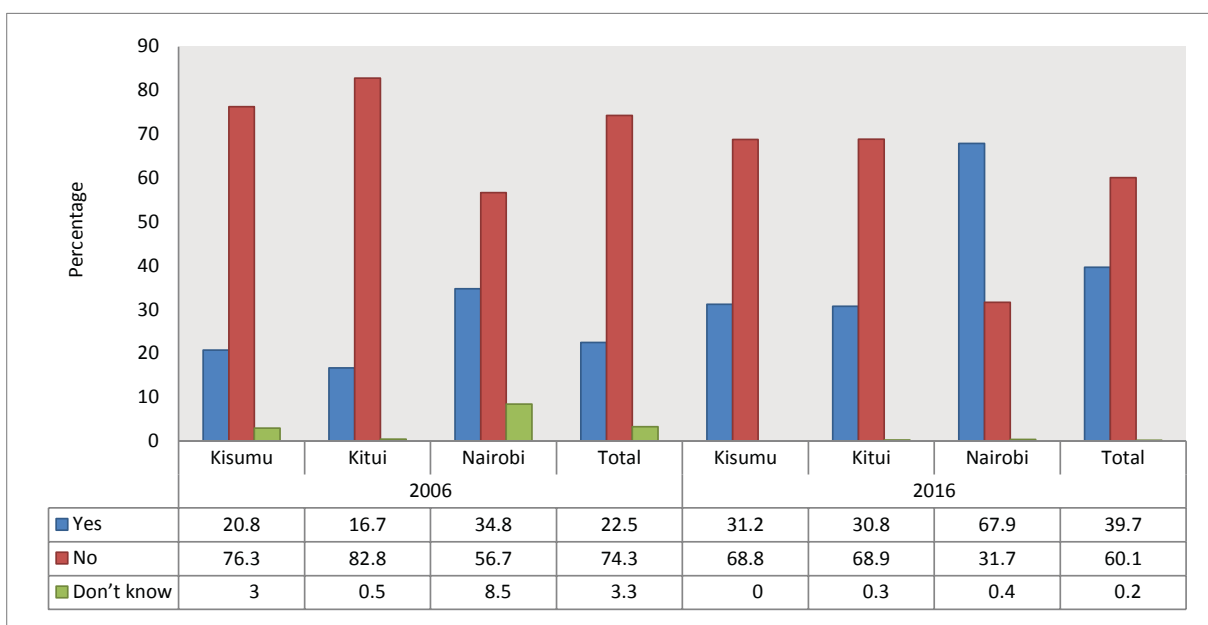
Source: MECLEP survey, 2016.

Note: United Nations exchange rate average in 2016: 1 USD = 101,513 Kenyan shillings.

Financial inclusion has improved in Kenya over the last 10 years, which can be attributed to digital technology and mobile financial/banking systems. Figures 4.7c and 4.7d show that an

increased proportion of the non-migrant and migrant households in Kisumu, Kitui and Nairobi counties currently use banking or financial institutions compared with 10 years ago.

Figure 4.7c: Percentage distribution of non-migrant households' use of banks/financial institutions by county

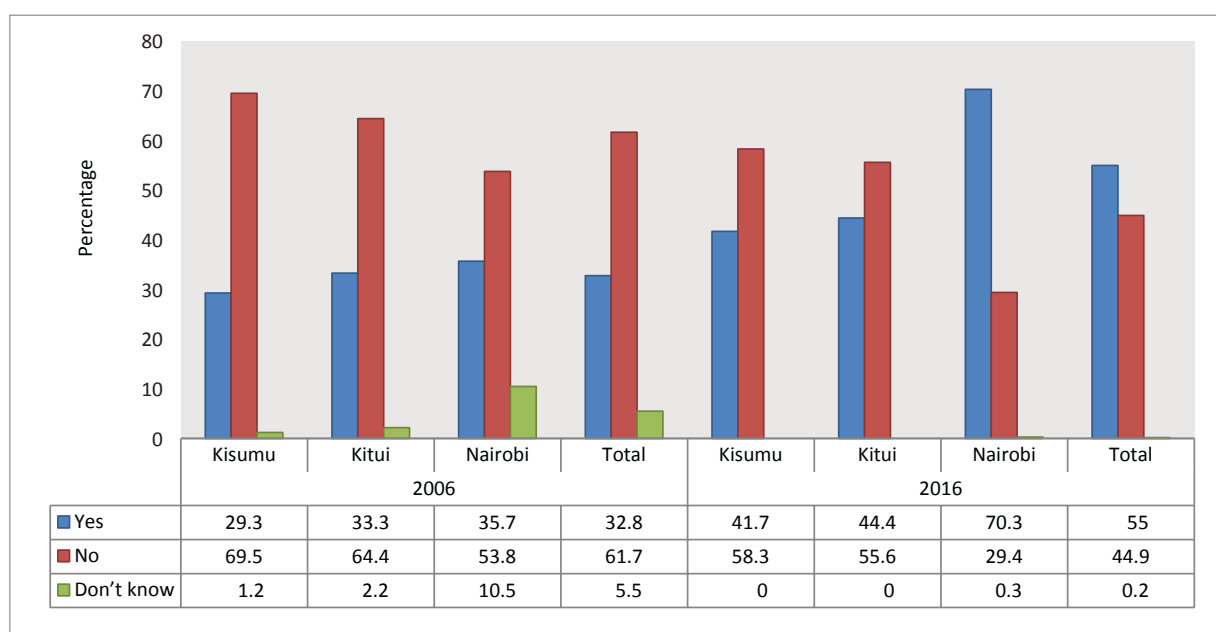


Source: MECLEP survey, 2016.

Figure 4.7d shows that, according to the survey, there has been a substantial percentage increase in the respondents' use of banking/financial institutions' services from 10 years ago to the present (from 23% to 40% for non-migrant households and from 33% to 55% for migrant households). It is plausible that migrants use financial services more than non-migrants because cash/money is an easily movable asset,

especially through mobile telephone banking (such as M-Pesa). Equally, having daily access enhances their ability to use the services to pay for their living expenses. On the other hand, 74 per cent of non-migrant households said they did not use banks/financial institutions 10 years ago while 60 per cent said they do not currently use them. For migrant households, the figures are 62 per cent and 45 per cent, respectively.

Figure 4.7d: Percentage distribution of migrant households' use of banks/financial institutions by county



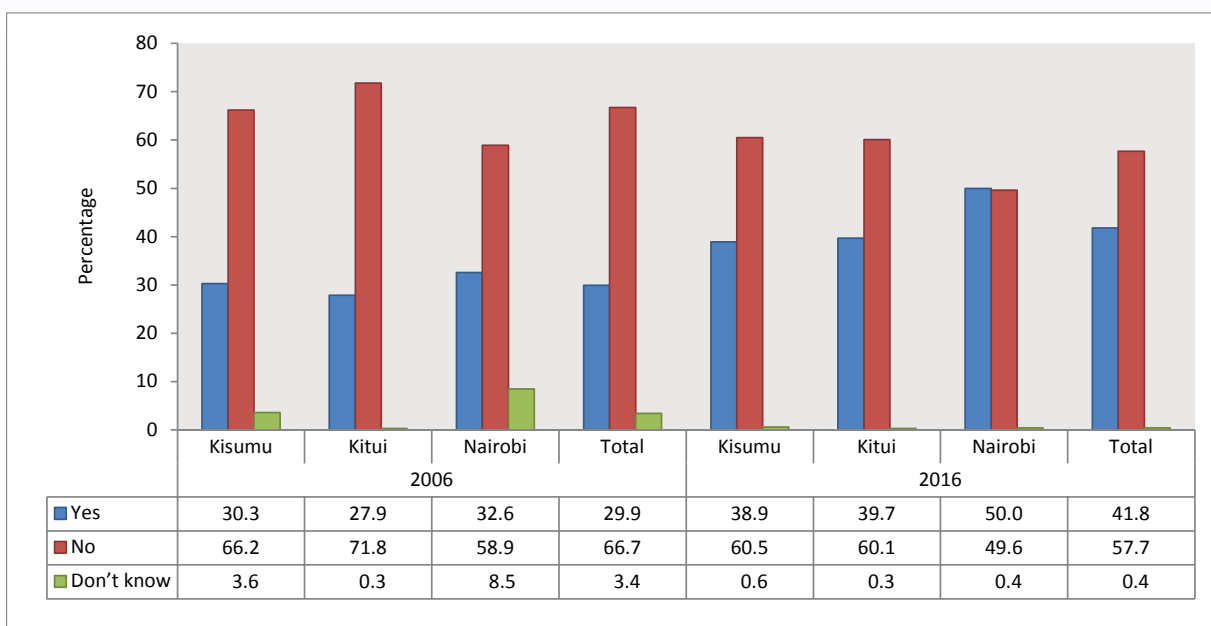
Source: MECLEP survey, 2016.

4.8. Use of informal associations or cooperatives

In Kisumu, Kitui and Nairobi counties, there has been an increase in the use of informal associations or cooperatives by both non-migrant and migrant households over the past 10 years. Figures 4.8a and 4.8b show that the percentage of non-migrant households who use informal

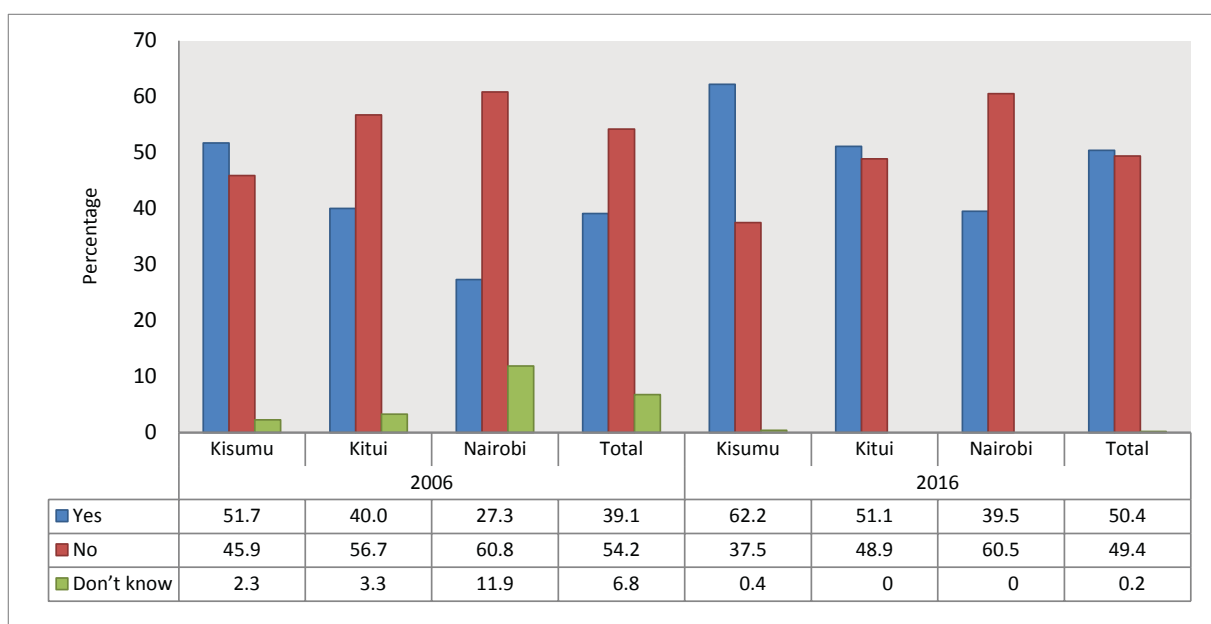
associations or cooperatives has increased from 30 per cent to 42 per cent during the past 10 years, while the percentage of migrant households who do not use them has declined from 54 per cent to 49 per cent during the same period. In addition, according to the survey, the percentage of migrant households that use informal associations or cooperatives has also increased from 39 per cent to 50 per cent during the past 10 years.

Figure 4.8a: Percentage distribution of non-migrant households' use of informal associations/cooperatives by county



Source: MECLEP survey, 2016.

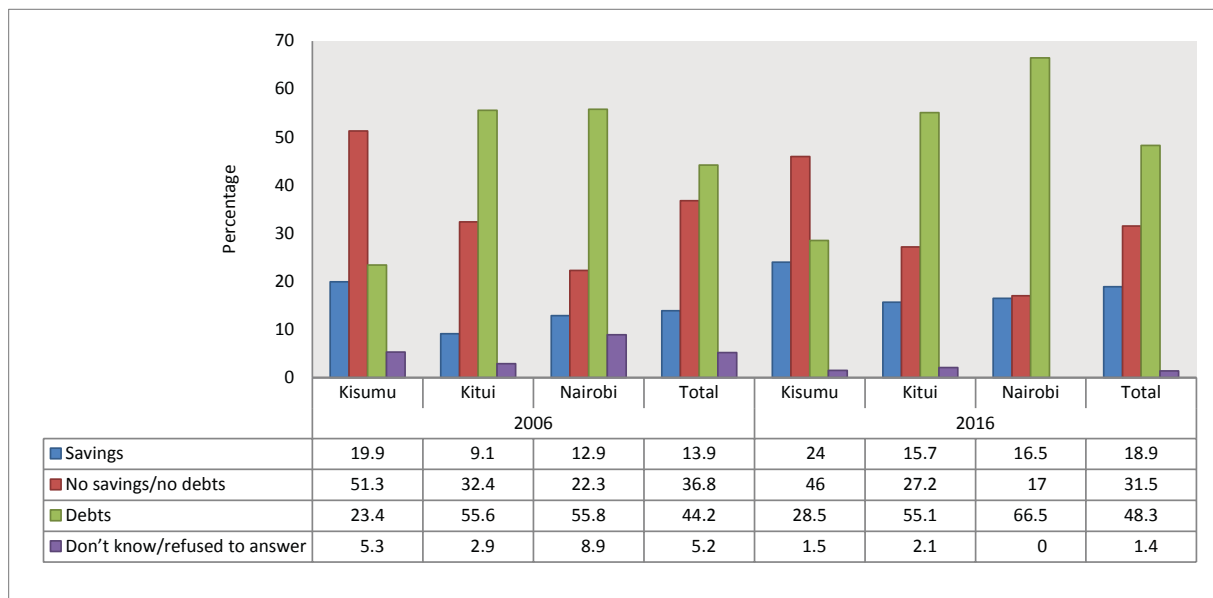
Figure 4.8b: Percentage distribution of migrant households' use of informal associations/cooperatives by county



Source: MECLEP survey, 2016.

The financial situation of the migrant and non-migrant households has improved in the past 10 years in the three counties of Kisumu, Kitui and Nairobi (figures 4.8c and 4.8d).

Figure 4.8c: Percentage distribution of non-migrant households' financial situation by county



Source: MECLEP survey, 2016.

For instance, over the past 10 years, the proportion of non-migrant households with savings in Kisumu, Kitui and Nairobi counties has increased from 20 per cent to 24 per cent, 9 per cent to 16 per cent and 13 per cent to 17 per cent, respectively. For migrant households, the rate has increased even more during the past 10 years. The increase in savings could be associated with the increase in the use of mobile money transfers and in the use of digital technology in banking services such as M-Pesa and M-Shwari. Hence, banking services have been made more reachable, accessible and efficient to use than the traditional banking system, whereby clients were expected to visit the banks. The proportion of migrant households with savings in Kisumu, Kitui and Nairobi counties has increased from 22 per cent to 25 per cent, 19 per cent to 27 per cent and 14 per cent to 18 per cent, respectively. The percentage of non-migrant households without savings in the three counties has also decreased in the past 10 years,

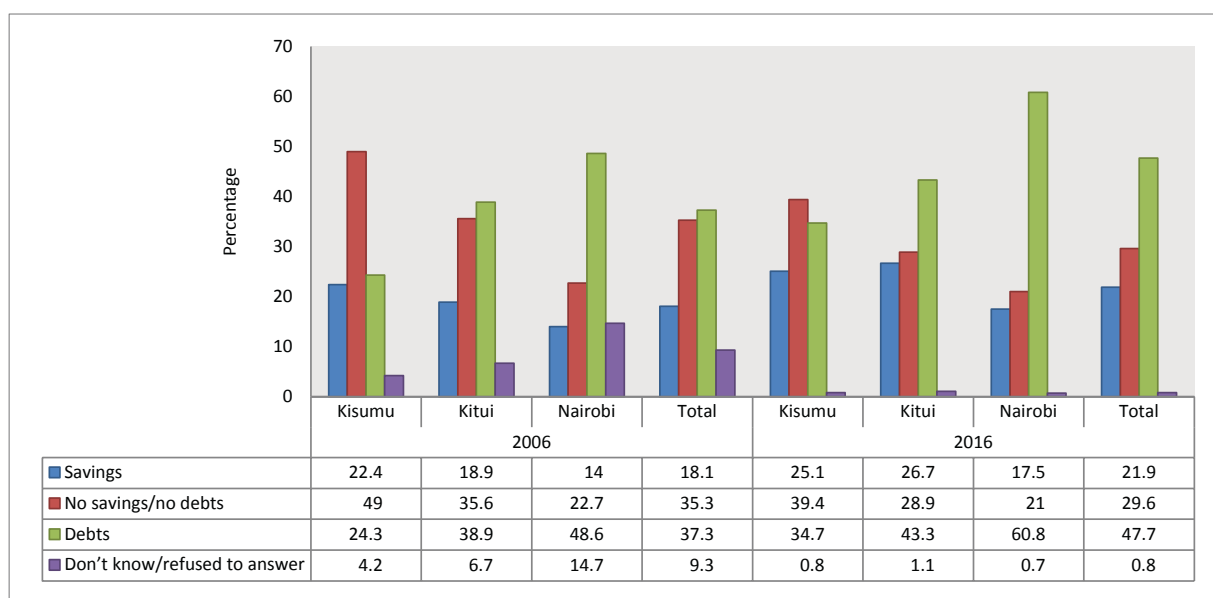
from 51 per cent to 46 per cent, 32 per cent to 27 per cent and 22 per cent to 17 per cent, respectively (figure 4.8c). Among the migrant households in Kisumu, Kitui and Nairobi, the percentage of those with no savings has declined from 49 per cent to 39 per cent, 36 per cent to 29 per cent and 23 per cent to 21 per cent, respectively (figure 4.8d).

Nonetheless, it is notable that, although the proportion of households with savings has increased, the proportion of non-migrant households with debts has increased in Kisumu and Nairobi counties by 23 to 29 per cent and 56 to 67 per cent, respectively. On the contrary, in Kitui County the proportion of non-migrant households with debts declined slightly from 56 per cent to 55 per cent over the 10-year period (figure 4.8c). However, in Kitui, unlike for non-migrants, for whom the proportion of households with debts has declined slightly, the proportion of migrant households with debts has increased

(figure 4.8d). It is plausible that a greater proportion of the migrant households are more in debt due to the need to rent or buy housing at the

destination, and to invest in education, transport and health services, among other things.

Figure 4.8d: Percentage distribution of migrant households' financial situation by county



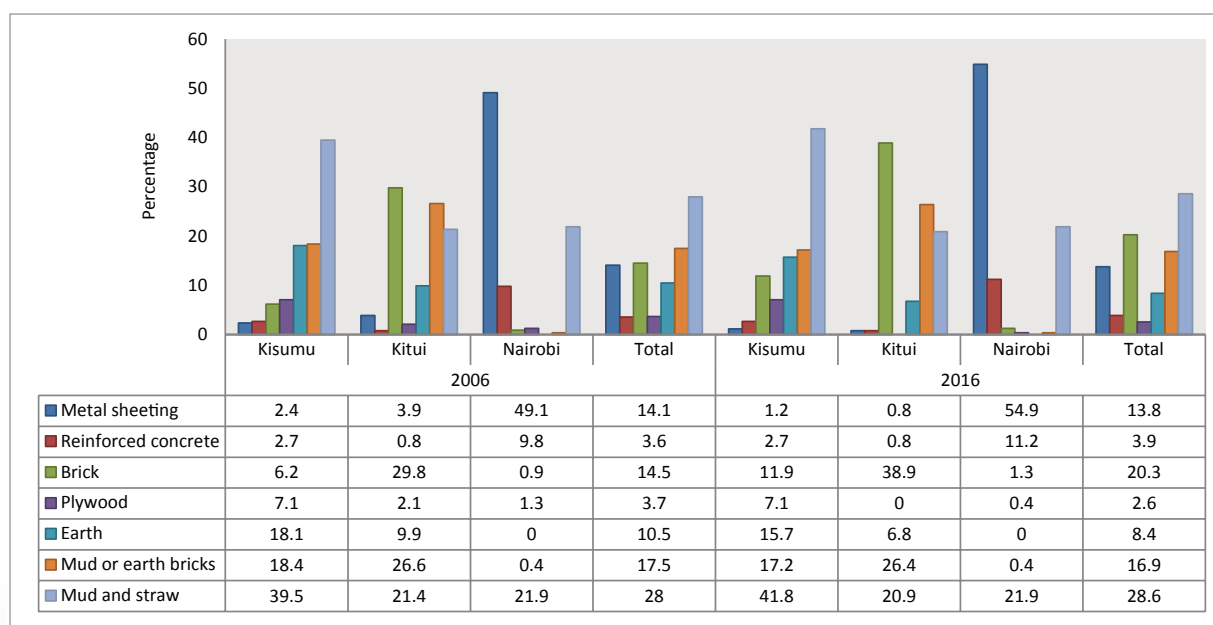
Source: MECLEP survey, 2016.

4.9. Housing construction

Figure 4.9a shows that, 10 years ago, the most commonly used materials for construction of the walls of the non-migrant households' housing

were mud and straw in Kisumu, bricks in Kitui and metal sheeting in Nairobi.

Figure 4.9a: Percentage distribution of non-migrant household's primary construction materials by county



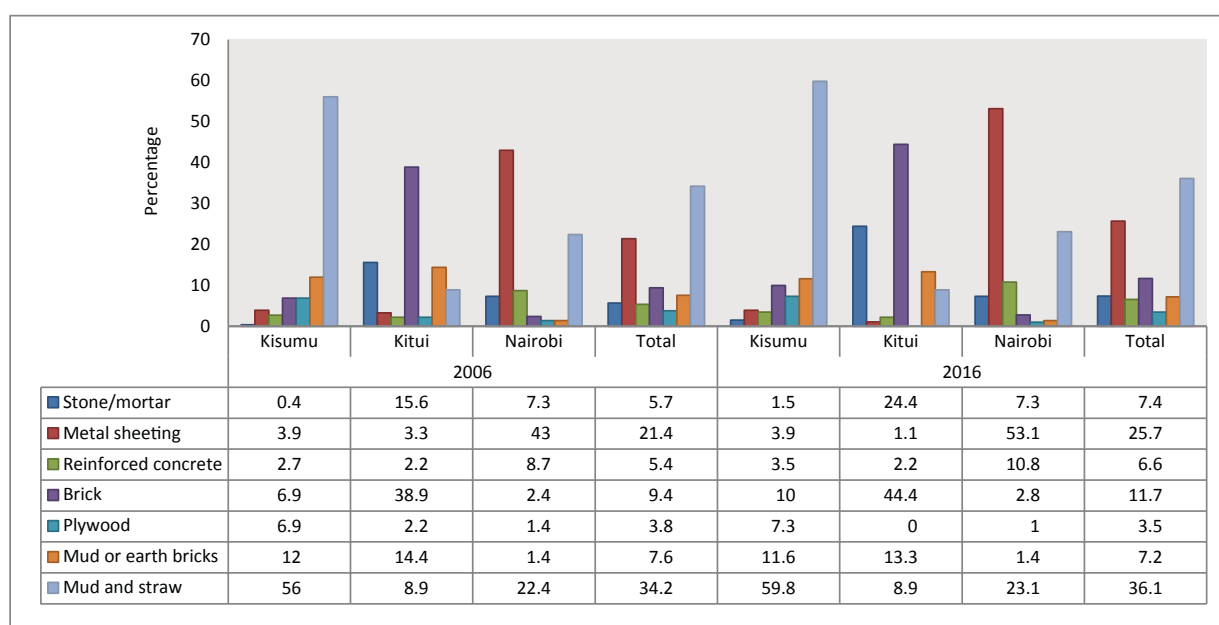
Source: MECLEP survey, 2016.

Housing is often categorized into formally built or informally built types. The former refers to housing units built by developers on serviced land with property titles, while the latter refers to housing built by individuals, often in an incremental manner, on land that is not always serviced and where titles are not always available. Dwellings can be built in many configurations, from detached houses to high-rise apartments. Each type of housing has particular requirements in terms of special planning and implications for building costs. Currently, among the non-migrant households, the most commonly used

construction materials for walls are still mud and straw in Kisumu, bricks in Kitui and metal sheeting in Nairobi (figure 4.9a).

The survey established that there is a similarity in the types of construction materials used by migrant households for the walls of their housing units 10 years ago and what they currently use, just as there is among the non-migrant households. For instance, in Kisumu the materials are mud and straw, in Kitui bricks and in Nairobi metal sheeting (figure 4.9b).

Figure 4.9b: Percentage distribution of migrant households' primary construction materials by county



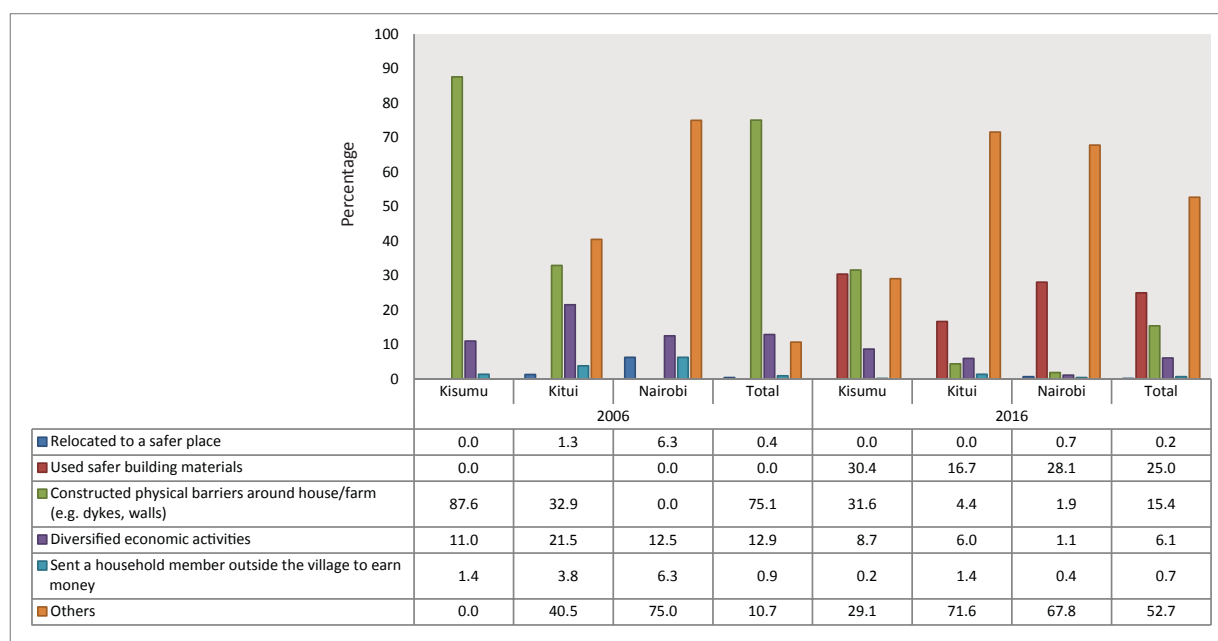
Source: MECLEP survey, 2016.

4.10. Prevention of future hazards

Preventing future hazards is the most appropriate mitigation strategy with regard to any form of hazard (natural and artificial), particularly those caused by the climate or environment. Figures 4.10a and 4.10b show the percentage distribution of non-migrant and migrant households, respectively, by the type of mitigation measures they take and have taken to prevent impacts of future hazards. The survey shows that, 10 years ago, non-migrant households in Kisumu County “constructed physical barriers around their houses and farms (dykes and walls)” to mitigate the hazards. This implies that flooding was the most expected hazard in the area 10 years ago. The same mitigation measure is currently being used by migrant households in Kisumu County.

Non-migrant households in Kitui and Nairobi counties mainly relied on other mechanisms to mitigate the impacts of hazards. In Kitui County 10 years ago, non-migrant households “diversified their economic activities” in addition to using “other” strategies (figure 4.10a) as the most viable options. The study shows that Kitui is an extremely drought-prone region. Thus, with minimal rainfall, crop production was liable to fail. This implied that the effects of drought on livestock were also important. To that end, it was a better option for the residents of Kitui County to diversify their economic activities into those such as small and medium businesses in areas such as tailoring, groceries and transport. Yet in Nairobi, the non-migrant households currently use “safer building materials”, as they did 10 years ago, to prevent future hazards.

Figure 4.10a: Percentage distribution of preventive measures taken by non-migrant households against impacts of future hazards by county

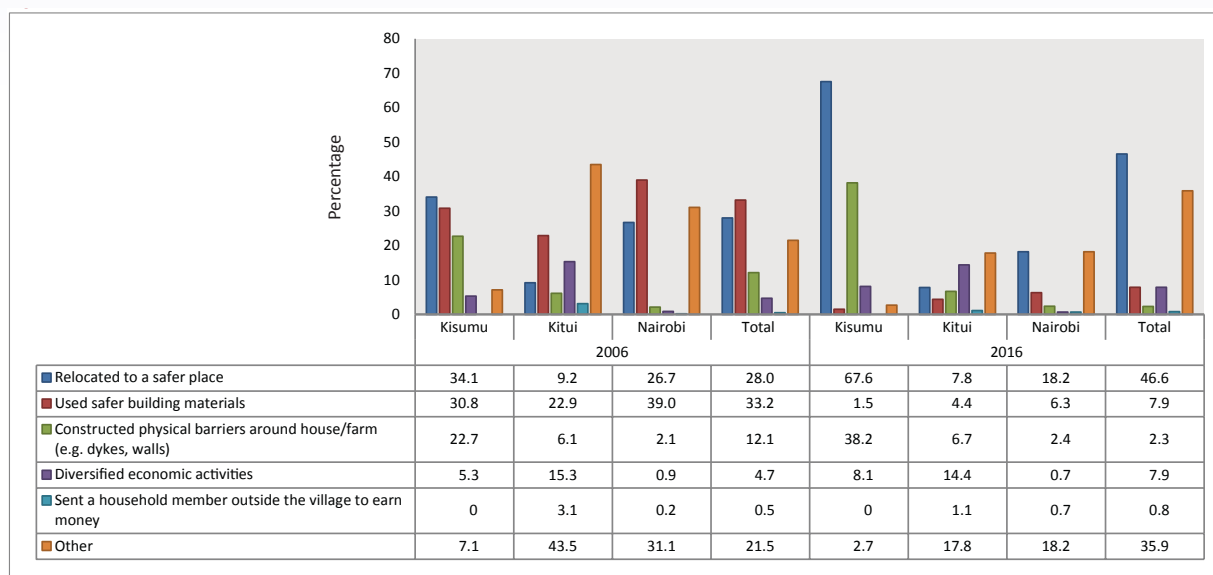


Source: MECLEP survey, 2016.

Though the migrant households in Kisumu, Kitui and Nairobi used similar construction materials in their respective counties as the non-migrant households 10 years ago to prevent future hazards, they currently use different construction materials (figure 4.10b). In Kisumu, the majority of migrant households had “relocated to a safer place” in the year prior to the survey. In

Kitui and Nairobi, they decided to use “safer building materials”. The study has established that “relocating to a safer place” is the second-most important option used in all three counties. This implies that households are already using migration as an adaptation strategy with regard to environmental and climatic changes.

Figure 4.10b: Percentage distribution of preventive measures taken by migrant households against impacts of future hazards by county



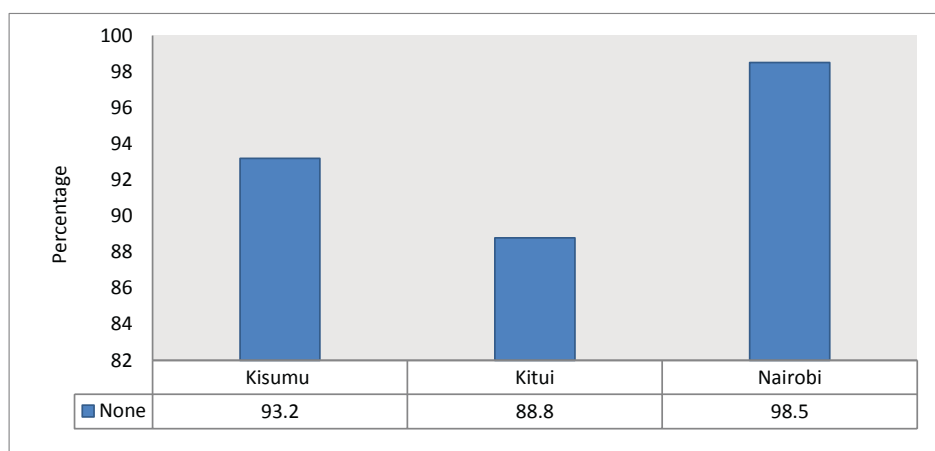
Source: MECLEP survey, 2016.

4.11. Support for the migration process

Figure 4.11 shows that there has been minimal support from any authorities to assist migrant households in their migration process, as 93 per cent, 89 per cent and 99 per cent of the migrant households in Kisumu, Kitui and Nairobi, respectively, reported that they had

never received any assistance from any level of government, or any organization or institution. Response mechanisms in the community during hazards are vital. The role of associations in the community that can help households in times of crisis cannot be downplayed. Equally, measures taken by the local or national government or community associations to deal with the impacts of hazards enable communities to better deal with or avoid negative impacts.

Figure 4.11: Support received by households from authorities to assist migration process (%)



Source: MECLEP survey, 2016.

The following statement is a response from a focus group participant when asked about any support they may have received during the migration process:

The response mechanisms are not adequate. For example, the earth dam cannot sustain the entire community. Instead of allowing its waters to flow into the Indian Ocean, the Government should dam the Athi and Thiba rivers to support livestock and irrigated agriculture in this community. Regular repairs and maintenance of existing water supply systems should be prioritized as well. The Government should also improve the road network in the area to ease the cost of food. We know our priorities. However, the Government rarely consults us [members of this community], and this explains why most of their projects do not benefit a greater number of drought affected populations. Some projects are not beneficial at all.

The following were some of the disaster mitigation strategies used in Kitui County, as narrated during different key informant interviews:

The protracted relief and recovery operation gets support from the World Food Programme. Cash transfer programmes for older persons and persons living with a disability are available ... all funded by the Government. Although the support is useful, the fund is limited in geographical scope and beneficiaries.

NGOs, for example Samaritan's Purse and World Vision, support both relief and development activities, particularly in food and nutrition security, water development and child protection and education sponsorship. We have several self-help groups which promote a number of activities, such as table banking, water

development and related community empowerment. A good example is the Kamutei Water Project. However, most self-help groups lack the capacity to intervene during emergencies caused by floods or even prolonged drought. The national Government drilled [a] solar powered borehole at Ntalane in the year 2006 and another one at Nguni-Keuwane. This year [2016], the county government constructed an earth dam. The county government has supplied plastic water tanks to nearly all primary and secondary schools in this area to promote rain water harvesting.



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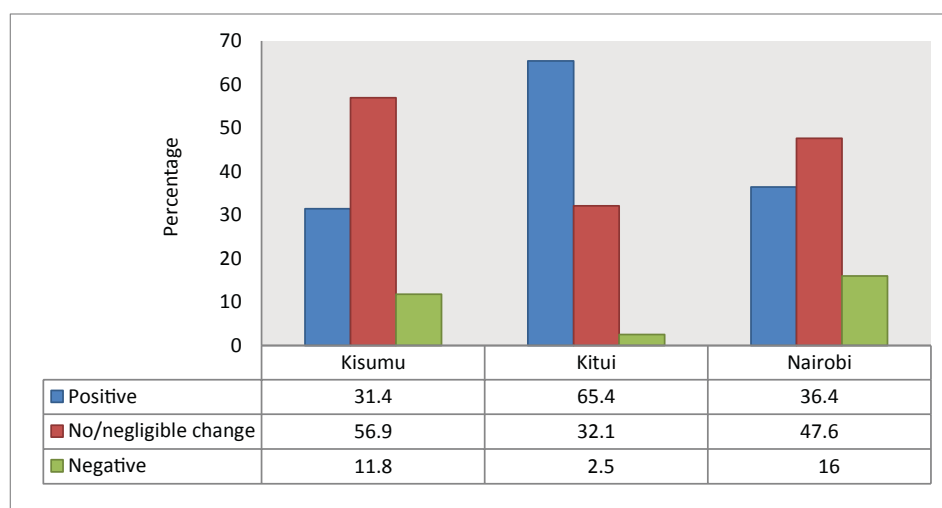
5. Impact of migration on adaptation

5.1. Perceptions of migrants

Figure 5.1 shows that the perception of the overall impact of migration varies by county. In Kisumu County more than half of the migrant households think that it is negligible (57%), while in Kitui County it is thought to be very positive (65%). In

Nairobi and Kisumu counties, there were more households who reported that the impact was positive than there were those who reported negative repercussions. For instance, in Nairobi barely two fifths of the migrant households think the impact was negligible, whereas about one third believe that migration has had a positive impact on their households.

Figure 5.1: Migrant households' perception of the impact of migration



Source: MECLEP survey, 2016.

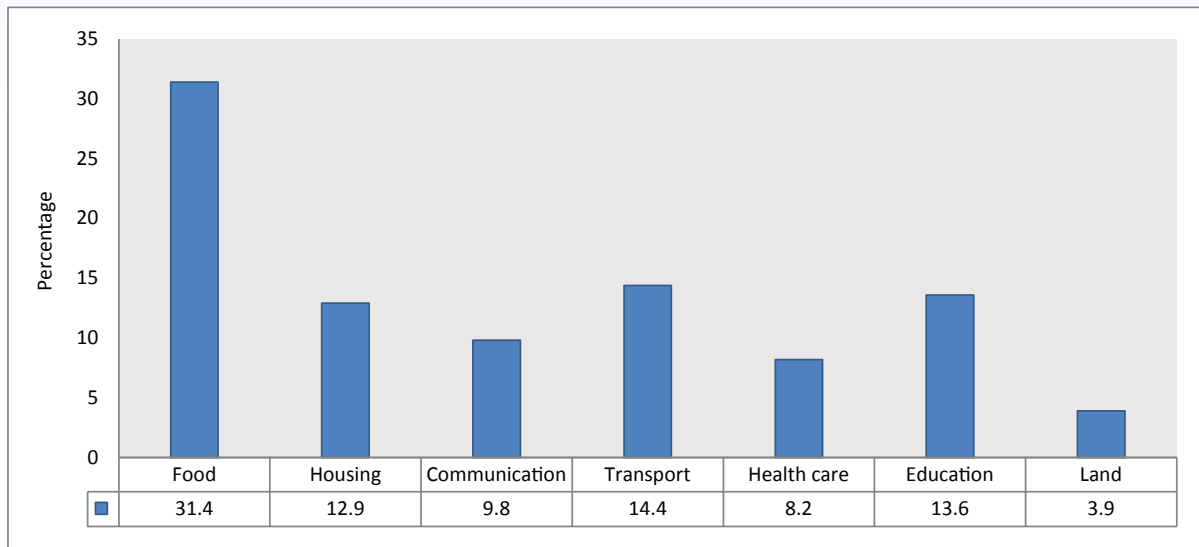
5.2. Remittances

The term *remittances* primarily refers to the money and social transfers migrants send back to family (and perhaps other community members) in the place of origin (or, sometimes, in third countries). Figure 5.2 shows how migrant households reported spending the remittances they received during the year prior to the survey.

Remittances sent by migrants increase the income of the families left behind, thereby contributing

to the easing of the budget constraints of the less fortunate, reducing poverty and improving average living conditions (Acosta et al., 2008). These private transfers are often spent or used by the families left behind to buy food and clothing, to pay medical bills, to take their children to school, and in the best cases to buy plots, construct houses and invest. The results indicate they are mostly spent on food, followed by transport, education and housing. Hence, the majority of migrant households use remittances mainly for basic necessities and they are therefore important for poverty reduction.

Figure 5.2: Use of remittances

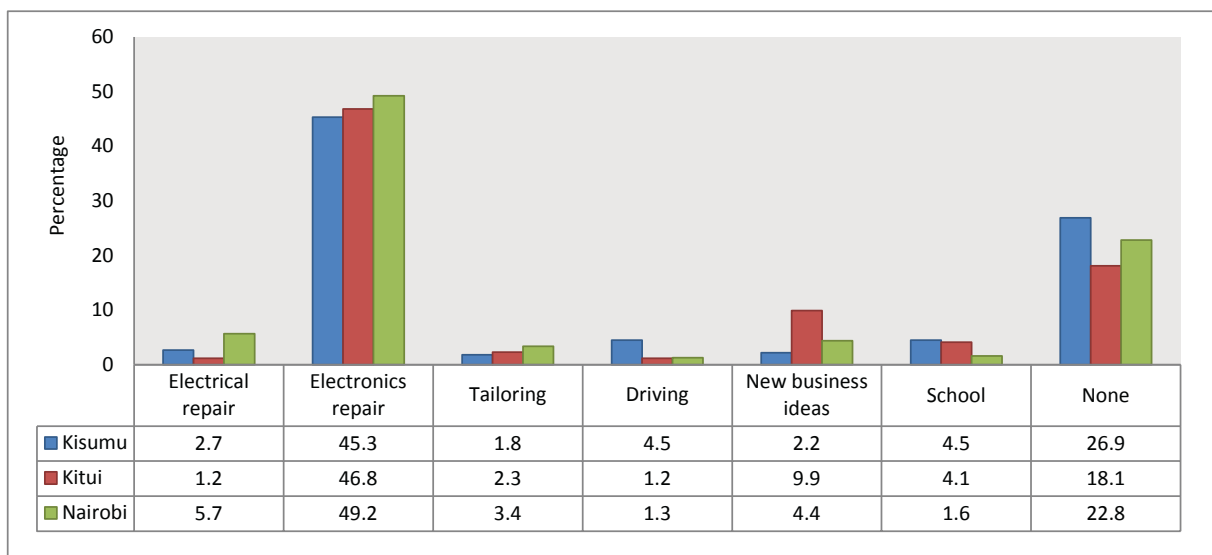


Source: MECLEP survey, 2016.

5.3. Skills learned and knowledge gained by migrant households

Figure 5.3 shows that in Kisumu, Kitui and Nairobi counties, electronics repair is the most important type of skill learned by members of migrant households, followed by “new business ideas”.

Figure 5.3: Percentage of households that reported having learned skills or gained knowledge



Source: MECLEP survey, 2016.

Although there have not been any independent studies on this subject in Kenya, this finding from the present study may be due to the increased use of electronic equipment in the country during the last two decades. This could have been enhanced by the increasing number of those in the middle class status across the counties. However, there is a very large percentage of households that have not learned any skills or gained knowledge that would be helpful to them. This implies that, with the advent of the knowledge economy, which is spurring economic growth (particularly among the emerging economies), there is a need for both migrant and non-migrant households to foster learning, especially work related, as there is great potential to learn new skills by being mobile.

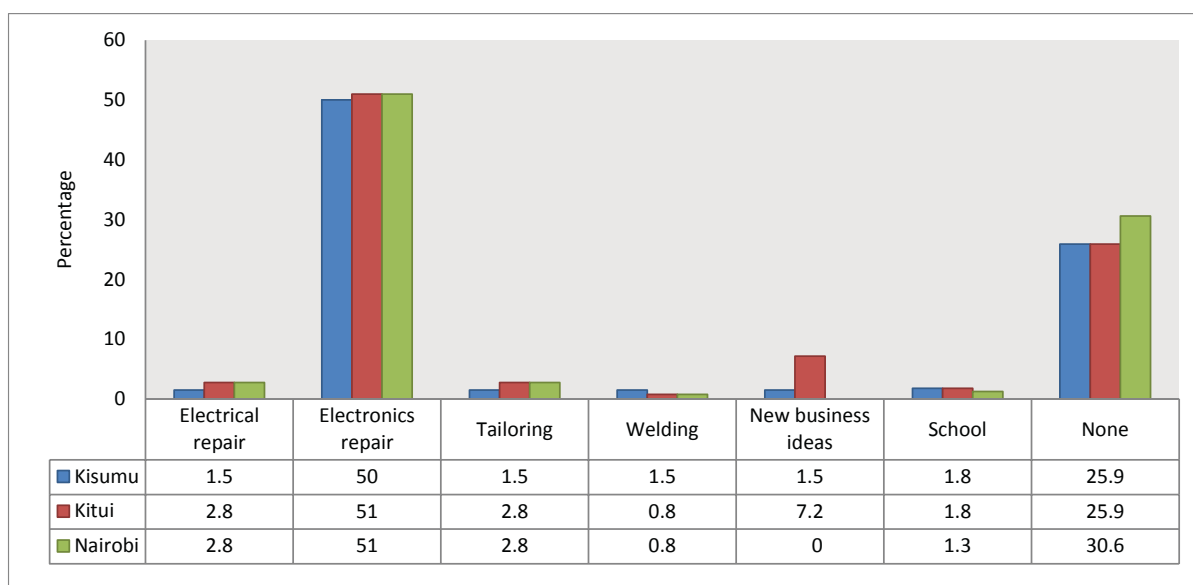
Worldwide, the application of knowledge is recognized to be one of the key sources of growth in the global economy. A knowledge economy is one where organizations and people acquire, create, disseminate and use knowledge more effectively for greater economic and social development. The increased importance of knowledge offers great potential for countries to strengthen their

economic and social development by providing more efficient ways of producing goods and services and delivering them more effectively and at lower costs to a greater number of people.

5.4. Skills/knowledge used back in the migrant household

A comparative analysis of the skills/knowledge learned against the skills/knowledge used by the households shows that, although a lower proportion of migrant households reported having learned about electronics repair, a higher proportion of the same households reported having used those skills in electronics repair (figure 5.4). Most notable is that, although a higher proportion of households in Kisumu, Kitui and Nairobi counties reported having learned skills in “new business ideas”, a lower proportion reported having used the same skills when they returned to their households. More than one fifth of the households have never used in their households any of the skills/knowledge acquired during migration.

Figure 5.4: Percentage of households that reported having used some skills/knowledge in their households



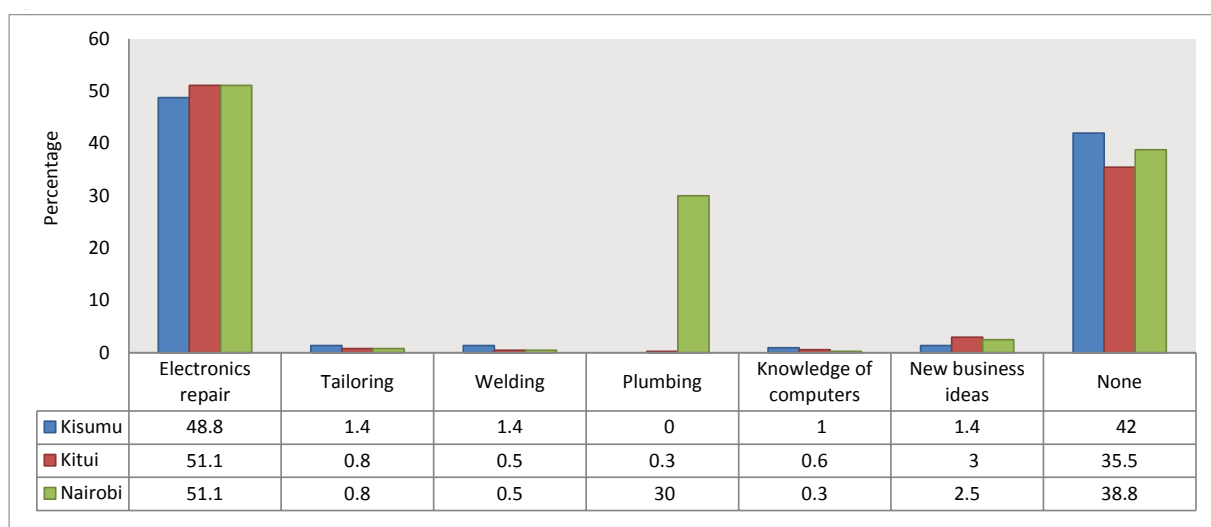
Source: MECLEP survey, 2016.

5.5. Skills/knowledge taught by migrant households

It is best when acquired skills and knowledge are shared with and taught to others. This enhances the generation of new ideas and contributes to a developed and sustainable knowledge-based economy. The study shows that electronics repair is the type of skill/knowledge that is the most

taught in the three counties of Kisumu, Kitui and Nairobi (figure 5.5). However, even though plumbing was not mentioned as being either learned or used in a significant percentage of households in Kisumu and Kitui, this skill is taught a good deal in Nairobi. This could be explained by the significant growth in the construction industry in general, and real estate development in particular, in Nairobi during the last decade.

Figure 5.5: Percentage of households reported having taught skills/imparted knowledge in their households



Source: MECLEP survey, 2016.



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6

6. Discussion, recommendations and conclusion

6.1. Discussion and recommendations

The study established the existence of different types of migration in Kisumu, Kitui and Nairobi counties. The most prevalent type of migration recorded in the survey areas is “long-term/permanent movement” of at least one year. However, short-term movements of between three months and one year are also common. It is important to note that most of the migration takes place within the locality or county of residence, implying that migration could be an important hazard adaptation strategy by households. The finding shows that households have adapted definitive migration strategies, such as relocating to safer places and sending a household member outside the village to earn money (mainly to support the family members left behind), to counter climatic/environmental hazards. Some households employ adaptation strategies that are not related to migration to counter the hazards. These strategies includes using safer building materials, constructing physical barriers around houses and farms (dykes and walls) and diversifying economic activities.

Early warnings against impending climatic/environmental hazards are a common feature in all of the study sites. The results show that nearly all respondents had received early warnings before the occurrence of a climatic/environmental event that had negatively affected their households. However, the timing of these warnings is a major concern, especially in Kitui and Nairobi, where the majority of households report having received warnings without enough time to act.

This implies that many households are exposed to impacts of climatic/environmental hazards that are avoidable if early warning systems are implemented. Nonetheless, households in Nairobi County reported being warned in advance, which may be due to the relatively easy access to media, which broadcasts news on the weather.

There is a need for an effective and efficient early warning system for impending climatic/environmental hazards. Such a system would comprise data collection, information dissemination and action triggering mechanisms. As a matter of policy, it is necessary to recognize that over years communities have developed rich cultures drawn from observing nature, which was used in forecasting and predicting weather and climatic conditions. They also had various ways of disseminating news on impending disasters, which included specific beats of drums, sounding of horns and loud communications by clan elders. Governments (at both the national and the county level) need to acknowledge that extreme weather events have happened in the past and will happen in the future, and it is only their frequency and intensity that might change. The human impact on the climate system is clear (IPCC, 2013, 2014). Therefore, the focus should be aimed at (a) reducing the disastrous outcomes of natural hazards by incorporating early warning systems in the development plans, and (b) decentralizing support systems that would reduce underlying vulnerability and exposure of people and their assets to hazards. Such early warning systems should incorporate existing indigenous knowledge systems.

Access to essential services such as education and health is enshrined as a fundamental human right in the United Nations Universal Declaration of Human Rights and the United Nations Convention on the Rights of the Child. The 2030 Agenda for Sustainable Development is focused on poverty alleviation and highlights education as one of the key factors. The present study examined access to key services – food, clean and safe drinking water, quality health care, electricity and employment – by comparing migrant and non-migrant households' current situation with their situation 10 years ago. Generally, access to services is higher in the Nairobi site (urban) than in the Kisumu and Kitui sites (rural). Most respondents opined that access to major services had deteriorated over the years—a trend observed across the study sites for both the migrant and the non-migrant households interviewed. The proportion of migrant households who currently have access to quality health-care services and clean and safe drinking water is notably lower than the proportion of non-migrant households in Kisumu and Nairobi counties. Otherwise, there were infinitesimal variations between migrant and non-migrant households in access to the rest of services – both currently and 10 years ago. A higher percentage of migrant households than non-migrant households also reported experiencing discrimination on “security protection”, and access to employment, education, health and water.

Policy and programme responses are needed to address vulnerability and social protection to minimize the risks associated with migration in response to climate change, and to maximize migration's contribution to adaptive capacity. There is also a need to:

- Ensure that migrants have the same rights and opportunities as host communities;
- Reduce the costs of moving money and people between areas of origin and destination;
- Facilitate mutual understanding among migrants and host communities;

- Clarify property rights where they are contested;
- Ensure that efforts to assist migrants include host communities;
- Strengthen regional and international emergency response systems.

Social protection of persons is anchored in the National Drought Management Authority mission, with the understanding that a primary cause of hazard-based poverty is, to a great extent, predicated on people's vulnerability to the impact of artificial and natural hazards. In the absence of social protection, hazards impact directly on living standards.

Paradoxically, the study found that migrant households perceive migration as mostly having a negligible impact on their households – probably because many experienced more discrimination on “security protection” and access to employment, education, health and water than non-migrant households. However, the study noted positive impacts of migration on the livelihoods of the migrant households. For instance, the majority of migrant households are members of informal associations/cooperative groups. Migrant households have also adapted strategies such as “sending remittances” to cushion income sources of remaining household members, “using easily available construction materials for housing walls”, “using skills/knowledge learned” and teaching household members who were left at home. However, a significant proportion of migrant households reported that their members have not “learned, used and/or taught” any skills/knowledge back in their households of origin. This could signal a lack of ability or capacity to learn and transfer new knowledge and skills, or a marked difference between the livelihood strategies at the place of origin and those at the place of destination. In terms of policy, this implies that part of the disaster mitigation and social protection services accorded to migrants should include the learning of transferable livelihood skills applicable at their areas of origin.

The study established that migrant households mainly use their remittances for food, transport, education and housing. This finding corroborates that of Bohle (2007:6), who argues that social vulnerability would predispose the victim to find coping and adaptation mechanisms and structures that promote successful livelihood activities. Thus, victims would resort to addressing their primary needs – housing, food and clothing – since in risky environments it would be most appropriate to know the existing capacities for sustaining livelihood security. The study found that the flow of remittances is more pronounced in Kitui County than in Nairobi County or Kisumu County. However, further study on remittances is recommended to establish factors that determine or influence the use of remittances, such as gender, age, profession, wage level and household of origin.

Based on the preceding findings, the following recommendations, which span both policy and programmatic issues, are proposed:

Improved disaster risk reduction and disaster risk management: These two strategies need to be highlighted. There should be a shift from complex national-level disaster risk management strategies to simple community-specific workable disaster risk management strategies, to be implemented and managed in the counties. The capacity of households, communities and institutions to manage disaster issues should be strengthened, and their resilience capacities should be enhanced. Holistic and integrated approaches to mitigating climate- and environment-related disasters would reduce the underlying factors of disaster risks and intensities, as well as the frequency of such disasters. The strategy must focus on the pre- and post-disaster context. Such a strategy would therefore respond to households' and communities' developmental and relief issues, with an emphasis on integrating disaster risk management into sustainable development strategies from the management perspective.

Improved climate risk management: The study findings imply that there is a need for improved disaster risk management in the three counties of Kisumu, Kitui and Nairobi. Nonetheless, in terms of application, harnessing the tools and instruments of climate risk management in addition to disaster risk reduction and disaster risk management would be the most plausible. Climate risk management means reducing the vulnerability to climate risk by maximizing the positive and minimizing the negative outcomes caused by climate change, with the final aim to promote sustainable development in the community. This is the most relevant to Kisumu, Kitui and Nairobi, so area-specific disasters can be mitigated. Thus, community adaptation and institutional capacity-building are relevant for institutionalizing the strategy for better results.

Enhanced climate change adaptation: The mitigation agenda was prevalent in the 1990s, with particular reference to the greenhouse gas debate. Thus, there is a need to reduce vulnerability to climate risks. The emphasis should be on adaptation with regard to the negative physical impacts of climate change. Thus, to mitigate the impacts, it is necessary to improve the knowledge and competence of households, communities and institutions.

Enhanced climate-change vulnerability resilience: The strategy advocates for an increase in the ability of communities to withstand and recover from climate change-related external shocks and stresses, with an emphasis on community socioeconomic well-being. Moreover, regional interconnectivity and natural resource dependencies, such as sharing of water points and grazing fields among pastoralist communities, are good practices that need to be encouraged for better coexistence among communities during hazards. Indicators for this would be improved local governance.

Improved Community-Based Adaptation (CBA):

As particularly relevant to the Kisumu, Kitui and Nairobi scenarios, and Kenya in general, reference is hereby made to the CBA of 2007, which was adapted from the poverty-focused programmes of the 1990s. The strategy acknowledges the value and importance of having the right of knowledge and coping strategies by individuals and communities, so that they are capable of minimizing the adverse effects of climate- and environment-related disasters. It is recommended that the knowledge of climate variability of individuals, households and communities be enhanced so that they are able to make correct and timely decisions to reduce hazards. This implies that the most appropriate strategy would be to use a bottom-up rather than a top-bottom approach in emphasizing people's capabilities to mitigate hazards, for results to be realized quickly at the grassroots level.

Asset-based actions: These actions should take place at the household, community and local/municipal council levels. There should be an emphasis on taking specific, tangible actions so as to mitigate asset losses that arise from hazards. The actions should include:

- Households choose to move to safer sites.
- Households improve their housing by having better protection against hazards. Risks are reduced through community-based management, such as installing drains and keeping the sewers clear of any clogging and waste materials.
- Community-based disaster response and preparedness training is provided, including early warning systems, safe sites and routes to communities identified as preventive measures for human capital and family first aid. At the municipal level, there is a need for the following mitigation strategies for households, communities and institutions:
 - » Provide and upgrade protective infrastructure.
 - » Adjust standards for buildings and land use so that they meet the

requisite standards to withstand any shocks associated with harsh climatic variabilities.

- » Land use planning must ensure that people avoid settlements in risky sites, such as wetlands and flood plains, as they are prone to displacement.

Asset protection during hazards needs to be integrated into a human/social protection mechanism, which should focus on:

- Displaced persons and households;
- Preventing looting of personal and household property during hazards;
- Repairing infrastructure, particularly of transport, sanitation and water;
- Enhancing income-generating activities to ensure that livelihoods are not adversely affected during hazards.

6.2. Conclusion

Adaptation to climatic change is a necessary component of planning at all levels. Floods, droughts and river bank erosion are the three main climatic/environmental hazards reported in the counties of Kisumu, Kitui and Nairobi, respectively.

To mitigate these adversities, it would be important for communities living in these areas to have the adaptation and coping strategies necessary to reduce their vulnerability to flood, drought and river bank erosion stresses in addition to preparing adequately for possible future climatic adversities. The strategies and approaches to be adopted can be categorized into four distinct phases, namely:

- Long-term resilience
- Pre-disaster damage limitation
- Immediate post-disaster response
- Rebuilding

The four phases point to the following mitigation strategies that households need to be equipped with in the event of a hazard:

- Preparedness in terms of information about the hazard;
- Preparedness in terms of survival skills and knowledge, both at the usual residence or in the event of migration;
- Adaptation strategies at the usual residence or when displaced.

Migration is one potential adaptation strategy, but its impact on both migrant and non-migrant households is mixed. The policy implication is that, rather than advocate blanket migration as an adaptation strategy, there needs to be greater effort to enhance the adaptive capacity of households by addressing the causes of climate change and remedying the negative impacts on key livelihood sources. Nevertheless, support for the migration process should be enhanced.

Households need to have various forms of skills/knowledge that they can use to earn a living. The globalization of the world's economies demands that every village, community, State and region needs to have capacity in the form of skills and knowledge that is domesticated (that is, tailored to the community or indigenous group) for the development of a people's social well-being.

Though early warning systems are an essential strategy to mitigate climatic/environmental hazards, simply providing climate information will not build resilience – it is necessary to have local institutions with the capacity and legitimacy to plan and manage a coordinated response to hazards. Hence, effective governance of natural resources that integrates indigenous knowledge is crucial for building climate resilient livelihoods and economies anywhere in the world. Therefore, Kenya's laws and policies on benefit sharing from natural resource exploitation and development investments should be implemented with a view to enhancing resilience and adaptive capacities. For instance, since time immemorial in Kenya,

pastoralists have been harnessing climatic variability to raise productivity, often through livestock mobility. It would therefore be prudent to encourage communities to enhance good governance of resources through supportive mobility across administrative boundaries that impact positively on adaptation mechanisms during hazards.

It is important to enhance effectiveness and efficiency in mitigating climatic/environmental hazards, rather than to rely too heavily on civil society organizations such as the Kenya Red Cross Society, as is often the case in Kenya. To provide support mechanisms for disaster management, it would be valuable for resources to be managed by local institutions. Reducing or avoiding centralized decision-making processes to mitigate hazards would allow for community participatory approaches that are more flexible, timely and rapid as they use different approaches depending on the situation.

Nonetheless, the laws, policies and systems that are already in place to mitigate disasters, hazards and calamities need to be simplified and disseminated in a language and form that are easy to understand, follow up and apply at the local level. Laws and policies need to be region specific, as different regions suffer from different hazards, and their mitigation requires unique and specific tools and approaches. For instance, regions that suffer from long droughts require unique mitigation tools that are different from those needed in regions that suffer from floods, or from those needed in regions that suffer from extreme landslides. The technology that would be used to forecast hazards and warn a community about them is specific and needs constant modernization, while local indigenous knowledge should also be taken into consideration and valued.

The role of institutions, particularly county/local governments, NGOs and the private sector, in supporting local communities to be able to have strong and broad-based asset accumulation systems cannot be overstated. However, asset-

based adaptation strategies vary depending on their focus and capacities. For instance, financial institutions could be incorporated into the system to provide banking services and loans to households and communities affected by disasters without asking for collateral. In addition, humanitarian-oriented NGOs could provide necessities such as bedding and food. Because of the severity of recent hazards and the resulting destruction, affecting both people and property, there is need to:

- Enhance relief services for wide coverage and for reachability of households;
- Provide training on proper post-harvest storage to increase households' food security;
- Enhance and diversify outreach programmes so as to focus on different support strategies;
- Increase budgets of county and national strategic programmes that deal with environment and climatic programmes;
- Draft flexible annual project and programme plans that can be changed to fit any unforeseen prevailing circumstances.

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Appendices

Appendix I: Sampling of households

Table A.1: Household listing by county and migration status

County	Total households listed Col. 1 = Col. 2 + Col. 3 (as listed in field)	Non-migrant households listed Col. 2 (as listed in field)	Migrant households listed Col. 3 (as listed in field)
Kisumu	2,977	2,187	790
Kitui	2,113	1,890	223
Nairobi	2,329	1,861	468
Total	7,419	5,938	1,481

Source: MECLEP survey, 2016.

Table A.2: Sampled households by county and migration status

County	Total households sampled (Col. 1 of table A.1 * ¼) = Col. 1	Non-migrant households sampled (Col. 1 of table A.2 – Col. 3) = Col. 2	Migrant households sampled (Col. 1 of table A.2 * .3) = Col. 3
Kisumu	744	521	223
Kitui	528	370	158
Nairobi	582	408	174
Total	1,854	1,298	556

Source: MECLEP survey, 2016.

Table A.3: The Nth household to be picked for interview by county and household migration status

County	Total Hholds listed	Total Hholds sampled	*Nth Hholds picked	Non-migrant Hholds listed	Non-migrant Hholds sampled	*Nth Hholds picked	Migrant Hholds listed	Migrant Hholds sampled	*Nth Hholds picked
Kisumu	2,977	744	4	2,187	521	4	790	223	3
Kitui	2,113	528	4	1,890	370	5	223	158	2
Nairobi	2,329	582	4	1,861	408	5	468	174	3
Total	7,419	1,854	4	5,938	1,298	5	1,481	556	3

Source: MECLEP survey, 2016.

Note: Nth Hhold – Household to be picked for interviewing after every nth number.

MECLEP
Household Survey



D1.- Questionnaire number	D2.- Date of data entry	D3.- Name of data entry officer

A.- IDENTIFICATION OF THE VILLAGE

A1.- County _____

A2.- Sub-County _____

A3.- Ward _____

A4.- Village _____

A5.- Year of household formation _____

B.- IDENTIFICATION OF INTERVIEWEE

B1.- GPS. Latitude: (or the name of nearest Primary School B2.- GPS. Longitude: _____

B3.- FULL NAME OF INTERVIEWEE (HH Rep) _____

B4.- TELEPHONE OF INTERVIEWEE _____

C. IDENTIFICATION OF THE ENUMERATOR

C1.- NAME OF INTERVIEWER _____

C2.- NUMBER OF VISIT	DATE		C3.- RESULT	C4.- HR BEGINNING	C5.- HR FINISHING
	DD	MM			
1					
2					

C6.- OBSERVATIONS: _____

D. PRESENTATION OF THE ENUMERATOR, IOM and MECLEP

Including consent form

SECTION 1: Socioeconomic profile of the household

TABLE 1 - List of all usual members of the household (plus their children) (eating from one cooking pot, one head with authority, living in same compound)

ID IDENTIFICATION	(1.01) Name of all usual household members	(1.02) Relationship to HH head		(1.03) Place of birth		(1.04) Age (in completed years)	(1.05) Sex	(1.06) Are you currently engaged in some income generating activity	(1.07) Currently attending school	(1.08) Level of education completed	(1.09) Current location for most of the year
	1 Household head	8 Niece/Nephew	1 In this village or subcounty	1 Male	1 Yes	1 Yes	1 This village or sub-county				
	2 Husband/Wife	9 Children in law	2 Elsewhere in the County	2 Female	2 No	2 No	2 Elsewhere in the county (specify sub-county)				
	3 Son/Daughter	10 Parent in law	3 Elsewhere in the country		99 Don't know/ refused to answer	Don't know/ 99 refused to answer	3 Elsewhere in the country, (specify county)				
	4 Father/Mother	11 Grandma/Grandpa	4 Abroad				4 Abroad (specify country)				
	5 Brother/Sister	12 Other (Specify)	99 Don't know/ refused to answer				99 Don't know/refused to answer				
	6 Uncle/Aunt	99 Don't know/ refused to answer									
	7 Cousin										
	NAME	CODE	SPECIFY	CODE	YEARS	CODE	YEARS	CODE	SPECIFY		
01											
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SECTION 1: Socioeconomic profile of the household

<p>(1.10) In the last ten years, has this village/estate (USE ACTUAL NAME) been affected by the following climatic/environmental event? Read and answer all the options with:</p> <p>1. Yes, several times/ 2. Yes, once / 3. No</p> <table border="1"> <tr><td>1. Drought / Irregular rains</td><td></td></tr> <tr><td>2. Landslides</td><td></td></tr> <tr><td>3. Wildfires</td><td></td></tr> <tr><td>4. Volcanic eruption</td><td></td></tr> <tr><td>5. Floods</td><td></td></tr> <tr><td>6. Cyclone</td><td></td></tr> <tr><td>7. Storm surge</td><td></td></tr> <tr><td>8. Riverbank erosion</td><td></td></tr> <tr><td>9. Earthquake</td><td></td></tr> <tr><td>10. Other: Specify: _____</td><td></td></tr> <tr><td>11. Hurricanes</td><td></td></tr> </table> <p>Among these, was there a single climatic/environmental event that affected your livelihood negatively more than any other?</p> <table border="1"> <tr><td>1. Yes – specify number from table above</td><td></td></tr> <tr><td>2. No ▶ (1.14)</td><td></td></tr> <tr><td>99. Don't know</td><td></td></tr> </table>	1. Drought / Irregular rains		2. Landslides		3. Wildfires		4. Volcanic eruption		5. Floods		6. Cyclone		7. Storm surge		8. Riverbank erosion		9. Earthquake		10. Other: Specify: _____		11. Hurricanes		1. Yes – specify number from table above		2. No ▶ (1.14)		99. Don't know		<p>10 years ago, besides the activity you just mentioned, did your household have other sources of income?</p> <table border="1"> <tr><td>12. Animal husbandry</td><td></td></tr> <tr><td>6. Remittances (people in Kenya)</td><td></td></tr> <tr><td>7. Remittances (people abroad)</td><td></td></tr> <tr><td>8. Agriculture (crop farming)</td><td></td></tr> <tr><td>9. We don't have another source</td><td></td></tr> <tr><td>10. Other: Specify above.</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table> <p>Now, does your household own a house and/or land?</p> <table border="1"> <tr><td>1. House</td><td></td></tr> <tr><td>4. Neither house nor land</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	12. Animal husbandry		6. Remittances (people in Kenya)		7. Remittances (people abroad)		8. Agriculture (crop farming)		9. We don't have another source		10. Other: Specify above.		99. Don't know/ refused to answer		1. House		4. Neither house nor land		99. Don't know/ refused to answer		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer	
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<p>(1.12) In which year did this occur?</p> <table border="1"> <tr><td>1. Yes, with enough time to act</td><td></td></tr> <tr><td>2. Yes, without enough time to act</td><td></td></tr> <tr><td>3. No</td><td></td></tr> <tr><td>99. Don't know</td><td></td></tr> </table>	1. Yes, with enough time to act		2. Yes, without enough time to act		3. No		99. Don't know		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer																																			
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<p>(1.13) Did your household receive a warning before it happened?</p> <table border="1"> <tr><td>1. Yes, with enough time to act</td><td></td></tr> <tr><td>2. Yes, without enough time to act</td><td></td></tr> <tr><td>3. No</td><td></td></tr> <tr><td>99. Don't know</td><td></td></tr> </table>	1. Yes, with enough time to act		2. Yes, without enough time to act		3. No		99. Don't know		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer																																			
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<p>READ IMPORTANT MESSAGE IN FOOTNOTE</p> <p>Now, what is the main source of income for your household? (single response)</p> <p>If the answer is "other" specify here: _____</p> <p>10 years ago, what was the main source of income for your household? (single response)</p> <p>If the answer is "other" specify here: _____</p> <p>Now, besides the activity you just mentioned, does your household have other sources of income?</p> <p>If the answer is "other" specify here: _____</p> <p>MULTIPLE ANSWERS POSSIBLE</p> <table border="1"> <tr><td>1. Family</td><td>5. Church/religious organisation</td></tr> <tr><td>2. Friends</td><td>6. Government Authorities</td></tr> <tr><td>3. Neighbours</td><td>7. Nobody</td></tr> <tr><td>4. Other community members</td><td>8. Local NGOs</td></tr> <tr><td>9. International NGOs</td><td>99. Don't know/ refused to answer</td></tr> </table>	1. Family	5. Church/religious organisation	2. Friends	6. Government Authorities	3. Neighbours	7. Nobody	4. Other community members	8. Local NGOs	9. International NGOs	99. Don't know/ refused to answer	<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer		<p>10 years ago, did your household have access to electricity every day?</p> <table border="1"> <tr><td>1. Yes</td><td></td></tr> <tr><td>2. No</td><td></td></tr> <tr><td>99. Don't know/ refused to answer</td><td></td></tr> </table>	1. Yes		2. No		99. Don't know/ refused to answer																																	
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now= past year, before/10 years ago = year before 10 years ago

SECTION 1: Socioeconomic profile of the household

1,38	Now, is anybody in your household a member of one or more of the following organizations? If the answer is "other" specify here: _____	
MULTIPLE ANSWERS POSSIBLE		
1,39	10 years ago, was anybody in your household a member of one or more of the following organizations? If the answer is "other" specify here: _____	
MULTIPLE ANSWERS POSSIBLE (Ken to Advise)		
	1 Water/waste or fishermen's group 2 Agricultural cooperative 3 Trader's association/business group 4 Credit or savings association 5 Religious group/organization 6 Political party/group 7 Sport, recreational, art, music group 8 Women's group/youth group 9 School/health committee 10 Labour union 11 Village/town council 12 Humanitarian or charitable organization 13 Other: Specify above. 14 We don't participate in any organization 15 Community policing/ security Group	
1,40	Now, how much is your household's monthly income (on average)? Kes.	
1,41	10 years ago, how much was your household's monthly income (on average)? Kes. 99 N/A	
1,42	Now, does your household make use of formal (banks/financial institutions/mobile banking etc.) credit?	
1,43	10 years ago, did your household make use of formal (banks/financial institutions/ mobile banking etc.) credit?	
1,44	Now, does your household make use of informal (friends/family/neighbours /community associations or cooperatives, etc.) credit?	
1,45	10 years ago, did your household make use of informal (friends/family/neighbours/ community associations or cooperatives, etc.) credit?	
	1 Yes 2 No 99 Don't know/Refuse to answer	
1,46	Now, what is the overall financial situation of your household?	
1,47	10 years ago, what was the overall financial situation of your household?	
	1 Savings 2 No savings, no debts 3 Debts 99 Don't know/Refuse to answer	
1,48	Now, what is the primary construction material of the housing unit's exterior walls? If the answer is "other" specify here: _____	
1,49	10 years ago, what was the primary construction material of the housing unit's exterior walls? If the answer is "other" specify here: _____	

Questions 1.48, 50 should be verified by surveyor

SECTION 2: Migration history of the household

(2,01)	For how many years has your household lived in this Sub-County?	
2,02	Has any household member moved in/out of this Sub-County for at least three months in the last 10 years?	
	1 Yes 2 No 99 Don't know/Refuse to answer	
2,03	If no, why?	
AFTER ANY ANSWER THE SURVEY FINISH HERE		
	1 We decided to stay/never thought about moving 2 We had to stay 99 Don't know/Refuse to answer	
(SEE TABLE OF MIGRATION IN THE FOLLOWING PAGE)		
2,13	Have you received any support from the authorities to assist you with the (internal/international) migration process?	
	1 Yes, from county government 2 Yes, from the government 3 Yes, from NGOs/charities 4 Yes, from the Church/ religious authorities 5 Yes, from international organisations 6 Other, specify 7 None 99 Don't know	
Please indicate if you agree or disagree with each of the sentences below		
2,14	I would like my family and friends to live here in the future (even after I die)	
2,15	I miss this place when I am not here	
2,16	I feel safe here	
2,17	I am proud of this place	
2,18	I would like to move out of here	
2,19	I don't have anywhere else to go to	
2,20	I feel foreign here	
	1 Disagree 2 Neither agree nor disagree 3 Agree 99 Don't know	

SECTION 2: Migration history of the household

TABLE 2, MIGRATION – Full migration history of each of the household members and former members that left in the last 10 years

AFTER THIS TABLE RETURN TO QUESTION 2.13

[illegible]

SECTION 3: Impacts of migration

[illegible]

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