Indicator Development for the Surveillance of Urban Emergencies (IDSUE)

YEAR 3 RESEARCH REPORT

AUGUST 2012 to DECEMBER 2013

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For more information contact the IDSUE Project Coordinator:
Jay Chaudhuri *(jay.chaudhuri@concern.net).*

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CONCERN WORLDWIDE KENYA
Kaskazi Lane, Off Muthithi Road, Weslands
P.O. Box 13850, 00800, Nairobi, Kenya
Tel: +254 20 3755051/2/3/4/5
Website: http://www.concern.net

Document prepared by Barbara Kagima and Phillip Okull. Digital data management and field work coordinated by Frank Odhiambo. Layout and design by John Kiruhi.

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Summary

Assessing urban emergencies/crisis and finding effective means of responding to these emergencies has become a major interest and focus for many humanitarian actors given the current rates of urbanization worldwide. Concern is currently undertaking large-scale routine data collection in informal settlements (slums) of Nairobi and other major urban areas in Kenya. The study, now in its third year, has resulted in the collection of baseline household information on WASH, food security, personal security, livelihoods, morbidity, and coping strategies in five informal settlements over eight rounds. This report will summarize findings from our third year in operation, August 2012 to December 2013, which reveals that several domains have the potential to be key indicators of urban crisis onset. These domains, such as income, food security indices, MUAC, personal security/ shocks, and the use of coping strategies, show major variation across areas, time, and within communities.

Overall, several themes persist. First, conditions are getting worse in all the areas. However, the rate and magnitude of decline differs between the areas. For instance, more households in all areas of study are reporting higher rates of food insecurity, coupled with a decline in dietary diversity, but some areas are faring worse than others. Bringing us to our second theme; averages mask reality. Although we are seeing worsening conditions in all slum areas, the rate of decline is not equal in all the areas. For example, households in the lowest income quintile report spending over 100% of their 4-week income on food, yet the overall food expenditure average is 63.8%. Closer examination of households in the lowest income quintiles reveals an even more vulnerable population that reports very low income, higher food insecurity rates, less dietary diversity, higher prevalence of illness, more insecurity, and higher use of coping strategies. However, these vulnerable households only account for about 20 to 40% of the overall slum population, which otherwise masks the reality of households living in the most dire of situations. Geospatial analysis reveals that in most of our study areas, the most food insecure and lowest-income households are spatially clustered. This pattern may allow for a more targeted surveillance of the most vulnerable areas, which are also likely to show the first signs of the onset of a humanitarian crisis, in urban informal settlements.

This document is arranged in three major sections. The first section is a general overview of the project and major findings. Preliminary geospatial analysis was performed to determine if areas of vulnerability are evident within the slums. The justification and results of this analysis are presented in the second section, titled *'Preliminary Geospatial Analysis'*. An intensive questionnaire review was undertaken to determine which questions were important for future surveillance. This analysis is presented in the third section, titled '*Analysis of Indicators by Domain: Questionnaire Review'*. Questionnaires, both the old and the new versions, are included in the appendix as well as detailed results for all of the questions per area (5 informal settlements) and per city (Nairobi and Kisumu).

Introduction

Rapid world urbanization is currently ongoing and projected to continue, at even higher rates, in the future. In developing nations, such as several in sub-Saharan Africa, rapid urbanization continues amidst stagnating economies. This has resulted in most urban dwellers in these countries living in slums or slum-like settlements. For example, the urbanization rate in Kenya now stands at 4% and about 60% of the urban residents in Kenya live in slums or slum-like conditions. These settings lack the most minimum amenities needed to live a healthy life such as clean running water, proper hygiene and sanitation facilities and sewage systems. Most slum dwellers also lack consistent access to income, relying instead on casual labor or petty trade, the availability of which fluctuates from day to day and week to week. High levels of crime and violence are seen in most slums which can erupt into acute conflict as was seen in Kenya in 2008. The high population density of slums coupled with poor or no sanitation and limited access to health services means that slum dwellers face much higher disease burdens than their other urban or rural counterparts. Slum dwellers are also politically disenfranchised; without secure tenure to their land they are vulnerable to sudden eviction.

The factors described above mean that many slum dwelling families exist on the edge of survival and urban slum populations are highly vulnerable to shocks, from price increases, to disease outbreaks, to political unrest, to a more subtle combination of all of these that cause a substantial proportion of these families to tip over the edge and experience a rise in morbidity and mortality.

Despite the recognized risk and growing international commitment to address urban crises, urban environments and actors working in them are still plagued with a dearth of information. Until recently urban areas were often excluded from national and sub-national surveys under the assumption that they would skew data and obscure negative trends in rural areas. Even when they are included, data is rarely disaggregated between wealthier urban neighborhoods and slums, leading to a homogenization that hides the true situation in both areas. Access to slum-specific data alone, however, is not sufficient to solve this problem. The central question that must still be addressed is: ***How do we know when a situation has gone from chronic poverty to a humanitarian crisis in an urban slum?***

Current information sources are inadequate to meet the specific needs for an urban slow-onset emergency. Traditional, large-scale data sources such as national household surveys, or a national census are too infrequent to capture rapidly emerging threats and shocks to vulnerable households. In response to increased perceptions on negative coping by households, small scale de-facto household surveys are conducted without any follow-up surveys, often lacking the rigor to understand broader effects on vulnerable communities.

While monitoring for a slow-onset emergency is conducted in rural areas, the practice is almost entirely lacking in urban areas. Traditionally, humanitarian and development actors have focused on deprivation in rural areas. As a result, the sector is faced with a lack of understanding what, how, and how often to monitor for urban areas. While urban areas are where many economic opportunities exist for the urban poor, these populations also encounter a high degree of risks. Urban dwellers suffer a wide array of shocks and chronic stresses and security threats. Urban populations are larger than rural ones, they are also highly dynamic with new rural migrants, displaced peoples and refugees. These examples are illustrative of how monitoring for urban areas require a different set of metrics (what to measure) and thresholds (how to declare an emergency). The challenge is to develop both metrics and thresholds upon a strong evidence base, as opposed to a normative framework. For humanitarian actors, such a framework can guide when and where interventions are needed.

IDSUE was first conceived through the need to develop a surveillance tool to detect, and respond to, slow-onset urban emergencies. First, metrics and key indicators were conceptualized through focus group discussions into a household questionnaire. The pilot period saw two informal settlements in Nairobi (Korogocho and Viwandani) undergo four rounds of data collection. The questionnaire changed in the first two years depending on the emerging evidence. For Year 3, a new tool was coupled with an expansion of sites which meant larger samples. The questionnaire and indicators remained the same to ensure uniformity for time-series analysis for the third year. It is also worth noting that, there was also weekly market price data collected to assess fluctuating food prices in these areas.

Objectives

The project aims to develop and empirically test a set of emergency indicators suitable for triggering humanitarian response in urban settings. Specifically:

I. To determine indicators for early detection of humanitarian emergency situations and coping strategies

II. To develop surveillance systems for detection of early warning signs of a humanitarian emergency/crisis

III. To identify thresholds /cut-offs /decision algorithms for defining when a situation has reached an emergency/crisis stage

Current Status

As an operational research project, which has been in development for two years, IDSUE has produced a significant amount of data on the urban poor and vulnerable in Kenya. The past year has produced larger samples in more sites, which provides a larger evidence base for analysis.

A majority of the work focused on cleaning, analyzing, and summarizing the extensive baseline data collected so far in an effort to advance knowledge on the key indicators for the long term surveillance for a slow-onset urban emergency. A review and general overhaul of the questionnaire was also under taken (see attached questionnaire review). While significant gains have been made, more in-depth and nuanced analysis is needed in 2014. The project will move from an understanding of household stresses and coping to a more holistic surveillance system, which will incorporate community and national data, such as census and food price information. Multivariate, geospatial, and in-depth community analysis will be used to build a short and effective urban surveillance system.

Future analysis will be a verification of the questions which remain in the current tool, which will emerge after each subsequent round. It is anticipated that a year from now there can be consensus on the frequency of data collection, the tool, key indicators and thresholds for monitoring. Thus the current analysis is one stage of a longer-term process.

Secondary analysis which will emerge in the form of research papers is ongoing. Such papers such as the urban appropriateness of SPHERE standards are useful to understand how IDSUE thresholds can be used for emergency monitoring and response.

The road forward involves incorporating the knowledge on household coping and key indicators, and now transitioning to a surveillance system. Developing such a system will require agreement, adoption, and coordination with other humanitarian actors working in urban spaces. Therefore, while more operational research around indicators and thresholds remain a priority, incorporating feedback from other actors into IDSUE findings and research is also paramount to ensure the adequate coordination to any potential response and corresponding agreed points of action.

Study Area Profiles

Study sites are located in Nairobi and Kisumu, Kenya. Nairobi, the capital and largest city in Kenya, has 3 million inhabitants (2009 census). Kisumu, located in western Kenya, is the third largest city with 400,000 inhabitants (2009 census).

This report highlights results emerging from Round 5 (August 2012) through Round 8 (November 2013). Rounds 5 through 7 (April 2013) were collected in five informal settlements, three in Nairobi (Figure 1) and two in Kisumu (Figure 2). Round 8 was carried out in an effort to understand the impact of a newly introduced 16% value added tax (VAT) and focused on two study sites in Nairobi; Korogocho and Viwandani.

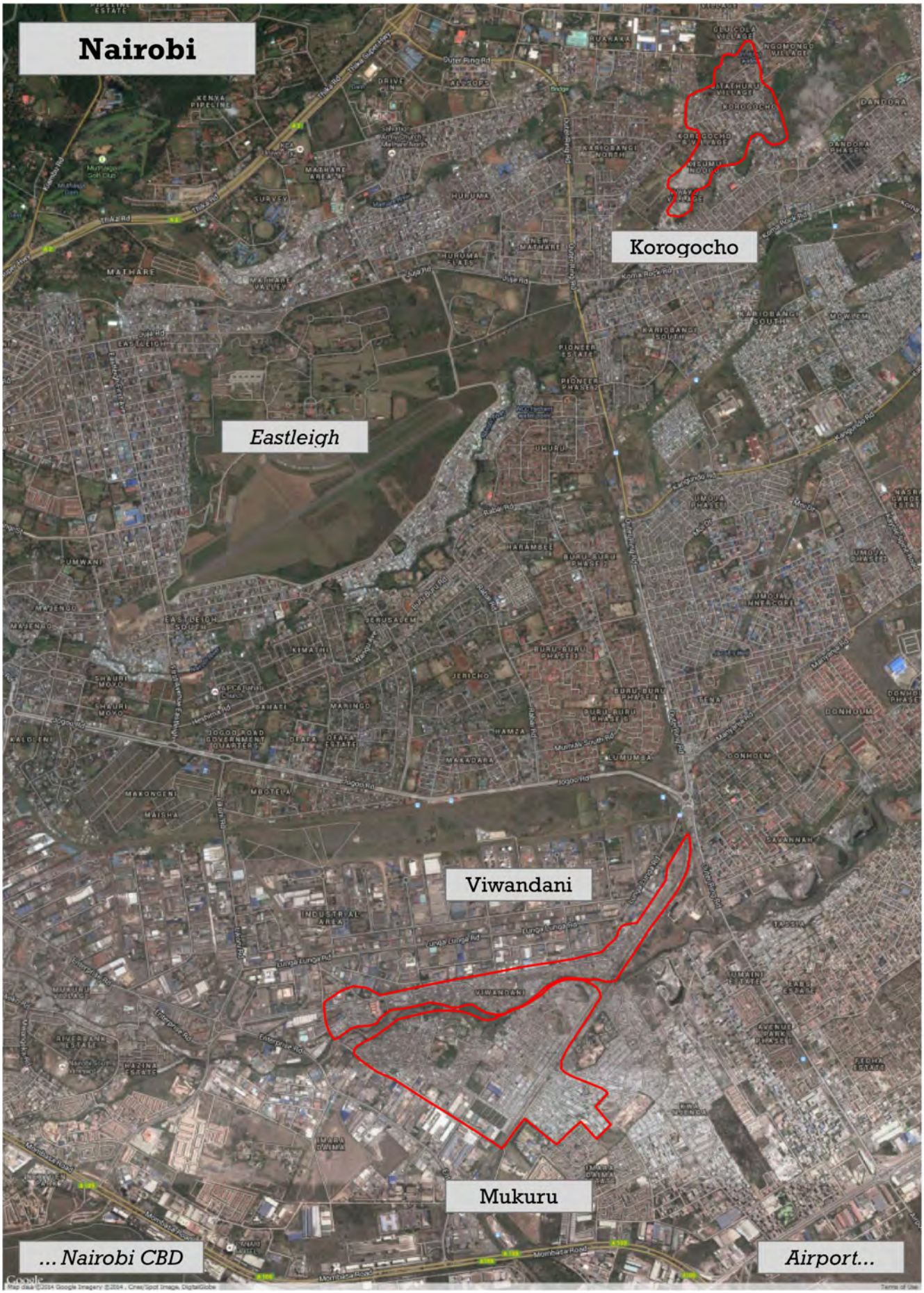

Figure 1. Study sites, Korogocho, Viwandani, and Mukuru, in Nairobi, Kenya.

Figure 2. Study sites, Nyalenda and Obunga, in Kisumu, Kenya.

In 2006, UN Habitat estimated that over half the population in Nairobi lived in informal settlements and occupied only 5% of the city's land area. In Nairobi, our study focused on three informal settlements, Korogocho, Mukuru, and Viwandani. Mukuru and Viwandani are adjacent to each other while Korogocho is located about 8.5 km northeast of Viwandani. The KNBS 2009 census estimates 46,136 people/km^2 in Korogocho sub location, 16,802.01 and 7,859 people/km^2 in Mukuru and Viwandani sub locations, respectively (Table 1).

A 2012 Columbia University Earth Institute study estimates that 60% of the population in Kisumu resides in informal settlements. Our study in Kisumu focused on Nyalenda and Obunga, which are located about 8 km apart. Nyalenda is the second largest informal settlement in Kisumu and is divided into two locations. Nyalenda A has the largest population density (8,953), followed by Nyanlenda B (6,886), and Obunga (1,913). In our study, Nyalenda A and B are combined.

Table 1. Kenya National Bureau of Statistics (KNBS) gender, household, area (km^2), and density (people/km^2) 2009 census data by sub-location.

KNBS 2009 census data sampled at sub-location.						
	Nairobi			Kisumu		
	Korogocho	Mukuru	Viwandani	Obunga (Kanyakwar)	Nyalenda A	Nyalenda B
Area (km^2)	0.22	8.11	5.71	6.6	3.16	4.71
Households	3,129	49,198	17,926	3,553	8,070	8,561
Density	46,136	16,082	7,859	1,913	8,953	6,886
Male	5,376	71,619	25,823	6,447	14,829	16,189
Female	5,000	58,782	19,058	6,107	13,440	16,241
Total	10,376	130,401	44,881	12,554	28,269	32,430

Methodology Overview

An exhaustive household listing is created for each of the informal settlements before each sampling period. Due to the dynamic nature of informal settlements, it is important to count the number of household structures before randomized sampling. After household listings the informal settlements are divided into segments and a random sample of households is selected within each segment. Household interviews are recorded via smartphones and all surveys are geo-tagged. Surveys are instantly uploaded to a cloud server where the Concern team can monitor incoming surveys for quality and eventually download them for subsequent analysis. Two settlements in Nairobi (Korogocho and Viwandani) were sampled four times from August 2012 to November 2013. The rest of the areas were sampled three times from August 2012 to April 2013 (Table 2).

Table 2. Sampling dates and number of households sampled.

Number of household sampled in Nairobi and Kisumu settlements.						
	Nairobi			Kisumu		
Round (date)	Korogocho	Viwandani	Mukuru	Obunga	Nyalenda	*Total*
R5 (Aug. '12)	428	459	455	380	407	*2,129*
R6 (Feb. '13)	553	623	630	314	477	*2,597*
R7 (Apr. '13)	546	578	582	418	585	*2,709*
R8 (Nov. '13)	584	581	-	-	-	*1,165*

The sampling process, from enumerator training to completion, takes approximately 25 days. It starts with enumerator training which takes three days. Segmentation and household listing of the settlements follows and takes 2 days. Household surveys are completed in about 20 days, with

approximately 15 enumerators per settlement.

Data is cleaned and analyzed in R, a free software environment for statistical computing and graphics. Chi-square, ANOVA, Pearson correlation, and linear regression tests were used at $\alpha = 0.05$ to determine if variables differed significantly between areas or changed over time. Post hoc power analysis using medium effect sizes (Cohen 1988) and $\alpha = 0.05$ showed that our sample sizes (Table 2) provided over 95% statistical power, which is well above the recommended 80% level.

Major Findings

Approximately 2,500 households were sampled in each round of study, with the exception of round 8 (1,165 households), which focused on only two areas in Nairobi. Korogocho (Nairobi) is the oldest settlement, with households residing there for an average 14 years. Mukuru (Nairobi) and Viwandani (Nairobi) are the most recent settlements, with an average of about 5 to 6 years in each area. Residency times are declining over time in Viwandani, Nyalenda (Kisumu), and Obunga (Kisumu), likely due to a steady migration of people into these areas.

Livelihoods

Casual labor is the largest (49%) source of income in all the areas sampled. Monthly salaries (24%) are found mostly in the higher income areas of Mukuru and Viwandani while small businesses (13%), hawking (9%), and use of remittances (1%) are most common in the lower income areas of Korogocho, Nyalenda, and Obunga (Table 3).

During economic downturns, oncoming emergencies, or local fiscal shocks, casual labor and other types of informal employment are most likely to be the first and most affected livelihoods.

Table 3. Household livelihoods in informal settlements in Nairobi and Kisumu, Kenya.

Main type of livelihood in areas of study (% households).						
	Nairobi			Kisumu		
Livelihood	**Korogocho**	**Mukuru**	**Viwandani**	**Nyalenda**	**Obunga**	***All Areas***
Casual	52.0	44.5	49.2	36.8	42.4	48.5
Monthly	9.9	35.4	29.2	28.0	23.4	23.6
Business	16.5	9.7	13.3	17.6	17.2	13.0
Hawking	15.7	6.1	4.6	5.4	5.9	9.1
Remittance	0.9	0.1	0.6	1.2	1.5	0.7
Scavenging	1.7	0.5	0.3	0.1	0.0	0.7
Safety Net	0.1	0.1	0.0	0.0	0.0	0.0
Other	3.2	3.7	2.9	11.0	9.5	4.5

Overall, average household income (sum of all reported incomes within a household) is lowest in Korogocho ($\bar{x}$ = 7,806 KES, M = 7,000 KES) and highest in Mukuru ($\bar{x}$ = 12,067 KES, M = 10,500 KES). The median household income is lower than the average in all the areas, showing that most households earn much less than average. This is more pronounced in the lowest earning study areas of Korogocho, Nyalenda, and Obunga (Figure 3).

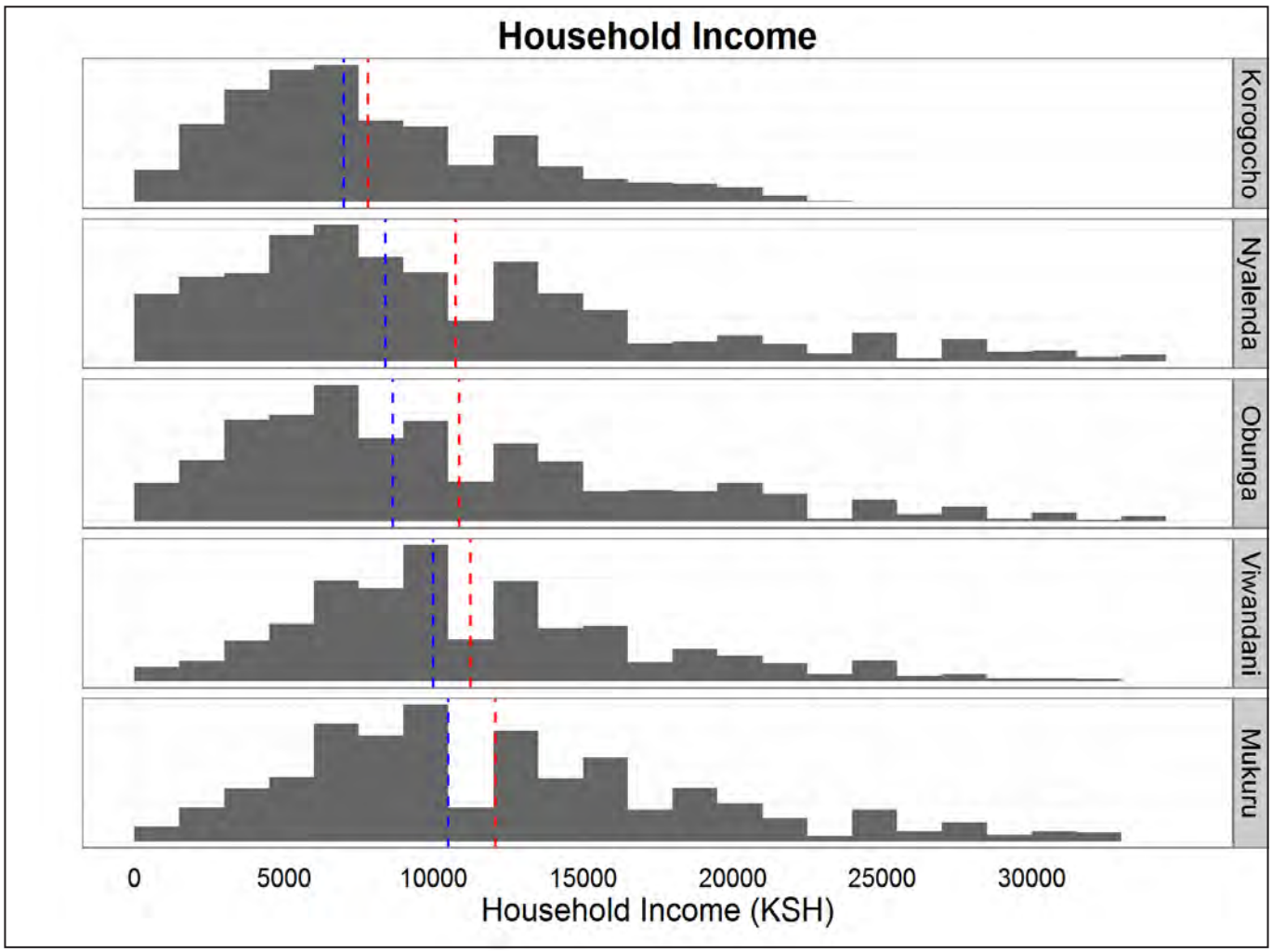

Figure 3. Household income distribution in Kenya Shillings (KSH). The red line represents the average household income per area and the blue line is the median.

Average household income did not change significantly over time in Korogocho and Mukuru, but is increasing in the other Nairobi site, Viwandani. This is in contrast with Kisumu (Nyalenda and Obunga) where average household income is declining over time (Table 4).

Table 4. Average household income in Kenyan Shillings (KES). *(*) represents significant ($p < 0.05$) change over time.*

Average Household Income in Kenyan Shillings (KES)					
	Nairobi			Kisumu	
Round (date)	**Korogocho**	**Mukuru**	**Viwandani***	**Nyalenda***	**Obunga***
R5 (Aug. '12)	7232	11702	9794	13767	12964
R6 (Feb. '13)	8061	11951	11786	10246	11090
R7 (Apr. '13)	7932	12492	10333	8954	9108
R8 (Nov. '13)	7897	-	12541	-	-
All Rounds	*7807*	*12067*	*11232*	*10747*	*10871*

Income Quintiles

Household income differed significantly between areas and within rounds ($p < 0.05$). Therefore, income quintiles were specifically calculated for each round within each area. Each quintile represents approximately 20% of all the households in each sampling period. Households in the lowest income quintiles earn anywhere from 9.5% (Nyalenda) to 21.6% (Viwandani) of the highest income quintiles household income (Figure 4).

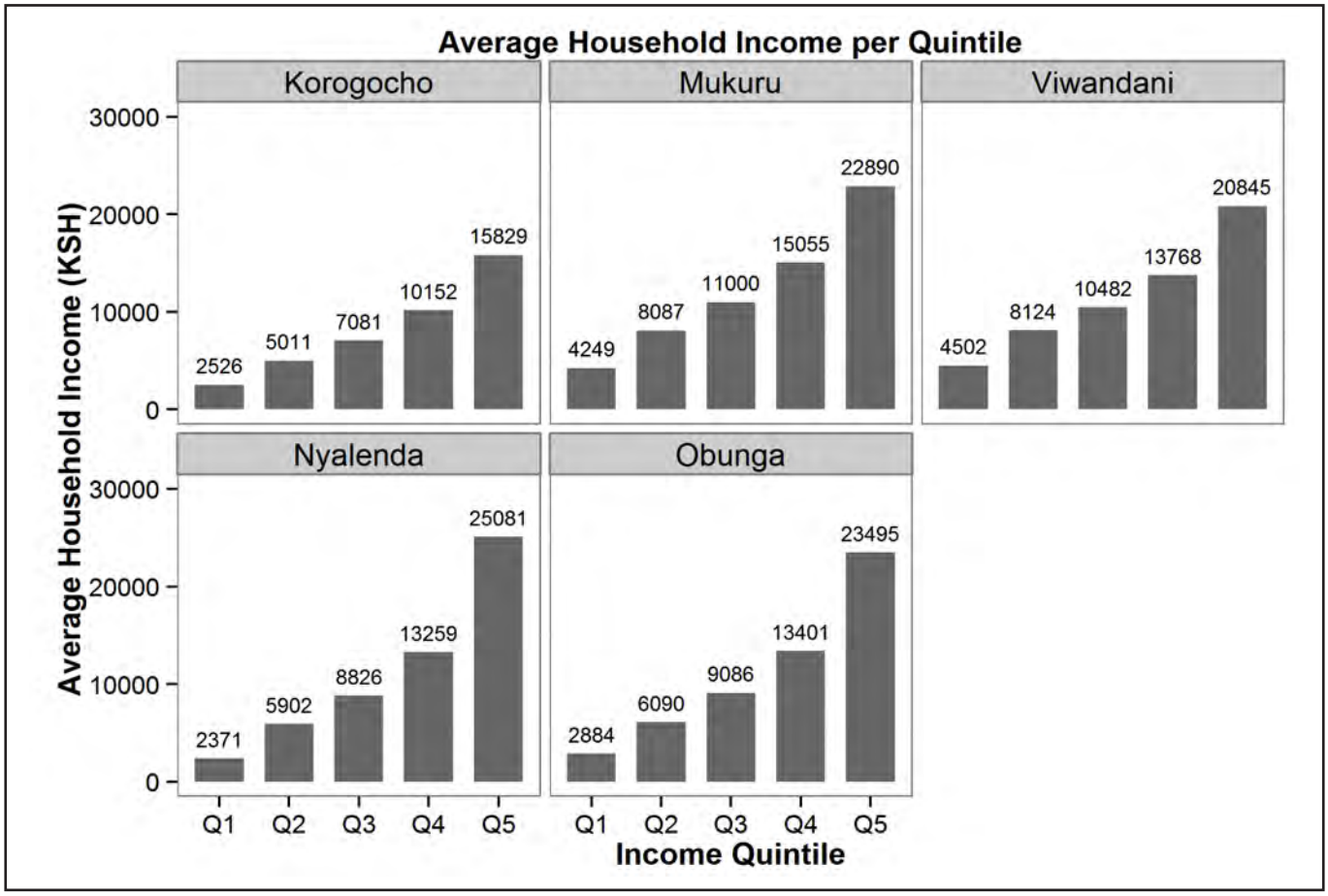

Figure 4. Average household income per income quintile in each area. *Key to X-axis; Q1: Bottom, Q2: Second, Q3: Middle, Q4: Fourth, Q5: Top.*

On average, over 90% of the household income is earned by the breadwinner (highest earner in HH). Most breadwinners in all areas were male ($\bar{x} = 68.2$ %) but this varied greatly within income quintiles, with a majority of female breadwinner households occurring in the lowest income quintiles (Table 5). This trend is troubling since female breadwinners earn significantly less than their male counterparts; earning about 62% of male income in all areas of study.

A similar trend was evident with respect to food expenditure, where households in the lowest income quintiles spent more than they earned on food in a 4-week recall period. Especially in Korogocho ($\bar{x} =$ 109.97%), Nyalenda ($\bar{x} =$ 114.15%), and Obunga ($\bar{x} =$ 102.71%), where households in the lowest income quintile spent over 100% of their income on food (Figure 5). This suggests that the already financially vulnerable households in the lowest income quintiles are borrowing money or taking food on credit.

Households in the lower income quintiles relied more on casual labor, hawking, and scavenging as a source of livelihood. These households also reported more food insecurity, severe hunger, lower dietary diversity, fewer meals/day for children, and more children (6 to 59 mos. old) with global acute malnutrition (Table 5). A higher prevalence of illness, more shocks, more perceived insecurity, and use of avoidance measures were also reported in the lowest income quintiles. A higher proportion of households in the lower income quintiles also used one or more coping strategies, especially use of credit and loans (Table 5).

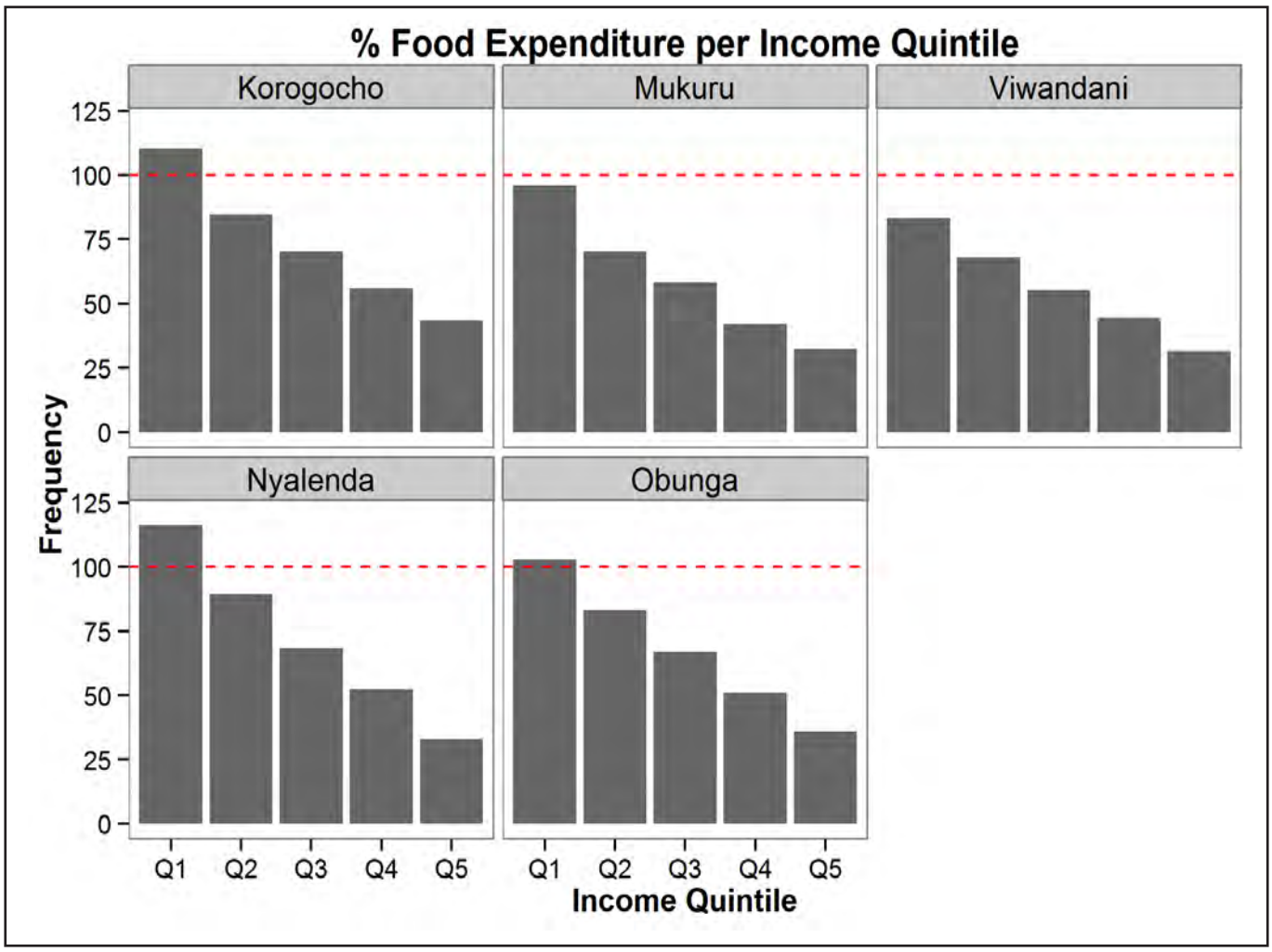

Figure 5. Food expenditure (%) per income quintile in the areas of study. The dotted red line represents 100% income spent on food in a 4 week recall period. *Key to X-axis; Q1: Bottom, Q2: Second, Q3: Middle, Q4: Fourth, Q5: Top.*

Table 5. Livelihood, food security, health, personal security, and coping strategy indicators per income quintile with Q_1 as lowest.

		Income Quintiles (Q_1 : Lowest Income)				
LIVELIHOODS	**Average**	**Q_1**	**Q_2**	**Q_3**	**Q_4**	**Q_5**
Average monthly household income (KSH)	10330	3382	6659	9274	12849	20959
Food expenditure as a percentage of income (%)	63.8	100.2	78.2	63.2	49.3	35.5
Households that depend on casual labour as a source of livelihood (%)	48.5	51.9	52.0	50.3	46.2	41.0
Households that depend on monthly salary as a source of livelihood (%)	23.6	14.4	21.6	26.1	26.9	30.4
Households that depend on business as a source of livelihood (%)	13	10.3	10.2	11.6	15.1	18.4
Households that depend on hawking as a source of livelihood (%)	9.1	12.1	11.4	7.5	7.9	5.9
Households that depend on scavenging as a source of livelihood (%)	0.6	1.6	0.7	0.5	0.3	0.2
Proportion (%) of female bread winners	31.3	50.1	34.6	27.8	21.1	20.6
Proportion (%) of female headed households	26	40.5	31.3	25.2	19.9	18.3
FOOD SECURITY AND NUTRITION	**Average**	**Q_1**	**Q_2**	**Q_3**	**Q_4**	**Q_5**
Households classified as moderately and severely food insecure by HFIAS (%)	75.1	77.4	77.1	75.9	72.8	73.4
Households classified as moderately or severely hungry by HHS (%)	31.8	34.5	32.1	31.8	29.9	29.3
Dietary Diversity (Average number of food groups consumed in 1-week recall period)	5.5	5.2	5.4	5.7	5.7	5.8
Number of meals taken by children (under 18 yrs. old) per day	3	2.8	2.9	3.0	3.1	3.0
Percent of children (6-59 months) with Global Acute Malnutrition (GAM)	2.2	2.5	2.6	2.4	1.6	1.0
Percent of children (6-59 months) at risk of Acute Malnutrition	11.4	10.6	11.6	11.8	12.3	8.6
WATER AND HEALTH	**Average**	**Q_1**	**Q_2**	**Q_3**	**Q_4**	**Q_5**
Proportion of households meeting 15L of water/person/day SPHERE standard	61.4	60.2	63.7	61.9	60.7	60.1
Prevalence of illness in the last 2 weeks (%)	48.2	52.3	50.1	47.2	46.9	44.9
PERSONAL SECURITY	**Average**	**Q_1**	**Q_2**	**Q_3**	**Q_4**	**Q_5**
Households that reported at least 1 shock in the last 4 weeks (%)	16.1	19.7	16.1	16.3	13.6	16.2
Proportion (%) who often felt unsafe/scared in the community in the last 4 weeks	21.6	22.4	23.5	22.6	21.6	23.0
Proportion (%) who have often used avoidance measures in the last 4 weeks	16.7	18.8	17.7	17.4	15.2	18.1
Proportion (%) who rated security as bad and very bad	46.1	52.3	47.4	49.3	45.6	45.3
COPING STRATEGIES	**Average**	**Q_1**	**Q_2**	**Q_3**	**Q_4**	**Q_5**
Proportion (%) who used at least one coping strategy	66	69.2	66.7	66.7	62.5	64.4
Proportion (%) who bought food items on credit	44.7	46.7	44.2	45.9	43.3	43.5
Proportion (%) who took a loan to buy food	20.7	22.9	19.1	20.9	19.4	22.2
Proportion (%) who removed children from school due to lack of school fees	21.6	16.8	20.3	19.3	20.0	25.6

Household Food Security and Malnutrition

Raw food is the main source of food (95.6%) for households in all study areas. A majority of households are moderately or severely food insecure (75%) according to the Household Food Insecurity and Access Scale (HFIAS). About 30% households report moderate to severe hunger. In Nairobi, food insecurity and household hunger increased over time but declined in Kisumu. Out of 12 food groups, households consumed an average of 5.5 food groups in a 1 week recall period. The Norwegian Refugee Council (NRC)[1] suggests that a household that consumes less than 4 out of the 12 food groups is food insecure. Dietary diversity is declining in both cities, similar to the number of meals children (under 18 years old) have per day.

Middle upper arm circumference (MUAC) was used to determine the nutritional status of children between 6 and 59 months old. MUAC measurements below 125 mm indicate Global acute malnutrition (GAM), which includes cases of severe (SAM: measurements below 115 mm) and moderate acute malnutrition (MAM: measurements between 115 and 125mm). Children with SAM and MAM are referred for treatment or supplementation programs. MUAC between 125mm and 135mm indicate children that are at risk for malnutrition. Children with SAM, MAM, and at risk for malnutrition were found in all study areas across most rounds. However, likely due to the low rate (%) of occurrence, it was difficult to determine a statistically significant trend over time (Table 6).

Table 6. Cases (%) of severe and moderate acute malnutrition and % children at risk for malnutrition.

Percent children (6-59 mos. old) with severe, moderate, and at risk for acute malnutrition.												
	Severe (SAM)				Moderate (MAM)				At Risk			
Area	Aug. '12	Feb. '13	Apr. '13	Nov. '13	Aug. '12	Feb. '13	Apr. '13	Nov. '13	Aug. '12	Feb. '13	Apr. '13	Nov. '13
Korogocho	0.56	0.55	1.08	0.52	1.68	1.94	1.36	1.29	8.94	9.14	15.72	11.08
Mukuru	0.00	0.28	0.30	-	0.76	0.85	0.91	-	11.74	11.33	6.06	-
Viwandani	1.07	0.43	0.38	0.00	1.60	0.86	0.76	1.89	15.51	11.16	15.97	12.58
Nyalenda	0.32	0.30	0.23	-	1.95	0.00	2.30	-	9.42	9.97	10.14	-
Obunga	2.48	0.81	0.92	-	3.31	0.41	3.69	-	20.11	6.91	6.77	-

Although the proportion (%) of children between the ages of 6 to 59 months suffering from malnutrition appears to be low, the actual number of children with GAM or at risk for malnutrition is fairly high (Figure 6). Especially in the lower income households and households reporting moderate or severe hunger (Figure 7).

Nutritional status of a population is one of the basic indicators used to assess and declare a humanitarian crisis. GAM is one such indicator where greater than 10% GAM in a population indicates a serious humanitarian emergency and 15% GAM indicates a critical emergency. This threshold was developed and has been effective in mostly rural contexts but has not been updated for large, urban populations. Ten percent of 500 children, i.e. 50 children, is much different than say, 10% of 15,000 children, i.e. 1,500 children. Large, urban populations, especially the poorest subset, barely have the facilities or the resources to cope with such absolute numbers. Therefore, it is important re-evaluate the current thresholds for GAM in urban contexts.

[1] *NRC, 'Field Exchange, Special focus on urban food security and nutrition, Issue 46, September 2013'*

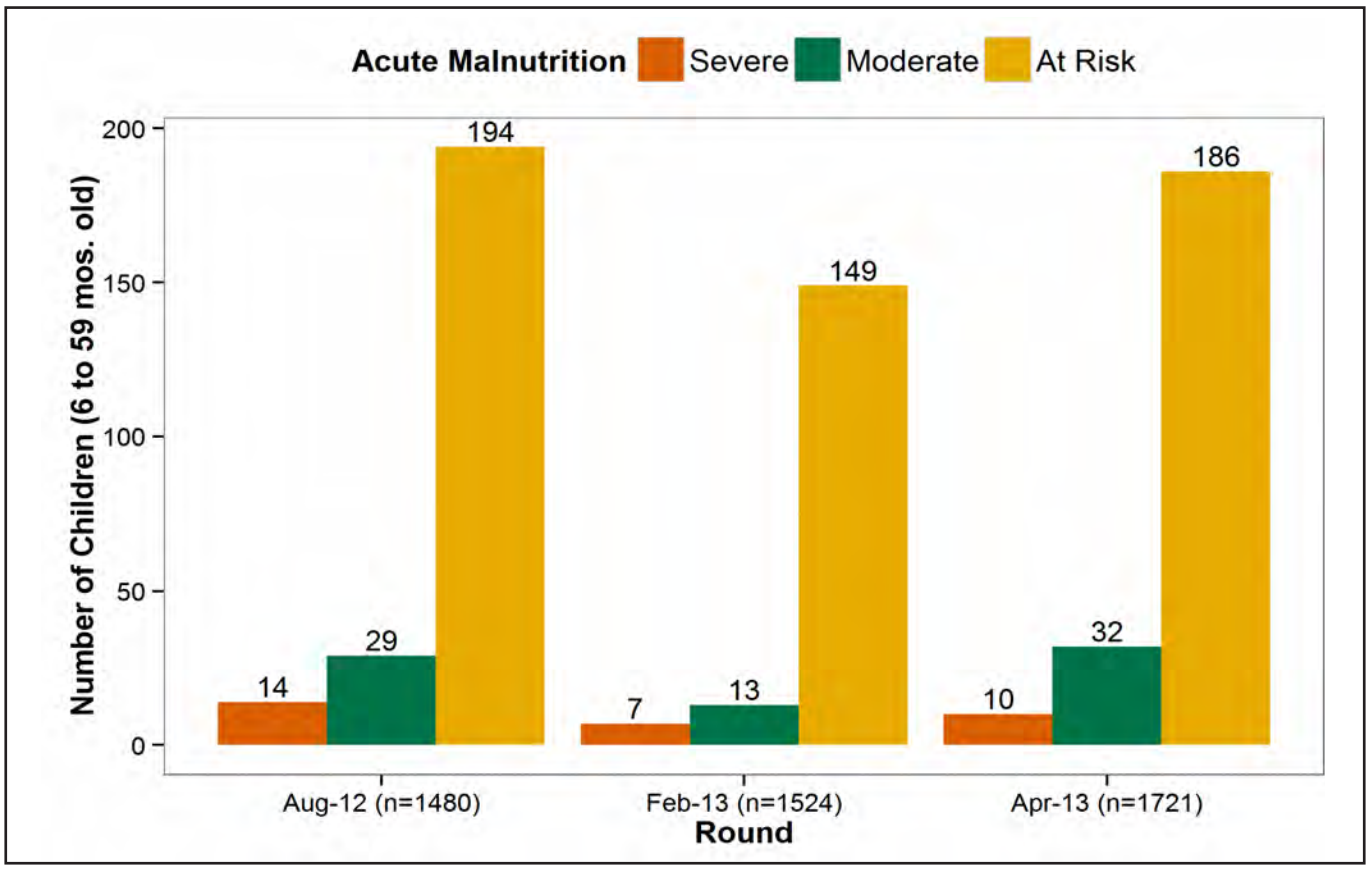

Figure 6. Number of children (6 to 59 months old) at risk for malnutrition or with severe or moderate acute malnutrition from April 2012 to April 2013 in all study areas.

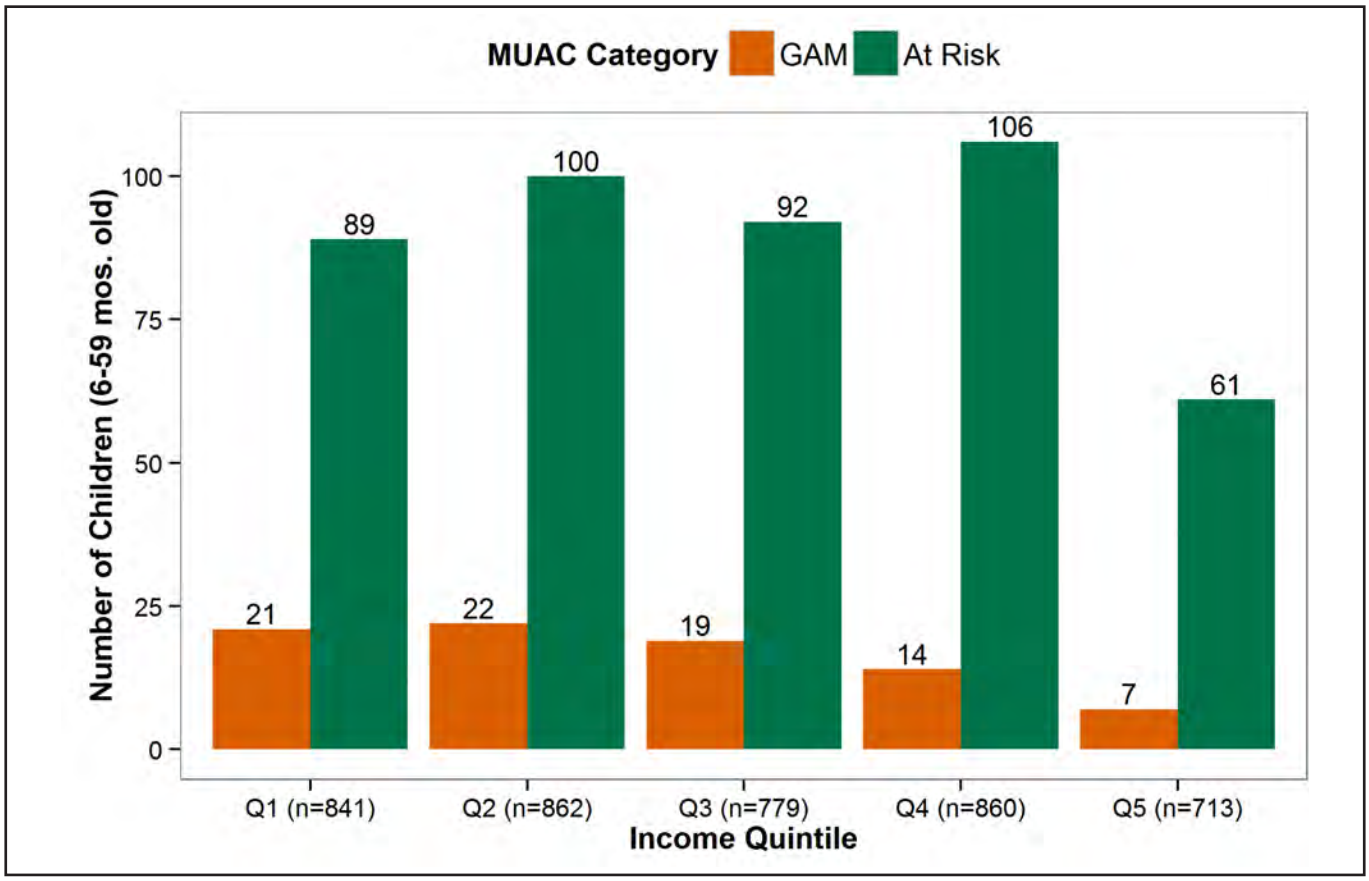

Figure 7. Number of children (6 to 59 months old) at risk for malnutrition or with severe or moderate acute malnutrition (GAM) per income quintile in all study areas.

Water and Coping Strategies

A majority of households (89%) use tap water as the main source of drinking water. Most households in all areas meet SPHERE standards for distance to water (less than 500 m or 5 minute walk) and for time queuing for water (less than 30 minutes). Over 60% of households in both cities meet the 15 L of water per person per day SPHERE standard, but that is declining in both cities (Table 7).

Overall, there was a decline in the use of coping strategies in both cities. However, the rate of decline differs between income quintiles. As illustrated in Figure 8, the use of coping strategies in Nairobi only declined slightly in the lower income quintiles (Q_1 and Q_2).

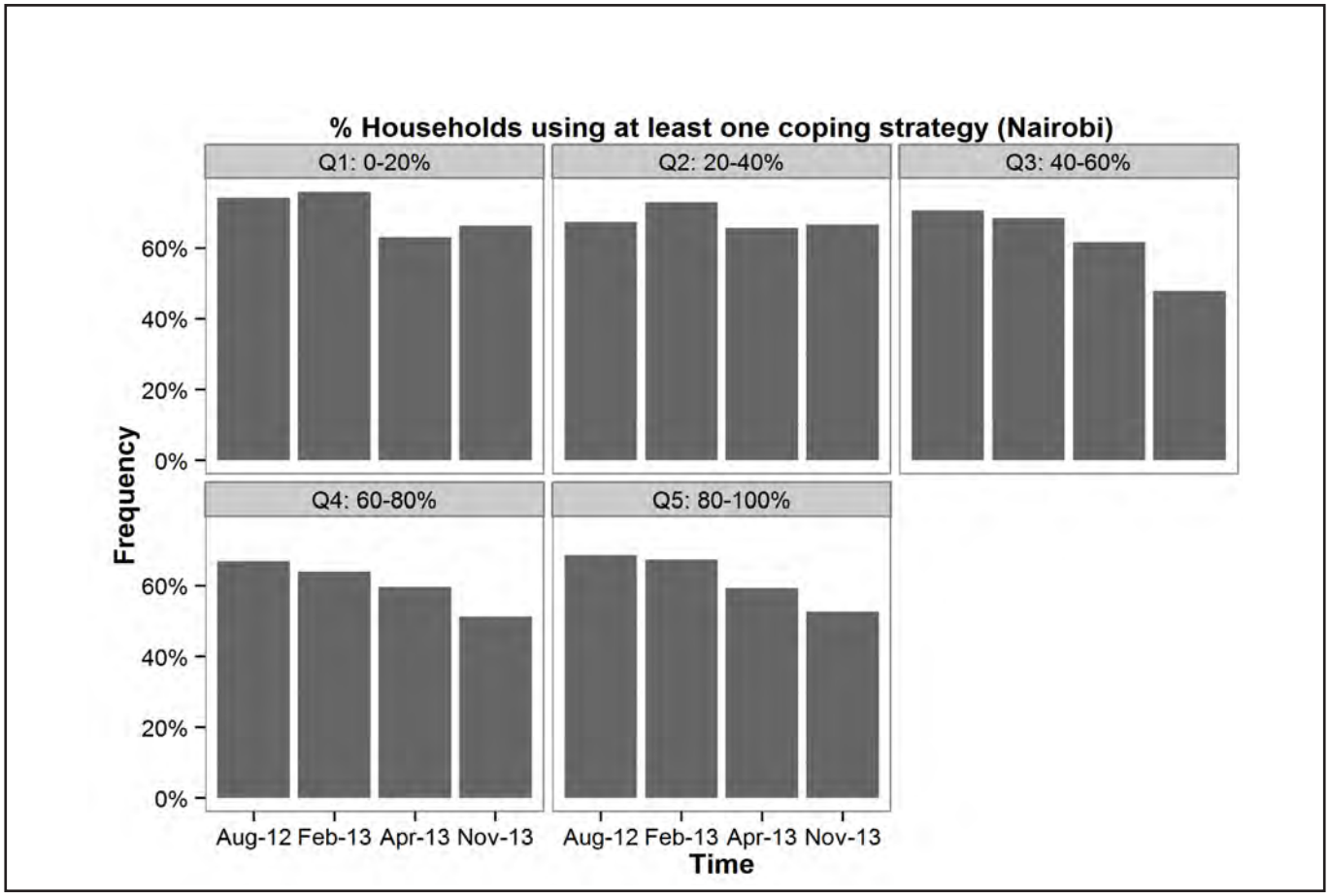

Figure 8. Use of coping strategies per income quintile in Korogocho and Viwandani in Nairobi.

Table 7. Key findings in livelihoods, food security, water, health, personal security, and coping sectors in Nairobi and Kisumu.

	Nairobi (Korogocho and Viwandani)					Kisumu (Nyalenda and Obunga)			
LIVELIHOODS	**Aug '12**	**Feb '13**	**Apr '13**	**Nov '13**	***Mean***	**Aug '12**	**Feb '13**	**Apr '13**	***Mean***
Average monthly household income (KSH)	10073	8956	8399	7897	*8831*	11140	11596	9806	*10847*
Food expenditure as a percentage of income (%)	72.4	63.5	75.6	71.4	*70.7*	61.0	54.9	61.2	
Households that depend on casual labour as a source of livelihood (%)	49.2	47.3	48.1	53.6	*49.6*	51.5	43.8	48.9	
Households that depend on monthly salary as a source of livelihood (%)	16.5	18.4	17.8	7.8	*15.1*	19.7	31.3	27.2	
Households that depend on business as a source of livelihood (%)	11.3	14.3	15.6	18.3	*14.9*	13.1	13.8	15.3	
Households that depend on hawking as a source of livelihood (%)	14.9	12.8	10.2	15.1	*13.3*	10.5	3.6	4.3	
Households that depend on scavenging as a source of livelihood (%)	0.0	1.7	1.0	2.5	*1.3*	0.0	0.1	0.3	
Proportion (%) of female bread winners	34.6	37.1	39.0	38.5	*37.3*	28.6	27.1	33.5	
Proportion (%) of female headed households	28.3	31.2	26.9	40.2	*31.7*	32.8	20.8	16.6	
FOOD SECURITY AND NUTRITION	**Aug '12**	**Feb '13**	**Apr '13**	**Nov '13**	***Mean***	**Aug '12**	**Feb '13**	**Apr '13**	***Mean***
Households classified as moderately and severely food insecure by HFIAS (%)	75.0	78.0	75.0	88.0	*79.0*	76.0	76.0	72.0	
Households classified as moderately or severely hungry by HHS (%)	31.0	37.0	30.0	51.0	*37.3*	31.0	33.0	27.0	
Dietary Diversity (Average number of food groups consumed in 1-week recall period)	5.7	5.2	5.2	5.0	*5.3*	6.0	5.6	5.8	
Number of meals taken by children (under 18 yrs. old) per day	2.8	2.7	2.8	2.5	*2.7*	3.1	3.1	3.0	
Percent of children (6-59 months) with Severe Acute Malnutrition (SAM)	0.7	0.5	0.8	0.3	*0.6*	1.5	0.5	0.5	
Percent of children (6-59 months) with Moderate Acute Malnutrition (MAM)	1.7	1.5	1.1	1.7	*1.5*	2.7	0.2	2.9	
Percent of children (6-59 months) at risk of Acute Malnutrition	11.2	9.9	15.8	11.7	*12.2*	15.2	8.7	8.7	
WATER AND HEALTH	**Aug '12**	**Feb '13**	**Apr '13**	**Nov '13**	***Mean***	**Aug '12**	**Feb '13**	**Apr '13**	***Mean***
Proportion of households meeting 15L of water/person/day SPHERE standard	67.5	63.4	61.1	69.3	*65.3*	68.9	67.9	62.0	
Prevalence of illness in the last 2 weeks (%)	53.4	54.0	51.4	49.5	*52.1*	54.6	52.6	54.5	
PERSONAL SECURITY	**Aug '12**	**Feb '13**	**Apr '13**	**Nov '13**	***Mean***	**Aug '12**	**Feb '13**	**Apr '13**	***Mean***
Households that reported at least 1 shock in the last 4 weeks (%)	12.5	16.8	23.8	21.6	*18.7*	10.3	10.7	17.4	
Proportion (%) who often felt unsafe/scared in the community in the last 4 weeks	21.9	26.5	25.2	35.4	*27.3*	16.8	18.8	15.4	
Proportion (%) who have often used avoidance measures in the last 4 weeks	16.4	16.0	17.5	18.0	*17.0*	18.5	12.7	14.1	
Proportion (%) who rated security as bad and very bad	60.5	55.2	54.0	57.4	*56.8*	37.4	38.0	44.8	
COPING STRATEGIES	**Aug '12**	**Feb '13**	**Apr '13**	**Nov '13**	***Mean***	**Aug '12**	**Feb '13**	**Apr '13**	***Mean***
Proportion (%) who used at least one coping strategy	69.5	69.4	62.2	58.2	*64.8*	67.9	72.0	64.4	
Proportion (%) who bought food items on credit	44.9	49.5	41.6	35.6	*42.9*	44.0	53.9	44.1	
Proportion (%) who took a loan to buy food	16.4	24.2	19.4	13.7	*18.4*	17.5	29.6	23.2	
Proportion (%) who removed children from school due to lack of school fees	28.6	28.8	17.1	15.4	*22.5*	23.6	25.7	16.9	

More households, in both cities, are experiencing shocks which range from mugging, floods, burglary, to property destruction (Table 8). Prevalence of illness is declining in Nairobi but has remained steady in Kisumu, with close to half the population reporting illnesses such as fever, coughs, headaches, and diarrhea (Table 9). In most cases, treatment was sought outside the home with a majority of households relying on pharmacies in both cities. However, households in Nairobi used more clinics, while households in Kisumu used hospitals (Table 9).

Table 8. Proportion (%) of households that experienced shocks in a 4-wk recall period.

	Nairobi (Korogocho and Viwandani)					Kisumu (Nyalenda and Obunga)			
	Aug '12	**Feb '13**	**Apr '13**	**Nov '13**	***Ave.***	**Aug '12**	**Feb '13**	**Apr '13**	***Ave.***
Experienced at least 1 shock (%)	12.5	16.8	23.8	21.6	*18.7*	10.3	10.7	17.4	*12.8*
Mugging/Stabbing	50.0	50.9	51.3	56.3	*52.1*	43.0	51.0	26.6	*40.2*
Floods	31.7	26.0	33.8	34.1	*31.4*	19.8	23.0	53.2	*32.0*
Burglary	24.0	20.8	26.0	20.6	*22.9*	34.9	25.0	18.5	*26.1*
Property Destruction	6.7	8.1	7.8	11.9	*8.6*	23.3	9.0	7.5	*13.3*
Eviction	1.9	6.9	5.6	18.3	*8.2*	25.6	6.0	6.4	*12.6*
Fire	4.8	10.4	4.1	10.3	*7.4*	11.6	9.0	8.1	*9.6*
Rape/Sodomy	0.0	1.7	4.8	2.4	*2.2*	10.5	1.0	0.0	*3.8*

Table 9. Proportion (%) of illnesses and types of treatment sought in 4-wk recall period.

	Nairobi (Korogocho and Viwandani)					Kisumu (Nyalenda and Obunga)			
ILLNESSES	**Aug '12**	**Feb '13**	**Apr '13**	**Nov '13**	***Ave.***	**Aug '12**	**Feb '13**	**Apr '13**	***Ave.***
Prevalence of illness in the last 2 weeks (%)	53.4	54.0	51.4	49.5	*52.1*	54.6	52.6	54.5	*53.9*
Fever	45.6	43.4	44.7	29.0	*40.7*	30.1	29.1	27.1	*28.8*
Cough	38.8	30.6	34.6	25.4	*32.3*	22.2	24.1	21.1	*22.5*
Headache	27.6	27.3	27.5	23.9	*26.6*	21.9	20.4	25.7	*22.7*
Diarrhea	22.3	18.9	17.8	19.5	*19.6*	18.1	15.6	16.0	*16.6*
Vomiting	7.7	10.2	7.7	7.9	*8.4*	8.5	5.5	7.2	*7.0*
Injuries	6.6	7.8	6.6	9.3	*7.6*	15.5	16.6	15.6	*15.9*
Diff. Breathing	6.4	6.7	6.6	9.7	*7.3*	3.8	3.5	4.0	*3.8*
Convulsions	1.9	3.3	3.1	3.6	*3.0*	2.6	1.9	1.4	*2.0*
Measles	0.6	0.7	0.9	2.0	*1.1*	4.3	2.4	3.8	*3.5*
Other Illness	19.9	40.4	39.2	41.3	*35.2*	56.2	62.4	57.2	*58.6*
TREATMENT	**Aug '12**	**Feb '13**	**Apr '13**	**Nov '13**	***Ave.***	**Aug '12**	**Feb '13**	**Apr '13**	***Ave.***
Sought treatment for illness (%)	91.6	90.5	84.8	84.4	*87.9*	87.8	83.3	88.0	*86.4*
Pharmacy/Chemist	34.6	32.0	30.7	26.6	*31.0*	22.0	22.4	27.3	*23.9*
Public Clinic	23.1	19.9	26.1	25.0	*23.5*	8.0	9.3	11.9	*9.7*
Private Clinic	12.4	15.0	11.9	10.1	*12.3*	2.8	7.3	5.2	*5.1*
NGO clinic	12.1	11.3	8.9	11.1	*10.8*	10.6	13.4	11.8	*11.9*
Public Hospital	9.1	9.2	11.0	14.0	*10.8*	31.5	25.6	28.2	*28.5*
Private Hospital	5.1	7.2	8.6	8.0	*7.2*	6.1	9.5	7.0	*7.5*
NGO hospital	3.5	3.3	1.1	1.7	*2.4*	1.4	0.1	0.3	*0.6*
Traditional Healer/Herbalist	1.6	2.7	0.9	1.0	*1.5*	3.6	2.9	1.7	*2.8*
Other treatments	0.5	1.0	0.9	1.4	*0.9*	6.2	6.4	2.0	*4.9*

Preliminary Geospatial Analysis

As we focus on defining key indicators for long-term surveillance of slow-onset urban emergencies, we should consider different avenues for surveillance and analysis. We know that current information sources are inadequate for our needs due to their large scale and infrequent nature. Therefore, along with monitoring a variety of potential indicators on a smaller, more frequent scale, our study will include geospatial analysis. Geographic information systems (GIS) have been used to monitor slow-onset crises such as drought, environmental degradation, and food security issues, especially in rural areas. In these cases, GIS and Remote Sensing (RS) are often used to monitor environmental changes and resource use to predict and monitor the onset and geographic extent of crises. We will apply similar geospatial concepts to monitor potential indicators of slow-onset crises in urban areas. Although the unique spatial arrangement of urban informal settlements (large crowded settlements in small areas) presents a geospatial challenge, it also presents an opportunity for us to understand settlement patterns, resource use/allocation, and other humanitarian issues from a spatial perspective.

In this report, we will show the potential use of one geospatial technique, spatial autocorrelation, to map out the most vulnerable areas, with respect to income and food security, in 5 urban informal settlements in Kenya. Three study sites are located in Nairobi and two in Kisumu (Table 1).

Table 1. Kenya National Bureau of Statistics (KNBS) gender, household, area (km^2), and density (people/km^2) 2009 census data by sub-location.

KNBS 2009 census data sampled at sub-location.						
	Nairobi			Kisumu		
	Korogocho	Mukuru	Viwandani	Obunga (Kanyakwar)	Nyalenda A	Nyalenda B
Area (km^2)	0.22	8.11	5.71	6.6	3.16	4.71
Households	3,129	49,198	17,926	3,553	8,070	8,561
Density	46,136	16,082	7,859	1,913	8,953	6,886
Male	5,376	71,619	25,823	6,447	14,829	16,189
Female	5,000	58,782	19,058	6,107	13,440	16,241
Total	10,376	130,401	44,881	12,554	28,269	32,430

Spatial autocorrelation is a measure of how a set of features and their associated values (i.e. income or any other variable of interest) are distributed in space. Global Moran's I (which ranges from -1 to +1) is an inferential spatial autocorrelation statistic often used to test the null hypothesis that features are randomly distributed. If a group of spatial features and their associated values tend to be clustered in space (positive spatial autocorrelation), Moran's I will be closer to 1. In this case, high values will be in close proximity to other high values while low values will cluster near other low values. If the opposite is true and high values tend to be near low values, and vice versa, Moran's I will be closer to -1 and the data is dispersed (negative spatial autocorrelation).

Global Moran's I was used to estimate the degree of spatial autocorrelation for breadwinner income, household dietary diversity (DDS), household food insecurity (HFIAS), and household hunger (HHS) in Korogocho, Mukuru, Nyalenda, Obunga, and Viwandani. Hot spot analysis (Getis-Ord Gi*) was then used to show where household with high values or low values, per respective variable of interest, clustered in the local areas. Household data and GPS locations from rounds five (August 2012), six (February 2013), and seven (April 2013) were used for this analysis. However, 45.95% of households in Obunga did not have viable GPS coordinates and were therefore excluded from this analysis. The same was true for 35.67% of households in Nyalenda, 17.46% of households in Mukuru, 6.33% of households in Viwandani, and 2.82% of households in Korogocho.

Dietary diversity is determined by the number of food groups, that a household consumed in a 24-hr period. Out of 12 food groups, a higher dietary diversity score is indicative of both a healthier

diet and the economic ability of the household to consume a variety of foods. Low DDS values indicate low dietary diversity and high DDS values indicate high dietary diversity. HFIAS is a composite score which measures several aspects of food insecurity and access through a module of questions to the household. Higher HFIAS values (out 28 possible points) indicate food insecurity while lower values (closer to 0) imply that the household is food secure. HHS is a subset of HFIAS which measures household hunger in food insecure areas. Higher HHS values indicate severe household hunger (out of 6 possible points) and low HHS values (closer to 0) indicate little to no household hunger. It should be noted that all three key indicators are household based measures, as opposed to measures for an individual.

In Korogocho, all variables of interest clustered significantly (Figure 1, z-score > 1.96, p-value < 0.001). Although spatial clustering was most pronounced in the HFIAS score (z-score = 9.05). Households with higher incomes clustered in the southwest corner of Korogocho (blue points in *Income* window of Figure 1). Households with high dietary diversity, low food insecurity, and low household hunger values clustered in this region as well (blue points in Figure 1). The northeast area of Korogocho appears to have an inverse relationship; with lower incomes, more food insecurity, and higher household hunger values (red points in Figure 1). Correlation analysis of these variables revealed that HFIAS and HHS are strongly correlated ($\rho = 0.75$, $p<0.001$) in Korogocho, which likely explains why clusters of high hunger households were located in the same area as clusters of highly food insecure households. HFIAS and HHS were significantly negatively correlated with income ($\rho = -0.3, p<0.001$; $\rho = -0.28, p<0.001$) and dietary diversity scores ($\rho = -0.43$, $p<0.001$; $\rho = -0.46$, $p<0.001$), showing that food insecure households in Korogocho tend to have lower incomes and lower dietary diversity.

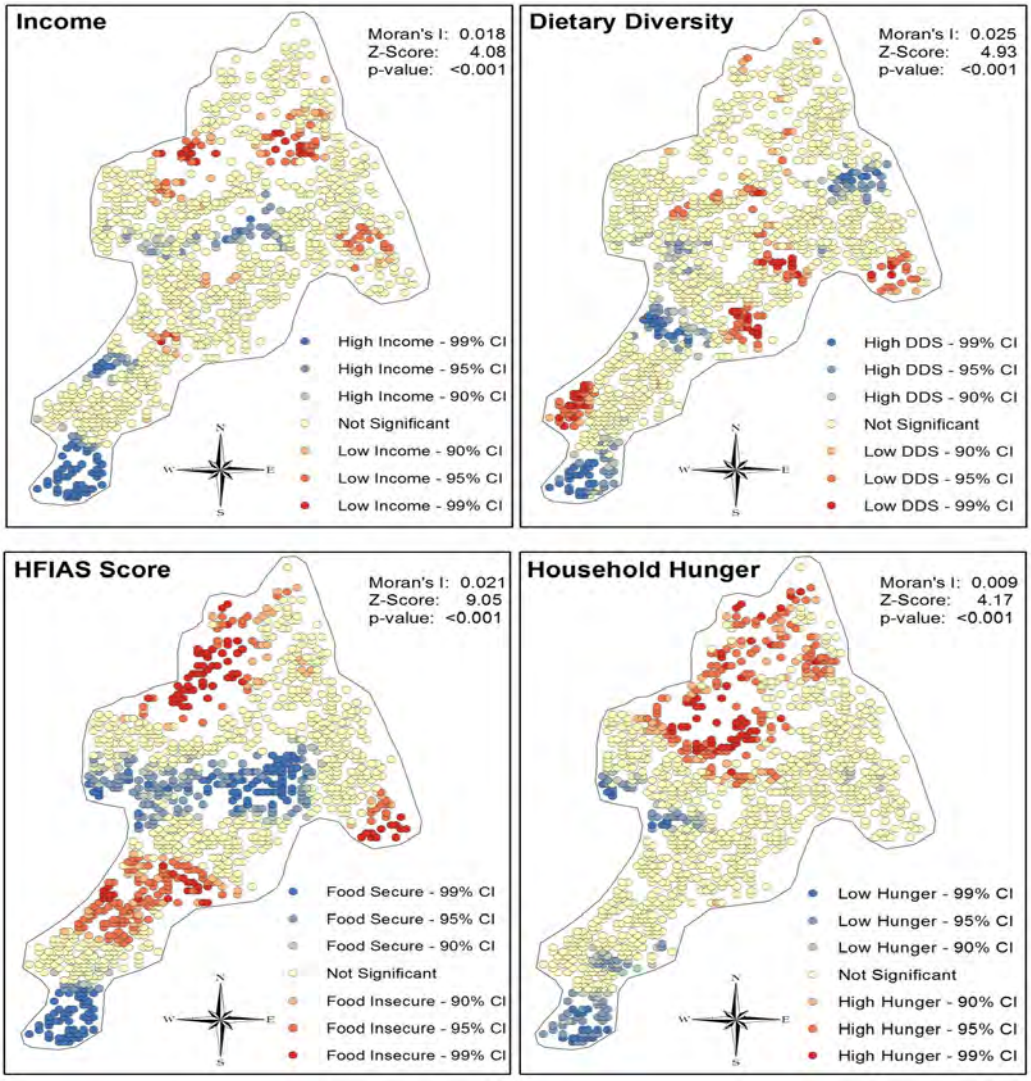

Figure 1. Spatial distribution of income, dietary diversity, HFIAS, and HHS in Korogocho, Nairobi.

In Viwandani, all variables clustered significantly (Figure 2, z-score > 1.96, p <0.001), especially the HFIAS score (z-score = 18.32, p < 0.001). Clusters of high income households that are relatively food secure are distributed throughout the community, the same is true for low income, food insecure households, but the largest cluster is located in eastern Viwandani. Similar to Korogocho, HFIAS and HHS were highly positively correlated in Viwandani (ρ = 0.69, p<0.001) and negatively correlated with income and dietary diversity (ρ = -0.3, p<0.001; ρ = -0.27, p<0.001). While income and DDS were positively correlated (ρ = 0.15, p<0.001) in the area.

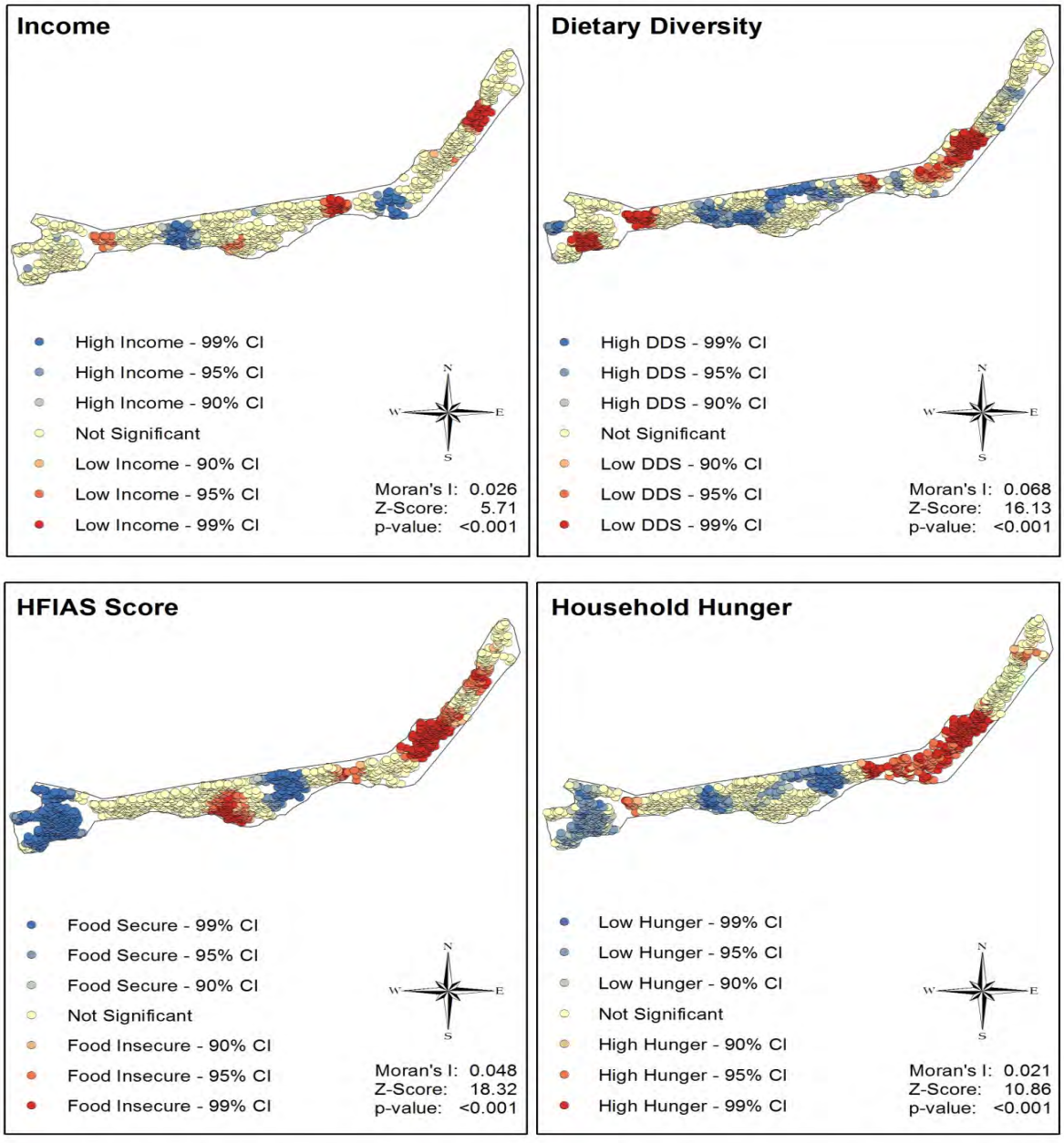

Figure 2. Spatial distribution of income, dietary diversity, HFIAS, and HHS in Viwandani, Nairobi.

All variables of interest clustered significantly in Mukuru, especially the income variable (Figure 3, z-score: 20.62, p-value < 0.001). Households with lower incomes clustered in the west (red points in Figure 3), while households with higher income clustered in the southeast. However, all three food indices did not appear to follow income trends. Instead, there appear to be clusters of food insecure households spread throughout the area, especially in the far western corner. In fact, income is only slightly correlated with dietary diversity, HFIAS, and HHS (ρ = 0.06, p<0.001; ρ = -0.24, p<0.001; ρ = -0.07, p<0.001), especially compared to the other study areas in Nairobi (Korogocho and Viwandani).

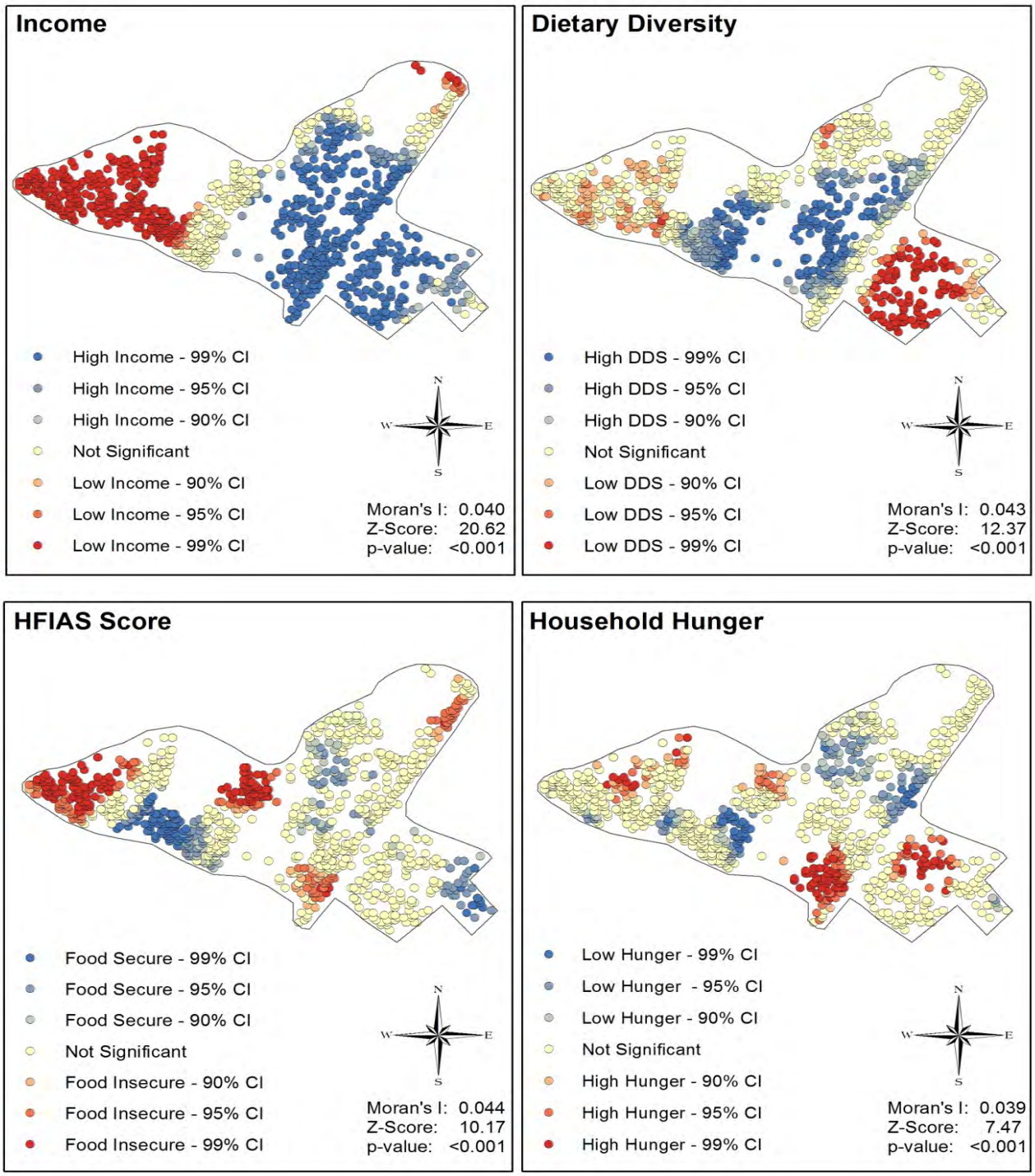

Figure 3. Spatial distribution of income, dietary diversity, HFIAS, and HHS in Mukuru, Nairobi.

In Nyanlenda, Kisumu, all variables of interest were significantly clustered, but most pronounced for dietary diversity (z-score = 21.91, $p < 0.001$). It appears that the most food insecure households are clustered in the southwest corner, while the high-income, more food secure homes cluster in central Nyalenda (blue points in Figure 4). HFIAS and HHS are strongly correlated (ρ = 0.80, $p<0.001$) with each other, but negatively correlated with dietary diversity (ρ = -0.23, $p<0.001$; ρ = -0.20, $p<0.001$) in Nyalenda. Income was positively correlated with dietary diversity (ρ = 0.16, $p<0.001$) but negatively correlated with HFIAS and HHS (ρ = -0.29, $p<0.001$; ρ = -0.25, $p<0.001$). It appears that food insecure households in Nyalenda tend to have lower incomes and lower dietary diversity, especially homes in the southwest corner of Nyalenda (red points in Figure 4).

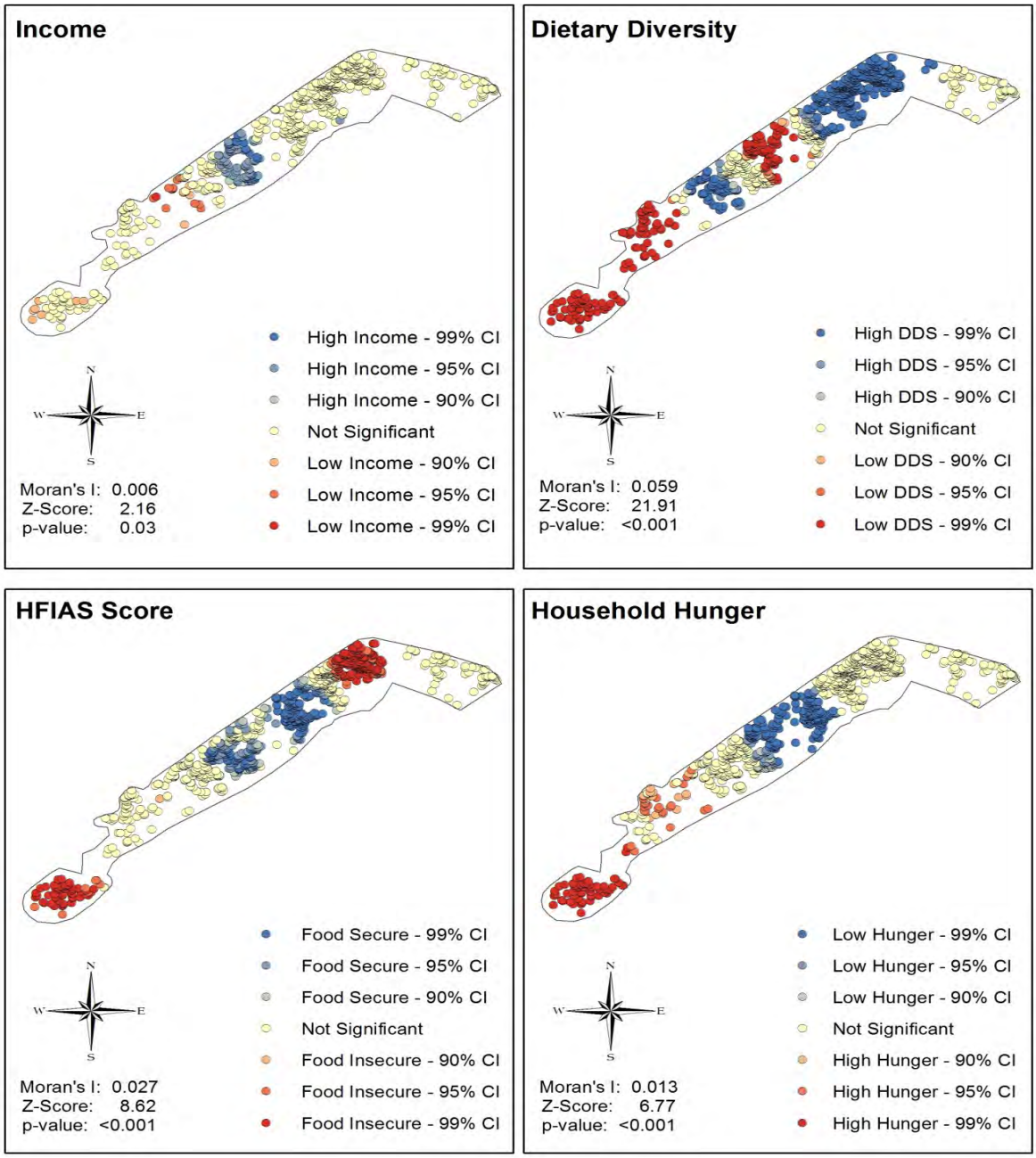

Figure 4. Spatial distribution of income, dietary diversity, HFIAS, and HHS in Nyalenda, Kisumu.

In Obunga, Kisumu, all variables of interest, except income (z-score = - 1.76, p = 0.07), were significantly clustered and most pronounced for household hunger (Figure 5, z-score = 13.35, p <0.001). It appears that the most food insecure household clusters are located in the north, yet these clusters report higher dietary diversity scores (Figure 5). There is a cluster of households with low dietary diversity in the southern portion of Obunga, yet these households appear to be food secure and report low household hunger. Correlation analysis reveals that dietary diversity and HFIAS are not significantly correlated (ρ = -0.19, p=0.10), which might explain this spatial pattern. Although households might be food insecure, they still appear to consume a diverse diet. A similar pattern can be seen in Nyalenda where a cluster of high dietary diversity households reported food insecurity (see northern portion of Nyalenda in Figure 5), yet food secure households reported low dietary diversity. This pattern, which appears mostly in Kisumu, implies that in our study, dietary diversity might not be the best indicator of food security or insecurity. What is evident from the maps and correlation analysis, suggests that perhaps due to dietary preferences in this area, dietary diversity does not necessarily correlate with food insecurity.

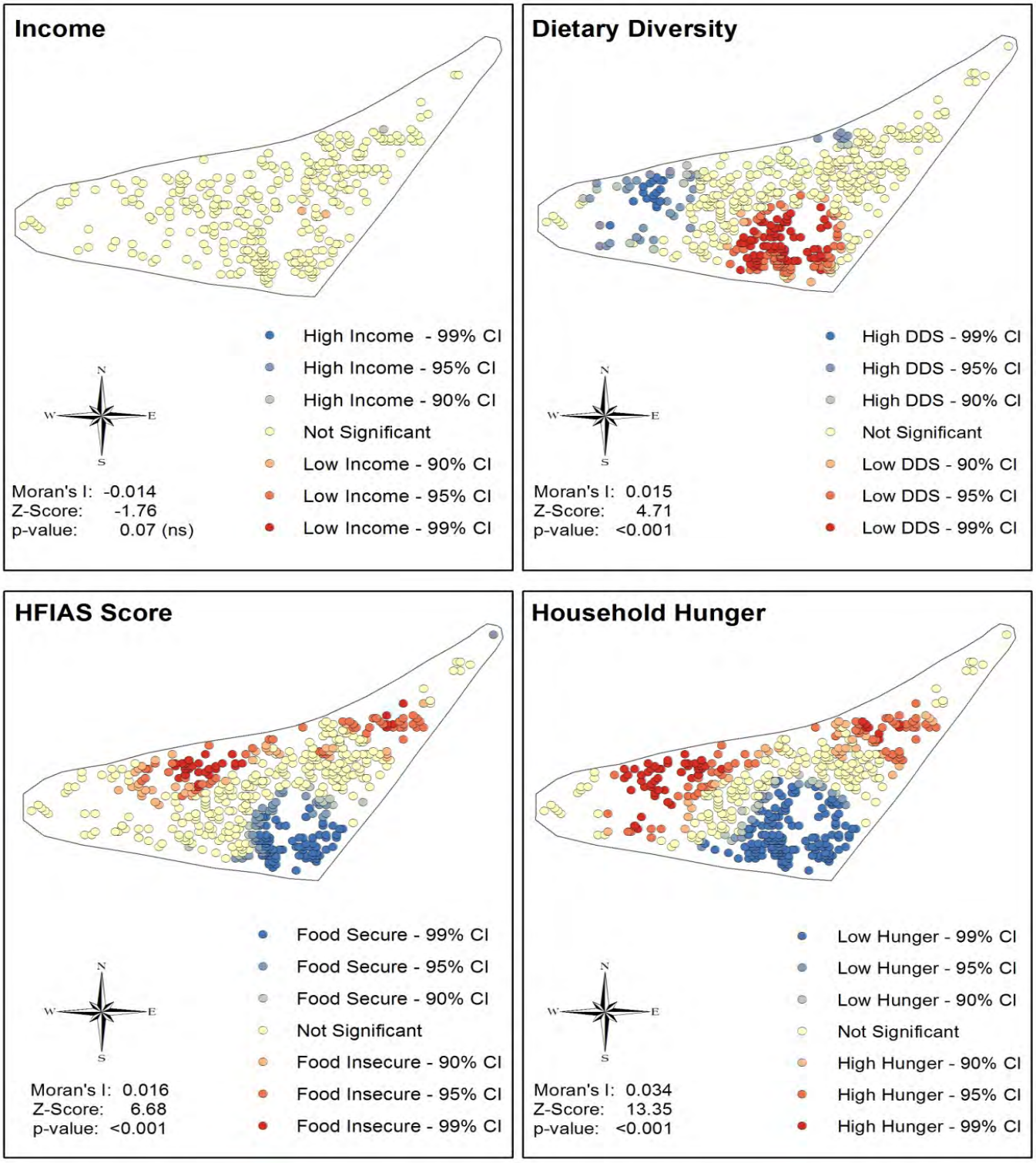

Figure 5. Spatial distribution of income, dietary diversity, HFIAS, and HHS in Obunga, Kisumu.

In this preliminary geospatial analysis of income and food security indices, income does not always strongly correlate with food security in informal settlements, however, in some cases, such as in Nyalenda, lower income areas correlate with high food insecurity. The food security indicators, DDS, HFIAS, and HHS, did not always cluster food insecure households in the same area, this suggests that not all three indicators might be appropriate for long term monitoring. Future geospatial analysis will include other potential indicators, such as WASH, and a multivariate approach in determining the most vulnerable areas in informal settlements. Should crisis arise, this baseline geospatial information will also be useful in targeting aid to the most vulnerable areas and understanding the spread and extent of the crisis in these sites.

Analysis of Indicators by Domain: Questionnaire Review

Socio-demographic information

i) Number of respondents

Data was collected in 5 different sites, 2 in Kisumu (Nyalenda and Obunga) and 3 in Nairobi (Korogocho, Mukuru and Viwandani) in three rounds: Round 5 (August 2012), Round 6 (February 2013), and Round 7 (April 2013). We sampled an average of 496 ± 97 households per round and 1487 ± 226 per area (Table 1).

Table 1. Number of households per study area and round

Number of household sampled in Nairobi and Kisumu settlements.						
	Nairobi			Kisumu		
Round (date)	**Korogocho**	**Viwandani**	**Mukuru**	**Obunga**	**Nyalenda**	***Total***
R5 (Aug. '12)	428	459	455	380	407	*2,129*
R6 (Feb. '13)	553	623	630	314	477	*2,597*
R7 (Apr. '13)	546	578	582	418	585	*2,709*

ii) Household Heads – q1.4b

Household survey questions are answered by the household head or a person designated by the household head to respond on his or her behalf. Overall, 47% of household heads responded to the survey, while the other 53% designated someone to respond on their behalf. Seventy-four percent of HH heads in our survey are male and 26% female, in all areas of study. However, household head gender differs significantly ($p < 0.05$) between areas. Korogocho has the highest amount of household heads (34.1%) while Viwandani reports the lowest amount of female household heads (19.1%).

Of the female-headed households, 82% directly responded to the survey questions while only 34% of male household heads responded to the survey (in over 85% of the cases, their wives responded to the survey on their behalf). Therefore, a majority of our survey respondents are female.

1. HOUSEHOLD LIVING ARRANGEMENTS

1.1 Household size – q1.17

Household size differs significantly between areas ($p < 0.05$). Nyalenda has the largest average household size ($\bar{x} = 4.4 \pm 2.26$) with Viwandani reporting the lowest ($\bar{x} = 3.02 \pm 1.55$). Household size did not change significantly over time in Nyalenda and Mukuru, but is increasing in Viwandani and declining in Korogocho and Obunga.

The average number of children under 5 years old differs significantly between areas. Obunga reports the highest number of children under 5 years old per household ($\bar{x} = 1.42 \pm 0.63$) with Viwandani reporting the lowest ($\bar{x} = 1.20 \pm 0.44$). Number of children under 5 years old did not change significantly over time in all areas except in Obunga where it declined.

Review: Include persons with disability, elderly (over 65 years old), and people living with HIV/AIDS in the next rounds

1.2 Length of stay in the site – q1.18

Rationale: As a response to various shocks and stresses such as fire, insecurity, evictions, etc., many people move in and out of informal urban settlements (intra-urban migration). Rural-urban migration also takes place often, as more people come to seek a source of livelihood.[2] Such immigrants usually end up in informal settlements due to high costs of housing in formal settlements. Questions 1.18 and 1.19 help to monitor movements in and out of urban slums and could be a possible indicator of shocks and stresses.

Findings: Korogocho is the oldest settlement, with households residing there for an average of 13.9 ± 11.04 years. Mukuru and Viwandani are the most recent settlements, with an average of about 5 to 6 years in each area. Residency times are significantly declining over time in Viwandani, Nyalenda and Obunga, likely due to a steady migration of people into these areas.

1.3 Place of origin – q1.19

A majority of households in all the areas originate from rural areas (38%), followed by other slum (27%), same slum (19%), and non-slum urban area (16%).

Review: Include response 'other country' to include refugees. Add a question to determine why household moved to slums.

1.4 Prevalence of acute malnutrition by MUAC – q1.20

Rationale: Middle Upper Arm Circumference (MUAC) is an anthropometric measure used for analysis of nutritional status amongst children aged 6-59 months. It is mainly used to detect Severe Acute Malnutrition (SAM), Moderate Acute Malnutrition (MAM) and populations at risk of malnutrition.

Interpretation of MUAC[3]

- ✓ MUAC less than 115mm (11.5cm) indicates Severe Acute Malnutrition (SAM). The child should be immediately referred for treatment.
- ✓ MUAC of between 115mm (11.5cm) and 125mm (12.5cm) indicates Moderate Acute Malnutrition (MAM). The child should be immediately referred for supplementation.
- ✓ MUAC of between 125mm (12.5cm) and 135mm (13.5cm) indicates that the child is at risk for acute malnutrition and should be counseled and followed-up for growth promotion and monitoring (*not shown in our figures)*.
- ✓ MUAC over 135mm (13.5cm) indicates that the child is well nourished (*not shown in our figures)*.

Findings: The average number of children with Severe Acute Malnutrition (SAM) across all rounds was highest in Obunga at 5 children (1.5% of children between 6 and 59 months) while the least was in Mukuru, averaging less than 1 child in all rounds (0.21% of children between ages 6 and 59 months). The trend shows an increase in SAM in Korogocho and Mukuru over three rounds, however this is not statistically significant (Table 2). Cases of SAM and MAM are highest in Obunga (14 children in all rounds) and Korogocho (8 children in all rounds).

[2] *Robert Muggah, "Researching the urban dilemma, 2012," IDRC Canada*

[3] *Sphere Handbook, WHO, 2010*

Table 2: Percent of children between 6 and 59 months with severe or moderate acute malnutrition per study area in all rounds.

Percent children (6-59 mos. old) with severe, moderate, and at risk for acute malnutrition.									
	Severe (SAM)			Moderate (MAM)			At Risk		
Area	Aug. '12	Feb. '13	Apr. '13	Aug. '12	Feb. '13	Apr. '13	Aug. '12	Feb. '13	Apr. '13
Korogocho	0.56	0.55	1.08	1.68	1.94	1.36	8.94	9.14	15.72
Mukuru	0.00	0.28	0.30	0.76	0.85	0.91	11.74	11.33	6.06
Viwandani	1.07	0.43	0.38	1.60	0.86	0.76	15.51	11.16	15.97
Nyalenda	0.32	0.30	0.23	1.95	0.00	2.30	9.42	9.97	10.14
Obunga	2.48	0.81	0.92	3.31	0.41	3.69	20.11	6.91	6.77

2. WATER DOMAIN

2.1 Main source of drinking water – q2.1

Rationale: An improved drinking water source is defined as a type of drinking water facility or water delivery point that by the nature of its design protects the drinking water source from external contamination, particularly fecal matter.[4] These could include any of the following:

- Piped/tapped water into dwelling, plot or yard
- Public standpipe/Public tap
- Protected dug well
- Protected spring
- Rainwater (storage tanks)

This indicator provides a proxy measure both of exposure, in terms of access to safe drinking water and the effectiveness of actions to improve access.

Findings: A majority of households in all areas use tapped water as their main source of drinking water (89%). This is especially true in Mukuru, where 97% of the households use tapped water. Nyalenda and Obunga, which are located in close proximity to Lake Victoria also use tapped water (89%) but report more use of 'other' water sources, perhaps referring to the lake. Korogocho and Viwandani reported the highest use of water tanks (13%).

2.2 Time to water source – q.2.2

Rationale: The Sphere Project[5] suggests that water points should be no more than 500m (or a 5 minute walk) away from the household in order to ensure the household meets minimum water requirements.

Findings: Households in all the study sites meet the Sphere Project standard and average less than a 5 minute walk ($\bar{x} = 3.08$ minutes) with Nyalenda and Obunga reporting the longest walking periods (4.45 and 4.44 minutes, respectively). Households in Nairobi (Korogocho, Mukuru, and Viwandani) averaged about a 2.5 minute walk. Distance to water did not change over time in Nyalenda and Obunga but is significantly declining in Korogocho and Mukuru and slightly increasing in Viwandani.

2.3 Queuing time – q2.3

Rationale and findings: The Sphere Project[6] suggests that queuing time at water points should be no more than 30 minutes to ensure the household meets minimum water requirements.

Findings: Households in all the study sites meet the Sphere Project standard for time spent queuing for water ($\bar{x} = 7.28$ minutes), with households in Nyalenda reporting the longest queuing time of 11 minutes. Viwandani reported the next highest time (8 minutes) followed by

[4] *UN HABITAT, 2009*

[5] *SphereProject.org*

[6] *SphereProject.org*

Korogocho (6 minutes), Obunga (5.6 minutes), and Mukuru (5.19 minutes). Queuing times are increasing in Korogocho while declining in Viwandani and Obunga.

2.4 Do you pay for this water? – q2.4

Findings: A majority of households in all of the study areas pay for water (93.3%).

2.5 Quantity of water used per day – q2.6

Rationale: This is an indicator for water supply usually expressed as liters of water available per person per day and only includes safe water in its most stringent definition. Both the Sphere Project and the UN High Commission for Refugees (UNHCR) recommend a minimum of 15 liters of water per person per day.[7] UNHCR further stipulates that 7 liters per person per day is the absolute minimum amount to survive.

Findings: On average, people in all the study areas use 20.59 litres of water per person per day. A majority of the households in Nyalenda and Obunga meet the SPHERE minimum standard of 15 liters per person per day. However, more households in Nairobi (Korogocho, Viwandani, and Mukuru) are not meeting this standard. Liters of water used per person per day is declining in Viwandani, Nyalenda, and Obunga while increasing Korogocho.

2.6 Water quality – q2.7

Findings: A majority of households reported clean or very clean water (84%), with households in Kisumu reporting the cleanest water and households in Mukuru reporting the dirtiest. However, the quality of water appears to be declining in Kisumu (Nyalenda and Obunga).

Review: This question may not be included in future rounds since this is a subjective question and the quality of water may not necessarily change due to a slow onset emergency; particularly given that most people use piped water. This is however subject to verification in round 8.

3. HYGIENE AND SANITATION

3.1 Type of toilet facility – q3.1

Rationale: Access to improved toilet facilities refers to the percentage of the population with at least adequate access to excreta disposal facilities that can effectively prevent human, animal, and insect contact with excreta.[8] WHO classify improved toilet facilities as flush/pour flush (to piped sewer system, septic tank, and pit latrine), ventilated improved pit (VIP) latrine, pit latrine with slab, and composting toilet. This is an important indicator for access to improved sanitation.

Findings: Most households in all the study areas use improved toilet facilities: shared flush toilets (78%) and flush trench (10%).

Review: The type of toilet facility used during the day (Q3_1) and at night (Q3_2) did not differ and was highly correlated (r = 0.85). Although there was a higher prevalence of people not using any facilities at night, the major types of facilities used did not change. Therefore, Q3_2 will be dropped from future surveys.

3.2 Does HH pay for the toilet facility? – q3.6

Findings: A majority of households in Nairobi, especially in Viwandani (75%), pay to use shared flush toilets. However, the same is not true for households in Kisumu (Nyalenda and Obunga) where only 5% pay for toilet use.

3.3 When do you wash your hands? – q3.9

Rationale and findings: This is an indicator for sound hygiene practice in the context of emergencies and disasters. A majority of respondents (72%) washed their hands after visiting the toilet. However, less than half the respondents (43%) wash their hands before eating and a majority do not wash before preparing food (72%) or after eating (79%). Most of the respondents with children did not wash their hands after handling child's waste (72%) or before feeding a child (84%). In general, households in Kisumu (Nyalenda and Obunga) appear to have better hand washing practices than households in Nairobi (Korogocho, Mukuru, and Viwandani).

[7] *UNHCR, 'Water and Sanitation Indicators, 2010'*

[8] *WHO, 'Defining indicators on Water and Sanitation, 2009'*

3.4 Garbage disposal – q3.10

Rationale and findings: Solid waste, if unattended, can pose public health risks such as breeding of flies and rodents, which thrive on solid waste, and the pollution of surface and ground water sources. Slightly more than a third of the households use a garbage service (36%) but another third (32%) report throwing their garbage all over; i.e. they have no specific point to dump waste. The rest of the households dispose of garbage at a dump (26%) or burn it (7%). It is worth noting that a sizeable proportion (20%) of households in Kisumu burn their garbage which is an environmentally unfriendly practice. Kisumu might have a shortage of service providers for garbage collection as only 8% of HHs dump garbage through providers, compared to 45% in the Nairobi study sites.

Review: With regard to urban emergencies, garbage disposal may not change much over time, before there is an emergency. In addition, these services may not be a very good indicator to indicate in advance any deteriorating situation. The question will therefore not be included in the upcoming rounds of data collection.

4. FOOD SECURITY

A household is considered food secure when all people in the household have physical and economic access to enough food to meet the dietary needs necessary for an active and healthy life.[9] Four dimensions, availability, accessibility, utilization and stability, are usually monitored to determine household food security over time. The following food security indices were used to determine household food security in this study.

Household Dietary Diversity Score (HDDS): Household dietary diversity refers to the number of different food groups consumed over a given reference period. It is a proxy indicator for household food access because a more diversified diet is associated with a number of improved outcomes in areas such as birth weight, child anthropometric status, caloric and protein adequacy, percentage of protein from animal sources, and household income.[10] There are a set of 12 food groups used to calculate HDDS.[11] HDDS is usually validated by Food Consumption Scores (FCS) to analyze the actual consumption levels for each food group and for each individual household.

a. **Household Food Insecurity Access Scale (HFIAS):-** Indicator used to measure food insecurity and access. The method is based on the idea that the experience of food insecurity (access) causes predictable reactions and responses that can be captured and quantified through a survey and summarized in a scale.

b. **Household Hunger Scale (HHS):-** This is a simple indicator used to measure household hunger in food insecure areas. The HHS is different from other household food insecurity indicators in that it has been specifically developed and validated for cross-cultural use. This means that the HHS produces valid and comparable results across cultures and settings so that the status of different population groups can be described in a meaningful and comparable way — to assess where resources and programmatic interventions are needed and to design, implement, monitor, and evaluate policy and programmatic interventions.[12]

4.1 Main source of food for HHs – q4.1

A majority of households in all areas purchase raw food from markets (96%).

4.2 Number of meals consumed by adults (over 18 years old) – q4.2

On average, adults consume 2.61 meals per day in all areas. Number of meals adults have per day did not change significantly over time.

4.3 Meals taken outside the home by adults (over 18 years old) – q4.3

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[9] *'Food Security and Nutrition Indicators,' Center for Development Research, University of Bonn, February 2013*

[10] *FANTA III, 'HDDS for measurement of HH food access: Indicator guide, 2006'*

[11] *1. Cereals; 2. Vegetables; 3. Roots and tubers; 4. Fruits; 5. Meat, poultry, offal; 6. Eggs; 7. Fish and seafood; 8. Pulses, legumes, nuts; 9. Milk and milk products; 10. Oils/fat; 11. Sugar/honey; 12. Others (condiments, tea, coffee)*

[12] *While the HHS has the advantage of having been validated for cross-cultural use, the HHS also has the limitation of reflecting the more severe range of household food insecurity, which is characterized by food deprivation and actual hunger. The HFIAS, in contrast, is not valid for cross-cultural use, but does reflect a broader range of household food insecurity, and has been shown to produce psychometrically valid results in several contexts, when the four frequency categories (i.e., "no (never)," "rarely," "sometimes," and "often") are combined into three frequency categories (i.e., "no (never)," rarely or sometimes," and "often") for tabulation purposes. The choice about whether to use the HHS or an expanded household food insecurity scale, such as the HFIAS, should be based on a number of considerations, including the purpose for which the data are being collected, as well as the technical and economic resources available for adaptation and administration of the tool and validation research.*

Rationale and Findings: Foods consumed outside the home continue to increase as a proportion of household expenditure.13 Other than measuring HH expenditure, the indicator can be used to measure the energy or caloric content of foods consumed by a HH. Majority of respondents (76%) do not consume food prepared outside the household.

4.4 Consumption of street foods by adults (over 18 years old) – q4.5

Consumption of street foods is sometimes considered an indicator of food insecurity. Households might resort to cheaper street foods as a means of coping with financial insecurity.14 Slightly less than half the respondents (40%) consume street foods.

4.5 Number of meals eaten by children (under 18 years old)– q4.6

Children (under 18 years old) average 2.96 meals per day. Children in Korogocho consume the lowest number of meals (2.73 meals/day) and this is significantly declining over time.

4.6 Meals taken outside the home by adults (over 18 years old) – q4.7

A majority of children (80%) do not consume foods prepared outside the home.

4.7 Consumption of street foods by children (under 18 years old) – q.4.9

Similar to their adult counterparts, less than half the children consume street food (37%).

4.8 Household Dietary Diversity Scores (HDDS) – q4.10

On average, households across all study sites consumed 5.55 food groups out of the 12 used to calculate the dietary diversity score. The Norwegian Refugee Council (NRC)15 suggests that a household that consumes less than 4 out of the 12 food groups is food insecure. HDDS differed significantly between areas with households in Nyalenda reporting the lowest diversity score (4.4 food groups) and households in Viwandani reporting the highest (6.2 food groups). Dietary diversity is declining over time in all areas except Mukuru and Obunga.

4.9 Household Food Insecurity and Access Score (HFIAS) – q.4.12 to q.4.18

A majority of households in all the study areas are food insecure (85%). Close to half the households (48%) report severe food insecurity in a 4-week recall period, while 28% report moderate food insecurity and 9% report mild food insecurity. Over three quarters of households in Korogocho (79%), Nyalenda (77%), Mukuru (76%), and Obunga (76%) report moderate or severe food insecurity. Food insecurity (especially moderate and severe) is increasing in Korogocho; from 75% in August 2012 to 88% in November 2013 while declining in Viwandani (from 75% in August 2012 to 57% in November 2013).

4.10 Household Hunger Scale (HHS) – q4.16, q4.17, q4.18

A third of households (31%) in all the study areas report moderate or severe hunger in a 4-week recall period. Over a third of households (37%) in Korogocho report moderate or severe hunger followed by Obunga (34%), Nyalenda (33%), Mukuru (32%), and Viwandani which reports the least amount of household hunger (25%). Moderate to severe household hunger is declining in all areas of study except in Korogocho, where more than half the households reported moderate or severe hunger in November 2013 compared to 27% of households in August 2012

Review: q4.5, q4.6a, q4.7 and q4.9 will be verified before any further action. Literature review will be helpful in determining the importance of these questions.

5. HEALTH AND HEALTH SEEKING BEHAVIOR

Rationale: Infection is categorized by UNICEF as an immediate determinant of malnutrition mainly among children. Infections cause a deterioration of nutritional status by depleting the critical body stores of protein, energy, minerals and vitamins. The loss of body stores of these nutrients consequently compromises the immunity status of the children rendering them more prone to infection. This cycle: [malnutrition - infection - further nutritional deterioration - more infections] is synergistic and the combined

13 *FEWSNET, WFP, 'CFSVA Urban food security assessment, 2011'*
14 *FANTA, 'Food security indicators and framework for use, 2000'*
15 *NRC, 'Field Exchange, Special focus on urban food security and nutrition, Issue 46, September 2013'*

effect of all of them is more serious than individual effects.[16]

5.1 Has any member of your HH been ill in the last 2 weeks? – q5.1 and 5.2

Findings: A little less than half (48%) of the households in all areas report illnesses in a 2-week recall period. Of those households, an average of 1.32 people report being ill. Morbidity, which is the proportion of household members reporting illness, is highest in Viwandani (45%) and Mukuru (42%). Nyalenda, Obunga, and Korogocho report 38%, 36%, and 33% morbidity, respectively.

5.2 Age of ill persons – q5.3

Findings: Obunga (38%) and Korogocho (37%) report the most cases of illnesses for children under 5.

5.3 Type of illness – q5.4

Findings: Most people suffered fever (38%), cough (31%), headache (30%) and other unspecified illnesses (34%).

5.4 Treatment – q5.6

Findings: 88% of HHs sought treatment for reported illnesses. Most people across all sites sought treatment in pharmacies. In Kisumu, Nyalenda and Obunga, more people (31% and 35% respectively) sought treatment in public hospitals. This is lilely due to access. Obunga is very close to Kisumu's largest public hospital hence the ease of access. Nyalenda, on the other hand, is closer to the Kisumu sub-county hospital.

6. INTERPERSONAL RELATIONS

6.1 Frequency of disputes in the HH – q6.1

Less than 25% of the households in all study areas report an intra-household dispute in the last four weeks, with Obunga and Mukuru reporting the most (31% each).

6.2 Severity of disputes – q6.2

Of the households that report intra-household disputes, most (81%) report mild disputes, just quarreling, with 15% reporting moderate, verbal abuse and 5% reporting severe, physical abuse.

6.3 Frequency and severity of disputes outside of the HH – q6.3 and 6.4

Only 11% of households report disputes with neighbors, with most disputes happening in Nyalenda (15%) and Obunga (17%). Most of the inter-household disputes were mild (73%) with very few moderate (23%) or severe (5%) cases.

6.4 Sharing of food with neighbors – q6.5 and 6.6

A little over half the households share food with neighbors (55%) or have neighbors share food with them (58%). More households in Nyalenda (56%) and Obunga (58%) share food than in Korogocho, Mukuru and Viwandani. In addition, more households received food from their neighbors in Nyalenda (52%) and Obunga (52%) than in Korogocho, Mukuru and Viwandani.

Review: This section should be discussed further to determine its relevance and significance in the context of urban emergencies as there is no really great information coming out, neither does it change.

7. PERSONAL AND PROPERTY SECURITY

7.1 Experience of shocks – q7.1 and 7.2

Overall, 16% of households in all areas experienced 1 or more shocks in a 4-week recall period, with more households in Nyalenda (23%) and Obunga (21%) experiencing shocks. The most frequent shocks were mugging (50%), flooding (28%), and burglary (24%).

7.2 Felt scared walking in the community in the last 4 weeks? – q7.3

Over 66% of households report feeling insecure out the households, especially in

[16] *Food security in high density urban areas, WFP, FEWSNET, GOK, 2010*

Korogocho (79%).

7.3 Felt scared being in your house in the last 4 weeks? - q7.4
Less than half (47%) of the respondents report feeling insecure inside the household with Obunga (60%), Nyalenda (41%), and Korogocho (57%) reporting the highest amounts of insecurity.

7.4 Avoidance measures due to insecurity – q7.5
Over half the households (59%) use avoidance measures, especially in Korogocho (71%).

7.5 Security ratings – q7.6
Close to half the respondents (47%) perceive the security situation as bad or very bad, with a majority in Korogocho (58%).

8. HOUSING AND TENURE

8.1 Ownership of House
Most households (87%) rent their home.

Review: Question 8.3 on number of rooms in house will be dropped since there has not been any meaningful information or change over time.

Review: This question can be put in a different section (HH living arrangements) and compared to SPHERE standards on housing.

9. HOUSEHOLD LIVELIHOODS

Rationale: A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.17 The role of livelihoods-based responses following emergencies cannot be over-emphasized. Moreover, disaster affected populations have overwhelmingly identified livelihoods as their greatest recovery priority.

9.1 Main source of livelihood – q9.1
Findings: The main source of livelihood in all sites is casual labor (46%), followed by monthly salaries (24%). In Korogocho and Viwandani, more than half (52% and 50% respectively) of HHs depend on casual labor. The largest proportion of those who earn a monthly salary are in Mukuru (35%) and Viwandani (28%). Additionally, the largest number of hawkers is in Korogocho (16%). Nyalenda and Obunga lead in the number of those who do business (17% in each area).

Review: Add a field for "none" and revise field 1 to read "monthly".

9.2 Number of income earners – q9.2
Findings: Mukuru, Nyalenda and Obunga average more income earners (1.3) than Korogocho and Viwandani (1.2).

9.3 Age of bread winner income earners – q9.3
Findings: Average age for income earners ranges from 31 years old in Mukuru to 37 years old in Korogocho.

9.4 Sex of bread winner income earners – q9.4
Findings: Most (68%) of breadwinner (highest earning) income earners are male. The proportion of female breadwinners is highest, at 37%, in the lower-income areas namely Korogocho, Nyalenda, and Obunga. Women earn significantly less than their male counterparts in all study areas, especially in Obunga (41% of male breadwinners salary), Mukuru (49% of male breadwinners salary), and Viwandani (52% of male breadwinners salary). The lowest-income areas, Korogocho and Nyalenda, have a narrower gender gap in income, females in both areas earn about 62% of male income.

9.5 Source of breadwinner income – q9.5
Findings: The main source of breadwinner income in most households is casual labor at 47%, followed by monthly earnings (salary) at 25% and businesses at 14%.

Review: The findings here are similar to 9.1 above; question needs further verification

[17] *UNDP, ISDR, 'guidance note on recovery,' 2010*

before changing.

9.6 Highest level of school completed by breadwinner – q9.5c

Findings: On average, Korogocho has the lowest level of schooling, class 8, followed by Obunga, with a class 9 average, while the rest of the areas average a class 10 (form 2) education level.

9.7 Who is the breadwinner? – q9.6

Review: This question should be re-worded and perhaps moved to section 1 under 'respondents' particulars.'

9.8 Mode of payment for breadwinners – q9.7

Findings: Most breadwinners (52%) in all the study sites earn daily wages, with Korogocho (75%), Obunga (58%), and Nyalenda (57%) reporting the most households earning a daily wage.

Review: Question to be verified and re-phrased

9.9 Breadwinner income levels – q9.8

Findings: The average breadwinner income ranged from 7,059 KSH in Korogocho to 10,751 in Mukuru. The median breadwinner income in all areas was lower than the mean, suggesting that a majority of the population earned less than the average in all areas of study. Breadwinner incomes in Kisumu (Nyalenda and Obunga) appear to decline over the rounds.

Household income trends (all reported income in the household, not just the breadwinner) were very similar to the breadwinner income trends.

9.10 Number of hours worked per day by the breadwinner – q9.9

Findings: On average, breadwinners work about 9 hours per day in all the study areas.

9.11 Number of days worked per week by the breadwinner – q9.10

Findings: On average, breadwinners work about 6 days per week in all the study areas.

10. USE OF VARIOUS COPING STRATEGIES

Coping strategies measure the things that people do when they cannot access basic human needs, or when they are faced with emergencies, stresses and shocks. Changes in coping strategies are an indicator of their experience of various emergencies and the severity of those emergencies.[18]

Findings: Over 75% of housholds in all study sites report using one or more coping strategies in a 4-week recall period. More households in Obunga (82%), Nyalenda (80%), Korogocho (80%), and Mukuru (79%) use coping strategies, with only 59% of households in Viwandani reporting the same.

10.1 Have you purchased food on credit? - q10.1

Over 46% of households purchase food on credit with a majority of these households in Mukuru (52%) and Korogocho (51%).

10.2 Have you taken a loan to buy food or other essential goods? – q10.1a

On average, 23% of households take loans to buy food or other essential goods, with the majority in Obunga (31%) and Nyalenda (27%).

Review: This question needs a review of how it is asked, to capture the intention of formal loans and not the informal borrowing as may have been the case during data collection. Modification will be done in the coming rounds.

10.3 Have you had to remove any of your children from school due to lack of school fees? – q10.2

On average, 23% of households have had to remove their children from school due to lack of school fees and other school related costs. The largest percent of these are in Nyalenda (41%) and Obunga (34%), while the least was in Viwandani (9%).

10.4 Has any HH member left/moved due to lack of resources to maintain them? – q10.3

11% of households report that a member has left the home or moved elsewhere due

[18] *WFP, USAID, CARE, 'Field methods manual, Coping strategies index, 2008'*

to lack of resources to maintain them. Most of these were in Mukuru (16%), Nyalenda (15%), and Obunga (11%).

10.5 Has any HH member gone begging for food or money? – q10.4

6% of households report that a member has gone out begging for food or money, mainly in Mukuru (10%) and Korogocho (7%).

10.6 Have you or HH member traded sex for money or had multiple sexual partners? – q10.5 and q10.6

Only 2% and 3% of households report a member having sex for money or multiple sexual partners as a coping strategy respectively.

Review: Given the sensitivity of these two questions, the responses may not be very informative, hence the need to remove them from coming rounds of data collection.

10.7 Do you know anyone in the community who had sex for money – q10.7

29% of respondents say they know someone who trades sex for money, mainly in Obunga and Korogocho (39% and 36% respectively).

Review: Perhaps this was a psychological question related to q10.5; hence the response was higher than in similar questions. This coping strategy may not be necessary in the next rounds of data collection.

10.8 Have you stolen food or money to buy food and do you know someone who has done the same? – q10.8 and q10.9

Overall, 2% of households report a member stealing food or money to buy food. On the other hand, 22% knew someone in the community who had done so.

Review: Similar to q10.7 above, this question is sensitive, which affects the way people answer it; hence the responses could be biased. The question will be modified or done away with completely.

10.9 Have you received food from a neighbor/friend/relative – q10.10

34% of the households receive food or money from a neighbor/friend/relative in all study sites, with most of them in Obunga (42%), Mukuru (40%), and Nyalenda (39%).

APPENDICES

- **Appendix A** - Round 5 (August 2012) through 8 (November 2013) questionnaire.

- **Appendix B** - Revised Questionnaire for Future Rounds.

- **Appendix C** - Detailed results per Area and Round.

- **Appendix D** - Detailed results of low-income formal settlements in Nairobi (from August 2012), and Informal Settlement results per City (Nairobi and Kisumu) and Round.

APPENDIX A: Round 5 (August 2012) through 8 (November 2013) Questionnaire.

AFRICAN POPULATION AND HEALTH RESEARCH CENTER
CONCERN WORLDWIDE
INDICATORS FOR URBAN EMERGENCIES
ROUND SEVEN (APRIL 2013)

1.0 BACKGROUND

1.1. START TIME (24 HRS) ☐☐☐☐

1.2. FIELD WORKER'S CODE ☐☐

1.3. DATE OF INTERVIEW (DDMMYYYY) ☐☐☐☐☐☐☐☐

1.4. HOUSEHOLD HEAD NAME……..……..

1.6. STUDY HOUSEHOLD ID ☐☐☐☐☐☐☐☐☐☐☐☐☐☐

1.7 GPS COORDINATES S01 ☐☐.☐☐☐☐
E036 ☐☐.☐☐☐☐

1.8 FW: INFORMED CONSENT SIGNED 0=NO, 1=YES,
2=WILLING BUT UNABLE TO SIGN, 3=ACCEPTED INT BUT REFUSED SIGN ☐

RESPONDENT'S PARTICULARS AND OTHER INTERVIEW DETAILS

1.12. FW: IS RESPONDENT REFERENCE PERSON NAMED IN Q1.4? 1=YES; 2=NO ☐
[IF 1, SKIP TO 1.17]

1.13. What is your name? .....

1.14. FW: DOES RESPONDENT LIVE IN THIS HOUSEHOLD? 1=YES; 2=NO **[IF 2, SKIP TO 1.16]** ☐

1.16. How are you related to (NAME OF INDIVIDUAL IN Q1.4)? (CODESHEET A[1]) ☐☐☐

HOUSEHOLD LIVING ARRANGEMENTS

1.17' How many adults and children live in this household?
Total number of children under 5 years ☐☐
Total number of children 5 -15 years ☐☐
Total number of adults 15+ years ☐☐

1.18 How long has your household lived in this village?
Months ☐☐☐
Years ☐☐☐

1.19 Where did this household come from before settling in this slum?
Same slum different village/location 01
Other Slum 02
Non-slum urban area 03
Rural area 04
Other (Specify) 96

1.20 Child anthropometrics (for each child in HH between 6 and 59 months (5 years) record anthropometrics

child name	Age (in months)	Sex (M/F)	MUAC	Oedema

2.1.	**SOURCE OF DRINKING WATER:**		
	What is the main source of drinking water members of your household have used in the last 2 weeks?	Piped / tap water Tanks Hawkers/water vendor Well/river/other surfacewater Other_____(specify)	01 02 03 04 08
2.2	How long does it take you to walk from your house to this water source (one-way)?	☐ Minutes	
2.3	How long have you Normally had to queue to get water in the last 2 weeks?	☐ Minutes	
2.3S	How long does it take to fill up a 20 litre jerrycan?	☐ Minutes Entry: 1-60	
2.4	Do you usually pay for this water?	YES NO **[IF NO, SKIP TO 2.6]**	01 02
SW-1	Do you have at least one jerrycan at least 10 litres?	YES NO	1 2
SW-2	If Yes: Do you use these for Transport AND Storage?	YES NO	1 2
SW-3	Are your jerrycans covered?	YES NO	1 2
SW-3	**IF NO** Does the jerrycan have a cover?	YES NO	1 2
SW-4	Do the jerrycans have narrow necks?	**Comment: Narrow neck for purposes of pouring.** YES NO	1 2
SW-5	Do you feel that your household has enough water for laundry and bathing?	YES NO	1 2
SW-6	Are you satisfied with the water facilities and are they adequate for water collection, storage, bathing, storage, bathing, hand washing and laundry?	Unsatisfied Satisfied More than satisfied	1 2 3
2.6	How many 20 litre jericans of water has your household normally used per day in the last one week?	Number of 20 litre Jerrycans ☐☐☐	
2.7	How would you rate the quality of water from your usual source in the last one week? **[FW: TICK AS APPROPRIATE]**	Very clean Clean Dirty Very dirty	1 2 3 4

3.0.	HYGIENE & SANITATION DOMAIN	
3.1	What kind of toilet facility has your household mainly/most commonly used during the day in the last 4 weeks?	[CIRCLE THE APPROPRIATE RESPONSES] Own flush/traditional pit/VIP toilet 01 Shared flush/traditional pit/VIP toilet 02 Flush trench toilet 03 Toilet without pit/working flush 04 NO facility/bush/field/flying toilet 05 Other_____(specify) 06
3.2	What kind of toilet facility does your household mainly/most commonly used at night in the last 4 weeks?	Own flush/traditional pit/VIP toilet 01 Shared flush/traditional pit/VIPToilet 02 Flush trench toilet 03 Toilet without pit/working flush 04 NO facility/bush/field/flying toilet 05 Other_____(specify) 06
S-S1	Have you noticed human feces in your environment?	YES 01 NO 02
S-S2	Can the toilet you use be locked internally?	YES 01 NO 02
S-S3	How long does it take to walk to the toilet?	____ Minutes Entry: 1-60
S-S4	Are there separate toilets for females? (toilets which can only be used by females)	YES 01 NO 02
3.6	Does your HH pay to use the toilet facility?	YES 01 NO 00
3.9	At what times or after/before what activities did you wash your hands with soap Yesterday?	[1=Yes; 0=No] After visiting toilet ____ Before eating ____ Before preparing food ____ After handling child's waste ____ Before feeding a child ____ After eating ____
3.10	Where has your household MAINLY disposed of garbage in the last 4 weeks? [CIRCLE THE APPROPRIATE RESPONSE]	Garbage dump/pit 01 Garbage disposal services 02 Road/railway/riverdrainage /trench/all over 03 Burning 04 Other_____(specify) 05
S-S5	Normally, how long does it take for you to walk from your house to the garbage pit dump? (Ask if response to 3.10 is 1 = Garbage Pit)	____ Minutes Entry: 1-60
S-S6	Which of the following have been affected by fire/water?	Water Fire House/Structure ____ ____ Paths ____ ____ Water Facilitities ____ ____ Sanitation Facilities ____ ____

4.0.	**FOOD SECURITY DOMAIN**		
	Now I would like to ask you a few questions about food: sources, cost, consumption		
4.1.	In last 4 weeks, what was the **main** source of food for your household? **[CIRCLE THE APPROPRIATE RESPONSES]**	Purchase from market (raw) Purchase from street vendors/kiosks (cooked) Own production Borrow/relief food/ safetynets Discarded food (from dump sites, market etc) Other(specify……)	01 02 03 04 05 06
4.2.	How many meals did you consume yesterday (day and night)? **[FW: PROBE TO EXCLUDE TEA ALONE; IF TEA WAS SERVED WITH SOMETHING ELSE LIKE BREAD, THEN INCLUDE]**	Number of meals (not tea alone)	
4.3.	Did you consume **a meal** prepared outside the home yesterday (day & night? **[FW: PROBE TO EXCLUDE TEA ALONE]**	YES NO	01 02
4.5	Did you eat cooked food purchased from the streets Yesterday?	YES NO	01 02
4.6a	Are there any children less than 18 years old in this houshold?	**FW: If NO CHILDREN IN THE HH skip to Q4.10** YES NO	01 02
4.6	How many meals did children in your household eat Yesterday? **[FW: PROBE TO EXCLUDE TEA ALONE]**	Number	
4.7	Did children in your household eat a meal served outside the home yesterday? **[FW: PROBE TO EXCLUDE TEA ALONE]**	YES NO	01 02
4.9	Did children eat cooked food purchased from the streets Yesterday?	YES NO	01 02

4.1 **Now I would like to ask you about the types of foods that you ate Yesterday during the day and night**

(Ask respondent to recount foods consumed and record each mentioned under appropriate food group)

[INDICATE 1 FOR CONSUMED AND 0 FOR NOT CONSUMED]

a. **Grains/cereals** (Bread, Nyoyo or any other food made from millet, sorghum, maize, rice, ugali, porridge, mandazi, chapati)

b. **Roots and tubers** (potatoes, sweet potato, cassava, nduma or any foods made from roots)

c. **Legumes and nuts** (Beans, peas, nyoyo, ndengu, nuts seeds or other foods made from these)

d. **Dairy products** (milk, yogurt, cheese, mala or food made from dairy)

e. **Flesh foods** (meat, cow, goat, poultry, pork and liver/organ meats)

L. **Fish** (all types of fish e.g. omena, tilapia,...e.t.c.)

f **Eggs**

g **Vegetables** (Carrot, dark green leafy vegetables (cassava, sweet potato leaves, osuga, kunde, etc), pumpkin, sukuma wiki, managu, terere, sucha, saga, mitoo, mrenda, pumpkin leaves, cabbage and locally available leaves) etc

h **Fruits**

i **Oils and fat** (Oils, fats or butter added to food/used for cooking)

j **Sugar or honey** (Sugar/honey added to food such as tea, porridge, bread)

k **Others** (condiments, tea, coffee)

SECTION 4: FOOD CONSUMPTION AND EXPENDITURE QUESTIONS

Have you or members of your household consumed (eaten)...[FOOD ITEM]...during the past week?

Ask QUESTION 1 for full list of items first, then ask for details (Q2 – Q5) only for items coded '1' in Q1

How much of this food did your household CONSUME during the last week (7 days) - including food that was purchased, and food produced or grown by your household or received as a payment or a gift?

What was the total value of that food consumed?

What was the main source of this food? Did you obtain some from any other source?

Unit Table

1 Debe	= 18kg
1 gorogoro	= 2.25kg
1 mkebe	= 250g
1 small glass/cup	= 200g/200ml
1 mokoroff (tin of tomato paste)	= 70g
1 teaspoon	= 5ml/5g
1 tablespoon	= 10ml/10g
1 serving spoon	=
1 plate	=
1 whole cob maize	=

Unit codes

Kilogramme	kg
Number	nu
Gramme	g
Debe	de
Litre	L
Gorogoro	go
Millilitre	ml
Mkebe	mk

Purchased	1
Home produced	2
Gathered	3
Payment in kind	4
Gift from any source	5
Credit	6

LAST 1 WEEK

Item	Item Code	1 = Yes 2 = No	Quantity	Unit (circle most applicable unit)	Ksh	Main
		1	2	3	4	5
Maize – grain	1			kg / g / de / go / mk		
Maize – flour	2			kg / g / de / go / mk		
Rice	3			kg / g / de / go / mk		
Other grains (wheat, sorghum, millet, other types)	4			kg / g / de / go / mk		
Bread	5			kg / g / de / go / mk		
Potatoes (Irish)	6			kg / g / de / go / mk		
Sweet potatoes, cassava, arrow roots, yams,	7			kg / g / de / go / mk		
Cooking banana (Matoke)	8					
Beans	9			kg / g / de / go / mk		
Other pulses/nuts (peas, grams, groundnuts)	10			kg / g / de / go / mk		
Eggs	11			nu		
Fresh fish	12			nu		
Dried/smoked fish/omena	13			nu		
Beef	14			kg / g / de / go / mk		
Chicken	15			kg / g / de / go / mk		
Other meat (goat meat, mutton, pork, etc)	16			kg / g / de / go /		
Sukuma wiki (kales) [bunches]	17			nu		
Tomatoes	18					
Onions	19					
Cabbage	20					
Carrots	21					
Other vegetables e.g lettuce, butternut, pumpkin, etc	22					
Milk	23			L / ml		
Bananas (ripe)	24			nu		
Mangoes	25			nu		
Avocados	26			nu		
Oranges	27			nu		
Pawpaws	28			nu		
Other fruits	29					
Cooking fat	30			kg / g		
Other cooking oils	31			L / ml		
Sugars (white/brown, sugarcane, etc.)	32			kg / g		
Spices (salt and others, etc)	33					
Tea leaves / tea bags [1 tea-spoon = 2g]	34			kg / g		
Coffee and other non-alcoholic drinks i.e soda, juice	35					
Alcoholic beverages (beer, wines, spirits, home-brew)	36					
Cooked foods eaten outside of the home (excluding school paid meals)	37			nu		
Street foods (cooked) (Total)	38					
Mandazi	39			nu		
Githeri	40			plate		
Rice	41			plate/ serving spoon		
Ugali	42					
Chapati	43					
Soup	44					
Chips	45			plate		
Chai	46			cup		
Uji	47			cup		
Other street foods	48					
Other ready made foods (biscuits/cakes/pasta/baby foods)	49					
Sweets/candy/purchased snacks	50					
Bread spreads e.g. margarine/blueband	51					

4.12	In the past 4 weeks, did you worry that your household would NOT have enough food? How often?		
		Never	0
		Rarely (once or twice in the last 4 weeks)	1
		Sometimes (once every week)	2
		Often (more than once a week in the last 4 weeks)	3
		[CIRCLE THE APPROPRIATE RESPONSE]	
4.13	In the past 4 weeks, were you or any household member NOT able to eat the kinds of food you preferred because of a lack of resources? How often?		
		Never	0
		Rarely (once or twice in the last 4 weeks)	1
		Sometimes (once every week)	2
		Often (more than once a week in the last 4 weeks)	3
		[CIRCLE THE APPROPRIATE RESPONSE]	
4.14a	In the past 4 weeks, did you or any household member have to eat a limited variety of foods due to lack of resources?		
		Never	0
		Rarely (once or twice in the last 4 weeks)	1
		Sometimes (once every week)	2
		Often (more than once a week in the last 4 weeks)	3
		[CIRCLE THE APPROPRIATE RESPONSE]	
4.14	In the past 4 weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was NOT enough food?		
		Never	0
		Rarely (once or twice in the last 4 weeks)	1
		Sometimes (once every week)	2
		Often (more than once a week in the last 4 weeks)	3
		[CIRCLE THE APPROPRIATE RESPONSE]	
4.15	In the past 4 weeks, did you or any household member have to eat fewer numbers of meals in a day because there was NOT enough food?		
		Never	0
		Rarely (once or twice in the last 4 weeks)	1
		Sometimes (once every week)	2
		Often (more than once a week in the last 4 weeks)	3
		[CIRCLE THE APPROPRIATE RESPONSE]	
4.16	In the past 4 weeks, was there ever NO food of any kind to eat in your household because of lack of resources to get food? How Often?		
		Never	0
		Rarely (once or twice in the last 4 weeks)	1
		Sometimes (once every week)	2
		Often (more than once a week in the last 4 weeks)	3
		[CIRCLE THE APPROPRIATE RESPONSE]	
4.17	In the past 4 weeks, did you or any household member go to sleep at night hungry because there was NOT enough food? How often?		
		Never	1
		Rarely (once or twice in the last 4 weeks)	2
		Sometimes (once every week)	3
		Often (more than once a week in the last 4 weeks)	4
		[CIRCLE THE APPROPRIATE RESPONSE]	
4.18	In the past 4 weeks, did you or any household member go a whole day and night without eating anything because there was NOT enough food?		
		Never	1
		Rarely (once or twice in the last 4 weeks)	2
		Sometimes (once every week)	3
		Often (more than once a week in the last 4 weeks)	4
		[CIRCLE THE APPROPRIATE RESPONSE]	
4.19	In the past 4 weeks, did your household get relief food from any source?	YES	01
		NO	02
4.20	In the past 4 weeks, has your household been enrolled in any social safety net? (e.g. merry go round)	YES	01
		NO	02
4.21	In the past 4 weeks, did any child in the household benefit from a feeding program?	YES	01
		NO	02
		N/A	03

5.0.	**HEALTH AND HEALTH SEEKING BEHAVIOUR**		
5.1.	Has any member of your household (adult or child) been ill in the last 2 weeks?	YES 1 NO 0 **[IF NO, SKIP TO 6.0]**	
5.2.	If YES, how many people were ill?	Number of people	
5.3.	If YES, how old is the person who was ill?	If age is not known, fill in the person's age group? IF < 5 yrs=1 , 5-14 yrs=2 , 15+ yrs=3 Years Person 1 Person 2 Person 3	
5.4	What illness did the person(s) have? **(TICK ALL THAT APPLY TO EACH PERSON)**	P1 P2 P3 diarrhea fever cough headache vomiting convulsions/seizures difficult/fast breathing measles Injuries other (specify…....……) other (specify…....……) other (specify…....……)	
5.5.	Was care/treatment sought for the illness from any source? **(FW: TICK AS APPROPRIATE)**	YES = 1 NO = 0 Person 1 Person 2 Person 3 **[IF NO, SKIP TO 6.0]**	
5.6.	If YES, where was care/treatment sought outside of the home? **(FW: TICK ALL THAT APPLY)**	P1 P2 P3 01=Public hospital 02=Public health center/clinic 03=Private hospital 04=Private health center/clinic 05=NGO/Mission hospital 06=NGO/Mission health center/clinic 07=Pharmacy/chemist 08=Traditional healer/herbalist 09=other=specify……	
6.0.	**INTERPERSONAL RELATIONSHIPS**		
	Now I would like to know how you live with your household members, friends and neighbours…		
6.1	How often have you had disputes with any person in the household in the last four weeks? **(CIRCLE AS APPROPRIATE)**	Never 0 Rarely (once or twice in the last 4 weeks) 1 Sometimes (once every week) 2 Often (more than once a week in the last 4 weeks) 3 Not applicable for those that live alone 4 **[IF 0 OR 4, SKIP TO 6.3]**	
6.2	What was the severity of the dispute? **(CIRCLE AS APPROPRIATE)**	Mild (just quarreling) 1 Moderate (verbal assaualt) 2 Very severe (physical violence and/or abandonment) 3	
6.3	How often have you or another HH member had disputes with friends/neighbours outside your household in the last four weeks? **(CIRCLE AS APPROPRIATE)**	Never 0 Rarely (once or twice in the last 4 weeks) 1 Sometimes (once every week) 2 Often (more than once a week in the last 4 weeks) 3 **[IF 0, SKIP TO 6.5]**	

6.4	What was the severity of the dispute? **(CIRCLE AS APPROPRIATE)**	Mild (just quarreling) 1 Moderate (verbal assaualt) 2 Very severe (physical violence) 3
6.5	How often in the last 4 weeks have you shared food with your neighbours	Never 0 Rarely (once or twice in the last 4 weeks) 1 Sometimes (once every week) 2 Often (more than once a week in the last 4 weeks) 3
6.6	How often in the last 4 weeks has your neighbour shared food with you?	Never 0 Rarely (once or twice in the last 4 weeks) 1 Sometimes (once every week) 2 Often (more than once a week in the last 4 weeks) 3
7.0.	**PERSONAL AND PROPERTY SECURITY DOMAIN**	
7.1 7.2	Has your household or any member experienced (.) in the last 4 weeks? **CIRCLE THE APPROPRIATE RESPONSES** **1= YES 2= NO 8= DON'T KNOW** **IF 2 or 8 SKIP TO THE NEXT SHOCK** How many such events have occurred in the household in the last four weeks?	Q 7.1 (CIRCLE) / Q7.2 # Fire 1 2 8 ___ Floods 1 2 8 ___ Mugging/stabbing 1 2 8 ___ Buglary/'Poof' 1 2 8 ___ Eviction 1 2 8 ___ Property destruction 1 2 8 ___ Rape/sodomy 1 2 8 ___
7.3	How often have you felt scared walking in the community in the last 4 weeks? **(CIRCLE AS APPROPRIATE)**	Never 0 Rarely (once or twice in the last 4 weeks) 1 Sometimes (once every week) 2 Often (more than once a week in the last 4 weeks) 3
7.4	How often have you felt scared being in your house in the last 4 weeks? **(CIRCLE AS APPROPRIATE)**	Never 0 Rarely (once or twice in the last 4 weeks) 1 Sometimes (once every week) 2 Often (more than once a week in the last 4 weeks) 3
7.5	How often have you/household member used avoidance measures in the last 4 weeks due to insecurity such as using escorts, using unusual routes, coming home earlier than usual etc? **(CIRCLE AS APPROPRIATE)**	Never 0 Rarely (once or twice in the last 4 weeks) 1 Sometimes (once every week) 2 Often (more than once a week in the last 4 weeks) 3
7.6	How would you rate security situation in the community? **(CIRCLE AS APPROPRIATE)**	Very bad 1 bad 2 Not very bad 3 Good 4 Very good 5
8.0.	**HOUSING & TENURE DOMAIN**	
8.1	Is your household renting or does it own this dwelling unit/the rooms in which it is living in this structure?	Owned 1 Renting 2 Free of charge..... 3 Other _____(specify) 4
8.3	How many sleeping rooms does the house have?	Number ___
SH-1	Do you feel safe with the structural integrity of your house? Does it feel safe?	YES 1 NO 2
S-H2a	Was your house damaged by a natural event? (fire, storm, flood)	YES 1 NO 2
SH-2b	If yes, has it been repaired?	YES 1 NO 2
S-H3	What do you use for light at night?	Electricity Generator 01 Candle 02 Lantern (Kerosene) 03 Flashlight (torch) 04 Firewood/Fireplace 05 Moonlight 06

SECTION 9: Non-food Consumption & Expenditure (1 week, 1 month & 3 month recall)		
LAST 1 WEEK		What is the total value of all [ITEM] **PURCHASED, PRODUCED AT HOME and RECEIVED AS GIFT** *during the* **LAST 1 WEEK***?*
Items	Item code	Amount in Ksh (Write 0 if none)
Tobacco (cigarettes, tobacco) and miraa	1	
Paraffin/ kerosene	2	
Water (for drinking and other household consumption / use)	3	
Charcoal, firewood (including gathered)	4	
Toilet soap, washing powder, laundry soap, detergents, bar soap etc	5	
Garbage collection fees	6	
Toilet use fees	7	
Matches, candles	8	
Bus fares, matatu, taxis	9	
Other transport expenses (bicycle, car repair, petrol etc) *excluding transport to and from school or health facilities (regular transport, i.e to & from work, etc)*	10	
Books, notebooks, newspapers, stationary, etc (not for school)	11	
Communications (phone calls -- fixed and mobile, post office	12	
Is there an expense you have expended in the last one week that I have not asked you about?	13	
LAST 1 MONTH		What is the total value of all [ITEM] **PURCHASED, PRODUCED AT HOME and RECEIVED AS GIFT** during the **LAST 1 MONTH***?*
Item	Item code	Amount in Ksh (Write 0 if none)
Utilities (electricity, gas)	14	
Other toileteries (shampoo, toothpaste, hair cream, etc)	15	
Other cleaning expenses, equipment (brushes, shoe polish)	16	
Batteries, bulbs	17	
HAIR CUT AND OTHER PERSONAL SERVICES	18	
TOA KITU KIDOGO (TKK) ('to cooperate)	19	
Rent, including if paid together as a lump sum	20	
Tuition fees, registration fees, exam fees & other fees *either paid or owed*	21	
Private tuition	22	
Transport to and from school (day schoolers)	23	
Uniforms including school shoes	24	
School supplies including textbooks, execise books, pencils etc	25	
Food (including any pocket money to buy lunch at school) **Interviewer: This does NOT include food expenditure if child eats lunch at home**	**26**	
Loans, Debts and Contributions		
Loans taken this month	**27**	
Debts incurred this month	**28**	
Contributions to sacco, merry-go-rounds etc	**29**	
Debt payments made this month	**30**	
Is there an expense you have expended in the last one month that I have not asked you about?	31	

LAST 3 MONTHS		What is the total value of all [ITEM] **PURCHASED, PRODUCED AT HOME and RECEIVED AS GIFT** during the **LAST 3 MONTHS**?
Item	Item code	Amount in Ksh (Write 0 if none)
Men's clothing	32	
Women's clothing	33	
Children's clothing NOT INCLUDING school uniforms	34	
Material for clothes, and tailoring	35	
Footwear (including repair costs)	36	
Recreation (toys, cinema, photography, records etc)	37	
Personal articles (umbrella, watch, lighter, belts, etc)	38	
Textiles (blanket, bedsheet, towels, mosquito netting, etc., not for	39	
Kitchen equipment (cutlery, pots,plates, small equipment – kettle and	40	
Lanterns, lamps, torches	41	
Toilet/sewage emptying fees		
Medical Expenditure (both inside and outside health facilities) – categories listed below		
Medicines and medical supplies (eg bandages etc) *excluding AIDS*	42	
Transport to and from health facilities	43	
Consultation & treatment fees including gifts	44	
Laboratory & diagnostic test fees	45	
Visits to traditional healers	46	
Hospitalisation fees including food ("bed bill")	47	
Other health expenditure	48	
Is there an expense you have expended in the last 3 months that I have not asked you about?	49	

9.0.	HOUSEHOLD LIVELIHOODS		
9.1	What is the main source of livelihood for your household in the past 4 weeks? **(CIRCLE AS APPROPRIATE)**	Monthly Salary Casual labour Petty Trading (hawking) Remittances Scavenging Safety Nets (e.g. Merry go round) Stable Business Other	01 02 03 04 05 06 07 08
9.2	How many people in this household currently (have earned income in last 4 weeks) have a source of income?	Number of people **Consider a skip to the next section if response is 00**	
9.3 9.4 9.5 **9.5 c**	What are the ages of the people who earn? What are the sexes of the people who earn? (1=Male, 2=Female) What is their source of income **(USE CODES IN 9.1)** **What is the highest completed class in the level attended?**	**9.2(Years)** **9.4(sex)** **9.5(source)** Person 1 Person 2 Person 3 Person 4 **Level: 0=No Schooling; 1=Class 1; 2=Class 2; 3=Class 3; 4=Class 4; 5=Class 5; 6=Class 6; 7=Class 7; 8=Class 8; 9=Form 1; 10=Form 2; 11=Form 3; 12= Form 4 13= University or higher** **9.5c highest class** **P1** **P2** **P3** **P4**	
9.6	Among the persons who earn income in 9.2, who is the breadwinner?	**(1=Yes; 2=No)** Person 1 Person 2 Person 3 Person 4	
9.7	What is the mode of payment for persons in 9.2? **(CIRCLE AS APPROPRIATE)**	**P1 P2 P3 P4** Hourly Daily Weekly Monthly Other(specify……)	01 02 03 04 96
9.8	How much did persons in 9.2 earn in last payment period? **(INDICATE DEPENDING ON PAYMENT MODE)** **P1 P2 P3 P4**	Kshs Hourly Daily Weekly Monthly Other(specify……)	
9.9	How many hours per day on average did the persons in 9.2 work in the last week?	**P1 P2 P3 P4** Number of hours worked per day	
9.10	How many days in the last week did the persons in 9.2 work?	**P1 P2 P3 P4** Number days worked	

10.0.	**COPING STRATEGIES**		
	Now I would like to ask you about things that you may have done in the last four weeks to cope with different situations **In the last four weeks...** **[FOR Q10.1-10.10, CIRCLE AS APPROPRIATE]**		
10.1.	Have you purchased food or other essential household goods on credit because you didn't have the money to buy them outright?	YES NO	1 2
10.1a	Have you taken a loan to buy food or other essential HH goods?	YES NO	1 2
10.2.	Have you had to remove any of your children from school due to lack of school related costs?	YES NO	1 2
10.3.	Has any member of your household left/moved due to lack of resources to maintain them?	YES NO	1 2
10.4	Have you or any member of your household gone out begging for food or money?	YES NO	1 2
10.5	Have you or any household member traded sex for money or food?	YES NO	1 2
10.6	Have you or any household member had multiple sexual partners?	YES NO	1 2
10.7	Do you know someone in the community who had sex for money or food in the last month?	YES NO	1 2
10.8	Have you or any household member stolen food or money to buy food?	YES NO	1 2
10.9	Do you know someone in the community who stole food or money to buy food in the last one month?	YES NO	1 2
10.10	Have you or any household member received food or money from friend/neighbor/relative?	YES NO	1 2
11.0.	**END OF INTERVIEW**		
	I would like to thank you for taking your time to participate in this interview.		
11.2.	**FW: RECORD QUESTIONS AND COMMENTS RAISED BY RESPONDENT**		
11.3.	**FW: RECORD COMMENTS ABOUT THE INTERVIEW**		
11.4.	**RESULT OF INTERVIEW (CODESHEET A[7])**		☐
11.5.	**END TIME (24 HRS)**		☐☐☐☐
	OFFICE/FIELD CHECKER'S DETAILS		
11.6.	FIELD SUPERVISOR/TEAM LEADER'S CODE		☐☐

APPENDIX B: Revised Questionnaire for Future Rounds.

CONCERN WORLDWIDE
Indicators for Urban Emergencies (IDSUE)
Round Nine (January 2014)

1.0	**BACKGROUND**	
1.4	HOUSEHOLD HEAD NAME	
1.4b	GENDER OF HOUSEHOLD HEAD (01=Female, 02=Male)	
1.6	STUDY HOUSEHOLD ID	
1.8	FW: INFORMED CONSENT SIGNED 0=NO, 1=YES, 2=WILLING BUT UNABLE TO SIGN, 3=ACCEPTED INT BUT REFUSED SIGN	
	RESPONDENT'S PARTICULARS AND OTHER INTERVIEW DETAILS	
1.12	FW: IS RESPONDENT REFERENCE PERSON NAMED IN Q1.4? 0=NO; 1=YES **[IF 1, SKIP TO 1.17]**	
1.13	What is your name?	
1.14	FW: DOES RESPONDENT LIVE IN THIS HOUSEHOLD? 0=NO; 1=YES **[IF 2, SKIP TO 1.16]**	
1.16	How are you related to (NAME OF INDIVIDUAL IN Q1.4)? (CODESHEET A)	
	HOUSEHOLD LIVING ARRANGEMENTS	
1.17	How many adults and children live in this household?	c. Total number of children under 5 years (0-59 months) a. Total number of children 5 -18 years b. Total number of adults 18+ years
1.17	How many of the following people live in this household?	d. Total number of people living with disability e. Total number of elderly persons (65+) f. Total number of people living with HIV/AIDS
1.18	How long has your household lived in this village?	Months Years
1.19	Where did this household come from before settling in this slum?	Same slum 01 Other Slum 02 Non-slum urban area 03 Rural area 04 Other Country 05 Other (Specify) 96
1.19b	Why did you move here?	Look for employment 01 Breadwinner lost job/ deceased 02 High costs of living 03 Ethnic tensions (IDPs) 04 War/ Civil Strife (Refugees) 05 Other (specify) 96
1.20	Child anthropometrics (for each child in HH between 6 and 59 months [5 years]) record anthropometrics. **(01=Female, 02=Male)**	Child Name | Age (in months) | Sex (M/F) | MUAC | Oedema

2.0.	**SOURCE OF DRINKING WATER:**	
2.1	What is the main source of drinking water members of your household have used in the last 2 weeks?	Piped / tap water 01 Tanks 02 Hawkers/water vendor 03 Well/river/other surfacewater 04 Other_____(specify) 96
2.2	How long does it take you to walk from your house to this water source (one-way)?	[ ] Entry: 0-60 Minutes
2.3	How long have you Normally had to queue to get water in the last 2 weeks?	[ ] Entry: 0-60 Minutes
2.3S	How long does it take to fill up a 20 litre jerrycan?	[ ] Entry: 0-60 Minutes
2.4	Do you usually pay for this water?	**[IF 2, SKIP TO 2.6]** YES 01 NO 02
SW-1	Do you have at least one jerrycan at least 10 litres?	YES 01 NO 02
SW-2	If Yes: Do you use these for Transport AND Storage?	YES 01 NO 02
SW-3	Are your jerrycans covered?	YES 01 NO 02
SW-3a	If NO to SW-3: Does the jerrycan have a cover?	YES 01 NO 02
SW-4	Do the jerrycans have narrow necks?	**Comment: Narrow neck for purposes of pouring.** YES 01 NO 02
SW-5	Do you feel that your household has enough water for laundry and bathing?	YES 01 NO 02
SW-6	Are you satisfied with the water facilities and are they adequate for water collection, storage, bathing, storage, bathing, hand washing and laundry?	Unsatisfied 01 Satisfied 02 More than satisfied 03
2.6	How many 20 litre jericans of water has your household normally used per day in the last one week?	Number of 20 litre jericans [ ][ ]
2.7	How would you rate the quality of water from your usual source in the last one week?	Very clean 01 Clean 02 Dirty 03 Very dirty 04

3.0.	**HYGIENE & SANITATION DOMAIN**	
3.1	What kind of toilet facility has your household mainly/most commonly used in the last 4 weeks?	Simple pit latrine 01 VIP Latrine 02 Pour-flush latrine/toilet 03 Ecological Sanitation (Ecosan, Freshlife) 04 Septic tanks 05 NO facility/bush/field/flying toilet 06 Other_____(specify) 96
3.1a	Do you share the facility mentioned above?	YES 01 NO 02
SS-1	Have you noticed human feces in your environment?	YES 01 NO 02
SS-2	Can the toilet you use be locked internally?	YES 01 NO 02
SS-3	How long does it take to walk to the toilet?	☐ Entry: 0-60 Minutes
SS-4	Are there separate toilets for females? (toilets which can only be used by females)	YES 01 NO 02
3.6	Does your HH pay to use the toilet facility?	YES 01 NO 02
3.9	At what times or after/before what activities did you wash your hands **with soap** yesterday?	**[1=Yes; 2=No]** After visiting toilet ☐ Before eating ☐ Before feeding a child ☐ After eating ☐
3.10	Where has your household **MAINLY** disposed of garbage in the last 4 weeks?	Garbage dump/pit 01 Garbage disposal services 02 Road/railway/riverdrainage /trench/all over 03 Burning 04 Other_____(specify) 96
SS-5	Normally, how long does it take for you to walk from your house to the garbage pit dump? **(Ask if response to 3.10 is 1 = Garbage Pit)**	☐ Entry: 0-60 Minutes
SS-6	Which of the following have been affected by fire/water?	**Water** **Fire** House/Structure ☐ ☐ Paths ☐ ☐ Water Facilitities ☐ ☐ Sanitation Facilities ☐ ☐

4.0.	**FOOD SECURITY DOMAIN**	
4.1	In last 4 weeks, what was the main source of food for your household?	Purchase from market (raw) 01 Purchase from street vendors/kiosks (cooked) 02 Own production 03 Borrow/relief food/ safetynets 04 Discarded food (from dump sites, market etc) 05 Other_____(specify) 96
4.2	How many meals did you consume yesterday (day and night)? **[FW: PROBE TO EXCLUDE TEA ALONE; IF TEA WAS SERVED WITH SOMETHING ELSE LIKE BREAD, THEN INCLUDE]**	Number of meals (not tea alone) ☐☐
4.3	Did you consume a meal prepared outside the home yesterday (day & night? **[FW: PROBE TO EXCLUDE TEA ALONE]**	YES 01 NO 02
4.5	Did you eat cooked food purchased from the streets Yesterday?	YES 01 NO 02
4.6a	Are there any children less than 18 years old in this houshold?	YES 01 **[IF 2, SKIP TO 4.10]** NO 02
4.6	How many meals did children in your household eat Yesterday? **[FW: PROBE TO EXCLUDE TEA ALONE]**	Number of meals (not tea alone) ☐☐
4.7	Did children in your household eat a meal prepared outside the home yesterday? **[FW: PROBE TO EXCLUDE TEA ALONE]**	YES 01 NO 02
4.9	Did children eat cooked food purchased from the streets Yesterday?	YES 01 NO 02

4.10	**In the last 7 days (1 week) how many days have you eaten the following foods?** (Ask respondent to recount foods consumed and indicate frequency of consumption under appropriate food group) **[INDICATE 0 FOR NOT CONSUMED]**	
a.	**Grains/cereals** (Bread, Nyoyo or any other food made from millet, sorghum, maize, rice, ugali, porridge, mandazi, chapati)	☐
b.	**Roots and tubers** (potatoes, sweet potato, cassava, nduma or any foods made from roots)	☐
c.	**Legumes and nuts** (Beans, peas, nyoyo, ndengu, nuts seeds or other foods made from these)	☐
d.	**Dairy products** (milk, yogurt, cheese, mala or food made from dairy)	☐
e.	**Flesh foods** (meat, cow, goat, poultry, pork and liver/organ meats)	☐
l.	**Fish** (all types of fish e.g. omena, tilapia,..et.c.)	☐
f.	**Eggs**	☐
g.	**Vegetables** (Carrot, dark green leafy vegetables (cassava, sweet potato leaves, osuga, kunde, etc), pumpkin, sukuma wiki, managu, terere, sucha, saga, mitoo, mrenda, pumpkin leaves, cabbage and locally available leaves) etc	☐
h.	**Fruits**	☐
i.	**Oils and fat** (Oils, fats or butter added to food/used for cooking)	☐
j.	**Sugar or honey** (Sugar/honey added to food such as tea, porridge, bread)	☐
k.	**Others** (condiments, tea, coffee)	☐

4.12	In the past 4 weeks, did you worry that your household would NOT have enough food? How often?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.13	In the past 4 weeks, were you or any household member NOT able to eat the kinds of food you preferred because of a lack of resources? How often?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.14a	In the past 4 weeks, did you or any household member have to eat a limited variety of foods due to lack of resources?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.14b	In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.14	In the past 4 weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was NOT enough food?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.15	In the past 4 weeks, did you or any household member have to eat fewer numbers of meals in a day because there was NOT enough food?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.16	In the past 4 weeks, was there ever NO food of any kind to eat in your household because of lack of resources to get food? How Often?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.17	In the past 4 weeks, did you or any household member go to sleep at night hungry because there was NOT enough food? How often?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.18	In the past 4 weeks, did you or any household member go a whole day and night without eating anything because there was NOT enough food?	Never Rarely (once or twice in the last 4 weeks) Sometimes (once every week) Often (more than once a week in the last 4 weeks)	00 01 02 03
4.19	In the past 4 weeks, did your household get relief food from any source?	YES NO	01 02
4.20	Has your household enrolled in any of the following safety nets? **1= YES 2= NO 8= DON'T KNOW** **IF 2 or 8 SKIP TO 4.21**	Government NGO Informal e.g. merry-go-round	YES: 01 NO: 02 NA: 08
4.20a	If yes in 4.20, have you received any assistance from the safety net in the last four weeks?	YES NO	01 02
4.21	In the past 4 weeks, did any child (under 5 only) in the household benefit from a feeding program?	YES NO	01 02

5.0.	**HEALTH AND HEALTH SEEKING BEHAVIOUR**		
5.1	Has any member of your household (adult or child) been ill in the last 2 weeks?	**[IF NO, SKIP TO 6.0]**	YES 01 NO 02
5.2	If YES, how many people were ill?	Number of people	
5.3	If YES, how old is the person who was ill?	Person 1 Person 2 Person 3	**Years**
5.4	What illness did the person(s) have?	diarrhea fever cough headache vomiting convulsions/seizures difficult/fast breathing measles injuries malaria/symptoms of malaria mental illness other (specify…..……)	P1 P2 P3
5.5	Was care/treatment sought for the illness from any source? **[IF 2, SKIP TO 5.8]**	Person 1 Person 2 Person 3	YES NO 01 02 01 02 01 02
5.6	If YES, where was care/treatment sought outside of the home?	01=Public hospital 02=Public health center/clinic 03=Private hospital 04=Private health center/clinic 05=NGO/Mission hospital 06=NGO/Mission health center/clinic 07=Pharmacy/chemist 08=Traditional healer/herbalist 09=other (specify……..)	P1 P2 P3
5.6b	If YES for sick, how much was spent on the specific illness?		P1 P2 P3 P4
5.8	In the last 2 weeks have you felt increased levels of stress?		YES 01 NO 02
6.0.	**INTERPERSONAL RELATIONSHIPS**		
6.1	How often have you had disputes with any person in the household in the last four weeks? **[IF 0 OR 8, SKIP TO 6.3]**	Never 00 Rarely (once or twice in the last 4 weeks) 01 Sometimes (once every week) 02 Often (more than once a week in the last 4 weeks) 03 Not applicable for those that live alone 08	
6.2	What was the severity of the dispute?	Mild (just quarreling) 01 Moderate (verbal assaualt) 02 Very severe (physical violence and/or abandonment) 03	
6.3	How often have you or another HH member had disputes with friends/neighbours outside your household in the last four weeks? **[IF 0, SKIP TO 6.5]**	Never 00 Rarely (once or twice in the last 4 weeks) 01 Sometimes (once every week) 02 Often (more than once a week in the last 4 weeks) 03	
6.4	What was the severity of the dispute?	Mild (just quarreling) 01 Moderate (verbal assaualt) 02 Very severe (physical violence) 03	
6.5	How often in the last 4 weeks have **you shared** food with your neighbours	Never 00 Rarely (once or twice in the last 4 weeks) 01 Sometimes (once every week) 02 Often (more than once a week in the last 4 weeks) 03	
6.6	How often in the last 4 weeks has **your neighbour** shared food with you?	Never 00 Rarely (once or twice in the last 4 weeks) 01 Sometimes (once every week) 02 Often (more than once a week in the last 4 weeks) 03	

7.0.	**PERSONAL AND PROPERTY SECURITY DOMAIN**							
7.1	Have you or any member of your household experienced (.) in the last 4 weeks? **1= YES 2= NO 8= DON'T KNOW** **IF 2 or 8 SKIP TO THE NEXT SHOCK**		Q 7.1			Q7.2		
			YES	NO	N/A	Number		
		Fire	01	02	08			
		Floods	01	02	08			
		Mugging/stabbing	01	02	08			
		Harassment/Intimidation	01	02	08			
		Buglary/'Poof'	01	02	08			
7.2	How many such events have occurred in the household in the last four weeks?	Eviction	01	02	08			
		Property destruction	01	02	08			
		Rape/sodomy	01	02	08			
7.3	How often have you felt scared walking in the community in the last 4 weeks?	Never						00
		Rarely (once or twice in the last 4 weeks)						01
		Sometimes (once every week)						02
		Often (more than once a week in the last 4 weeks)						03
7.4	How often have you felt scared being in your house in the last 4 weeks?	Never						00
		Rarely (once or twice in the last 4 weeks)						01
		Sometimes (once every week)						02
		Often (more than once a week in the last 4 weeks)						03
7.5	How often have you/household member used avoidance measures in the last 4 weeks due to insecurity such as using escorts, using unusual routes, coming home earlier than usual etc?	Never						00
		Rarely (once or twice in the last 4 weeks)						01
		Sometimes (once every week)						02
		Often (more than once a week in the last 4 weeks)						03
7.6	How would you rate security situation in the community?	Very bad						01
		bad						02
		Not very bad						03
		Good						04
		Very good						05
7.7	In the last four weeks did you feel safe leaving your child or children at school?				YES			01
					NO			02
7.8	In the last four weeks did your child feel safe at school?				YES			01
					NO			02
8.0.	**HOUSING & TENURE DOMAIN**							
8.1	Is your household renting or does it own this dwelling unit/the rooms in which it is living in this structure?	Owned						01
		Renting						02
		Free of charge						03
		Other _____(specify)						96
SH-1	Do you feel safe with the structural integrity of your house? Does it feel safe?	Very unsafe						01
		Somewhat unsafe						02
		Okay						03
		Somewhat safe						04
		Very safe						05
SH-2a	Was your house damaged by a natural event? (fire, storm, flood)				YES			01
		[IF 2, SKIP TO SH-3]			NO			02
SH-2b	If YES to SH-2a has it been repaired?	**[IF 1, SKIP TO SH-3]**			YES			01
					NO			02
SH-2c	If NO to SH-2b, was it destroyed beyond repair?				YES			01
					NO			02
SH-3	What do you use for light at night?	Electricity Generator						01
		Candle						02
		Lantern (Kerosene)						03
		Flashlight (torch)						04
		Firewood/Fireplace						05
		Moonlight						06

SECTION 9: Consumption & Expenditure (1 week, 1 month & 3 month recall)		
LAST 1 WEEK		What is the total value of all [ITEM] **PURCHASED, PRODUCED AT HOME and RECEIVED AS GIFT** during the **LAST 1 WEEK?**
Items	*Code*	*Amount in Kshs (Enter 0 if none)*
Paraffin/ kerosene	02	
Water (for drinking and other household consumption / use)	03	
Charcoal, firewood (including gathered)	04	
Garbage collection fees	06	
Toilet use fees	07	
Transport (bus fares, taxis, bicycle, car repair, petrol etc.)	09	
Communications (phone calls -- fixed and mobile, post office expenses, etc.)	12	
LAST 1 MONTH		What is the total value of all [ITEM] **PURCHASED, PRODUCED AT HOME and RECEIVED AS GIFT** during the **LAST 1 MONTH?**
Utilities (electricity, gas)	14	
TOA KITU KIDOGO (TKK) ('to cooperate)	19	
Rent, including if paid together as a lump sum	20	
School Expenditures		*Amount in Kshs (Enter 0 if none)*
Tuition fees, registration fees, exam fees & other fees *either paid or owed* **(YEARLY)**	21	
Private tuition	22	
Transport to and from school (day schoolers)	23	
Uniforms including school shoes **(YEARLY)**	24	
School supplies including textbooks, execise books, pencils etc	25	
Additional school costs (field trips, bribes, school fund, etc)	25a	
Food (including any pocket money to buy lunch at school) **Interviewer: This does NOT include food expenditure if child eats lunch at home**	26	
Other Expenditures		*Amount in Kshs (Enter 0 if none)*
Loans taken this month	27	
Debts incurred this month	28	
Contributions to sacco, merry-go-rounds etc	29	
Debt payments made this month	30	
Food	30a	
Savings	30b	
LAST 3 MONTHS		What is the total value of all [ITEM] **PURCHASED, PRODUCED AT HOME and RECEIVED AS GIFT** during the **LAST 3 MONTHS?**
Medical Expenditure (both inside and outside health facilities)		*Amount in Kshs (Enter 0 if none)*
Medicines and medical supplies (eg bandages etc) *including AIDS drugs*	42	
Transport to and from health facilities	43	
Consultation & treatment fees including gifts	44	
Laboratory & diagnostic test fees	45	
Visits to traditional healers	46	
Hospitalisation fees including food (“bed bill”)	47	
Other health expenditure	48	

9.0.	HOUSEHOLD LIVELIHOODS	
9.1	What is the main source of livelihood for your household in the past 4 weeks?	Monthly Salary 01 Casual labour 02 Petty Trading (hawking) 03 Remittances 04 Scavenging 05 Safety Nets (e.g. Merry go round) 06 Stable Business 07 None 08 Other 96
9.2	How many people in this household currently (have earned income in last 4 weeks) have a source of income?	Number of people ____ **Skip to the next section if response is 00**
9.3	What are the ages of the people who earn?	Person 1 / Person 2 / Person 3 / Person 4 — **9.2 (Years)** ____ ; **9.4 (sex)** ____
9.4	What are the sexes of the people who earn? **(01=Female, 02=Male)**	
9.5	What is their source of income **(USE CODES IN 9.1)**	**P1** ____ **P2** ____ **P3** ____ **P4** ____
9.5c	What is the highest completed class in the level attended?	**00=None ; 01=Class 1; 02=Class 2; 03=Class 3; 04=Class 4; 05=Class 5; 06=Class 6; 07=Class 7; 08=Class 8; 09=Form 1; 10=Form 2; 11=Form 3; 12=Form 4; 13=University or higher** Person 1 ____ Person 2 ____ Person 3 ____ Person 4 ____
9.6	Among the persons who earn income in 9.2, who is the breadwinner?	**(1=Yes; 2=No)** Person 1 ____ Person 2 ____ Person 3 ____ Person 4 ____
9.7	What is the mode of payment for persons in 9.2?	**P1 P2 P3 P4** Hourly 01 01 01 01 Daily 02 02 02 02 Weekly 03 03 03 03 Monthly 04 04 04 04 Other(specify…….) 96 96 96 96
9.8	How much did persons in 9.2 earn in last payment period? **(INDICATE DEPENDING ON PAYMENT MODE)**	**P1 P2 P3 P4** Hourly Daily Weekly Monthly Other(specify……)
9.8a	How much did persons in 9.2 above earn in the last 4 weeks?	**P1** ____ **P2** ____ **P3** ____ **P4** ____
9.9	How many hours per day on average did the persons in 9.2 work in the last week?	**P1 P2 P3 P4** Number of hours worked per day ____
9.10	How many days in the last week did the persons in 9.2 work?	**P1 P2 P3 P4** Number of days worked per week ____

10.0.	**COPING STRATEGIES**		
	In the last four weeks…		
10.1	Have you purchased food or other essential household goods on credit because you didn't have the money to buy them outright?	YES NO	01 02
10.1a	Have you or any member of your household taken a loan to buy food or other essential HH goods?	YES NO	01 02
10.2	Have you had to remove any of your children from school due to lack of school related costs?	YES NO	01 02
10.3	Has any member of your household left/moved due to lack of resources to maintain them?	YES NO	01 02
10.4	Have you or any member of your household gone out begging for food or money?	YES NO	01 02
10.8	Have you or any household member stolen food or money to buy food?	YES NO	01 02
10.9	Do you know someone in the community who stole food or money to buy food in the last one month?	YES NO	01 02
10.10	Have you or any household member received food or money from friend/neighbor/relative?	YES NO	01 02
10.11	Have you or any other household member had to take up a second job in order to buy food or other essential HH needs?	YES NO	01 02
10.12	Have you or any other household member sold an asset to get money to buy food or other essential household goods?	YES NO	01 02
11.0.	**END OF INTERVIEW**		
	I would like to thank you for taking your time to participate in this interview.		
11.2	**FW: RECORD QUESTIONS AND COMMENTS RAISED BY RESPONDENT** ……		
11.3	**FW: RECORD COMMENTS ABOUT THE INTERVIEW** ……		
	OFFICE/FIELD CHECKER'S DETAILS		
11.6	**FIELD SUPERVISOR/TEAM LEADER'S CODE**		☐☐

APPENDIX C: Detailed results per Area and Round.

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Household Demographics	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Sample size	428	553	546	584	459	623	578	581	455	630	582	407	477	585	380	314	418
Average household size (all ages)	4.7	4.2	4.3	4.2	2.9	2.8	3.0	3.3	3.4	3.2	3.4	4.4	4.4	4.4	4.4	4.3	3.9
Number of children under 5	1.4	1.4	1.4	1.4	1.3	1.2	1.1	1.2	1.3	1.2	1.3	1.4	1.4	1.4	1.5	1.4	1.4
Length of residency (years)	14	14	13	14	7	7	6	6	5	5	5	10	7	8	7	7	6
Gender of household Head (%)																	
Female	25	34	34	40	17	19	17	22	20	25	23	31	28	20	51	24	15
Male	75	66	66	60	83	81	83	78	80	75	77	69	72	80	49	76	85
Where did houshold come from? (%)																	
Rural area	51	41	32	39	56	54	47	37	35	35	39	34	26	25	30	29	27
Other slum	16	27	8	13	22	19	15	16	38	43	33	41	37	11	55	51	33
Same slum	11	9	40	30	1	2	17	27	5	4	13	16	27	57	3	11	34
Non-slum urban area	22	22	20	17	22	25	21	18	22	17	15	6	8	4	11	7	6

	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Water	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Pay for water (%)	88	86	88	88	96	96	97	96	98	99	98	93	88	89	95	97	95
Time to water source (minutes)	2	2	2	2	2	2	3	3	3	3	3	4	5	4	4	8	3
Time queuing for water (minutes)	4	5	5	10	13	8	6	6	5	6	5	8	16	9	6	8	3
Liters of water/person/day	17	19	17	20	19	20	16	17	17	19	16	35	30	21	27	28	23
Meeting 15L/day threshold (%)	52	56	55	69	61	61	48	51	48	58	47	84	71	67	79	81	81
Main water source (%)																	
Piped or tap water	82	86	84	95	68	89	87	89	100	95	98	95	90	85	88	90	89
Water tanks	18	14	16	5	21	11	13	11	0	3	2	0	0	0	1	0	0
Water vendors	0	0	0	0	11	0	0	0	0	1	0	0	3	2	5	3	4
Lake, river, or well	0	0	0	0	0	0	0	0	0	0	0	3	6	10	7	5	6
Quality of water (%)																	
Clean water	76	75	77	81	72	78	80	75	54	67	66	90	74	76	90	82	87
Dirty water	4	3	2	4	16	16	16	11	37	30	30	5	23	22	3	11	8
Very clean water	20	23	21	15	10	5	4	13	7	2	3	4	2	2	6	6	5
Very dirty water	0	0	0	0	2	0	1	1	3	1	0	0	1	0	0	0	0

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Hygiene and Sanitation	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Pay to use toilet facility (%)	19	14	19	19	79	77	76	70	48	46	46	5	6	2	7	8	2
Main toilet facility (%)																	
Shared flush toilet	92	93	96	79	41	49	59	58	92	92	96	74	77	80	87	90	96
Flush trench toilet	0	0	0	1	32	47	38	26	4	3	2	1	1	1	0	1	0
Own flush toilet	6	5	3	18	3	2	3	1	1	1	1	18	15	11	6	7	2
Toilet without a flush	1	0	1	3	20	2	1	7	2	2	1	1	0	6	0	0	0
None	1	1	0	0	0	0	0	0	0	0	0	4	2	2	6	2	1
Hand washing activity (%)																	
After visiting toilet	69	59	64	61	57	66	63	77	76	81	76	87	73	76	80	83	87
Before eating	29	26	29	44	42	38	37	37	30	31	29	88	49	49	74	70	57
Before preparing food	15	17	15	19	29	22	27	31	20	32	29	49	31	28	46	40	50
After handling child's waste	27	19	22	17	30	30	27	32	34	38	24	27	24	27	36	38	37
After eating	6	9	6	17	16	14	9	22	10	11	12	62	34	30	51	40	35
Before feeding a child	10	9	11	11	16	12	14	16	9	13	13	25	14	14	32	25	28
Garbage disposal practices (%)																	
Disposal service	47	48	54	62	68	63	62	60	22	21	23	10	6	5	10	9	11
Road/railway/trench/all over	50	47	42	26	27	29	32	33	44	30	33	16	17	21	35	25	29
Garbage dump or pit	3	3	3	10	4	9	6	7	33	46	43	53	54	56	44	42	43
Burning	1	3	2	2	1	0	0	0	1	3	1	20	22	19	12	24	17

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Food	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Dietary Diversity Score (HDDS)	6.7	5.7	6.0	5.0	6.9	6.1	6.4	5.9	5.6	5.7	5.7	4.6	4.4	4.3	4.8	4.5	5.1
Main food source (%)																	
Purchase raw food	98	96	97	94	95	93	96	97	98	99	97	96	98	98	89	93	88
Purchase cooked food	1	4	2	5	5	6	5	3	2	1	2	1	1	1	10	6	12
Produce own	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0
Borrow, relief food, safety nets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discarded food	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of meals per day																	
Adult	2.4	2.6	2.6	2.4	2.7	2.7	2.8	2.7	2.6	2.7	2.7	2.5	2.5	2.5	2.7	2.7	2.7
Child (under 18 years old)	2.7	2.7	2.9	2.6	3.2	3.2	3.0	3.3	2.8	3.3	3.3	2.9	2.7	2.9	3.0	3.0	3.0
Consumed meals outside the home																	
Adult	19	24	23	23	35	29	25	27	23	19	22	21	26	29	24	16	23
Child (under 18 years old)	16	38	25	22	17	22	8	15	8	15	10	18	28	26	23	20	14
Consumed street foods																	
Adult	48	40	41	41	29	25	19	33	37	42	42	47	42	44	62	45	53
Child (under 18 years old)	44	37	45	39	18	16	10	24	31	35	36	48	41	48	55	42	52
Household Food Insecurity and Acess Score (HFIAS)																	
Food Secure	8	11	10	7	21	38	33	35	11	9	12	6	9	10	10	11	7
Mildly food insecure	3	4	3	6	18	12	18	11	13	14	17	4	7	6	7	8	5
Moderately food insecure	35	19	19	21	32	27	31	28	31	23	25	17	16	19	16	19	28
Severely food insecure	54	66	69	66	29	23	19	26	44	55	46	73	68	66	68	62	59
Household Hunger Score (HHS)																	
Little to no hunger	73	62	60	50	87	87	89	84	76	70	75	45	54	53	55	65	67
Moderate household hunger	23	32	33	38	11	11	11	13	20	26	22	47	34	39	35	27	29
Severe household hunger	4	7	7	12	2	2	0	3	4	4	3	8	12	9	10	9	5

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Health	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Households reporting illness (%)	49	42	46	50	34	37	38	34	47	51	46	59	68	57	59	69	56
Average number of ill people/household	1.4	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.4	1.6	1.5	1.4	1.5	1.4
Morbidity	33	31	31	36	47	50	44	41	42	44	39	37	40	36	33	39	37
Average age of ill persons	16	19	19	20	22	23	22	20	19	19	14	15	16	22	21	19	22
Under 5 years old illness (%)	43	34	37	34	25	25	32	22	12	13	18	22	22	28	37	38	39
Type of illness (%)																	
Diarrhea	18	14	12	20	12	15	13	14	18	15	13	11	7	10	11	13	11
Fever	41	39	42	25	49	49	49	37	50	44	48	33	29	30	33	24	27
Cough	47	35	41	23	39	31	30	29	39	38	42	18	24	19	24	27	21
Headache	27	26	30	28	42	34	30	28	30	32	35	30	31	29	24	22	32
Vomiting	9	15	12	10	10	7	8	5	22	12	15	14	8	10	8	9	7
Convulsions/seizure	0	2	1	2	1	4	3	2	1	1	0	2	1	1	1	0	1
Difficult/fast breathing	8	11	11	12	9	4	4	9	6	8	8	3	5	4	6	2	5
Measles	1	0	1	4	0	0	1	1	1	1	0	3	4	4	5	2	4
Injuries	3	5	4	4	3	4	4	5	3	3	3	3	2	4	3	2	1
Other illnesses	6	35	27	26	2	27	32	37	37	32	31	51	48	46	37	54	49
Sought care/treatment (%)	93	88	79	81	90	93	91	90	91	89	90	83	83	84	93	84	94
Type of treatment sought (%)																	
Public hospital	16	8	5	17	14	9	6	5	7	5	5	41	26	27	37	33	35
Public health clinic	27	22	34	33	18	22	28	26	15	17	20	13	20	20	9	2	9
Private hospital	9	7	7	7	4	2	4	6	6	6	4	5	7	8	7	10	6
Private health clinic	13	15	17	11	12	18	14	12	12	10	12	4	14	10	4	5	3
NGO hospital	6	5	0	1	2	1	1	3	2	2	1	0	0	0	0	0	1
NGO clinic	11	11	8	4	5	2	3	1	2	6	3	5	1	1	0	1	1
Pharmacy/chemist	26	31	28	25	48	45	41	48	56	57	56	29	28	31	33	42	46
Traditional healer/herbalist	6	3	1	1	6	2	1	1	1	2	1	1	2	2	3	3	2
Other treatment	0	2	0	2	1	0	1	1	1	1	0	4	5	3	7	6	1

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Interpersonal Relationships	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Disputes inside the household (%)																	
Never	74	67	68	85	87	90	89	89	80	60	67	69	78	74	70	73	64
Rarely (1 or 2 times in 4-weeks)	15	25	23	9	9	7	10	7	10	27	22	13	12	16	19	17	23
Sometimes (once every week)	6	6	6	3	3	2	1	1	9	10	8	16	4	6	9	5	9
Often (more than once a week)	6	2	4	3	0	1	0	2	1	3	3	2	5	4	3	4	4
Severity of intra-household dispute (%)																	
Mild (just quarreling)	78	62	71	83	88	83	92	78	89	92	90	65	83	83	80	73	81
Moderate (verbal assault)	15	34	24	12	10	14	3	15	8	5	5	30	13	13	14	21	14
Very severe (physical violence)	8	4	5	5	2	3	5	7	2	3	5	6	4	4	6	6	5
Disputes with neighbors (%)																	
Never	96	87	88	92	92	95	95	95	86	90	94	77	90	86	78	87	84
Rarely (1 or 2 times in 4-weeks)	4	11	8	4	7	5	4	5	9	8	4	8	6	10	14	9	11
Sometimes (once every week)	1	1	3	3	1	0	0	0	5	1	1	12	2	3	7	3	4
Often (more than once a week)	0	1	1	1	1	0	0	0	1	1	1	2	2	1	2	1	1
Severity of inter-household dispute (%)																	
Mild (just quarreling)	80	44	40	64	80	78	96	80	85	77	73	64	72	75	72	70	87
Moderate (verbal assault)	11	56	50	24	13	18	0	20	10	16	24	33	24	22	25	29	13
Very severe (physical violence)	11	0	11	13	8	4	4	0	5	6	3	3	4	2	4	0	0
Household shared food with neighbors (%)																	
Never	61	59	55	66	71	70	73	69	51	52	55	44	42	47	40	42	46
Rarely (1 or 2 times in 4-weeks)	21	28	27	18	20	22	21	16	20	27	24	15	24	26	35	28	34
Sometimes (once every week)	11	9	15	12	5	5	4	11	17	12	18	35	23	19	19	18	15
Often (more than once a week)	7	5	3	4	4	3	2	4	11	9	3	5	10	8	7	13	6
Neighbors shared food with household (%)																	
Never	61	59	56	66	72	69	71	74	61	56	58	47	47	50	43	49	53
Rarely (1 or 2 times in 4-weeks)	21	23	22	18	19	23	23	14	18	26	23	15	24	27	31	23	30
Sometimes (once every week)	12	13	17	12	8	6	4	9	13	11	16	34	20	16	20	18	13
Often (more than once a week)	7	5	4	3	2	2	2	3	9	8	4	4	9	6	6	10	5

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Shocks	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Experienced one or more shocks (%)	6	13	19	22	4	7	10	12	18	14	19	19	22	28	18	18	27
Total number of shocks experienced (average)	1.1	1.1	1.2	1.5	1.0	1.1	1.1	1.3	1.2	1.2	1.2	1.2	1.3	1.4	1.9	1.3	1.3
Overall number of shock events (average)	1	1	1	3	1	1	3	2	2	1	2	2	2	3	2	2	2
Shocks experienced in last 4-weeks (%)																	
Fire	4	6	1	10	16	5	2	8	11	6	9	5	14	6	10	12	12
Floods	4	0	13	34	11	23	73	14	22	22	38	41	44	47	22	23	42
Mugging/Stabbing	77	76	74	56	42	53	20	54	57	51	52	41	34	37	43	49	30
Burglary	15	19	24	21	32	21	15	36	19	26	14	27	22	27	36	28	20
Eviction	4	4	4	18	0	7	0	10	5	10	3	1	9	7	33	5	10
Property destruction	4	6	2	12	0	2	0	3	9	6	5	8	10	12	30	14	12
Rape/sodomy	0	3	2	2	0	0	0	1	0	0	0	0	1	7	13	2	0
Number of shock events in 4-weeks																	
Fire	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1
Floods	1	0	2	3	2	1	3	2	2	1	2	2	2	2	1	1	2
Mugging/Stabbing	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1
Burglary	2	1	1	1	2	1	1	1	1	1	2	1	1	2	1	1	1
Eviction	1	2	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1
Property destruction	1	1	1	7	0	2	0	3	1	1	1	2	2	4	2	4	2
Rape/sodomy	0	1	1	2	0	0	0	1	0	0	0	0	2	2	1	1	0

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Security	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Felt scared in community (%)																	
Never	16	26	21	23	44	54	60	49	40	33	33	28	35	33	31	34	24
Rarely (1 or 2 times in 4-weeks)	23	28	27	22	27	21	22	20	15	22	20	18	18	24	28	21	26
Sometimes (once every week)	36	21	26	20	15	14	12	15	25	25	25	36	18	19	21	11	22
Often (more than once a week)	25	25	26	35	14	11	6	16	20	20	22	18	29	24	20	33	28
Felt scared in household (%)																	
Never	41	46	40	46	72	68	77	72	61	67	73	36	43	43	38	44	38
Rarely (1 or 2 times in 4-weeks)	30	25	27	25	18	18	16	16	11	14	11	19	17	24	28	20	20
Sometimes (once every week)	19	14	21	11	6	10	5	6	13	13	9	29	17	19	17	12	25
Often (more than once a week)	10	15	12	17	4	4	2	6	15	6	7	15	23	13	17	24	17
Used avoidance measures (%)																	
Never	19	33	32	33	52	63	58	49	55	39	40	32	44	38	31	46	42
Rarely (1 or 2 times in 4-weeks)	34	37	33	28	19	17	21	22	13	22	23	22	17	25	26	24	23
Sometimes (once every week)	27	17	18	21	15	12	11	8	16	22	17	33	20	19	21	9	18
Often (more than once a week)	20	13	17	18	15	9	11	20	16	18	20	13	19	18	23	21	18
Perception of community security (%)																	
Very bad	22	22	25	33	10	6	4	11	16	10	8	26	26	24	11	16	25
Bad	41	35	31	24	21	25	23	19	26	30	29	32	28	29	34	36	43
Not very bad	19	25	28	26	31	23	22	28	26	29	36	23	27	25	39	30	20
Good	18	17	14	16	35	44	49	35	28	29	26	19	18	21	16	17	12
Very good	0	2	3	1	2	2	1	7	4	2	1	1	1	1	0	1	0

	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Housing	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Own house	19	18	17	17	6	5	5	6	6	4	5	21	17	19	12	17	8
Rent house	81	80	80	82	93	95	94	93	93	94	94	79	82	80	88	83	91
Free house	0	1	3	1	1	0	1	0	0	1	1	0	1	1	0	1	1
Number of sleeping rooms	1.4	1.4	1.4	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.5	1.4	1.3	1.3	1.2	1.2

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Livelihoods	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Monthly salary	7	11	12	8	16	35	32	31	33	38	35	27	30	27	23	24	23
Casual labor	54	53	51	50	61	45	47	47	45	41	48	36	37	37	40	39	47
Hawking/petty trading	21	16	12	14	10	3	1	6	7	5	7	5	5	5	8	4	6
Remittances	1	0	2	1	0	0	1	1	0	0	0	1	2	1	1	1	2
Scavenging	0	3	2	2	0	0	0	0	0	0	1	0	0	0	0	0	0
Safety nets (e.g. merry go round)	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Business	13	13	18	21	11	13	16	12	10	11	8	15	19	18	16	19	17
Other	3	4	3	3	2	4	3	3	5	4	2	16	7	11	12	13	5
Average breadwinner income (KSH)	6505	7356	7075	7299	9178	10760	9480	11363	10460	10582	11210	12169	9454	8269	11241	10168	8285
Median breadwinner income (KSH)	5600	7000	6000	6000	8500	10000	9000	10000	9600	10000	10000	9600	8000	7200	9800	8000	7200
Average household income (KSH)	7232	8061	7932	7897	9794	11786	10333	12541	11702	11951	12492	13767	10246	8954	12964	11090	9108
Median household income (KSH)	6500	7200	7200	7000	9500	10000	10000	12000	10000	10800	11000	10000	8000	7792	10500	8400	8000
Percent household income earned by breadwinner (average)	92	94	92	95	96	94	94	94	92	92	93	90	92	94	91	91	94
Percent household income spent on food (average)	76	67	73	71	60	49	58	58	56	58	60	67	58	78	62	71	66
Female breadwinners (%)	32	37	40	38	25	24	28	30	22	21	19	38	37	37	34	35	41
People in household earning an income (average)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.3	1.3	1.3	1.2	1.4	1.3	1.3
Average age of breadwinner	36	36	37	38	33	32	31	32	31	31	31	34	33	34	33	32	32
Average grade level completed by breadwinner	-	8	8	9	-	10	10	10	10	10	10	10	10	9	9	9	9
Average number of days worked/week	8	8	8	8	9	9	9	9	9	9	9	9	9	9	10	9	9
Average number of hours worked/day	5	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6
Mode of payment for breadwinner earnings (%)																	
Hourly	0	0	0	2	0	0	0	1	1	0	0	2	1	0	0	2	0
Daily	77	75	73	76	43	36	42	38	31	31	25	61	52	58	60	51	62
Weekly	9	8	10	11	15	19	17	23	26	24	30	11	12	10	12	11	8
Monthly	11	17	16	11	40	43	40	38	41	44	44	24	33	30	27	33	28
Other	2	0	1	0	2	1	2	0	2	1	2	2	2	1	0	3	2

	Nairobi											Kisumu					
	Korogocho				Viwandani				Mukuru			Nyalenda			Obunga		
Coping (4 week recall)	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**11/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**	**8/12**	**2/13**	**4/13**
Used credit	53	43	53	54	47	31	36	34	55	49	51	46	47	48	50	37	50
Took a loan	29	15	12	14	17	13	22	16	29	19	17	30	25	24	35	26	32
Removed children from school	17	16	20	23	8	8	9	11	16	15	25	43	42	39	37	25	38
Household member left household	13	7	9	11	5	5	5	5	19	16	13	15	16	15	11	11	11
Begged for food or money	8	8	10	3	2	2	1	6	10	10	11	3	7	4	6	6	7
Traded sex for food or money	3	2	3	1	2	1	1	1	0	2	1	1	2	2	4	3	2
Multiple sexual partners	3	3	5	3	2	2	1	1	3	4	1	5	4	5	8	5	4
Know someone that traded sex	43	35	40	27	12	20	14	18	21	30	23	23	21	35	48	32	37
Stolen food or money	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	4	2
Know someone that stole	45	37	42	26	6	15	11	15	19	25	18	9	14	19	32	24	27
Got food/money from friend/family/neighbor	29	30	40	31	23	22	19	25	38	46	36	34	40	43	42	39	45
Used 1 or more of the above	87	75	82	77	66	56	57	57	78	81	76	78	79	84	88	74	85

APPENDIX D: Detailed results of low-income formal settlements in Nairobi (from August 2012), and Informal Settlement results per City (Nairobi and Kisumu) and Round.

Household Demographics	Low-income formal area (8/12)	Nairobi				Kisumu		
		8/12	2/13	4/13	11/13	8/12	2/13	4/13
Sample size	741	1342	1806	1706	1165	787	791	1003
Average household size (all ages)	4.2	3.7	3.4	3.6	3.8	4.4	4.4	4.2
Number of children under 5	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4
Length of residency (years)	11	9	9	8	10	8	7	7
Gender of household Head (%)								
Female	30	21	26	25	31	41	26	18
Male	70	79	74	75	69	59	74	82
Where did household come from? (%)								
Rural area	21	47	43	39	38	32	27	26
Other slum	29	25	30	19	15	48	44	22
Same slum	7	6	5	23	29	10	19	46
Non-slum urban area	40	22	22	19	18	9	8	5

Water	Low-income formal area	Nairobi				Kisumu		
		8/12	2/13	4/13	11/13	8/12	2/13	4/13
Pay for water (%)	31	94	94	94	92	94	93	92
Time to water source (minutes)	3	3	3	2	2	4	6	3
Time queuing for water (minutes)	8	8	6	5	8	7	12	6
Liters of water/person/day	20	18	19	16	19	31	29	22
Meeting 15L/day threshold (%)	65	53	59	50	60	81	76	74
Main water source (%)								
Piped or tap water	98	83	90	90	92	91	90	87
Water tanks	0	13	9	10	8	1	0	0
Water vendors	1	4	1	0	0	3	3	3
Lake, river, or well	0	0	0	0	0	5	6	8
Quality of water (%)								
Clean water	74	67	73	74	78	90	78	82
Dirty water	8	19	16	16	7	4	17	15
Very clean water	18	12	10	10	14	5	4	3
Very dirty water	0	2	0	0	1	0	1	0

Hygiene and Sanitation	Low-income formal area	Nairobi				Kisumu		
		8/12	2/13	4/13	11/13	8/12	2/13	4/13
Pay to use toilet facility (%)	2	49	45	47	45	6	7	2
Main toilet facility (%)								
Shared flush toilet	43	75	78	84	68	81	84	88
Flush trench toilet	4	12	17	13	13	1	1	0
Own flush toilet	44	3	3	2	10	12	11	7
Toilet without a flush	7	8	2	1	5	1	0	3
None	2	0	1	0	0	5	2	2
Hand washing activity (%)								
After visiting toilet	73	67	69	68	69	84	78	81
Before eating	43	34	32	32	41	81	59	53
Before preparing food	35	21	23	24	25	48	35	39
After handling child's waste	29	30	29	24	24	31	31	32
Before feeding a child	14	10	11	9	20	57	37	33
After eating	27	12	11	13	13	29	20	21
Garbage disposal practices (%)								
Disposal service	69	46	44	46	61	10	7	8
Road/railway/trench/all over	23	41	35	36	30	25	21	25
Garbage dump or pit	4	13	19	17	9	49	48	49
Burning	3	1	2	1	1	16	23	18

Food	Low-income formal area	Nairobi				Kisumu		
		8/12	2/13	4/13	11/13	8/12	2/13	4/13
Dietary Diversity Score (HDDS)	6	6	6	6	5	5	4	5
Main food source (%)								
Purchase raw food	99	97	96	97	95	92	95	93
Purchase cooked food	1	3	4	3	4	5	4	7
Produce own	0	0	0	0	0	1	0	0
Borrow, relief food, safety nets	0	0	0	0	0	0	0	0
Discarded food	0	0	0	0	0	0	0	0
Number of meals per day								
Adult	2.7	2.6	2.7	2.7	2.6	2.6	2.6	2.6
Child (under 18 years old)	3.1	2.9	3.1	3.1	2.9	2.9	2.8	3.0
Consumed meals outside the home (%)								
Adult	28	26	24	24	25	22	21	26
Child (under 18 years old)	18	14	25	15	18	20	24	20
Consumed street foods (%)								
Adult	33	38	36	34	37	54	43	48
Child (under 18 years old)	30	31	29	30	31	51	42	50
Household Food Insecurity and Access Score (HFIAS)								
Food Secure	25	14	19	18	21	8	10	9
Mildly food insecure	7	12	10	12	8	6	7	5
Moderately food insecure	15	33	23	25	24	16	18	23
Severely food insecure	53	42	48	44	46	70	65	63
Household Hunger Score (HHS)								
Little to no hunger	66	79	73	75	67	50	59	60
Moderate household hunger	29	18	23	22	25	41	31	34
Severe household hunger	5	3	4	3	8	9	10	7

Health	Low-income formal area	Nairobi				Kisumu		
		8/12	2/13	4/13	11/13	8/12	2/13	4/13
Households reporting illness (%)	45	43	43	43	42	59	68	57
Average number of ill people/household	2	1	1	1	1	1	2	1
Morbidity	37	41	42	38	39	35	40	37
Average age of ill persons	22	19	20	18	20	18	17	22
Under 5 years old illness (%)	26	27	24	29	28	30	30	33
Type of illness (%)								
Diarrhea	6	16	15	13	17	11	10	10
Fever	29	46	44	47	31	33	27	29
Cough	38	42	35	38	26	21	26	20
Headache	25	33	31	31	28	27	27	31
Vomiting	9	14	11	12	7	11	8	9
Convulsions/seizure	1	0	2	1	2	1	0	1
Difficult/fast breathing	10	7	8	8	10	5	4	4
Measles	1	1	0	1	2	4	3	4
Injuries	5	3	4	4	5	3	2	2
Other illnesses	38	15	31	30	31	44	51	48
Sought care/treatment (%)	90	91	90	87	85	88	83	89
Type of treatment sought (%)								
Public hospital	11	12	7	5	11	39	29	31
Public health clinic	19	20	20	27	30	11	11	15
Private hospital	12	6	5	5	6	6	8	7
Private health clinic	12	12	14	14	12	4	9	7
NGO hospital	2	4	3	1	2	0	0	0
NGO clinic	6	6	6	5	3	2	1	1
Pharmacy/chemist	41	43	44	42	36	31	35	39
Traditional healer/herbalist	0	4	2	1	1	2	3	2
Other treatment	2	1	1	1	1	6	5	2

Interpersonal Relationships	Low-income formal area	Nairobi 8/12	Nairobi 2/13	Nairobi 4/13	Nairobi 11/13	Kisumu 8/12	Kisumu 2/13	Kisumu 4/13
Disputes inside the household (%)								
Never	68	80	72	74	87	70	76	69
Rarely (1 or 2 times in 4-weeks)	20	11	20	18	8	16	15	20
Sometimes (once every week)	7	6	6	5	2	12	5	7
Often (more than once a week)	5	2	2	2	3	2	5	4
Severity of intra-household dispute (%)								
Mild (just quarreling)	83	85	79	84	80	72	78	82
Moderate (verbal assault)	4	11	18	11	14	22	17	13
Very severe (physical violence)	39	4	3	5	6	6	5	4
Disputes with neighbors (%)								
Never	84	91	90	92	94	78	89	85
Rarely (1 or 2 times in 4-weeks)	12	6	8	5	4	11	7	10
Sometimes (once every week)	3	2	1	2	2	10	3	3
Often (more than once a week)	1	0	0	1	1	2	2	1
Severity of inter-household dispute (%)								
Mild (just quarreling)	79	81	67	69	72	68	71	81
Moderate (verbal assault)	3	12	30	25	22	29	26	18
Very severe (physical violence)	22	8	3	6	6	3	2	1
Household shared food with neighbors (%)								
Never	49	61	60	61	68	42	42	46
Rarely (1 or 2 times in 4-weeks)	29	21	26	24	17	25	26	30
Sometimes (once every week)	12	11	9	12	11	27	20	17
Often (more than once a week)	9	7	6	3	4	6	11	7
Neighbors shared food with household (%)								
Never	52	64	61	62	70	45	48	52
Rarely (1 or 2 times in 4-weeks)	26	19	24	23	16	23	24	29
Sometimes (once every week)	15	11	10	12	10	27	19	15
Often (more than once a week)	8	6	5	3	3	5	9	5

Shocks and Security	Low-income formal area	Nairobi 8/12	Nairobi 2/13	Nairobi 4/13	Nairobi 11/13	Kisumu 8/12	Kisumu 2/13	Kisumu 4/13
Experienced one or more shocks (%)	14	9	11	16	17	18	20	28
Total number of shocks experienced (average)	1.1	1.1	1.2	1.2	1.4	1.6	1.3	1.3
Overall number of shock events (average)	1.5	1.4	1.4	2.0	2.4	2.1	1.9	2.4
Shocks experienced in last 4-weeks (%)								
Fire	7	10	5	4	9	8	13	9
Floods	5	12	15	42	24	32	33	45
Mugging/Stabbing	75	59	60	49	55	42	42	33
Burglary	11	22	22	18	28	31	25	24
Eviction	10	3	7	2	14	17	7	8
Property destruction	6	4	5	2	7	19	12	12
Rape/sodomy	1	0	1	1	2	7	1	3
Number of shock events in 4-weeks								
Fire	1	1	1	1	1	2	1	1
Floods	3	2	1	2	2	2	1	2
Mugging/Stabbing	1	1	1	1	1	1	1	1
Burglary	1	1	1	1	1	1	1	1
Eviction	1	1	1	1	1	1	1	1
Property destruction	1	1	1	1	5	2	3	3
Rape/sodomy	1	0	0	0	2	1	2	1
Felt scared in community (%)								
Never	25	33	38	38	36	29	35	28
Rarely (1 or 2 times in 4-weeks)	26	22	24	23	21	23	19	25
Sometimes (once every week)	23	25	20	21	17	29	15	21
Often (more than once a week)	26	20	19	18	26	19	31	26
Felt scared in household (%)								
Never	52	58	60	63	59	37	43	41
Rarely (1 or 2 times in 4-weeks)	23	20	19	18	21	24	18	22
Sometimes (once every week)	12	13	12	12	9	23	15	22
Often (more than once a week)	13	10	8	7	12	16	23	15

Security	Low-income formal area	Nairobi 8/12	Nairobi 2/13	Nairobi 4/13	Nairobi 11/13	Kisumu 8/12	Kisumu 2/13	Kisumu 4/13
Used avoidance measures (%)								
Never	32	42	45	43	41	31	45	40
Rarely (1 or 2 times in 4-weeks)	28	22	25	25	25	24	21	24
Sometimes (once every week)	21	19	17	15	14	27	14	18
Often (more than once a week)	19	17	13	16	19	18	20	18
Perception of community security (%)								
Very bad	17	16	13	12	22	18	21	25
Bad	28	30	30	28	22	33	32	36
Not very bad	37	25	25	29	27	31	29	22
Good	16	27	30	30	26	17	17	17
Very good	1	2	2	1	4	0	1	0

Housing	Low-income formal area	Nairobi 8/12	Nairobi 2/13	Nairobi 4/13	Nairobi 11/13	Kisumu 8/12	Kisumu 2/13	Kisumu 4/13
Own house	11	10	9	9	11	17	17	14
Rent house	86	89	90	90	88	83	82	85
Free house	2	1	1	1	1	0	1	1
Number of sleeping rooms	1.6	1.2	1.2	1.2	1.2	1.4	1.3	1.2

Livelihoods	Low-income formal area	Nairobi 8/12	Nairobi 2/13	Nairobi 4/13	Nairobi 11/13	Kisumu 8/12	Kisumu 2/13	Kisumu 4/13
Monthly salary	35	19	28	26	20	25	27	25
Casual labor	34	53	46	49	48	38	38	42
Hawking/petty trading	6	13	8	7	10	7	5	6
Remittances	2	0	0	1	1	1	1	2
Scavenging	0	0	1	1	1	0	0	0
Safety nets (e.g. merry go round)	0	0	0	0	0	0	0	0
Business	19	11	12	14	17	16	19	17
Other	4	4	4	3	3	14	10	8
Average breadwinner income (KSH)	16288	8714	9566	9255	9331	11705	9811	8277
Median breadwinner income (KSH)	12000	7900	9000	8333	8000	9700	8000	7200
Average household income (KSH)	19846	9576	10599	10253	10219	13366	10668	9031
Median household income (KSH)	12400	8667	9333	9400	9500	10250	8200	7896
Percent household income earned by breadwinner (average)	89	93	93	93	94	91	92	94
Percent household income spent on food (average)	58	64	58	64	65	64	64	72
Female breadwinners (%)	34	26	27	29	34	36	36	39
People in household earning an income (average)	1.3	1.2	1.2	1.3	1.2	1.4	1.3	1.3
Average age of breadwinner	36	33	33	33	35	34	32	33
Average grade level completed by breadwinner	10.4	9.9	9.3	9.2	9.3	9.4	9.3	8.9
Average number of days worked/week	8.6	8.7	8.7	8.7	8.5	9.7	9.2	8.9
Average number of hours worked/day	5.6	5.7	5.8	5.7	5.5	6.1	5.9	5.8
Mode of payment for breadwinner earnings (%)								
Hourly	1	0	0	0	2	1	1	0
Daily	51	50	47	47	57	60	51	60
Weekly	11	17	17	19	17	11	12	9
Monthly	37	31	34	33	24	26	33	29
Other	0	2	1	1	0	1	3	1

Coping (4 week recall)	Low-income formal area	Nairobi 8/12	Nairobi 2/13	Nairobi 4/13	Nairobi 11/13	Kisumu 8/12	Kisumu 2/13	Kisumu 4/13
Used credit	36	52	41	46	44	48	42	49
Took a loan	18	25	16	17	15	33	25	28
Removed children from school	18	14	13	18	17	40	34	38
Household member left household	4	12	9	9	8	13	14	13
Begged for food or money	6	7	6	7	4	4	7	6
Traded sex for food or money	1	2	2	2	1	2	2	2
Multiple sexual partners	2	3	3	2	2	7	4	5
Know someone that traded sex	23	25	28	26	22	35	26	36
Stolen food or money	1	1	1	1	1	2	2	2
Know someone that stole	21	23	26	23	20	20	19	23
Got food/money from friend/family/neighbor	38	30	33	32	28	38	40	44
Used 1 or more of the above coping strategies	68	77	71	72	67	83	77	84