

Internal and External Displacement among Populations of Southern and Central Somalia Affected by Severe Food Insecurity and Famine during 2010-2012

A Study Commissioned by FEWS NET

from the

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The mortality estimates presented in the companion mortality study¹, and used again here in the context of a displacement analysis, primarily relied on survey data generated by the FAO/FSNAU in Somalia.

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Disclaimer

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Geographic names, administrative divisions, and presentation of material in the maps, as used for statistical analysis in this report, do not imply endorsement by the United Nations or any other agencies involved in the production of the report. Similarly, population estimates presented in this report were computed solely for the purposes of this analysis. Specifically, the designations employed and the presentation of material in this report do not imply the expression of any opinion on the part of USAID concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. An ongoing exercise by the United Nations and Somali authorities to update population figures for Somalia is unrelated to this analysis.

¹ Checchi F, Robinson C (2013) Mortality among populations of southern and central Somalia affected by severe food insecurity and famine during 2010-2012. A study commissioned by FAO/FSNAU and FEWS NET from the London School of Hygiene and Tropical Medicine and the Johns Hopkins University Bloomberg School of Public Health. Rome and Washington. 2 May 2013.

Executive Summary

Background

For well over two decades, large numbers of the Somali population have been in flight—internally and externally—from violence and conflict, famine and severe food insecurity, and the impoverishment and uncertainty these bring in their wake. Internally displaced persons (IDPs) in Somalia have averaged over 1 million per year since at least 2007 (with numbers spiking to nearly 2 million during the early 1990s). The number of refugees averaged nearly 600,000 per year since 1990. As of 2012, about 1 million Somali refugees lived in 124 countries worldwide, with the largest numbers by far in Ethiopia (223,000) and Kenya (512,000). The world’s largest refugee camp, Dadaab in Northeastern Kenya, is home to the largest concentration of Somalis outside of Mogadishu. In recent years, the situation in Somalia has been described as among the worst humanitarian crises in the world.

Between late 2010 and early 2012, southern and central Somalia experienced severe food insecurity and malnutrition precipitated by a prolonged period of drought, resulting in the poorest harvests since the 1992-1993 famine. The effects of the drought were compounded by various factors including decreased humanitarian assistance and increasing food prices. This emergency occurred against a backdrop of heightened insecurity and persistent high levels of acute malnutrition, particularly affecting populations whose resilience mechanisms had already been weakened by protracted conflict, natural disasters, and adverse economic conditions.

By July 2011, based on globally-accepted criteria established in the Integrated Food Security Phase Classification 2.0 (IPC 2.0) system, the United Nations declared famine in selected regions of Somalia. Based on further data and information collected on food security, nutritional status, disease, and mortality, additional regions were designated as famine-affected over the subsequent two months. As a result of the emergency, large numbers of people were forced in 2011 to move within Somalia or to migrate to already overcrowded refugee camp complexes in Dollo Ado (Ethiopia) and Dadaab (Kenya).

In this report, we refer to the 2010-2012 events as “severe food insecurity and famine,” which encompasses famine, while also capturing regions and periods of time that were not classified as being in a state of famine, but nonetheless experienced extraordinary stress due to food insecurity and other adverse conditions, such as reduced access to humanitarian assistance. A companion study of famine-related mortality in central and southern Somalia provided estimates of excess mortality over a period of 19 months between October 2010 and April 2012, the time when severe food insecurity and famine conditions prevailed. That study estimated that 258,000 (between 244,000 to 273,000) excess deaths attributable to the emergency occurred in southern and central Somalia between October 2010 and April 2012. Of these, some 52 percent, or 133,000 deaths, were children under 5 years old.

This report examines the monthly displacement patterns of Somali IDPs and refugees during a 24-month period, August 2010 to July 2012, including the 19-month reference period of the severe food insecurity and famine.

Data Sources and Methods

The displacement data we analyzed covered a 24-month period from August 2010 to July 2012, inclusive. The starting point for the analysis was determined by when the prevailing food security situation first began to deteriorate. The end point reflected a period of relative stabilization, at least in the context of food emergency. Displacement estimates were derived from a desk review of existing data on IDPs and refugees compiled by a number of agencies and organizations but principally the UN Refugee Agency, UNHCR. They are presented and analyzed here to provide a clearer picture of (a) monthly displacement, by region and cause of movement, within Somalia; (b) monthly displacement to refugee camps in Ethiopia and Kenya; and (c) estimates of total internal displacement by month during and surrounding the period of severe food emergency. Specifically, we used data provided by the UNHCR-Population Movement Tracking (PMT) initiative, some of which are made publicly available through its Horn of Africa Somali Displacement Crisis Information Sharing Portal (<http://data.unhcr.org/horn-of-africa/country.php?id=197>). Additional data were shared in the form of Excel files, including monthly data on internal displacement by region, as well as refugee arrivals in the Dollo Ado and the Dadaab camps.

Results

Interpretation of IDP and refugee movements during the analysis period is best done in the context of three distinct periods of the food emergency: August 2010-April 2011 (the “pre-famine” period); May 2011-October 2011 (the “famine” period), and November 2011-July 2012 (the “post-famine” period). As the chart below indicates, the main displacement characteristics of the three periods were:

- *“Pre-famine” period (August 2010 – April 2011):*
 - During August-December 2010, 70% of internal displacement was from or within urban areas. Insecurity accounted for 75% of all displacement. Monthly refugee movements to Ethiopia increased nearly ten-fold and to Kenya nearly 25-fold.
 - During January-April 2011, drought and lack of livelihoods began to dominate as the main drivers of displacement. More than 60% of displacement was from or within agropastoral and pastoral livelihood zones. Refugee arrivals to Ethiopia averaged 4,000 per month during the period and over 7,700 per month in Kenya.
- *“Famine” period (May-October 2011):*
 - During May-July 2011, IDP movements began to spike, with drought being the primary cause of movement for 64% of those displaced. Displacement was especially pronounced in areas around Mogadishu and the already overcrowded Afgooye corridor. Overall, nearly two-thirds of all displacement during the six-month period was from and/or within agropastoral and pastoral zones.
 - During the May-July 2011, monthly refugees to Ethiopia increased three-fold (from 9,000 to 27,000), 46% of whom were from Bay Region. Refugee arrivals in Kenya topped 100,000 for the six-month period; nearly two-thirds of them were from Middle and Lower Juba. In October 2011, Kenya suspended registration of new arrivals to Dadaab camps.

- “Post-famine” period (November 2011 – July 2012):
 - Internal displacement initially dropped during the period, possibly suppressed for three months, though IDP numbers climbed again in 2012. Nearly two-thirds of displacement was attributed to insecurity, with particularly high levels of displacement around Banadir (Mogadishu and environs).
 - Refugee arrivals in Ethiopia declined to an average of 2,700 arrivals per month, close to the levels of the pre-famine period. Refugee arrivals in Kenya appear also to have declined though estimates were likely incomplete due to the lack of registration of new arrivals in Dadaab from November 2011 to May 2012.

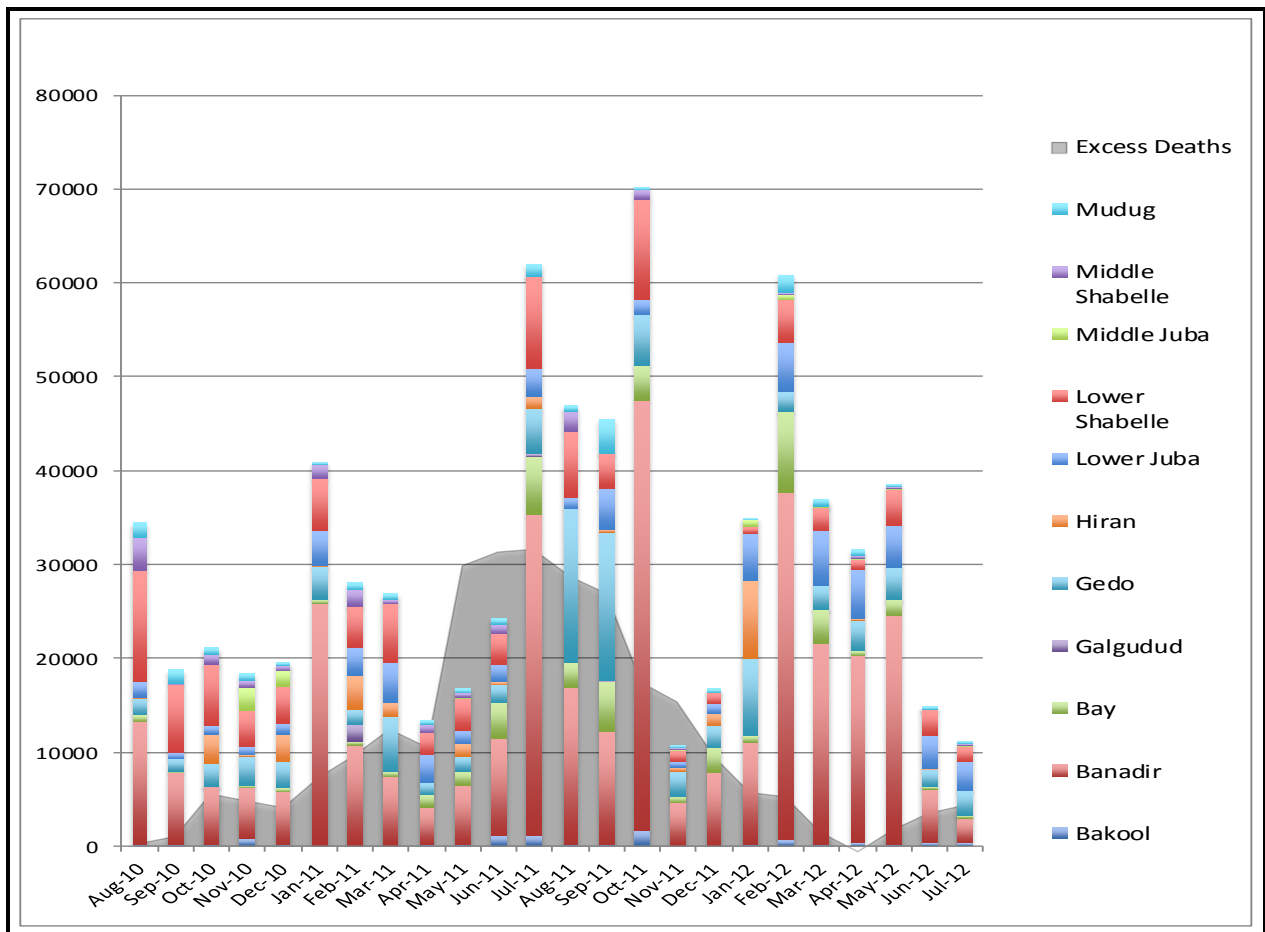


Figure i. Monthly IDP Arrivals by Region, 2010 to 2012

Conclusions

The analysis clearly confirms that both internal and external displacement occurred in the context of the severe insecurity and famine from October 2010 to April 2012, and that movements were intensified during the “famine” period from May to October 2011. Generally, we can observe that, as Patel suggests, large-scale internal and external displacement, constituting the “distress migration of whole families” occurred during the famine period, particularly after excess deaths had been above 20,000 deaths per month

for three months. (Excess mortality over the analysis period was exceptionally high among IDP populations, especially children. More than one in 10 IDP children living in Bakool, Banadir, Bay, Lower Shabelle, and Middle Juba were estimated to have died during the 19-month period, with particularly high tolls in May–October 2011.)

August 2010 – April 2011 (“Pre-Famine” Period)
<ul style="list-style-type: none"> • IDP movements average 24,600 per month, from a high of 41,000 in January 2011 to a low of 13,400 in April 2011. • From August-December 2010, insecurity accounts for 75 percent of all displacement. From January – April 2011, drought and lack of livelihood begin to emerge as more significant drivers, accounting for 60 percent of displacement. About 40 percent of all displacement within the period is in Banadir/Mogadishu, with Lower Shabelle the second most active region. • During August–December 2010, 70 percent of displacement is from/within urban areas. From January–April 2011, 60 percent of displacement is from/within agropastoral and pastoral livelihood zones. • Excess mortality during the period rises to more than 10,000 deaths per month, particularly during January-April 2011. • From August-December 2010, monthly arrivals in Ethiopia climb from 330 to 2,860. From January-April 2011, monthly movements average over 4,000; 64 percent are from Gedo Region. • In Kenya, refugee arrivals climb from 270 in August 2010 to 7120 in December 2010. Arrivals average over 7,700 from January-April 2011 with 55 percent of arrivals during the period from Middle and Lower Juba.
May 2011 – October 2011 (“Famine” Period)
<ul style="list-style-type: none"> • IDP movements begin to spike in May, June, and July 2011, climbing to a peak monthly total of 70,200 in October, and ultimately totaling over 265,500 displacements during the six month period. • In May-July 2011, drought is the cause of movement for 64 percent of all displacements; 63 percent of all displacement in the six-month period are from agropastoral and pastoral livelihood zones. • In July 2011, the United Nations declares a famine in large parts of southern and central Somalia; excess mortality during the period is more than 20,000 deaths per month. • Refugee arrivals in Ethiopia climb from 9,240 in May to 27,560 in July; 46 percent are from Bay Region. • Refugee arrivals in Kenya exceed 100,000 during the six-month period; 64 percent are from Middle and Lower Juba. In October 2011, Kenya suspends registration of new arrivals.
November 2011 – July 2012 (“Post-Famine” Period)
<ul style="list-style-type: none"> • IDP displacement drops to just about 10,000 in November 2011 and continues to decline, possibly suppressed for three months but rising again in the first half of 2012. • From January-April 2012, 63 percent of displacement was attributed to insecurity, with high levels of displacement in Banadir. • Refugee arrivals decline in Ethiopia, averaging 2,700 per month from November 2011-July 2012; 55 percent are from Gedo Region. • Refugee arrivals in Kenya, by official counts, stop from November 2011-May 2012 but 6,700 enter Dadaab in June-July 2012.

We also observed that the bulk of the displacement prior to the famine period was from and within urban areas, as people primarily fled conflict and insecurity. During the period from May to October 2011, however, the bulk of displacement was from the agropastoral and pastoral livelihood zones, where drought was the predominant driver of displacement, certainly internally and likely externally as well. Post-famine, internal displacement tended to decline, though insecurity once again came to be the most important cause of movement, particularly in and around Mogadishu. Some of the decline in displacement was due to “involuntary immobility” as the militant group *Al Shabaab* restricted internal movements, particularly of men. Externally, Kenya stopped registering new arrivals in Dadaab, which may have contributed to declining refugee movements.

Analysis would have been strengthened by being able to distinguish not only who in the household is migrating but where, for what purpose, and for how long. This kind of detail could not be found in the PMT data, nor could reliable estimates of total displaced populations for a given time and place. Further monitoring of complex humanitarian emergencies would benefit from improved measurement of displacement dynamics, not just broad counts of people moving. In the same way that local malnutrition and mortality surveys were used to identify food insecurity and famine conditions, a more coordinated system of local displacement surveys would have been useful to measure both how displacement functioned as either a coping mechanism for survival or a threat, resulting in increased risk of morbidity and mortality. In the future, such surveys could include measures of household and community dynamics (who moves and why), return flows, and length of displacement. Such periodic, detailed metrics would add context and clarity to the broader population tracking measures, indicating whether Somalia is facing ongoing conflict and displacement or, as one hopes, a return to peace and stability, marked by larger numbers of displaced persons integrating into their places of asylum or returning home.

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List of Abbreviations

ARRA	Administration of Refugee and Returnee Affairs (Government of Ethiopia)
CDR	Crude Death Rate
FAO	United Nations Food and Agriculture Organization
FEWS NET	Famine Early Warning Systems Network
FAO/FSNAU	Food Security and Nutrition Analysis Unit for Somalia
HIS	Health Information System, United Nations High Commissioner for Refugees
IDP	Internally Displaced Person/People
IPC 2.0	Integrated Food Security Phase Classification 2.0
MSF	Médecins Sans Frontières
OAU	Organization for African Union
UNDP	United Nations Development Program
UNHCR	United Nations High Commissioner for Refugees (UN Refugee Agency)
U5DR	Under Five Death Rate
UNICEF	United Nations Children's Fund
USCR	US Committee for Refugees
WFP	United Nations World Food Program

A. Introduction

A.1. Historical Background

For well over two decades, large numbers of the Somali population have been in flight—internally and externally—from violence and conflict, famine and severe food insecurity, and the impoverishment and uncertainty these bring in their wake. The numbers of internally displaced persons (IDPs) in Somalia has averaged over 1 million per year since at least 2007 (with IDP numbers spiking to nearly 2 million during the early 1990s). Refugee numbers have averaged nearly 600,000 per year since 1990 and, as of 2012, some 1 million Somali refugees lived in a total of 124 countries worldwide, with the largest numbers found in Ethiopia (223,000) and Kenya (512,000). The world’s largest refugee camp is in Dadaab in Northeastern Kenya, home to the largest concentration of Somalis outside of Mogadishu (UNHCR 2012; Refugee Consortium of Kenya 2012). Somalia has been described not only as “one of the world’s worst human rights and humanitarian crises” (Human Rights Watch 2013, 13) but also “among the worst displacement situations in the world” (Lindley & Haslie 2011, 3).

Regarding displacement dynamics in the south-central regions of Somalia, Lindley and Haslie (2011) describes three broad periods within the “longer trajectories of governance failure in the Somali territories” (Lindley & Haslie 2011, 3). They include:

- 1) *The first period of displacement*, from the early to mid-1990s, resulted from the collapse of the Siad Barre regime and the ensuing conflict, instability, and food crisis/famine. Estimates of internal displacement during that period were as high as 2 million, with refugee numbers peaking at above 800,000 in 1992 (USCR 1998).
- 2) *The second period*, from the mid-1990s to the mid-2000s, was characterized by a “relatively benign security environment” (Majid & McDowell 2012, 38) and a decline in new IDP and refugee movements. UNHCR figures on Somali refugees globally showed a decline from 638,000 in 1996 to 395,000 in 2005, with IDP numbers declining to around 400,000 in 2005 (UNHCR, 2012). This period was also marked by some resettlement of Somali refugees in third countries, but little in the way of refugee and IDP returns, at least by official counts. (Spontaneous returns could have been more substantial.) During this decade, hundreds of thousands of Somalis became increasingly mired in what is referred to as “protracted displacement.”²
- 3) *The third period*, roughly from 2006 to 2012, was marked by a return to renewed, sustained, large-scale internal and external displacement. This was prompted by “the transformation of the Somali civil war in the context of the global war on terror, combined with the problems of drought” (Lindley & Haslie 2011, 3). As various factions sought to consolidate power in the vacuum left after the collapse of the Siad Barre government, a Transitional Federal Government (TFG) began to exert some

² While there is no single, settled definition of “protracted displacement,” UNHCR uses the term in reference to situations in which refugees have been in exile for five years or more since their initial displacement and in which immediate prospects for solutions are bleak. The term has been applied analogously to IDPs (Refugee Studies Centre 2013).

control over southern Somalia beginning in 2004. The Union of Islamic Courts (ICU) took control of Mogadishu in 2005 and vied with the TFG for power. In 2006, backing the TFG as a counter to the growing influence of the Islamist ICU government, Ethiopia invaded Somalia, pushing rapidly to Mogadishu and toppling the ICU regime. Despite, and perhaps, because of the Ethiopian invasion and its international backing, the most radical member of the ICU, *Al-Shabaab*, emerged as the strongest resistance to the TFG forces, the Ethiopian army, and (later) other African Union troops (Maxwell & Fitzpatrick 2013).

By 2009, the number of IDPs had climbed to 1.5 million, the highest total ever, and 680,000 Somali refugees had fled to camps in the region and beyond, including 161,000 in Yemen, 59,000 in Ethiopia and 310,000 in Kenya (UNHCR 2012). The escalating crisis was due to a combination of continued conflict, drought, and rising food prices brought on by the food-price crisis of 2008 and its aftermath. The years 2008 and 2009 witnessed the largest amounts of international food aid since the famine of 1992-1993. But in 2008, the U.S. Treasury added *Al Shabaab* to its list of foreign terrorist organizations and, in late 2009, all US food aid to *Al Shabaab*-controlled southern Somalia was halted. As Maxwell and Fitzpatrick note (2013, 6), “this set in motion a series of events that were to have major consequences in 2011.”

Between late 2010 and early 2012, southern and central Somalia experienced severe food insecurity and malnutrition precipitated by a prolonged period of drought, resulting in the poorest harvests since the 1992-1993 famine. The effects of the drought were compounded by various factors including decreased humanitarian assistance and increasing food prices. By July 2011, based on globally-accepted criteria established by the Integrated Food Security Phase Classification 2.0 (IPC 2.0) system, the United Nations declared famine in several regions of Somalia. Based on further data and information collected on food security and nutritional status, disease and mortality, additional regions were designated as famine-affected over the subsequent two months. As a result of this emergency, large numbers of people were forced to move internally within Somalia or to migrate to already overcrowded refugee camps in Dollo Ado (Ethiopia) and Dadaab (Kenya).

A companion study of famine-related mortality in central and southern Somalia estimated overall and excess mortality over a period of 19 months between October 2010 and April 2012 during which time severe food insecurity and famine conditions prevailed. That study estimated that 258,000 (between 244,000 to 273,000) excess deaths attributable to the emergency occurred in southern and central Somalia between October 2010 and April 2012 inclusive, of which some 52 percent (133,000) were to children under 5 years old.

This study examines the monthly displacement patterns of Somali IDPs and refugees during a 24-month period, August 2010 to July 2012, including the 19-month reference period of the famine and severe food emergency.

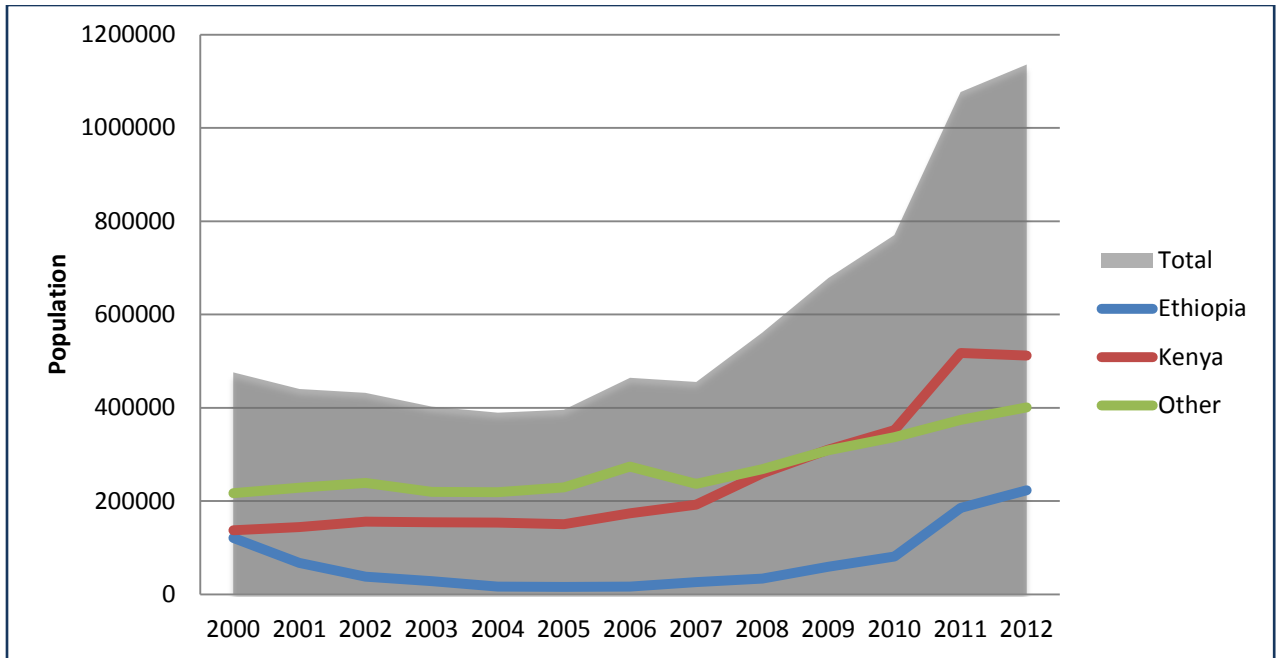


Figure 1. Somali Refugee Numbers by Country of Resettlement, 2000-2012 (UNHCR, 2012)

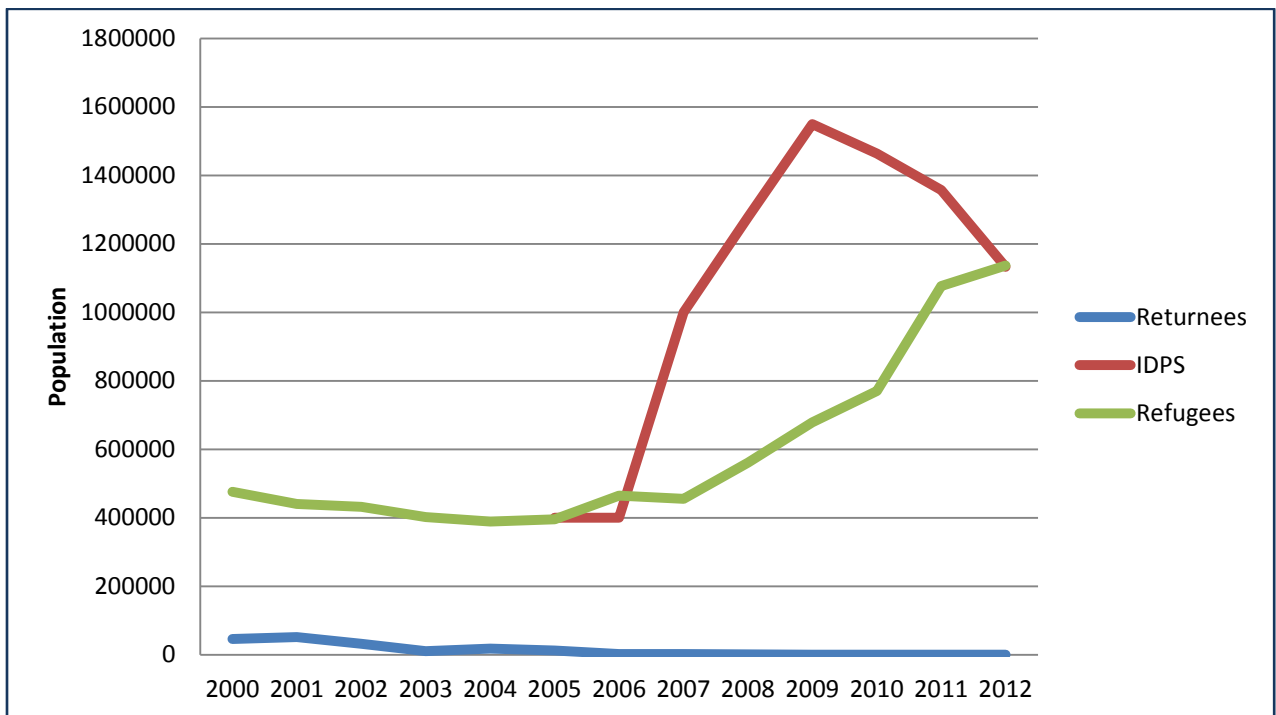


Figure 2. Somali Population Movements, 2000-2012 (UNHCR, 2012)

A.2. Study Aims

In late 2012-2013, improved conditions in Somalia presented an opportunity to carry out a thorough analysis of events during and surrounding the critical period of famine and severe food insecurity lasting from October 2010 to April 2012. This study of displacement and underlying population data contributed population denominators to the related study of excess mortality. These denominators, accounting for internal and external displacement, were used to estimate death counts for the affected populations.

The displacement estimates were derived from a desk review of existing data on IDPs and refugees, compiled by a number of agencies and organizations but principally the UN Refugee Agency (UNHCR). They are presented and analyzed here to provide a clearer picture of (a) monthly displacement, by region and cause of movement, within Somalia; (b) monthly displacement to refugee camps in Ethiopia and Kenya; and (c) estimates of total internal displacement by month during and surrounding the period of severe food emergency.

B. Data and Methods of Analysis

As noted previously, the displacement data we analyzed covered a 24-month period from August 2010 to July 2012 inclusive. The starting point for the analysis was determined by when the prevailing food security situation first began to deteriorate, while the end point reflected a period of relative stabilization, at least in the context of food emergency.

B.1. Populations in Somalia

Somalia is divided into regions and districts. The 2010-2011 drought and crop failure, and the subsequent spike in local staple food prices affected mainly southern Somalia (Bakool, Banadir, Bay, Gedo, Hiran, Lower Juba, Middle Juba, Lower Shabelle and Middle Shabelle regions), and, to a lesser extent, the central regions of Galgadud and Mudug. For that reason, we included all those regions in the analysis and excluded other parts of Somalia.

Somalia is informally divided into 34 livelihood zones reflecting the main occupation of people within them. Southern and central Somalia feature three distinct livelihood types:

- *pastoralist*: goat or cattle herding
- *agro-pastoralist*: both livestock herding and cultivation, with a varying balance of the two depending on the region
- *riverine or agriculturalist*: cultivation of various crops, including staple cereals such as sorghum and maize, in the proximity of major rivers.

While the excess mortality analysis used livelihood zones as the geographic and population “strata” for estimating mortality rates and death tolls, this paper reports displacement primarily in terms of the political and administrative units, regions, and districts. This is how internal displacement data (and refugee data citing place of origin) were reported by UNHCR and other agencies. In analyzing cause of movement, we do present some data in the context of livelihood zones of origin, as this seems more salient in the context of drought and food insecurity.

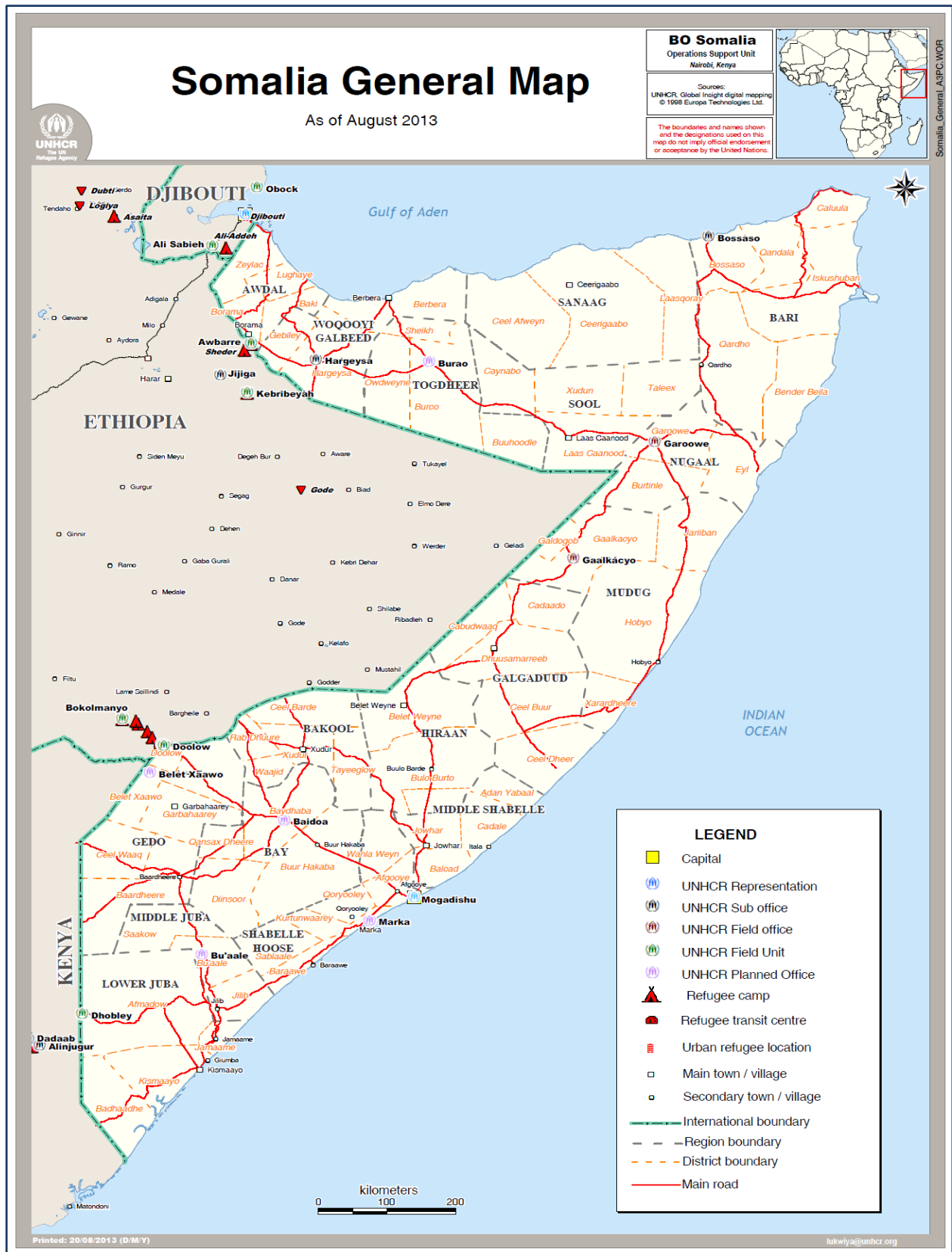


Figure 3. Map of Somalia (Source: UNHCR)

B.2. Somali Refugee Populations in Ethiopia and Kenya

In mid-2010, Somali refugees numbered 594,494 in the region (including Djibouti, Eritrea, Ethiopia, Kenya, Tanzania, Uganda, and Yemen) with another 175,000 in asylum and/or resettlement worldwide. The scope of this analysis was limited to the Dollo Ado refugee camp complex in Ethiopia and the Dadaab refugee camp complex in Kenya. Our analysis focused on monthly arrivals to Dollo Ado and Dadaab camps during the period August 2010 to July 2012. We did not examine refugee movements to Yemen or other countries in the region nor did we examine mixed migration flows (these could include movement for work and family reunification as well as crisis-driven migration) in the region or beyond.

B.3. Data Sources

There has been no census of the Somali population over the past three decades. The population experiences a high birth rate (see below), but this has been counterbalanced by periodic increases in mortality due to various crises including the 1991-1992 famine and successive waves of internal and external migration. In 2005, a United Nations Development Program (UNDP) household-based validation exercise generated the first updated population dataset since armed conflict began in 1991. This population estimate, 7.5 million, is currently used by the United Nations; an exercise to update figures is ongoing.

The AfriPop project, a research initiative to develop geographically informative and up-to-date population estimates for various developing countries, has used a remote sensing approach to generate current data for Somalia. Methods behind the AfriPop Somalia estimates are presented elsewhere (Linard et. al 2010). Briefly, the project sought to distribute geographically the 2005 UNDP total figures for all of Somalia (including Puntland and Somaliland) according to satellite imagery-generated data on land use patterns and information from neighboring Kenya on the relationship between various land use patterns and relative population density. The AfriPop estimates are centered in June 2010. They also update the 2005 figures by applying UN birth and death rate projections. The project also defines major urban populations as those falling within a set of urban land use polygons identified on satellite images.

UNHCR tracks both internal displacement in Somalia and refugee movements in Kenya and Ethiopia, as well as some limited return or onward resettlement in third countries. We used data provided by the UNHCR-Population Movement Tracking (PMT) initiative, some of which are made publicly available through its Horn of Africa Somali Displacement Crisis Information Sharing Portal (<http://data.unhcr.org/horn-of-africa/country.php?id=197>). Additional data were shared in Excel files, including monthly data on internal displacement by region and district, as well as arrival data in the Dollo Ado and the Dadaab refugee camps.

In addition, some historical data (dating back to 2000) on annual internal displacement, Somali refugee populations in countries of asylum (regionally and globally) and refugee repatriation were obtained from the UNHCR Statistical Online Population Database (<http://www.unhcr.org/pages/4a013eb06.html>).

B.4. Estimates for Somalia Total Population and IDP Populations by Month

The following steps were followed to compute total populations and IDP cumulative populations by month:

1. *Baseline population:* We took as our starting baseline population estimates produced by the AfriPop project (9.3 million in 2010), which represent a revised figure from a previous AfriPop estimate of 8.7 million for the Somalia population.
2. *Adjustment for IDP monthly arrivals:* As of June 2010, 1,464,000 IDPs were reported to be within Somalia (UNHCR). However, this figure was considered likely to be an over-estimate as it resulted from cumulating new displacement waves without accounting for IDPs that may have returned to their region of origin. Reviewing monthly IDP movement data from January 2008 to June 2010 and estimates of displacement in 2007, we estimated from UNHCR-PMT data that: a) 519,000 IDPs had been displaced during the period June 2009 through May 2010, one year prior to the start of the original analysis period, and b) that 946,000 IDPs had been displaced during the period June 2008 to May 2009. The sum of these two years of cumulative displacement is 1,465,000. Using FAO/FSNAU data on duration of displacement, we made a simplifying modeling assumption that half of IDPs were displaced for more than one year and the other half for less than one year (information provided by FSNAU in 2013 suggests that duration of displacement might have been somewhat longer than this model assumes). To calculate a baseline (June 2010) estimate of IDPs, we took the total of the cumulative monthly displacements from June 2008 to May 2009 (519,000) and added to that number half of the cumulative monthly displacements between June 2007 and May 2008 (half of approximately 1.5 million=750,000) for a baseline total of 1,269,000. We then allocated this revised total number to each region of arrival based on the reported geographic distribution for the 1,464,000 UNHCR figure.
3. *Adjustment for IDP monthly departures:* In order to subtract the baseline IDP population of people from their regions and districts of origin, we used data from UNHCR-PMT on the place of origin of the 519,000 displaced from June 2009 to May 2010 and made the assumption that this breakdown also applied to IDPs displaced before this period.
4. *Adjustment for refugee monthly departures:* UNHCR estimated a total of 594,694 refugees in seven countries (including 323,370 in Kenya and 72,054 in Ethiopia) as of June 2010. However, we did not subtract Somali refugees already in other countries from the 2010 Somalia population baseline. The assumption behind this decision was that the refugee movements had taken place over a number of years and that the refugees were thus already discounted from the population as of 2005.
5. *Population growth during the analysis period:* In order to estimate monthly population changes due to births and deaths, we applied the CDR and U5DR values estimated for each month and livelihood zone (region), and the UNICEF (2009) estimate of the annual crude birth rate (44 per 1000 per year, calculated monthly).

B.5. Internal Displacement by Month

In order to adjust monthly totals for new IDP displacement during the analysis period, we used data from UNHCR-PMT, which estimated displacement into and from regions and districts by month. New IDPs in a given month were added to the IDP population in the region where UNHCR-PMT recorded them arriving, and were correspondingly subtracted from the region where UNHCR-PMT recorded them having departed from.

Based on data collected by FAO/FSNAU surveys, which showed that approximately half of IDPs were displaced for more than one year and about half were displaced for less than one year, we assumed that the IDPs displaced during the interval, June 2010 to August 2012, would remain in displacement for one year. Each monthly cohort of new IDPs thus remained in the IDP stratum for 11 subsequent months, after which they were “returned” to their stratum of origin. This formula was also applied to the 519,000 IDPs displaced from June 2009 to May 2010. To balance the population of IDPs who were displaced in the model for one year and then “returned” to their region (stratum) of origin, we left 750,000 of the baseline IDP population in displacement for the full duration of the interval.

B.6. Refugee Movements by Month

For refugees entering Ethiopia (Dollo Ado) or Kenya (Dadaab) during the interval, we used monthly camp populations. In the case of Ethiopia, monthly arrival numbers were obtained from UNHCR-PMT. In the case of Kenya, we were not able to obtain all monthly new arrival figures so we calculated monthly new arrivals by subtracting each month’s camp population from that of the previous month and assumed that refugee returns to Somalia or resettlement to other countries or locations were negligible during the analysis period.

To identify regions of origin of refugees in Ethiopia, we used data from UNHCR-PMT showing districts of origin for 128,570 Somali refugees newly arrived to Dollo Ado camps during the analysis period. These district estimates were then redistributed to regions. We did not, however, subtract refugee movements from IDP numbers. Although one study by Jureidini et al. (2010) indicated that up to 49 percent of refugees were IDPs before they became refugees, these data were for Somali refugees fleeing to Turkey. We had no empirical basis for assessing the proportion of refugees in Ethiopia and Kenya who may have come from IDP camps, as opposed to their region and district of origin. To identify regions of origin of refugees in Kenya, we used data from UNHCR-PMT showing districts of origin for Somali refugees newly arrived to Dadaab camps during the analysis period.

C. Results: Somali IDPs

The results of the IDP data analysis is presented in two sections, the first presenting a model estimating total IDP numbers by month during the analysis period, August 2010 to July 2012. The second section presents monthly IDP movements by livelihood zone of origin, by region of displacement, and by cause of movement, during the analysis period. We will also explore the relationship of our excess mortality estimates to departure patterns, causes of movement, and arrival patterns.

C.1. Somali IDP Total Population Estimates, August 2010 – July 2012

As the map below (Figure 4) indicates, UNHCR estimated there were a total of 1.41 million IDPs in all of Somalia in July 2010, with an estimated 1.29 million in central and southern Somalia. The largest concentrations of IDPs were in Mogadishu (or the Banadir region) where an estimated 372,000 IDPs were living in makeshift encampments in and around the city. Another 453,000 were in Lower Shabelle (Shabelle Hoose), the majority of whom (approximately 366,000) were living in the Afgooye corridor, an area 10 to 30 kilometers northwest of Mogadishu, which had become by that time, “probably the largest IDP settlement in the world” (Lindley & Haslie 2011, 12).

The IDP statistics presented, as described in notes on the map by UNHCR-PMT, were estimates: “The majority of these figures are based upon Population Movement Tracking data, which is not designed to collect long-term cumulative IDP population data, only population movement trends.” It was made clear in a variety of UNHCR-PMT documents that the estimated IDP total for a given month, either nationwide or for a given region, could not be derived merely by totaling a given number of previous monthly displacement estimates. Notes on the map also suggested that periodic revisions were necessary to correct previous estimated totals. Thus, for the Afgooye corridor, it was noted that “figures for Afgooye were revised in January 2010, from 524,000 to 366,000.” They were revised substantially again, as were estimates for Mogadishu/Banadir. This is entirely understandable given the volatility of the situation, the disparate ways in which IDP arrival and departure numbers were gathered and aggregated, and the political pressures within and external to the humanitarian community, to arrive at what one knowledgeable aid official described as a “negotiated number.” As a result, estimates occasionally required recalibration through periodic IDP profiling exercises and other efforts.

As our analysis required a population model that accounted for internal and external displacement, as well as adjustment for births and deaths during the analysis period, we developed an approach to estimating monthly IDP totals by region (and livelihood zone), accounting for the different population dynamics—birth, death, and migration—that altered those numbers month by month. The data sources and methods used for generating this model are described above (p. 12). We present the model in Figure 5 below. (See also Table 1 in the Statistical Annex.) The model captures the monthly displacement movements by incorporating IDP arrival data, while adopting simplifying assumptions about duration of displacement, as well as deaths and births among IDP populations. (The UNHCR-PMT data did not capture either duration of displacement or deaths and births.)

As of August 2010, the beginning of the analysis period for this paper, our model estimated a total IDP population in southern and central Somalia of 1,100,365. This is somewhat lower than the total figure of 1.22 million displaced in the same regions according to UNHCR IDP static population estimates. We are not suggesting that our estimate is more accurate—the true number will never be known—but we do offer an empirically-based approach to modeling monthly arrival numbers and incorporating assumptions about duration of displacement, births, deaths, and either return or onward migration (or stasis), to construct estimates of monthly IDP totals.

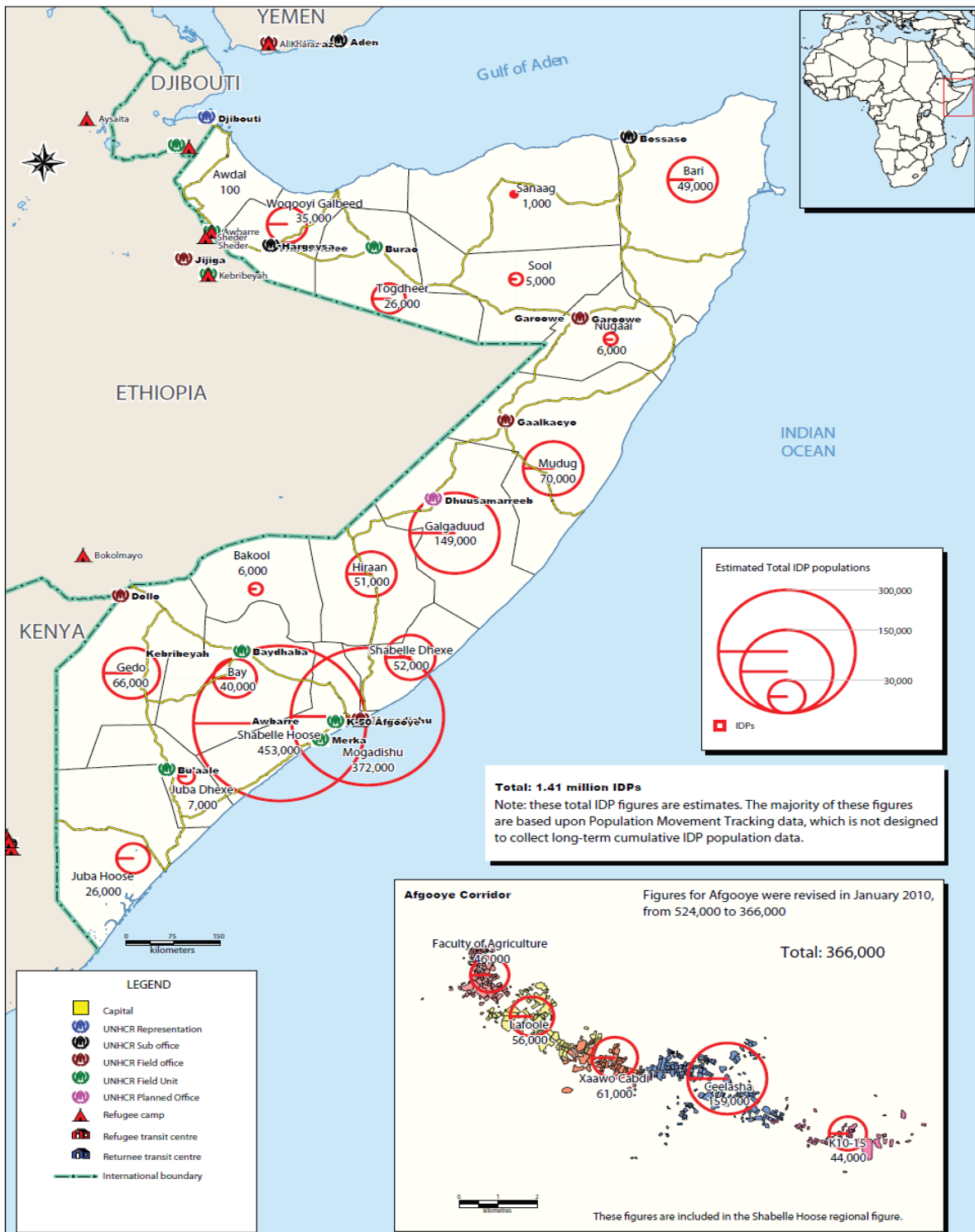


Figure 4. Estimated Total Somali IDPs, July 2010 (UNHCR)

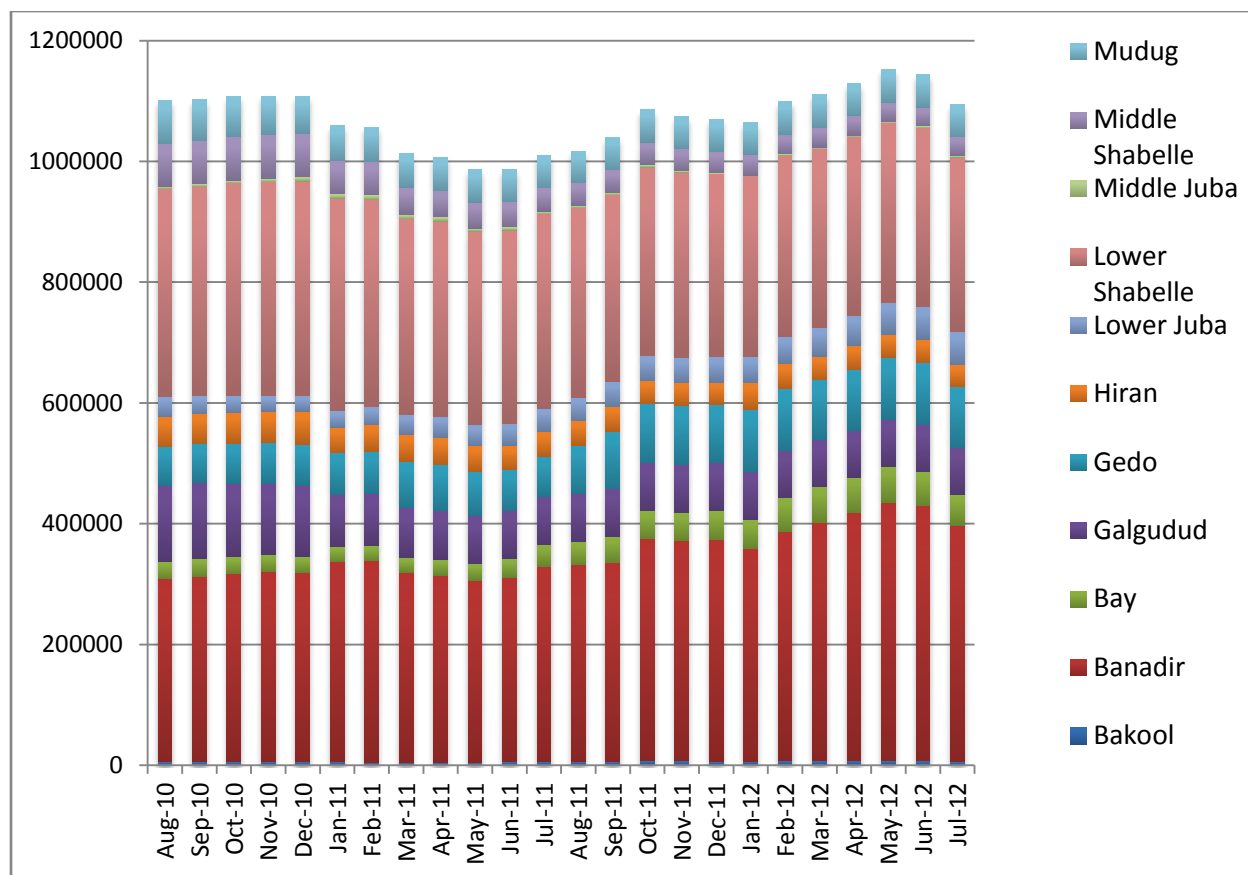


Figure 5. IDP Monthly Total Populations by Region in Southern and Central Somalia, 2010-2012.

The figure shows that the bulk of displacement occurred within and into Banadir (Mogadishu) and Lower Shabelle, particularly the Afgooye Corridor. (See also Table 1 in the Statistical Annex.) Our model estimates for IDPs in Mogadishu as of August 2010 was 302,562, as compared to 372,000 IDPs estimated by UNHCR-PMT in the same period. Similarly, our model estimates for Lower Shabelle were 343,762 in August 2010, compared to a UNHCR-PMT estimate of 453,000. While we suspect that the UNHCR-PMT estimates may have trended somewhat on the high side, this was still an extraordinarily large numbers of people displaced within a concentrated space. News reports at the time described Mogadishu as a “ghost city,” emptied by intermittent but on-going conflict between the TFG, *Al Shabaab*, and other military actors (Lindley & Haslie 2011, 11). The surrounding area, meanwhile, had become a city of IDPs, described by a UNHCR spokesperson as the third largest urban area in Somalia, after Mogadishu and Hargeisa (UN News Center, 2010).

Our model traces the rise and decline of the total IDP population (in southern and central Somalia) through the analysis period, incorporating monthly arrival rates into IDP zones in particular regions, but also modeling declines in IDP populations through death and out-migration. The effect, as the graph reflects, is to “smooth” the monthly fluctuations from a low of 986,332 in May 2011 (shortly before the famine was declared) to a high of 1,152,174 in May 2012. We will return to a discussion of total IDP population estimates but first look at monthly IDP movement patterns.

C.2. Somali IDP Monthly Estimates, August 2010 to July 2012

The second section presents monthly IDP movements during the analysis period by livelihood zone of origin, by region of displacement, and by cause of movement. We will also explore the relationship of our excess mortality estimates to departure patterns, causes of movement, and arrival patterns (presented in gray background in the graphs below (Figures 6, 7, and 8; see also Tables 2, 3, and 4 in the Statistical Annex).

Data on the monthly internal displacement figures comes from the Population Movement Tracking (PMT) network, which was established in Somalia in 2006, under the initiative of the Protection Cluster. PMT is “a data management system for remotely collecting, analyzing and disseminating information on population movements in Somalia. The core data collected by the PMT is: How many people? Where are they? Where did they come from? Where did they originate from? Why did they move?” (UNHCR 2009, 2). A 2009 evaluation of the PMT and a complementary initiative, the Protection Monitoring Network (PMN), noted that PMT “is not a registration of IDPs. Information is gathered on groups of people, not individuals...It is not a means of tracking individual people. If someone was displaced from Mogadishu, returned home, and was displaced again, this would show up as three separate movements in the PMT. Strictly speaking, the PMT tracks movements, not people.” (UNHCR 2009, 2)

The PMT network involves reporting from approximately 50 local NGO partners in Somalia, trained to utilize a standard data collection form. These partners, who also participate in the PMN, regularly monitor population movements within Somalia, visiting transportation and transit hubs such as bus stations, ports, and checkpoints, as well as newly established IDP settlements and other key locations. They interview village leaders, local organization leaders, and others knowledgeable about IDP movements. The partners gather and report information on 3-page monitoring forms, which are filed electronically. From there, a third party analyzes them for completeness, possible errors, duplicate information, and/or data verification. Following the quality check, data are entered into an MS Access database created for PMT, and ultimately disseminated through print reports (including the PMT Weekly Report and PMT Monthly Report) and online websites (including the PMT Dashboard, [<http://data.unhcr.org/horn-of-africa/country.php?id=197>]) (UNHCR 2009). In early 2012, the PMT system changed to an online reporting and verification platform.

We utilized all publicly available data from UNHCR PMT and PMN, both in print and online, along with the data provided to us by UNHCR Information Management staff. While we utilized these monthly data reports in conjunction with other sources of information to construct the model of total IDP populations in southern and central Somalia, presented in Figure 5 above, the analysis below simply takes the PMT monthly reporting data at face value to assess monthly arrival patterns by region, monthly departure patterns by livelihood zone, and monthly cause of movement. The one simplifying assumption we made was that, for a given month, no one moved more than once. Even if that assumption is violated, for purposes of discussing movement trends over time, this should not significantly hinder interpretation of overall patterns, so long as there is some consistency to this pattern.

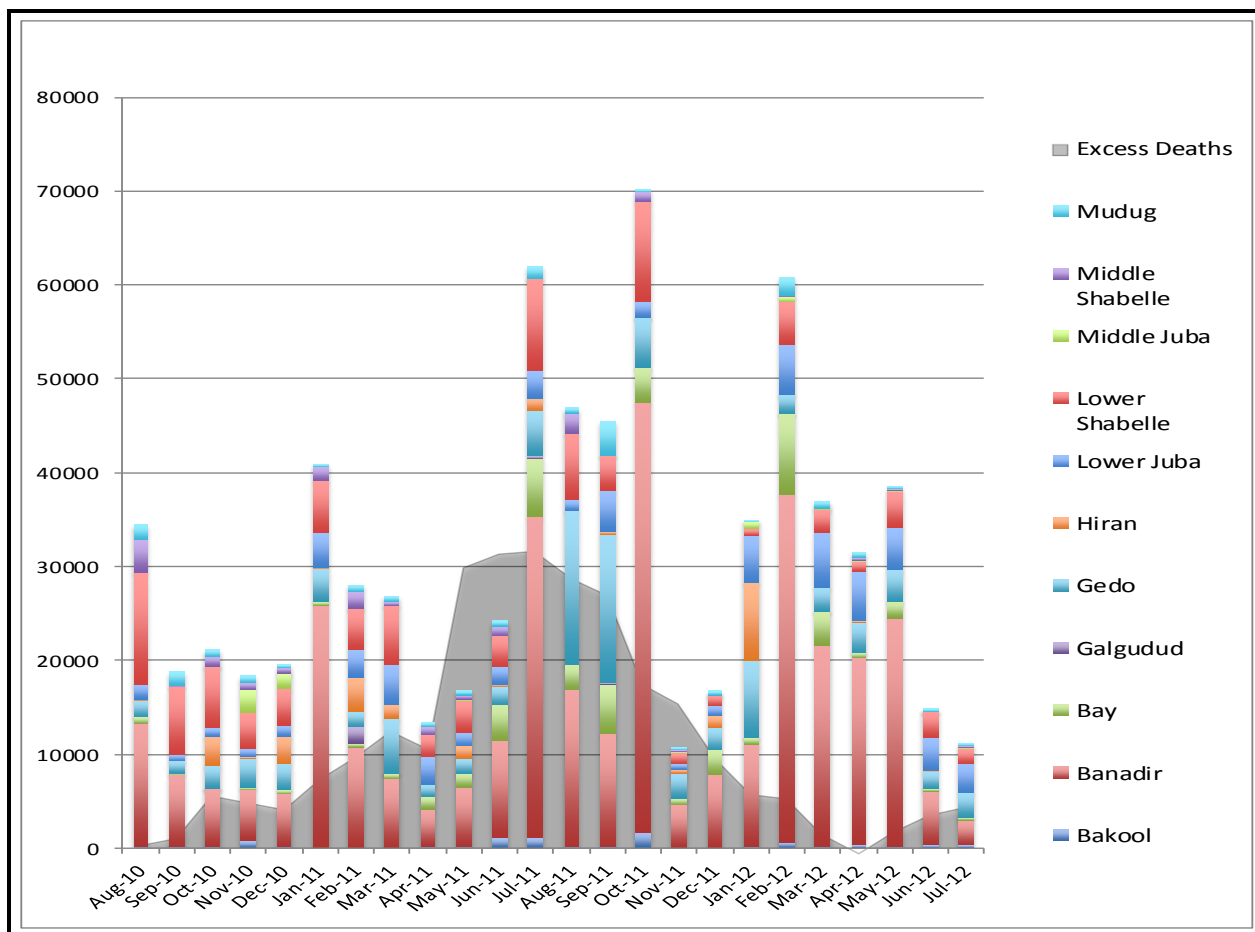


Figure 6. Monthly IDP Arrivals by Region, 2010 to 2012

The monthly IDP arrival figures are reported on the basis of regions that IDPs moved into in a given month. However, as will be seen in the cause-of-movement graph, some of this movement involves IDPs returning to, or moving within, those regions. It might be useful to consider three main periods: August 2010 to April 2012, May 2011 to October 2011, and November 2011 to July 2012. Simply put, these periods correlate roughly with what might be called the pre-famine period, the main famine period (a six-month period in which excess mortality was above 20,000 deaths each month), and the post-famine period.

C.2.1. August 2010 to April 2011

In the nine-month period between August 2010 and April 2011, IDP movements fluctuated between a low of 13,402 in April 2011 and a high of 40,965 in January 2011, averaging about 24,600 movements during the period. Just under 40 percent of all displacements involved movements into and within Banadir/Mogadishu, including 25,771 people displaced in the month of January 2011 alone. The second most active region was Lower Shabelle, which accounted for about 23 percent of all displacement during the period. Examining cause-of-movement data (see Figure 7 below and Table 3 in the Statistical Annex), insecurity predominated as the main cause of movement from August to December 2010, accounting for nearly 75 percent of all displacement during that period. Beginning in January 2011, however, drought and lack of livelihood began to emerge as more significant

drivers of displacement, accounting for about 60 percent of all displacement. In the large displacements in January 2011, drought was the cause of movement for 30,000 of the 41,000 people who were displaced that month. Insecurity continued, along with hundreds of forced returns and evictions per month, but drought and food insecurity, as our excess mortality data indicate, were already pushing mortality upwards.

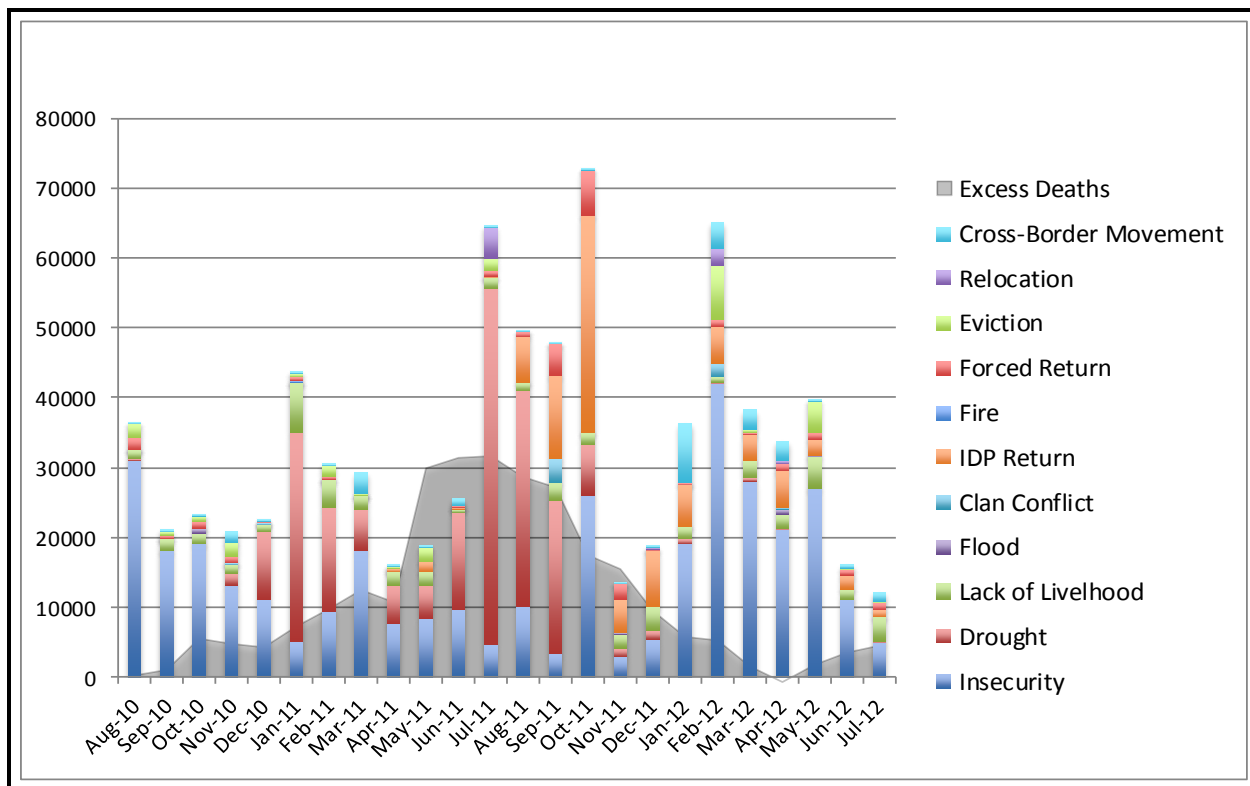


Figure 7. Monthly IDP Arrivals by Cause of Movement, 2010 to 2012

C.2.2. May 2011 to October 2011

In 2010/2011, a La Niña meteorological event created drought conditions throughout the Horn of Africa. In Somalia, southern and central regions experienced particularly reduced rainfall, resulting in significant crop failure. This development occurred just as the people of southern Somalia were becoming increasingly isolated from food and livelihoods assistance, following the progressive withdrawal of humanitarian agencies from most of southern Somalia and the disruption of humanitarian funding to those regions. Access to southern Somalia remained extremely difficult for a large number of agencies throughout 2010 and early 2011, including the major actors involved in food security and nutrition related interventions.

During this period, repeated warnings of deteriorating conditions were issued by FSNAU and FEWS NET. In July 2011, after a round of surveys throughout Somalia revealed alarmingly high prevalence of acute malnutrition and high crude death rates, the United Nations declared a famine in parts of Somalia in accordance with the Integrated Food Security Phase Classification 2.0 (IPC 2.0) system, the first instance of this official declaration since the famine in the Gode region of southern Ethiopia in 2002.

As can be seen in Figure 7 above, IDP movements, declining since the beginning of 2011 to a low of 13,402 in April, began to climb in May, June, and July. Drought was the overwhelming cause of movement reported by PMT local partners. Of all IDP movement within that three-month period, nearly 64 percent was attributed to drought, followed by insecurity at 21 percent. Displacement was especially high in areas around Mogadishu and the already overcrowded Afgoye corridor, though the Gedo region, during August and September 2011, was the most active of all, perhaps because of its proximity to the crossing point into Dollo Ado, Ethiopia (refugee arrivals in Kenya, Ethiopia and other regional countries were surging in mid-2011, with more than 101,000 Somali refugees arriving in Kenya, and around 49,000 in Ethiopia, in the period of June-August 2011).

When expressed as a percentage of the population at the start of each month, excess mortality over the analysis period was exceptionally high among IDP populations, especially children. More than one in 10 IDP children living in Bakool, Banadir, Bay, Lower Shabelle and Middle Juba were estimated to have died during the mortality analysis period (October 2010 to April 2012), as a result of the emergency, with particularly high tolls in May to October 2011. More than one in five were estimated to have died in areas of IDP displacement in Bakool and Banadir and among riverine populations in Lower Shabelle, the region with consistently highest percentages of mortality rates. Among the 11 regions analyzed, IDPs lost the highest percentages of population during the severe food insecurity and famine in seven regions (Bakool, Banadir, Bay, Gedo, Hiran, Lower Juba, and Middle Juba), with the worst three being Bakool, Banadir and Lower Shabelle, where IDP mortality rates were high. Still, riverine populations had the highest mortality rates in the country (see Figure 8 and 9 below).

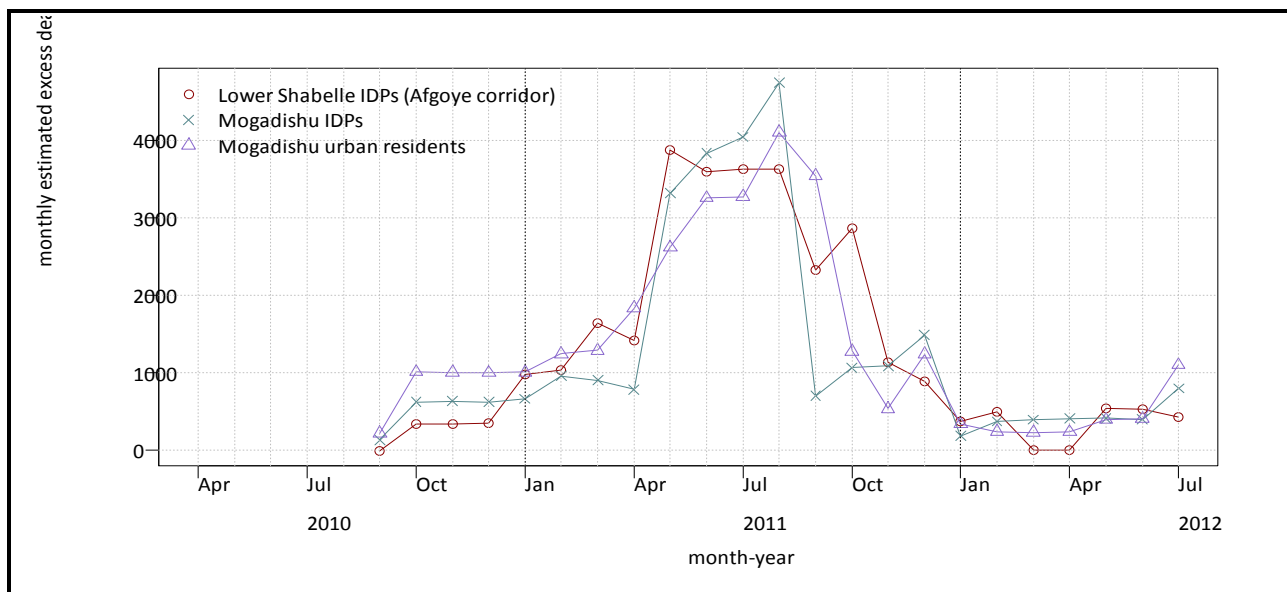


Figure 8. Estimated Monthly Excess Death Toll (All Ages) in Selected Areas

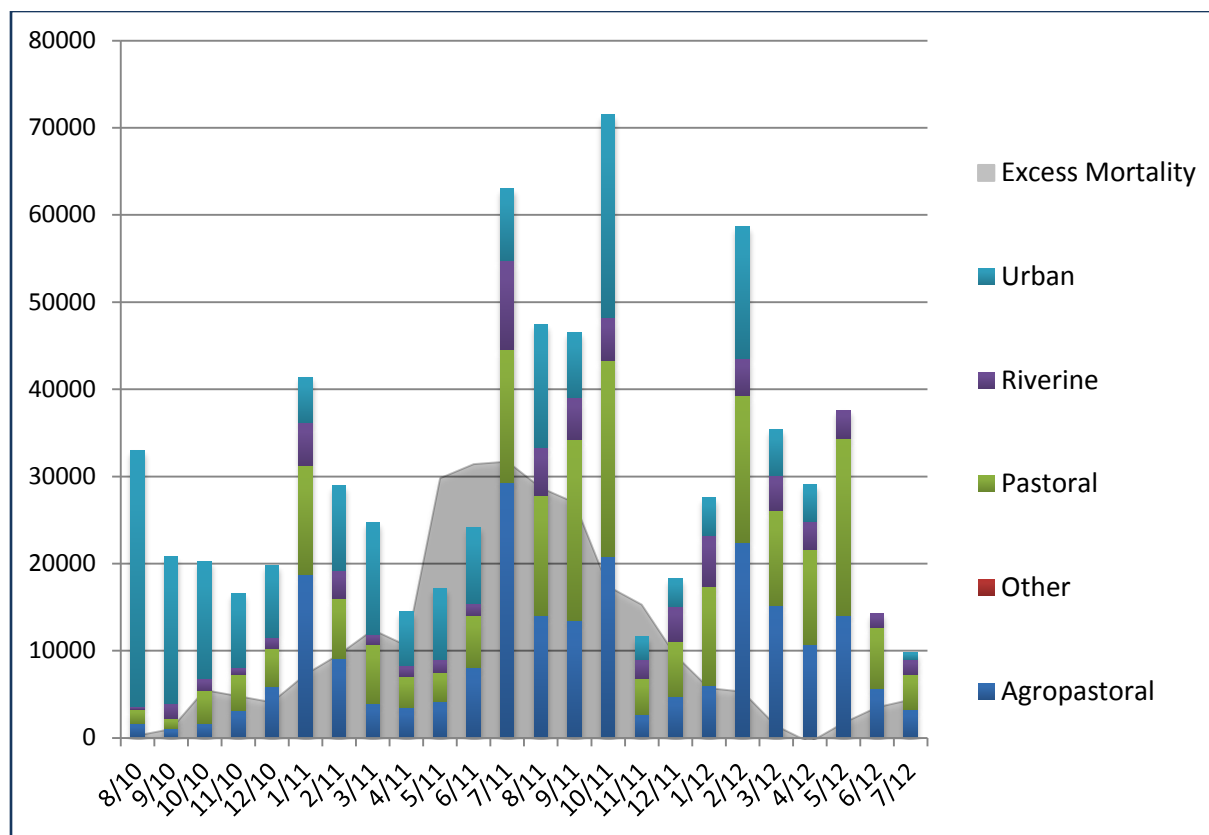


Figure 9. Monthly IDP Arrivals by Livelihood Zone of Origin, 2010 to 2012

C.2.3. November 2011 to July 2012

In October 2011, even as drought-related displacement and famine-related mortality declined, displacement due to insecurity spiked. Movements into and out of Mogadishu were particularly high, contributing to a total of more than 70,000 displacements in October, the highest single-month total during the analysis period. Weekly reports from the Protection Monitoring Network (PMN) in September and October 2011 reported heavy fighting in southern Somalia between *Al Shabaab* and Transitional Federal Government (TFG) forces. The increased TFG offensives came after a truck bomb killed more than 100 people and injured 150 others in Mogadishu on October 5. Hostilities in Lower Juba intensified as Kenyan troops launched an offensive into Somali territory after the kidnapping of two aid workers in Dadaab refugee camp (IASC 2011a). *Al Shabaab* was also said to be continuing its policy of forced return of some IDP populations. PMT partners reported that in a five-day period in early October, “some 4,000 IDPs, mainly women and children, may have been forced or persuaded to return to their places of origin in Lower Shabelle, Bay, and Bakool regions” (IASC 2011b, 2).

Curiously, from the highest monthly displacement total in the two-year period, displacement numbers dropped sharply to just above 10,000 in November 2011 and remained relatively low (certainly in a post-famine context, where increased migration and displacement tends to occur as a trailing indicator of food insecurity and excess mortality). Reasons for this several-month decline are unclear. Perhaps it had partly to do with

Kenya's decision to halt registrations in Dadaab refugee camp, which may have discouraged movement toward the Kenyan border. (Reports also indicated some restrictions by *Al Shabaab* on the movements of men). Perhaps it had partly to do with the withdrawal of *Al Shabaab* forces from Mogadishu in August 2011 (though they continued to carry out attacks in the capital) and the influx of humanitarian aid following the declaration of famine in July 2011.

Lindley and Haslie's 2011 analysis of protracted displacement in Somalia, while not directly addressing the smaller displacement numbers in late 2011, cited Lubkemann's term "involuntary immobility" (2008, 454) to describe shifting displacement dynamics in the late 2000s:

"This may be due to poverty, disability, flooding, a wish to stay near detained relatives, areas being locked down by fighting or the riskiness of journeys across contested territory, exposed to political and criminal violence en route. However, the political quality of immobility is changing. In the past, one could be stopped, robbed, abused, and killed at roadblocks, but armed actors were not really trying to stop people fleeing per se. But recently Al Shabaab began forcefully turning back people trying to flee and beheading the drivers of vehicles carrying them, in an attempt to hold onto population and power" (Lindley & Haslie 2011, 12).

Human Rights Watch issued a report in 2013, "Hostages of the Gatekeepers: Abuses Against Internally Displaced in Mogadishu, Somalia," which cited a report by the United Nations Monitoring Group on Somalia and Eritrea:

"The withdrawal of Al-Shabaab forces from Mogadishu on 2 August 2011 should, in principle, have improved access throughout the capital for aid agencies, and facilitated the direct provision of humanitarian assistance to vulnerable Somalis. The reality, however, was quite different: UN agencies, INGOs [international non-governmental organizations] and their national counterparts were confronted instead with pervasive and sophisticated networks of interference: individuals and organizations who positioned themselves to harness humanitarian assistance flows for their own personal or political advantage. These 'gatekeepers' often exercised control over the location of IDP camps; the delivery, distribution and management of assistance; and even physical access to IDP camps and feeding centres, through their influence over the 'security' forces deployed to such sites" (HRW 2013, 22).

Whatever the reasons for this three-month period of reduced, possibly suppressed, displacement, internal movements rose steadily from the end of 2011 through the first few months of 2012, marked by high levels of displacement in Banadir and driven primarily by rising insecurity. From January to April 2012, PMT reported 173,300 displacements, of which 110,000 (63 percent) were due to insecurity and another 10,600 (6 percent) were due to forced return and evictions. Although displacement continued to decline through to mid-2012, and drought-related displacement declined to hundreds per month, insecurity remained the dominant motive for movement, along with forced return and evictions, and lack of livelihood. The UNHCR estimate for IDPs in all of Somalia as of July 2012 was 1.36 million, including 1.13 million in southern and central Somalia. Our own modeled estimates for that same time point for southern and central Somalia totaled 1.09 million.

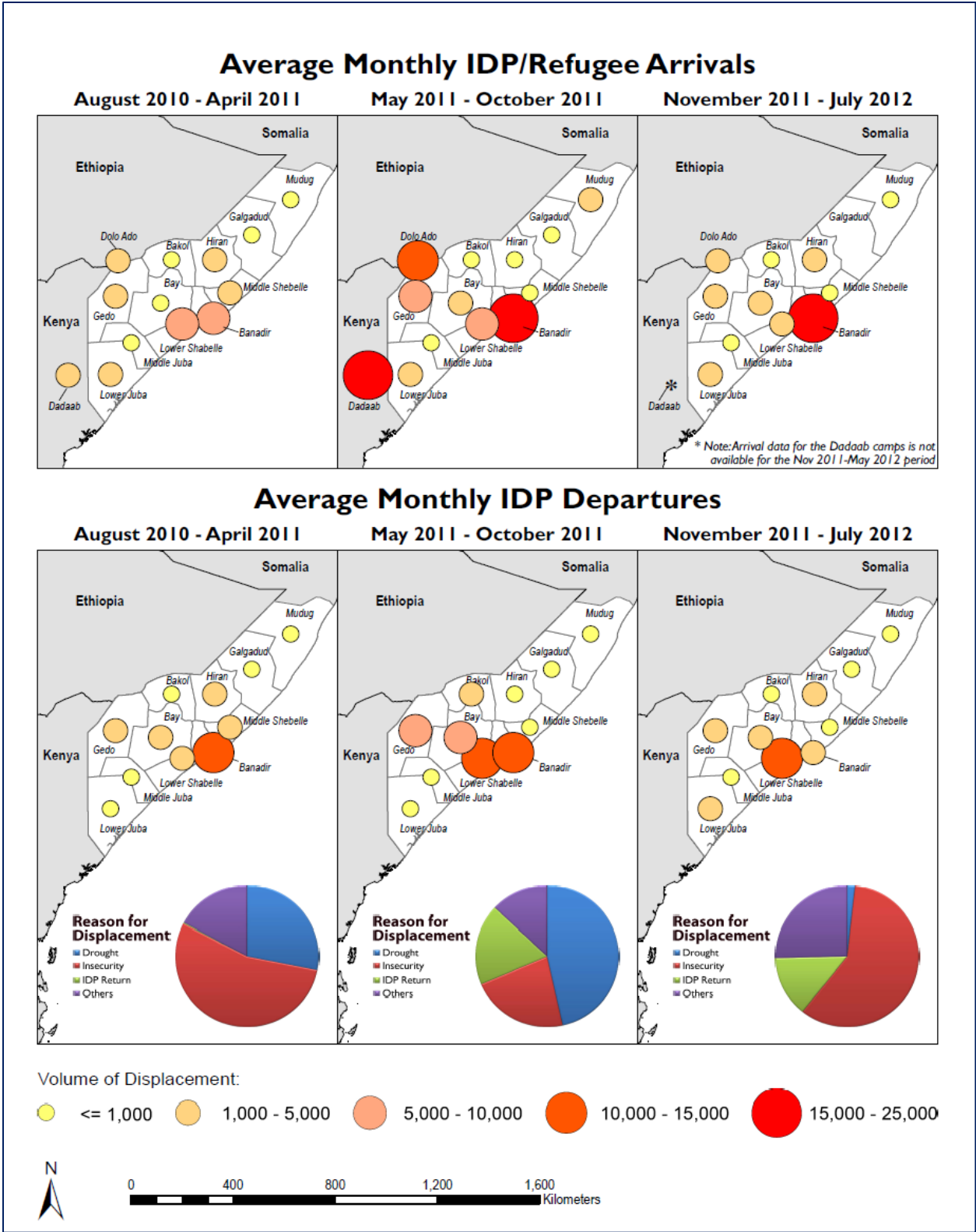


Figure 10. Average Monthly IDP/Refugee Arrivals and IDP Departures (Map by FEWS NET)

D. Results: Somali Refugees in Ethiopia and Kenya

In mid-2010, Somali refugees numbered 594,494 in the region (including Djibouti, Eritrea, Ethiopia, Kenya, Tanzania, Uganda, and Yemen) with another 175,000 in asylum and/or resettlement countries worldwide. The severe food insecurity and famine, coupled with ongoing conflict and violence, compelled hundreds of thousands of Somalis to flee across neighboring borders in 2010-2012, with more than 300,000 entering Ethiopia and Kenya. Our analysis focused on monthly arrivals to Dollo Ado refugee camp complex in Ethiopia and Dadaab refugee camp complex in Kenya during the period August 2010 to July 2012.

D.1. Somali Refugees in Ethiopia, 2010-2012

Somali refugees first began fleeing across the border to Ethiopia in large numbers in 1988, with the outbreak of a full-scale civil war that ultimately led to the collapse of the Siad Barre regime in 1991. More than 630,000 Somalis fled into Ethiopia in 1988, with numbers rising still further in the early 1990s (Gundel 2002). By the early 2000s, Somali refugee numbers in Ethiopia had declined, following some resettlement in third countries, substantial repatriation (mainly to Somaliland), as well as local dispersal (Moret 2006). In 2004, Ethiopia enacted the Refugee Declaration, which incorporated much of the 1951 Refugee Convention and 1969 OAU Convention into domestic legislation. The Agency of Refugee and Returnee Affairs (ARRA) is the government agency tasked with overseeing such matters as refugee claims determinations and refugee protection and assistance programs (Moret 2006). ARRA co-chairs a Standing Task Force on Refugees with UNHCR, which has only observer status officially though it is closely involved in financial and other support for refugee assistance and protection.

Somali refugees in Ethiopia might be categorized into three main groups: those living in refugee camps (with by far the largest settlements in Dollo Ado in the south, though there are still camps to the north in Awbarre and Kebribeyah near Djibouti and Eritrea); those living in urban areas (mainly in Addis Ababa); and those who are undocumented and locally dispersed among the Ethiopian population (Moret 2006).

Dollo Ado district in the southern corner of Ethiopia's Somali Region (Soomaali Galbeed) Ethiopia has hosted Somali refugees since 2009. Initially, there were two camps (Bokolmayo and Melkadida), but two more camps (Kobe and Hilaweyn) were established in June and August 2011, respectively, following a surge in Somali refugee arrivals from April through July 2011. A fifth camp (Buramino) was added in December 2011 to ease overcrowding in the other camps and to accommodate ongoing arrivals from Somalia.

From August to December 2010, monthly Somali refugee arrivals in Dollo Ado had been steadily climbing, from 89 in August to 330 in October and to 2,856 in December (see Figure 11 below and Table 5 in the Statistical Annex). In January 2011, the numbers jumped to 4,386 and remained around those levels through April. Of the 16,040 refugee arrivals in that four-month period, 10,235 (64 percent) were from Gedo (the closest region in Somalia), followed by 3,370 (21 percent) from Banadir. Then in May 2011, as drought-related movements were intensifying in Somalia and excess deaths were increasing, Somali refugee arrivals in Dollo Ado increased to 9,243, then climbed to 14,357 in June, and spiking to 27,652 in July 2011.

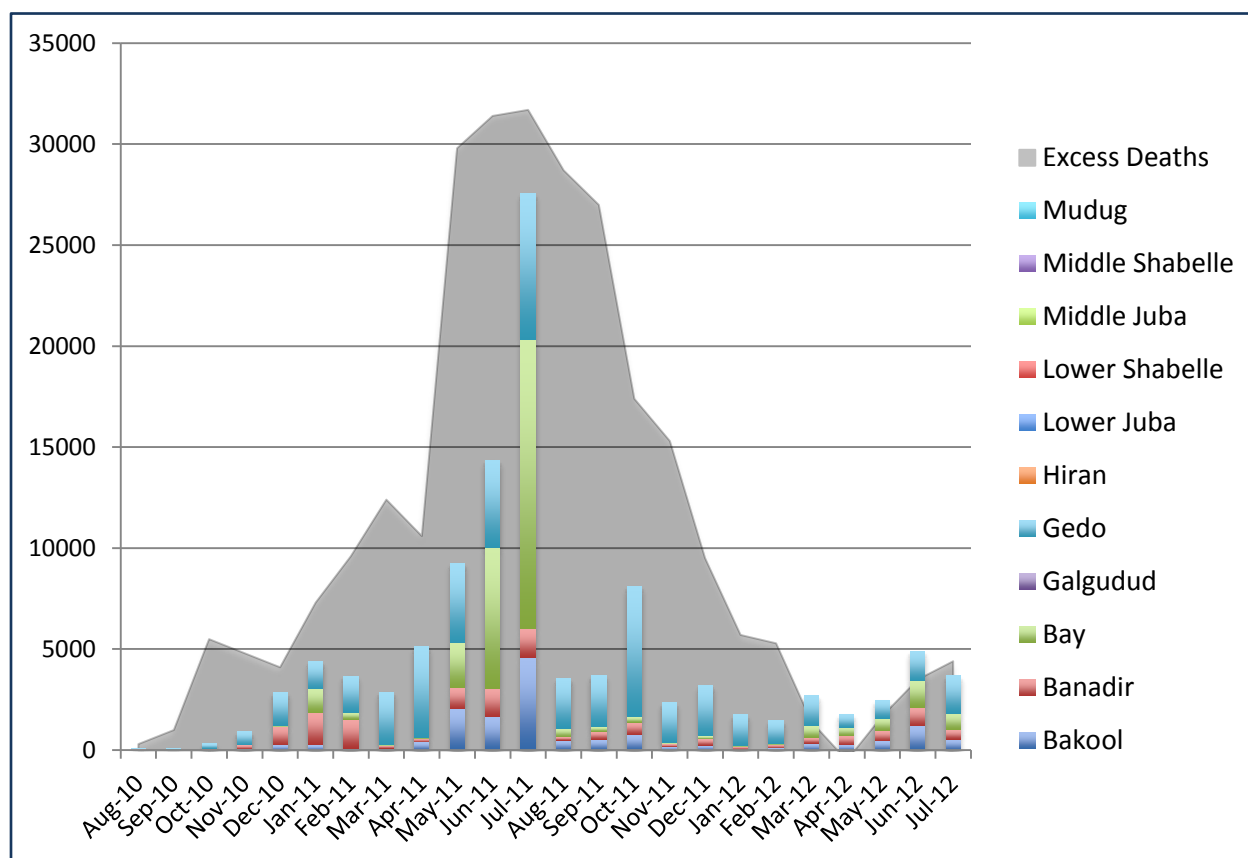


Figure 11. Monthly Refugee Arrivals in Dollo Ado, Ethiopia by Somalia Region of Origin, 2010-2012 (UNHCR-PMT)

Of the 51,162 arrivals in May-July 2011, 30 percent (15,459) were from Gedo Region, but the largest number came from Bay Region (23,518, or 46 percent), with significant numbers from Banadir and Bakool. In August 2011, refugee arrivals appeared to decline to 3,541, though a UNHCR report on 25 August 2011 noted that this figure excluded some 18,000 Somalis who had crossed into the Gode region and were “reported in extremely poor condition” (UNHCR 2011c, 2). Earlier in August, a measles outbreak in Kobe camp killed at least a dozen people in the first week of the month. Mortality rates remained high through the month as relief agencies worked to relieve the crowded camp (filled to its maximum with 25,000 people) and move some camp residents along with new arrivals to a new camp, Hilaweyn (UNHCR 2011d).

By September 2011, arrivals began to decline, though mortality and malnutrition rates among the new arrival population remained high. While increased humanitarian interventions helped bring down the crude mortality rate from 3.9 per 10,000 per day to 2.0 per 10,000 per day, it still remained above the emergency threshold (UN-OCHA 2011). By the end of 2011, the combined population of the Dollo Ado camps had climbed above 130,000. A health and nutrition survey conducted in November 2011 by UNHCR, ARRA, World Food Program (WFP), UNICEF and GOAL, an Irish NGO, found that almost one-fifth of children 6-59 months in Kobe and Hilaweyn camps were “severely malnourished,” which

the study team attributed to insufficient intake of food, arrival from Somalia in poor nutrition and health condition, and repeated infections (diarrhea and respiratory tract infection) in the camps (UNHCR, ARRA, WFP, UNICEF and GOAL 2011, 9).

The survey also found a camp with a disproportionately young population. (See Figure 12 below.) The sample might have skewed toward younger ages, given its focus on malnutrition among under-five children, but Somali refugee populations in Dollo Ado were nearly 25 percent under-five, and an additional 33 percent aged 5 to 11.

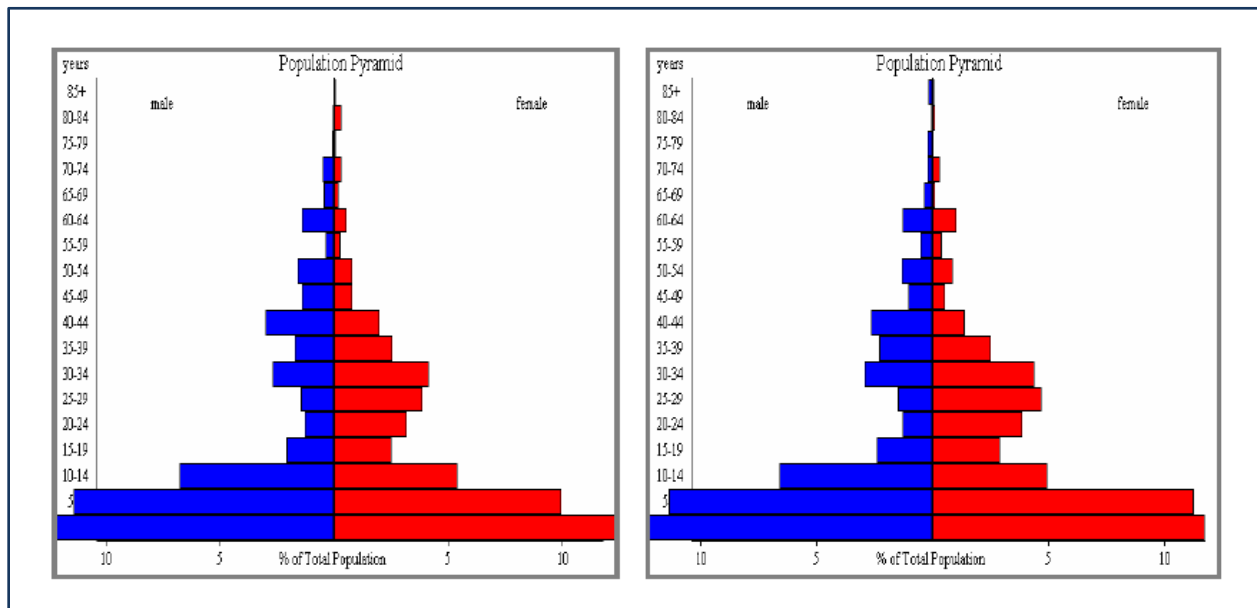


Figure 12. Population Age and Sex Pyramid of Surveyed Households in Kobe and Hilaweyn Camps, November 2011 (UNHCR, ARRA, WFP, UNICEF and GOAL 2011)

In all, nearly 70 percent of Somali refugees were children (under 18) and over 54 percent were female. This shape of population pyramid, to some degree, represents a Southern and Central Somali population with high birth rates and, in the context of the severe food insecurity emergency and famine, catastrophically high mortality. The smaller proportion of 20- to 35-year-old males could represent losses due to conflict, restrictions by *Al Shaabab* on movements of males, or that males were staying outside the camps to seek work. The skew toward younger ages could also represent selection factors in displacement, where families may leave older adults behind or get separated along the way.

By late 2012, just a few months after the end of the analysis period, Somali refugees were still moving to Dollo Ado by the hundreds per day, bringing the totals above 170,000 and making Dollo Ado the second largest refugee camp complex in the world (UNHCR 2012). The only larger camp was just south in Dadaab, Kenya.

D.2. Somali Refugees in Kenya, 2010-2012

Kenya has been a leading host country for refugees from other African countries, including Somalia, since the late 1980s. It is one of the earliest African signatories to the 1951 UN Convention Relating to the Status of Refugees and its 1967 Protocol as well as the 1969

OAU Convention Governing Specific Aspects of the Refugee Problem in Africa (RCK 2012). Kenya's response to the long-running exodus of Somali refugees, however, has both shaped and severely tested its commitments to refugee protection and assistance.

In 1991-1992, more than 400,000 Somali refugees, fleeing the civil war and the collapse of the Siad Barre regime, poured across the Kenyan border. Among the camps established to house the refugees was a cluster of camps (Ifo, Dagahaley, Hagadera) encircling the town of Dadaab, in Garissa District, North Eastern Province, 89 kilometers from the Somalia border. Built to accommodate 90,000 refugees, Dadaab soon was housing several times that number. Overwhelmed by the Somali influx, Kenya turned over much of the responsibility for refugee assistance and protection to UNHCR, including registration of new arrivals, refugee status determinations, and funding for camp services (Campbell 2006).

In January 2007, as the civil war in Somalia intensified, Kenya officially closed its border, citing security concerns relating to the possibility that *Al Shabaab* and other ICU fighters might enter the country (Amnesty International 2010). Somali refugees numbered around 200,000 at that time and, despite the border closure, Somalis continued to cross into Kenya, most of them going to Dadaab, where they were registered by UNHCR and Kenya's Department of Refugee Affairs, which had been created with the passage of the Refugees Act of 2006 (RCK 2012). As a 2010 report by Amnesty International noted:

"Closing the border has done little to stem the flow of asylum-seekers into the country. Since January 2007, almost 150,000 Somalis have registered as refugees in Dadaab. Amnesty International is concerned about the continued impact of the border closure on the protection and medical assistance for Somali asylum-seekers and refugees. The organization is also concerned at the concomitant rise in extortions and human rights violations by Kenyan law enforcement officials against Somali nationals in Kenya. Somali asylum-seekers appear to have been made even more vulnerable as a result of the border closure policy implemented by the Kenyan authorities" (AI 2010, 3).

In 2011, as the drought intensified and food security conditions worsened, the Kenyan border remained closed officially. Although the authorities made no aggressive measures to turn anyone away, both international and local human rights organizations cited numerous problems—including police extortion, banditry, and no protection or assistance—as refugees traversed the 89 kilometer "migration corridor" (RCK 2012, 32). In March 2011, the Kenyan government took over the responsibility of refugee registration from UNHCR. From that point on, the Department of Refugee Affairs (DRA) became the point of contact for arriving asylum-seekers, both for registration and for refugee status determination (RCK 2012). To further complicate registration, the DRA suspended all registration of new arrivals in October 2011, citing security concerns arising from a series of kidnapping incidents in the Dadaab camps.

Figure 13 below (see also Table 6 in the Statistical Annex) shows estimates of monthly arrivals of Somali refugees from August 2010 to July 2012.

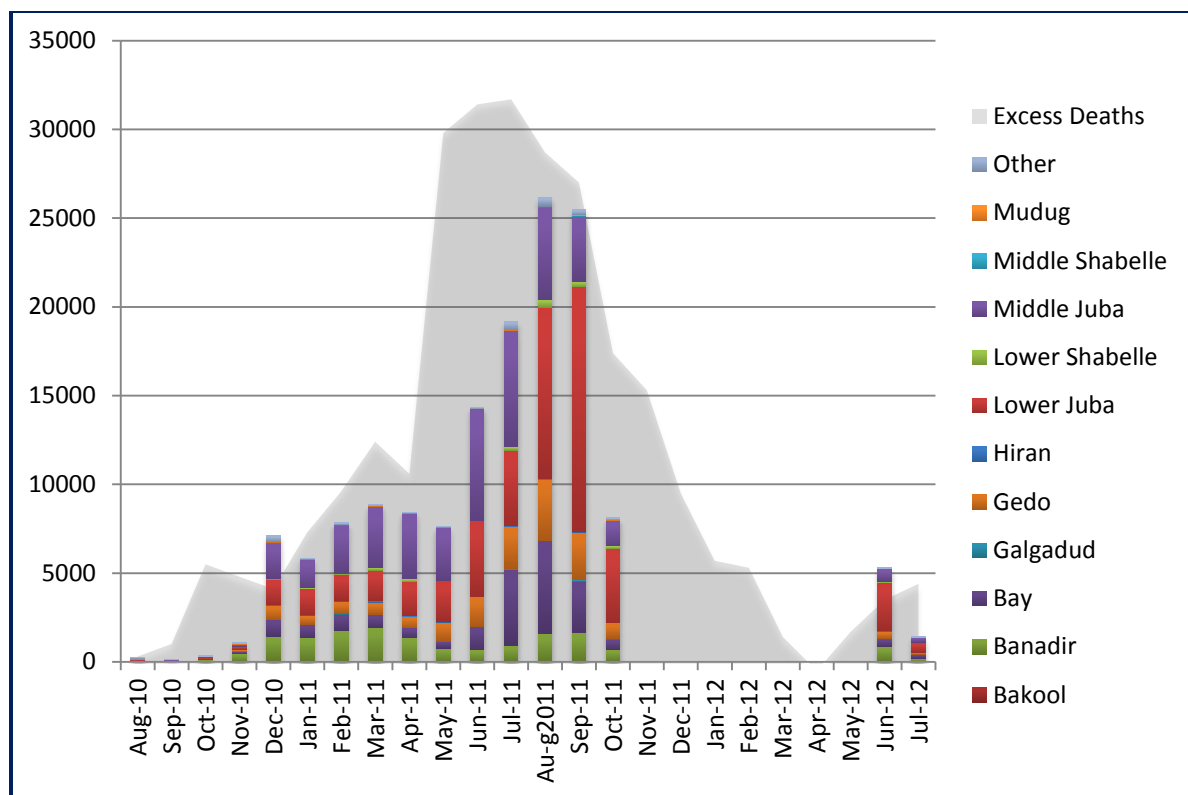


Figure 13. Monthly Refugee Arrivals in Dadaab, Kenya by Somalia Region of Origin, 2010-2012

Even with incomplete data (seven months of new arrivals, from November 2011 to May 2012 are not counted due to the disruption in camp registrations), the patterns of movement to Dadaab during the peak of the famine period (May to October 2011) were similar to the movements to Ethiopia, with external displacement seeming to slightly precede the larger internal movements. By July and August 2011, displacement was high everywhere. In Kenya, the numbers in Figure 14 suggest around 14,344 refugees from southern and central Somalia entered in June 2011, 19,179 in July, and 26,124 in August. Arrivals remained high in September 2011 (25,472) but tailed off (at least by official counts) in October 2011.

The suspension of registration in October 2011, in the wake of a new arrival surge of close to 100,000 people in the prior four months, had “a huge impact on what services a newly arrived asylum-seeker can access” (RCK 2012, 51). Among other things, UNHCR was no longer able to issue food rations. As the Refugee Consortium of Kenya noted in a 2012 report:

“Right now in Dadaab, new arrivals can receive a very basic initial food basket, but without registration they cannot get shelter assistance or enroll their children in schools. The vulnerability screenings that were in place at the point of UNHCR registration are no longer functioning. This means that unaccompanied children, elderly or handicapped individuals, and others with special needs are not being identified, profiled, and referred to services. For instance, one UNHCR officer said that since the suspension of registration, there have been fewer reports of gender based

violence, due in part to the fact that the emergency vulnerability screening for new arrivals was no longer taking place.” (RCK 2012, 51).

The RCK report went on to note that the October 2011 suspension of registration represented a “fundamental disintegration of hospitality” and that “this message was certainly well-understood inside Somalia, as numbers of asylum-seekers arriving in Dadaab fell within the week from more than 1,000 per day at that period to less than fifty a day” (RCK 2012, 51). Despite the serious problems with security at the border and along the migration corridor, and some continued problems with registration, by July 2012, the Dadaab camp population stood at 472,420, making it the largest refugee camp in the world.

E. Discussion and Conclusions

Writing on famine in *The Public Health Consequences of Disaster*, Yip asserts that “Population migration, a sign widely regarded as an intermediate warning sign of famine, is actually a late sign of famine. Careful review of the process of famine development indicates that by the time people have left their communities to seek food, there is already extensive suffering.” In the very next sentence, however, Yip reveals a particular orientation—bias, if you will—about the concept of migration: “Any *congregation* [italics added] of displaced populations almost assures high morbidity and mortality related to infectious diseases and reduced host resistance” (Yip 1988, 314). Mass movements of people such that they end up congregated in camps and settlements may indeed happen in the latter stages of famine, but there are many earlier migratory responses to famine.

In 1992, the Centers for Disease Control (who labeled “population movement” as a “leading indicator” and “population migration” as an “intermediate indicator” of famine) offered a somewhat more nuanced interpretation of migration in response to famine: “Populations experiencing famine may or may not displace themselves in order to improve food availability. Initially, male family members may migrate to cities or neighboring countries to seek employment. During a full-scale famine, whole families and villages may flee to other regions or countries in a desperate search for food” (CDC 1992, 4).

In his analysis of the 1990-91 famine in the Sudan, Patel created a table of the “timing of coping strategies in relation to drought,” in which migration might take place in the early, intermediate, or late stages of a drought. In the early stage, household members might migrate in search of employment. As wages fall in the intermediate stages, employment migration intensifies along with the “migration of adult males to reduce food burden” in the household. In the late stage, only after a household has already reduced consumption, sold or traded away its productive or other assets, and sent individual members out in search of work or food, there comes the “distress migration of whole families” (Patel, 324).

Young and Jaspars suggest that “If food security conditions do not improve and famine progresses, people are forced to use coping strategies that become increasingly threatening to the survival of their livelihoods. Productive assets are sold off, until eventually people have no other choice but to starve or migrate in search of relief or other means of support” (Young & Jaspars 1995, 29).

In examining famine-related migration, then, it is important to distinguish not only who in the household is migrating but where, for what purpose, and for how long. Movements by

individual members of the household to nearby locations for purposes of employment may be early indicators or symptoms of famine. As the crisis persists or intensifies, migration may encompass whole families or entire communities who are faced with a choice to “starve or migrate.”

Our analysis clearly confirmed that both internal and external displacement occurred in the context of the severe insecurity and famine from October 2010 to April 2012, and that movements were intensified during the “main famine” period from May to October 2011. Generally, we can observe that, as Patel suggests, large-scale internal and external displacement, constituting the “distress migration of whole families” occurred in the later stages of the crisis, only after excess deaths had been above 20,000 deaths per month for three months. We also observed that the bulk of the displacement prior to the famine period was from and within urban areas, as people primarily fled conflict and insecurity. During the period of May to October 2011, the famine period, however, the bulk of displacement was from the agropastoral and pastoral livelihood zones, with drought as the predominant cause, certainly internally and likely externally as well. Post-famine, internal displacement tended to decline, though insecurity once again came to be the most important cause of movement, particularly in and around Mogadishu. Some of the decline in displacement was due to “involuntary immobility” as *Al Shabaab* restricted internal movements, particularly of men. Externally, Kenya stopped registering new arrivals in Dadaab, which may have contributed to declining refugee movements

Analysis would have been strengthened by being able to distinguish not only who in the household is migrating but where, for what purpose, and for how long. This kind of detail could not be found in the PMT data, nor could reliable estimates of total displaced populations for a given time and place. Further monitoring of complex humanitarian emergencies would benefit from improved measurement of displacement dynamics, not just broad counts of people moving. In just the way that local malnutrition and mortality surveys were used to identify food insecurity and famine conditions, a more coordinated system of local displacement surveys would have been useful to measure both how displacement functioned as either a coping mechanism for survival, or a threat that resulted in increased risk of morbidity and mortality. In the future, such surveys could include measures of household and community dynamics (who moves and why), return flows, and length of displacement. Such periodic, detailed metrics would add context and clarity to the broader population tracking measures, indicating whether Somalia is facing ongoing conflict and displacement or, as one hopes, a return to regional peace and stability, marked by larger numbers of displaced persons becoming more integrated into their places of asylum or returning home.

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G. Statistical Annex

Table 1. Total IDPs: Somalia August 2010 - July 2012

Region	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11
Bakool	6126	5998	6013	6605	5912	5604	5482	5289	5210	5024	5976	6733
Banadir	302562	307538	310841	314429	313134	331232	333320	313756	309931	301840	305861	322971
Bay	29178	29135	28475	28537	26821	25644	25259	24883	26034	27199	30566	36366
Galgudud	125758	125543	121313	117777	117879	85430	85478	83667	81039	79332	79096	79239
Gedo	64118	64802	66244	67668	68299	69527	70826	75866	76165	73586	68559	66599
Hiran	49430	49468	51303	51486	54466	41862	43317	44768	44768	42135	39485	40710
Lower Juba	33747	29728	28749	26000	25437	27738	30391	33077	34776	34806	36342	38810
Lower Shabelle	343762	346276	351323	353472	355263	351769	342854	323522	322836	320488	320350	321732
Middle Juba	4578	4470	4379	6177	7570	7592	7607	7612	7616	5191	5176	4411
Middle Shabelle	70782	70903	71995	71693	71588	54478	54988	44827	43071	42970	41426	38580
Mudug	70324	68795	66323	64280	61101	58793	57137	55903	55121	53762	53604	52859
Grand Total	1100365	1102655	1106959	1108123	1107470	1059668	1056660	1013171	1006567	986332	986442	1009010

Region	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12
Bakool	6704	6711	8074	7353	7164	7213	7795	7946	8218	8258	7667	7006
Banadir	325413	329039	367471	364975	366442	352113	379170	393552	409706	427357	422344	390953
Bay	38027	42882	46124	46274	48251	48568	56684	59874	59417	59932	56630	50977
Galgudud	79180	79341	79282	79351	79325	79393	77597	77664	77694	77668	77707	77533
Gedo	81088	95499	98014	97608	97136	101896	102601	99126	100737	102396	102211	100185
Hiran	40456	40761	37685	37821	36212	44367	40856	39456	39676	38377	38168	36818
Lower Juba	38161	41670	42360	42146	42063	43570	45804	47319	49847	53050	54713	55021
Lower Shabelle	314135	308575	311390	306752	303431	298749	299589	296173	295593	296593	296447	288480
Middle Juba	4420	4407	4470	2274	824	1474	2175	2433	2576	2669	2751	2889
Middle Shabelle	37179	37087	37116	36331	35718	34277	32552	32251	31762	31463	30482	30705
Mudug	51725	53994	53521	53191	53320	53018	54235	54310	54328	54412	54060	53111
Grand Total	1016488	1039966	1085506	1074078	1069884	1064638	1099057	1110105	1129553	1152174	1143179	1093679

Table 2. Arrivals into IDP Zones: Somalia August 2010-July 2012

Region	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11
Bakool	125	151	245	729	158	99	42	83	145	213	1021	1067
Banadir	13141	7629	6056	5531	5667	25771	10651	7316	3928	6285	10381	34203
Bay	738	220	18	280	409	415	433	496	1317	1415	3862	6231
Galgudud	0	0	0	0	0	0	1862	0	37	0	0	240
Gedo	1667	1232	2527	3040	2714	3531	1566	5969	1419	1670	1881	4839
Hiran	140	0	3046	191	2950	142	3638	1470	0	1315	276	1385
Lower Juba	1689	750	941	781	1123	3571	3009	4226	2861	1396	1978	2833

Lower Shabelle	11784	7164	6609	3876	4085	5602	4304	6287	2320	3482	3141	9916
Middle Juba	0	0	0	2411	1471	0	0	0	0	135	0	0
Middle Shabelle	3504	114	946	833	600	1440	1821	370	864	451	1058	28
Mudug	1744	1459	720	647	406	394	669	617	511	320	660	1256
Grand Total	34532	18719	21108	18319	19583	40965	27995	26834	13402	16682	24258	61998
Region	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12
Bakool	140	187	1630	0	0	183	655	234	404	247	375	359
Banadir	16798	12011	45918	4573	7753	10780	37053	21354	19843	24240	5609	2607
Bay	2592	5288	3586	682	2742	775	8557	3599	650	1759	355	347
Galgudud	0	156	0	0	0	0	0	0	0	0	0	0
Gedo	16439	15818	5404	2758	2358	8261	2075	2570	3159	3452	1819	2628
Hiran	0	305	0	326	1247	8241	0	18	175	0	53	29
Lower Juba	1076	4293	1667	601	1075	5110	5317	5804	5314	4522	3529	2998
Lower Shabelle	7118	3679	10671	1224	1054	701	4486	2440	999	3711	2787	1649
Middle Juba	22	0	76	196	0	653	706	257	142	226	76	133
Middle Shabelle	2129	0	986	60	0	0	35	0	332	54	0	204
Mudug	645	3698	270	339	554	111	1871	675	512	386	290	291
Grand Total	46959	45435	70208	10759	16783	34815	60755	36951	31530	38597	14893	11245

Table 3. Cause of Movement by Month: Somalia August 2010 to July 2012

Cause of movement	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11
Insecurity	31000	18000	19000	13000	11000	5100	9400	18000	7700	8400	9500	4600
Drought	210	0	40	1800	9700	30000	15000	6000	5500	4600	14000	51000
Lack of Livelihood	1300	1800	1600	1400	1200	7200	3800	2000	1900	2100	420	1600
Flood	0	0	750	0	0	0	0	0	0	20	0	0
Clan Conflict	10	0	0	30	200	0	0	0	0	0	0	0
IDP Return	10	70	0	0	70	0	0	0	370	1400	320	80
Fire	0	0	0	0	0	180	170	0	0	0	0	0
Forced Return	1600	440	910	1000	40	490	300	100	160	140	350	830
Eviction	2200	580	780	2100	20	420	1700	110	90	1800	0	1700
Relocation	0	0	0	0	0	0	0	0	0	0	0	4500
Cross-Border Movement	80	60	200	1500	40	60	60	3100	170	350	960	320
Cause of movement	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12
Insecurity	10000	3300	26000	2800	5300	19000	42000	28000	21000	27000	11000	4800
Drought	31000	22000	7200	1400	1300	750	120	520	290	40	80	420
Lack of Livelihood	1200	2500	1700	1900	3600	1700	940	2500	2100	4400	1500	3300
Flood	0	0	70	260	0	30	0	0	590	220	0	0
Clan Conflict	0	3500	0	0	0	30	1900	40	300	0	0	100
IDP Return	6500	12000	31000	4700	7900	6100	5100	3800	5300	2300	2000	930
Fire	0	0	0	0	0	40	0	0	0	0	0	0

Forced Return	640	4300	6700	2200	300	160	1200	210	970	960	840	1100
Eviction	0	0	0	0	0	30	7500	510	80	4600	120	240
Relocation Cross-Border Movement	0	0	0	20	50	0	2500	0	260	0	90	10
	220	340	220	50	480	8400	3800	2700	2800	170	360	1200

Table 4. Monthly IDP Arrivals by Livelihood Zone of Origin, August 2010 - July 2012

Livelihood Zone	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11
Agropastoral	1615	1028	1709	3161	5880	18732	9063	3966	3465	4223	8086	29353
Other	0	0	0	0	0	2	2	0	1	1	2	2
Pastoral	1697	1164	3679	4145	4331	12472	6929	6720	3597	3253	5913	15230
Riverine	266	1806	1397	745	1368	4959	3197	1231	1196	1476	1443	10226
Urban	29396	16792	13470	8540	8239	5221	9768	12766	6211	8221	8726	8265
Grand Total	32974	20790	20255	16591	19818	41386	28959	24683	14470	17174	24170	63076
Livelihood Zone	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12
Agropastoral	14086	13484	20872	2728	4744	6033	22376	15241	10677	14082	5657	3225
Other	1	0	0	1	0	0	0	7	11	4	22	2
Pastoral	13773	20762	22391	4087	6334	11331	16949	10865	10885	20268	6982	4023
Riverine	5430	4787	4987	2184	3948	5892	4187	4020	3307	3263	1566	1730
Urban	14089	7446	23248	2655	3301	4335	15161	5269	4160	0	0	849
Grand Total	47379	46479	71498	11655	18327	27591	58673	35402	29040	37617	14227	9829

Table 5. Monthly Refugee Arrivals in Dollo Ado by Region of Origin, August 2010 - July 2012

Region	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11
Bakool	2	2	24	78	262	263	103	106	412	2055	1659	4603
Banadir	58	49	66	185	907	1614	1431	143	182	1046	1419	1403
Bay	0	4	1	1	58	1156	349	14	32	2218	6954	14346
Galgudud	0	0	0	0	0	0	0	0	0	0	0	0
Gedo	29	31	239	669	1629	1353	1789	2604	4489	3924	4325	7210
Hiran	0	0	0	0	0	0	0	0	0	0	0	0
Lower Juba	0	0	0	0	0	0	0	0	0	0	0	0
Lower Shabelle	0	0	0	0	0	0	0	0	0	0	0	0
Middle Juba	0	0	0	0	0	0	0	0	0	0	0	0
Middle Shabelle	0	0	0	0	0	0	0	0	0	0	0	0
Mudug	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	89	86	330	933	2856	4386	3672	2867	5115	9243	14357	27562
Region	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12
Bakool	504	543	785	187	246	59	118	348	280	467	1210	552
Banadir	167	397	605	132	328	132	176	292	453	515	925	482
Bay	423	225	262	53	134	42	35	558	411	611	1306	798
Galgudud	0	0	0	0	0	0	0	0	0	0	0	0

Gedo	2447	2540	6458	1977	2495	1526	1135	1488	628	873	1465	1849
Hiran	0	0	0	0	0	0	0	0	0	0	0	0
Lower Juba	0	0	0	0	0	0	0	0	0	0	0	0
Lower Shabelle	0	0	0	0	0	0	0	0	0	0	0	0
Middle Juba	0	0	0	0	0	0	0	0	0	0	0	0
Middle Shabelle	0	0	0	0	0	0	0	0	0	0	0	0
Mudug	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	3541	3705	8110	2349	3203	1759	1464	2686	1772	2466	4906	3681

Table 6. Monthly Refugee Arrivals in Dadaab, by Region of Origin, August 2010 - July 2012

Region	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11
Bakool	0	0	0	17	85	46	44	12	40	14	24	53
Banadir	40	36	124	446	1346	1319	1749	1949	1313	766	672	872
Bay	0	5	5	127	943	743	901	685	559	385	1284	4292
Galgudud	0	0	1	4	19	13	13	31	14	23	11	21
Gedo	2	5	18	96	782	514	707	649	615	1050	1703	2391
Hiran	0	0	0	6	61	24	68	150	54	39	15	46
Lower Juba	113	35	109	185	1426	1459	1453	1682	1929	2279	4227	4239
Lower Shabelle	7	2	0	8	51	58	45	150	148	40	48	214
Middle Juba	28	22	56	107	1982	1591	2728	3447	3661	2983	6274	6535
Middle Shabelle	0	0	0	5	56	3	12	23	47	3	10	28
Mudug	0	0	1	11	14	14	10	13	0	9	11	8
Other	81	14	14	55	356	65	120	72	36	40	65	480
Grand Total	271	119	328	1067	7121	5849	7850	8863	8416	7631	14344	19179
Region	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12
Bakool	66	66	26	0	0	0	0	0	0	0	42	11
Banadir	1527	1563	672	1	0	0	0	0	0	0	821	204
Bay	5222	2908	584	1	0	0	0	0	0	0	423	209
Galgudud	31	84	27	0	0	0	0	0	0	0	26	16
Gedo	3409	2681	886	0	0	0	0	0	0	0	403	93
Hiran	66	62	27	0	0	0	0	0	0	0	53	13
Lower Juba	9654	13755	4163	1	0	0	0	0	0	0	2684	527
Lower Shabelle	435	313	149	0	0	0	0	0	0	0	98	36
Middle Juba	5213	3682	1424	0	0	0	0	0	0	0	688	275
Middle Shabelle	29	29	25	0	0	0	0	0	0	0	1	0
Mudug	28	46	31	0	0	0	0	0	0	0	22	0
Other	484	283	93	0	0	0	0	0	0	0	28	14
Grand Total	26164	25472	8107	3	0	0	0	0	0	0	5289	1398