Government of Kenya

THE 2011/12 SHORT RAINS SEASON ASSESSMENT REPORT

Kenya Food Security Steering Group (KFSSG)

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1.0 Executive Summary

1.1 Scope of the October-December, 2011 short rains food security assessments

The multi-sectoral 2011/12 short rains were conducted by a joint team comprising of the Government of Kenya (GoK), United Nations (UN), Non Governmental Organizations (NGOs), and district level teams in 29 districts within the pastoral, agro-pastoral, and southeast and coastal marginal agricultural livelihood zones. While taking into account the performance of rainfall in the three preceding seasons, teams assessed impacts of 2011 short rains on water quality and access; crop and livestock production; nutrition and health; markets and trade; and education. Teams also considered impacts of other hazards such as conflicts, floods, crop pests and high food prices, together with ongoing food and non-food interventions, to assess the level of food availability and access at household level. The teams recommended necessary cross sectoral interventions aimed at addressing immediate short term food security needs and at the same time proposed key medium to long term interventions necessary for tackling food insecurity in a sustainable manner.

1.2 Findings

1.2.1 Numbers and categories of the food insecure

According to the assessment findings, the food security status of pastoralists, agropastoralists and marginal agricultural farmers has improved considerably after early onset and above average 2011 short rains in many areas. As a result, Emergency food insecurity has ended, and about 2.2 million people are now classified in either the Crisis or Stressed Phases of food insecurity, down from the previous 3.75 million people. The availability of water, browse and pasture has markedly increased, leading to significant improvement in livestock productivity. The 70-80 percent of livestock that migrated has returned and is currently situated in wet season grazing areas, near settlements. Households are accessing milk though quantities are below normal as most livestock are in gestation. The harvesting of short rains crops has just concluded leading to improved food access, particularly in the southeast and coastal marginal agricultural lowlands and the agro-pastoral livelihood zones. Conflict incidences over resources have markedly declined in many places. Ongoing interventions that have contributed to improvements in food security include food distribution to 3.75 million people by World Food Program (WFP) through general food distribution, food for assets, cash for assets and unconditional cash transfer modalities; school feeding to 584,000 pupils; supplementary feeding to 100,000 beneficiaries; blanket supplementary feeding program targeting 586,000; and hunger safety net to 60,000 households.

![Figure 1.1: Trends in Numbers Requiring Emergency Cross-Sectoral Interventions](source: KFSSG)
The Government and other non-governmental organizations are also providing other assistance programs including food to the food insecure populations. Figure 1.1 shows the trend of population requiring emergency assistance since 2006. Detailed analyses of the factors that have influenced changes in food security classification are in the sections that follow.

1.2.2 Areas classified in the Crisis Phase (IPC Phase 3)

About 250,000 people are classified in the Crisis Phase. The households that are classified in the Crisis Phase are described as experiencing significant food consumption gaps with high or above usual rate of malnutrition. Alternatively, household groups in Crisis are marginally able to meet minimum food needs, only with irreversible coping strategies such as liquidating livelihood assets or diverting expenses from essential non-food items. According to the assessment findings, household groups in the Crisis Phase are situated in localized areas of northeastern and northwestern pastoral including Wajir, Mandera, Moyale, Marsabit, Turkana, Tana River and Mwingi as shown in figure 1.2. Though household groups in Crisis received above average rains (Figure 1.3) that led to significant improvements in availability of pasture, browse and water, they have not been able to benefit from enhanced livestock productivity due to low livestock asset holdings. The majority of pastoralists in Crisis include the very poor that usually have low livestock holdings, which have declined by 20-30 percent due to heightened sales and losses through mortalities following successive droughts between 2006 and 2011, for instance in Ijara, Wajir, Mandera and Garissa. Affected households are only able to access less than half a liter of milk per day, compared to 2-3 liters in normal times. Meanwhile, improvements in households purchasing capacities, due to the 90-130 percent above average livestock prices, is not benefiting households in Crisis that are currently building their herds rather than selling livestock.

Other factors that are driving the Crisis level of food insecurity in the northeast pastoral are conflicts, insecurity and crop failure in the agro-pastoral zones located in Wajir and Mandera. Insecurity along the Kenya-Somalia border is disrupting market supply routes leading to below normal supply of food and other important items. In addition, transport and transaction costs have increased considerably due to high risk associated with operating within the zone. Conflicts have displaced about 4,200 households from northeast Moyale, into southern Ethiopia and northwest Wajir. The displaced households have increased pressure on water and grazing resources in areas where they have fled to, leading to high tension. For instance in northwest Wajir, heightening tensions has resulted into burning of pasture to dissuade further influx of livestock owned by the displaced population. Meanwhile, influx of households and livestock from conflict affected southern Ethiopia is also raising tensions in northern Mandera.

While nutrition levels have improved considerably in areas classified in the Crisis Phase, malnutrition rates are still high, near emergency levels. For instance, Global Acute Malnutrition (GAM) rates declined significantly from over 30 percent to less than 15 percent in most parts of Turkana, but are 16.9 and 15.5 percent in the Crisis areas in southern and central Turkana, respectively. Results from nutrition surveys conducted in October 2011 indicate that Mandera West had a GAM rate of 15.6 percent while Wajir North and Wajir West have GAM rates of 30 percent. However, the proportion of children under-five years ‘at risk’ of malnutrition (MUAC<135mm) remains high in these areas, ranging between 20-30 percent, which suggests that malnutrition rates may still be high.
1.2.3 Areas classified in the Stressed Phase (IPC Phase 2)

About 1.9 million people are classified in the Stressed Phase. Households groups in the Stressed Phase are described as having reduced and minimally adequate food consumption without engaging in irreversible coping strategies; however, they are unable to afford some essential non-food expenditures. Household groups categorized as Stressed reside predominantly in the southern, northeastern and northwestern pastoral, and in most areas of the southeastern and coastal marginal agricultural areas as shown in figure 1.2.

The majority of pastoral household groups in the Stressed Phase received above average short rains (Figure 1.3) that resulted into 80-90 percent recharge of water sources. Distances to water declined significantly and average less than 10 kilometres, with the exception of parts of Turkana and Marsabit where trekking distances reach 15 kilometres. Watering distances are within normal range, with the exception of Kajiado where they are above average. Shorter distances to water together with ample availability of pasture and browse have enhanced livestock productivity, leading to improved milk availability and good livestock body conditions. Households in the Stressed Phase are accessing 1-3 litres of milk per day, for example in Mandera, Wajir, Garissa, Isiolo, Marsabit, Tana River, Ijara, Samburu, Baringo and Turkana. However, milk availability is below the normal 2.5-5 litres per day.

Figure 1.2: Food Security Phase Classification

February 2012

August 2011

Source: KFSSG’s Assessments
Due to good body condition, livestock prices have increased significantly. For instance, goat prices are above average by 60-110 percent in Kajiado, Laikipia, Baringo, and West Pokot; by 70-130 percent in Turkana, Moyale, Marsabit and Samburu; and by 90-100 percent in Mandera, Garissa, Isiolo, Wajir, Tana River and Ijara. Nevertheless, improvements to households purchasing capacities are being moderated by high maize prices that are up to 85 percent above five year average across the pastoral. Terms of trade are 45-100 percent above five year average and households are accessing 36-90 kilogram of maize in exchange for a goat, from an average of 20-45 kilograms, due to high livestock prices. Majority of households classified in the Stressed Phase are consuming 2-3 meals per day, which is composed of 3-5 food groups. Number of meals and dietary diversity are normal, but may not be sustained due to rapid depletion of stocks and declining milk availability.

The improvement in nutrition status for children under-five years of age is suggestive of better household food consumption. For instance, the trend of children ‘at risk’ of malnutrition, that is with mid upper arm circumference (MUAC<135mm) is 10-40 percent below five year average for February in Narok, Isiolo, Marsabit, Samburu, Turkana, Tana River, Wajir, Garissa and Ijara. However, the proportion of children ‘at risk’ of malnutrition is 50 percent above five year average in Mandera. High malnutrition may be attributed to poor delivery of interventions due to insecurity and conflicts. For instance, ongoing blanket supplementary feeding is in the second or third cycle in Mandera compared to fourth or fifth cycle in Marsabit, Wajir, Garissa and Turkana.

According to assessment findings, household groups classified in the Stressed Phase that are in the southeastern and coastal lowlands received 50-80 percent of normal short rains. Rains were particularly poor in parts of Kitui, Mwingi, Malindi, Kilifi and Kwale that received less than 50 percent of normal short rains (Figure 1.3). The rains improved water availability following the 50-60 percent recharge of major water sources. However, the rains ceased in the first week of December, about a month earlier than usual, leading to significant crop losses and below normal short rains harvests. For instance, in Kitui, Mwingi, Malindi, Kwale and Kilifi, short rains maize harvests have been about 50 percent of normal and household stocks are expected to deplete earlier than usual because of increased sales and minimal carryover stocks from the previous season. Harvests have been particularly poor in the mixed marginal areas of the southeast and Coastal lowlands where up to 70 percent crop failure is reported. However, households in the high altitude areas received normal to above normal rains that resulted in 70-80 percent of normal harvests, for instance in Mbeere, Tharaka, Meru North, and mixed farming zones in Makueni, Kitui and Mwingi. Though households that received better harvests have food, their stocks are below normal and likely to rapidly deplete because of heightened sales. Household need cash for repaying debts accumulated in the previous poor seasons; for necessary non-food expenditure, such as, school fees; and for preparing land during the long rains season. While households normally tend to increase acreage planted during the long rains after a poor short rains season, this may not happen because of the forecasted poor long rains.

Marginal agriculturalists that experienced significant crop failure are starting to rely on market purchases after depleting their food stocks. However, staple maize prices are above five year average by 15-40 percent in the southeast marginal agricultural and by 70-80 percent in the coastal lowlands. Nevertheless, the stable nutrition rates suggest that household food consumption is still favourable due to availability of some harvests.
The proportion of children ‘at risk’ of malnutrition as measured using MUAC (MUAC<135 mm) is stable across the southeast and Coastal marginal agricultural zone, and are 20-50 percent below February average in Kilifi, Malindi, Mwingi, Kwale and Taveta.

1.2.4 Urban food insecurity rising precariously

The KFSSG estimates that food insecurity is deepening for an estimated 5.2 million people that reside in the urban high density informal areas. While households’ incomes have remained stagnant, food and fuel prices have significantly increased over the last six months. Inflation rate peaked at about 20 percent in November 2011 and is still above 15 percent. The general rise in prices was partly triggered by the rapid depreciation of the Kenya shilling against other foreign currencies. As a result, urban households’ purchasing power markedly declined leading to about 40-45 percent contraction in food purchase. Deepening food insecurity is adversely affecting households in the low income category that have to forego other important non-food expenditures, such as, health care and education. Meanwhile, middle households in these areas are spending a large proportion of their income on food rather than sustainable livelihood activities and are at risk of falling into the poor category. The quick passage of the Value Added Tax (VAT) Bill that zero rates essential goods may bring relief to households.

1.3 Short Rains Performance and Prospects for the 2012 Long Rains

The October-December, 2011 short rains started either early or on time across the north, northwestern, and northeastern pastoral, and in southeastern and Coastal marginal agricultural zones. The rains were above normal in most areas, with the exception of Kajiado, Mwingi, Kitui, Malindi, Kilifi and Kwale, that received less than 80 percent of normal rains (Figure 1.3). Most areas of the country shaded in various hues of blue received more than 120 percent of normal short rains, with the dark blue areas receiving over 300 percent of normal rains. The short rains were poorly distributed spatially and temporally. For instance, most of the northeast received nearly half of the total season’s rains, 220 mm, in a day. In the other areas, the season was shorter than usual. The rains ceased in the first week of December, which was one month earlier than normal across the northeastern, northern, and southeastern and Coastal marginal agricultural areas. Although exceptionally heavy rains temporarily delayed harvesting in the grain basket areas, and caused flash flooding that disrupted road transport in many areas, the rains brought considerable relief to households in the drought affected areas.
According to the Kenya Meteorological department (KMD), onset of the March-May, 2012 long rains is likely to delay or will be erratic. In addition, the rains are expected to be slightly or highly depressed across the pastoral and southeastern and coastal marginal agricultural zones. Also, there is a high probability that the spatial and temporal distribution will be poor. The season is expected to be unusually short as rains may be concentrated in April alone. The likelihood of highly depressed rains, less than 50 percent of normal, in eastern Marsabit, Moyale, Mandera, Wajir and northern Garissa is worrisome because households in these areas were just starting to recover from the effects of successive droughts.

1.4 National Maize Supply Situation

1.4.1 Maize output estimates

Overall maize production in 2011 has been below average. According to the Ministry of Agriculture, about 1.38 million hectares was put to maize production during the 2011 long rains season, which is about 15 percent above average area. However, long rains maize harvests are estimated to be 2.25 million MT, which is about 10 percent below the short term average. Below normal maize output is attributed to shortages of certified seed and fertilizer during the planting season. In addition, heightened post harvest losses during the harvesting season, due to enhanced rains in November and December, and an unusual increase in consumption of green maize in June-July period may have contributed to low dry maize harvests. Despite the 20 percent increase in area planted, the 2011/2012 short rains maize harvests are projected to be 20-35 percent below the short term average production of 450,000 MT. Below average short rains production is attributed to poor availability of certified seed for planting at the onset of the rains and early cessation of the short rains, which occurred at a critical stage of crop growth in most parts of southeastern and coastal marginal agricultural zone.

1.4.2 Maize supply prognosis

The domestic maize supply situation is likely to be tight for an extended period due to insignificant carryover stocks following below normal 2011 production. The possible delay in onset of the 2012 long rains coupled with ongoing fertilizer shortages are likely to delay planting, which will in turn delay start to the long rains maize harvest, beyond the normal start in June-July. Close monitoring of agricultural production in Tanzania and Uganda will be necessary during the marketing season because cross border imports will be important for bridging anticipated supply deficits. Already, cross border maize inflows have increased significantly in early 2012. For instance, 18,700 MT of maize has come into Kenya form Uganda, Tanzania and Ethiopia since January 2012 compared to 3,400 MT over the same period in 2011. Maize inflows are likely to be steady because of significantly higher prices in Kenya compared to Uganda and Tanzania. In early March 2012, the price of maize in Nairobi is 20-30 percent higher than prices in Kampala and Dar-es-Salam.
1.4.3 Maize availability during the July 2012 – June 2013 marketing year

Poor maize purchasing regime by the National Cereals and Produce Board (NCPB), due to lack of funds, may jeopardize future domestic maize supply before the harvesting of the 2012 long rains maize start. The strategic grain reserve (SGR) is 65 percent resourced as the NCPB has been able to purchase 58,500 MT of maize during the current season. The NCPB has about 243,000 MT of maize instead of the statutory 720,000 MT, which should be held in equal proportions of cash and maize stocks. Table 1.1 shows maize supply situation for July 2011-June 2012 marketing year. The maize availability situation will be clearer when the 2012 long rains establish and planting is finalized.

<table>
<thead>
<tr>
<th>Period</th>
<th>Source</th>
<th>Quantity (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2011</td>
<td>Opening stocks (Farmers, NCPB, millers, traders)</td>
<td>325,000</td>
</tr>
<tr>
<td>August 2011 - June 2012*</td>
<td>Imports (cross border and offshore): 1. Projected: Uganda - 250,000 MT; Tanzania and Ethiopia - 100,000 MT; 2. Actual - Private sector (Japan, southern Africa) - 50,000 MT</td>
<td>400,000</td>
</tr>
<tr>
<td>August 2011 - January 2012</td>
<td>National Long rains output</td>
<td>2,340,000</td>
</tr>
<tr>
<td>February - March 2012</td>
<td>National short rains output</td>
<td>450,000</td>
</tr>
<tr>
<td>August 2011 - June 2012</td>
<td>Post-harvest losses</td>
<td>270,000</td>
</tr>
<tr>
<td>June 2012</td>
<td>Total national availability</td>
<td>3,245,000</td>
</tr>
<tr>
<td>July 2011 - June 2012</td>
<td>Total national consumption</td>
<td>3,420,000</td>
</tr>
<tr>
<td>June 2012</td>
<td>Deficit</td>
<td>-175,000</td>
</tr>
</tbody>
</table>

* Imports do NOT include projected private sector imports nor likely relief maize imports.

Source of Data: MoA, MoSSP, RATIN, NCPB, Millers and Traders

1.5 Food Price Trends

In general, cereal prices are high in all livelihood zones. For instance, wholesale price of maize are 50-80 percent above five year average in Mombasa, Nairobi, Eldoret and Kisumu. As figure 1.4 shows, maize prices have remained unusually high even in the surplus producing areas, such as Eldoret, in January and February 2012. The main driver of maize price, soon after the harvest season, is the high NCPB purchase price. NCPB has been purchasing a 90 kilogram bag of maize at Ksh 3,000, which is about 85 percent above the five year average. The usual drop in prices after the conclusion of the short rains harvesting season has not been significant despite heightened sales by households.

Staple maize prices are highest in the northeastern pastoral zone, particularly in Mandera, where a kilogram of maize is selling for Ksh 74, which is about 110 percent above the five year average for February. High maize price in the pastoral is driven by high insecurity and ongoing Kenya military operation in Somalia. Somalia has been the key supply source for food and non-food items in northeastern pastoral. In addition, the main traders in Mandera have been Somali nationals. The ongoing military operation has cut off supply from Somalia. At the same time, intense security operation has prevented Somali nationals from operating businesses as usual.
Meanwhile, transport costs have increased significantly due to high fuel prices and increased risk of operating in the northeast. Compared to January 2012, the price of maize flour has dropped by about 10 percent, for instance in Nairobi. However, prices of other important commodities have increased significantly over the same period. For example, prices of kales and milk have increased by 40 and 10 percent respectively in Nairobi since January 2012. Market supply of the two commodities has markedly declined due to low production during the ongoing short dry season, coupled with above average temperatures. Kale is an important food commodity consumed by the low income population in the urban zone.

1.6 Options for Response

The improvements in food security situation may start to erode rapidly, particularly in areas where long rains are forecast to be highly depressed. However, to forestall the rapid decline in food security for households, necessary short term cross sectoral interventions and preparedness activities must be instituted in a timely fashion. Based on the situation analysis, the assessment teams proposed short and medium term interventions shown in table 1.2. The rationale for the continued interventions in the pastoral, agro-pastoral and marginal agricultural areas includes the following:

- Recovery is fragile as household vulnerability is still high. Prior to the 2011 short rains, households had suffered 2-3 droughts in succession.
- Long trekking distances may be a threat to immature livestock since calving is expected to peak in September, at the peak of the long dry season.
- The short rains production account for about 70 percent of annual output in the southeastern and coastal marginal agricultural zone. Meanwhile, the 2011 short rains have been the fourth consecutive poor season for farmers in most parts of the southeastern and coastal marginal agricultural zone.
- Food prices are likely to remain significantly above average, at least until after the commencement of the long rains harvests in August.
- Most of the improvements realized after the 2011 short rains can be attributed to ongoing interventions. Therefore, continuation of appropriate interventions is necessary to avert rapid decline in food security in the next six months due likely poor long rains.
- There is need to monitor cross border issues that may excercabate or mitigate rapid deterioration in food security situation, including changes in trade policies, cross border maize inflows, the security situation in South Sudan and food security conditions in Somalia.
1.7 Priority Interventions

Table 1.2, is a summary of immediate interventions that are required for each sector. More detailed analysis of sector-specific interventions will be expounded in the last chapter of the assessment report.

Table 1.2: Summary of Priority Interventions by Sector; March 2012 - August 2013

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>PROPOSED INTERVENTIONS</th>
<th>COST (KSH)</th>
<th>COST (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. AGRICULTURE SECTOR</td>
<td>Provision of certified drought tolerant seeds; establishing water harvesting structures for crop production; rehabilitation of irrigation facilities; bulking of drought tolerant crops; and capacity building on post harvest management to reduce losses.</td>
<td>2,000,000,000</td>
<td>23 M</td>
</tr>
<tr>
<td>2. LIVESTOCK SECTOR</td>
<td>Disease Surveillance; restocking of small stock and camel; vaccinations and treatments; livestock feed supplementation; and pasture conservation.</td>
<td>1,000,000,000</td>
<td>12 M</td>
</tr>
<tr>
<td>3. WATER SECTOR</td>
<td>Fuel subsidy and water tankering; rehabilitation of water sources; and capacity building for water committees to enhance preparedness.</td>
<td>3,300,000,000</td>
<td>39 M</td>
</tr>
<tr>
<td>4. HEALTH AND NUTRITION SECTOR</td>
<td>Human disease surveillance; nutrition surveys; integrated mobile outreach; strengthen HINI; management of acute malnutrition (particularly in Mandera and Wajir); and supporting sub-national information system and coordination.</td>
<td>6,100,000,000</td>
<td>72 M</td>
</tr>
<tr>
<td>5. EDUCATION SECTOR</td>
<td>School meals program; water tanks for rainwater harvesting and for water storage; promotion of hygiene; deworming; support to fees payment; and water tankering to schools.</td>
<td>4,000,000,000</td>
<td>47 M</td>
</tr>
<tr>
<td>6. MARKETS AND TRADE SECTOR</td>
<td>Support to traders in poorly integrated markets; strengthening important food value chains; livestock off-take for large stock; capacity development on value addition; and market infrastructure development.</td>
<td>1,000,000,000</td>
<td>12 M</td>
</tr>
<tr>
<td>7. FOOD SECTOR</td>
<td>Building resilience to future shocks through FFA and CFA, and GFD where FFA and CFA are not possible to implement. Food commodities and associated costs for 2.2 million people who are in need of food assistance, for the next six months (March 2012 – August 2012). An estimated 104,000 MT of food will be required.</td>
<td>8,900,000,000</td>
<td>105 M</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>26,300,000,000</strong></td>
<td><strong>310 M</strong></td>
</tr>
</tbody>
</table>
2.0 Food Security Assessment Methodology

2.1 Background and Objectives

The 2012 short rains assessments were coordinated and carried out under the auspices of the Kenya Food Security Steering Group (KFSSG) that includes institutions in the GoK, the UN, NGOs and key development partners. The coverage of the assessment extended to 29 traditionally drought-prone pastoral, agro-pastoral and marginal agricultural districts. The map on page 1 shows the assessment coverage, representing about 80 percent of the country’s geographic area. In addition, crop production data from the high potential areas in the Rift Valley and Western Kenya as well as price data from key reference markets was analyzed. Figure 2.1 shows the generalized livelihood zones in Kenya, which is the unit of analysis for the assessments. While the newly sub-divided districts were assessed, the point of reference is the pre-November 2007 district boundaries. The actual field assessments were carried out in the following five livelihood clusters:

a) Pastoral Northwest Cluster (Turkana, Moyale, Marsabit and Samburu districts).

b) Pastoral Northeast Cluster (Mandera, Wajir, Garissa, Isiolo, Ijara and Tana River districts).

c) Agro-Pastoral Cluster (Baringo, Koibatek, West Pokot, Laikipia, Narok, Kajiado and Nyeri North districts).

d) South Eastern Marginal Agricultural Cluster (Tharaka, Mbeere, Meru North, Makueni, Machakos, Mwingi and Kitui districts).

e) Coastal Marginal Agricultural Cluster (Taita Taveta, Malindi, Kilifi, Lamu and Kwale districts).

The overall objective of the assessment was to inform humanitarian, recovery and short term interventions across the food; water and sanitation; health and nutrition; agriculture and livestock; markets and the education sectors.

Specific objectives were to:

- Ascertain at the livelihood level, the quality and quantity of the short rains, and assess their impact on all key sectors.
- Establish required non-food interventions, with particular emphasis on programs that promote recovery and build household resilience.
- Assess potential food needs, including options for, food for assets, cash for assets, hunger safety nets and general food distribution.
- Establish the impacts of other compounding factors such as conflict, livestock disease, pest infestations, higher than average food prices and floods on household food security.
2.2 The Approach

The overall assessment processes and methodologies were coordinated and developed by the KFSSG. First secondary data for all assessed districts were collected and collated. Thereafter, the KFSSG organized a one week training workshop for assessment teams. During the workshop, the teams refined sectoral indicators, and were taken through the entire assessment process, including, agro-climatic information analysis, sampling methods and field data collection techniques, integrated food security phase classification, estimation of population affected and in need, and report writing. At the same time, the KFSSG identified interview sites, in each livelihood zone, statistically, to minimize bias in data collection and analysis. Each assessment team conducted a minimum of two household; two community; two key informant; and two market interviews in each sample site. The teams also visited health and education institutions to gather relevant information. Visual inspection techniques were used during transect drives to obtain qualitative information. Figure 2.2 depict the sites sampled for interviews and the assessment team transect route for Turkana district.

The field data was collated, reviewed, analyzed and triangulated to verify its validity. The National Drought Management Authority (NDMA) drought monitoring bulletins and the KFSSG monthly Food Security Update provided important additional information.

The KFSSG adopted a multi-sectoral and multi-agency approach covering the Agriculture, Livestock, Markets, Health and Nutrition, Water and Sanitation, Education and the Food Sectors. While the analytical framework is the livelihood zone, the required outcome is a detailed understanding of the changes in food security and identification of populations affected and in need of multi-sectoral assistance, particularly in the immediate and medium terms. Results from sampled areas were used, along with outcomes of discussions with the larger District Steering Groups (DSGs) and secondary data analysis to draw inferences for non-visited areas situated in similar livelihood zones. While the analysis was conducted at the livelihood zone level, findings and recommendations were provided at the district and divisional level for planning purposes. The new version of the integrated food security phase classification was employed in categorizing levels of food insecurity.
3.0 Food Security Analysis by Livelihood Cluster

3.1 The Northwest Pastoral Livelihood Cluster

3.1.1 Cluster Background
The Northwest pastoral livelihood cluster consists of the larger Turkana, Marsabit, Moyale and Samburu districts. The cluster is about 173,876 square kilometers in size and has an estimated population of 1.3 million persons. The larger districts have been subdivided into a total of fourteen new districts. The main livelihood zones in the cluster is the pastoral, which accounts for 60 percent of the cluster population. Others are agropastoral, which account for 21 percent, formal employment 11 percent and fisheries eight percent (Figure 3.1.1). Livestock contributes to 80 percent of total household income.

3.1.2 Current Factors Affecting Food Security
The current factors affecting food security in the cluster are high food commodity prices; low crop production in the agropastoral zones due to poor agronomic practices employed by farmers. In addition, conflicts and insecurity have disrupted livelihood activities, leading to loss of lives, displacement of households and loss of livelihood assets.

3.1.3 Overall Food Security Situation
Majority of households in the cluster are in the Stressed Phase of food insecurity. However, households in localized areas within northeast, southeast and south Turkana, northwest Marsabit and northeast Moyale are in the Crisis Phase. Ongoing interventions are contributing to significant improvements in food security. Figure 3.1.2 shows the overall food security situation in February 2012 compared to August 2011.
3.1.4 Food Security Trends
Household food security situation has improved across the cluster in the last six months. In August 2011 majority of the households were either in Emergency or Crisis Phase of food insecurity. However, due to the positive impacts of enhanced short rains, majority of households were in the Stressed Phase, in February 2012. Conflicts, insecurity and loss of harvests has kept some households in the Crisis Phase, particularly in northeast, southeast and south Turkana, northwest Marsabit and northeast Moyale.

3.1.5 Current Shocks and Hazards

3.1.5.1 Rainfall
The onset of the 2011 short rains was earlier than usual in the second week of October across the cluster. Rainfall amounts were generally above average. For instance, most parts of the cluster received 200-300 percent of normal short rains. The rains were exceptionally high in Turkana, surpassing 300 percent of normal. However, the rains were below normal, less than 80 percent of average, in the agropastoral zone of Marsabit. The spatial distribution was fairly even across the cluster. However, the short rains were poorly distributed temporally with most areas receiving 1.5 months of rains instead of the usual 2-2.5 months. The rains also ceased 3-4 week earlier than usual, in the first week of December, across the cluster.

3.1.5.2 Other Shocks and Hazards
Cattle rustling along the border areas of Turkana, northern Samburu and northeast Pokot districts have led to loss of lives and livestock assets resulting in destitution. Meanwhile, politically motivated ethnic conflicts have resulted into loss of lives and livelihood assets, closure of schools, displacements and market disruption in Moyale.

3.1.6 Impacts of Shocks and Hazards on Food Security

3.1.6.1 Crop Production
In general, area cropped during the short rains season was just about normal for both rain fed and irrigated agriculture. However, area under maize production doubled to 1,600 ha, mainly due to substitution of other crops with maize. For instance, only 40 and 55 percent of normal area was planted with sorghum and cowpeas, respectively. Though yields per acre were poor, due to inappropriate agronomic practices and early cessation of the rains, overall crop output increased by about five percent.

As at February, the cluster had about 3,500 MT of maize stocks, which compares well to the long term average stocks estimated at 3,700 MT. The bulk of current stocks are being held by households that have 1,900 MT of maize in their stores. The remaining maize stocks are being held by traders with 1,100 MT; millers with 130 MT; and the National Cereal and Produce Board (NCPB) with 360 MT. The overall maize stocks available in the cluster is likely to last for less than an month, which is normal. However, stocks for households situated in the irrigated areas may last unusually longer because of good harvests.
3.1.6.2 Livestock Production
Pasture and browse condition is good and expected to last three to four months across the cluster, which is a longer than usual two to three months. However, access to pasture is constrained by insecurity in some areas, for instance the pastoral areas of Samburu and Turkana. Due to good availability of pasture and browse, livestock trekking distances to water points have reduced from the usual 15-20 kilometers to below 10 kilometers, with the exception of pastoral areas of Turkana where trekking distances range between 5-15 kilometers, which is just above normal.

In general, livestock productivity has improved across the cluster. While livestock body condition is good for all species, milk availability has also improved. Households are accessing 0.5 and 0.25 liters of milk per day in the agropastoral and pastoral zones respectively. However, milk availability is below the normal of five litres per household per day. Milk availability is better in Samburu where households are accessing 1-1.5 liters of milk per day. A litre of milk is retailing at Ksh. 60 in the agropastoral and Ksh. 40-50 in the pastoral zones, which is 50-65 percent above normal. Milk prices are highest in Moyale where the price of a liter has doubled, mainly due to below normal supply.

Livestock migrations are minimal across the cluster. However, normal intra districts livestock movements are occurring within the cluster, towards the dry season grazing areas, as a strategy to conserve pasture that is near settlements. Though no livestock disease outbreaks have been reported, livestock productivity is hindered by endemic livestock diseases such as Contagious Bovine Pleuro Pneumonia (CBPP), Contagious Caprine Pleuro Pneumonia (CCPP), Trypanosomiasis, helminthiasis and Mange.

3.1.6.3 Water and Sanitation
The temporary water sources recharged to 80-90 percent of capacity due to above average short rains. However, water available is expected to last for 1-2 months, due to increased evaporation due to high temperatures. Currently, most water pans are about a half full and households are increasingly accessing water from boreholes.

The average return distances water points are below normal and range between 1-5 kilometers, against a normal of 2-5 kilometers in Samburu and Moyale, and 5-15 kilometers in Turkana and Marsabit. Waiting time at water points is stable, less than 10 minutes, with the exception of parts of Turkana and pastoral areas of Samburu where waiting time range between 30-120 minutes, which is within normal range.

The average price for borehole water is normal at Ksh. 2-3 per 20 litre jerrycan. Nevertheless, over 70 percent of households in the cluster rely on free water drawn from shallow wells, pans and dams, springs and rivers. Average water consumption is normal at 15-20 litres per person per day except in Suguta and Marti in Samburu, and parts of Turkana where water consumption average 5-10 litres per person per day, which is low but more than the normal consumption of 1-5 litres per person per day, for example in Turkana. No cases of water borne disease outbreaks were reported in the cluster despite low adoption of water treatment methods such as boiling and chemicals. Minimal use of water treatment is attributable to lack of appropriate chemicals stocks and low household purchasing capacities.
3.1.6.4 Market performance
Market functions were normal across the cluster with the exception of Moyale and Turkana where conflicts and insecurity temporarily disrupted trade activities. The main food commodity supply sources operated normally and the main markets were adequately provisioned with staple foods. At the same time, livestock market operations were also normal in the cluster.

A 90 kilogram bag of maize was selling for between Ksh. 2,700-5,400, lowest in Moyale and highest in Turkana. Maize prices were 70-80 percent above long term average for February. One of the major drivers of high maize price in the cluster is high transport costs due to poor road infrastructure and high fuel prices.

Cattle prices ranged between Ksh. 8,500-17,500, which is 60-110 percent above the five year average with the highest price recorded in Turkana and the lowest in Moyale. Similarly, goat prices that ranged between Ksh. 2,200-3,500 were above five year average by 70-130 percent and were highest in Marsabit and lowest in Turkana. Above average livestock prices is mainly attributed to the prevailing good body conditions and low market supply as pastoralists prefer to build their herds ample availability of pastures and water.

Pastoralists’ terms of trade have improved significantly despite high maize prices. As figure 3.1.3 shows, households are able to access 35-90 kilograms of maize compared to the usual 20-45 kilograms, in exchange for a goat. However, terms of trade are likely to gradually decline with livestock prices due to lowered livestock body condition because of increasing trekking distances during the dry season.

3.1.6.5 Health and Nutrition
The top five diseases in the cluster, for both the general population and the under-fives year olds, are malaria, diarrhea, pneumonia, upper respiratory tract infections (URTIs) and skin diseases. Chicken pox was reported as number five among the general population in Moyale. About 390 cases of dysentery were reported in Samburu. However, crude mortality rate (CMR) and under five mortality rate (U5MR) were decreasing and below the thresholds.

Immunization coverage ranged between 64.9 and 72.5 percent, which is below the national target of 80 percent. Moyale had immunization coverage of 86.8 percent while Turkana had the lowest coverage of 48 percent. Vitamin-A supplementation for children aged 1-5 years was 80 percent for Moyale while it ranged between 68.6 percent and 72.5 across the cluster. Turkana had the lowest coverage of 40 percent.
Households were consuming 2-3 meals per day made up of 3-4 food groups, which is normal. However in Turkana, pastoralists were consuming 1-2 meals per day. The nutrition status of children under the age of five years has improved significantly across the cluster and the Global Acute Malnutrition (GAM) rates that were high, above emergency levels, have declined considerably. For instance, GAM rates have declined from over 30 percent across Turkana, with the exception of Turkana Central and Turkana South where GAM is still 16.9 and 15.5 percent, respectively. However, as figure 3.1.4 show, the trend percentage of children ‘at risk’ of malnutrition as measured using Mid Upper Arm Circumference (MUAC) was declining, which suggests that nutrition status was improving.

3.1.6.6 Education
The average attendance in public primary schools improved significantly and was about 95 percent, partly attributed to good food availability. Other factors contributing to improved school attendance were minimal migrations, availability of boarding facilities and intense advocacy campaigns. However, in Moyale, school attendance was disrupted in Moyale where about 14 schools were closed due to conflicts. While ongoing school meals programs has contributed to enhanced enrollment and school attendance, early depletion of food rations, delays in food deliveries and inadequate water and firewood for food preparation are some of the constraints affecting the implementation of the program.

3.1.6.7 Coping Strategies
The coping strategy index (CSI) ranged between 0.1-0.29, lowest in Moyale and Turkana, and highest in Samburu. However, only about 30 percent of households are employing severe coping strategies, which is below the threshold. Among the coping strategies being employed by households include reduction of the number and size of meals and consuming less preferred food types.

3.1.7 Food Security Prognosis
The good performance of the short rains has triggered household recovery in most parts of the cluster after successive poor seasons. Environmental indicators have improved considerably. Good availability of water and forage has led to improved livestock body conditions and better livestock prices which has translated to better household terms of trade. Improved nutrition status is indicative of good food access. However, recovery of food security situation may be disrupted in the next 2-3 months as the ongoing unusual intense dry season may led to rapid depletion of water and pasture leading to longer trekking distances. Furthermore, poor 2012 long rains is likely to erode the current gains to food security.
3.2 The Eastern Pastoral Livelihood Cluster

3.2.1 Cluster Background
The eastern pastoral livelihood cluster consists of the larger Mandera, Garissa, Wajir, Tana River, Isiolo and Ijara districts. The cluster covers an estimated area of 190,753 square kilometers and has an estimated population of 1.8 million persons.

The larger districts have been further subdivided into a total of twenty two new districts. The main livelihood zones in the cluster as indicated in figure 3.2.1 are pastoral, agro-pastoral and mixed farming which account for 47, 21, and 18 percent of the cluster population respectively. The main sources of household income are livestock and crop production that account for 60 and 30 percent of total income respectively.

3.2.2 Current Factors Affecting Food Security
The main factors affecting food security in the cluster are high prices of food commodity and fuel. Other compounding factors include increased cases of human wildlife conflict over natural resources, insecurity, endemic livestock diseases and poor road infrastructure.

3.2.3 Overall Food Security Situation
Most parts of the cluster are classified in the Stressed Phase, mainly due to a combination of positive impacts of above average rains and ongoing interventions. However, there are localized areas that are still in the Crisis Phase, mainly due to ongoing conflicts, insecurity and poor food access.

Parts of northern Mandera have remained in the Crisis Phase due to poor harvests, low livestock holdings and high insecurity. Figure 3.2.2 shows the overall food security situation in the cluster in February 2012 and August 2011.
3.2.4 Food Security trends
Food security situation has improved from Crisis and Emergency levels to generally Stressed levels following the above normal short rains season, which led to the recharge of water sources and very good regeneration of pasture. As a result, trekking distance to water and pasture reduced considerably thus enhancing livestock productivity including milk production and good body condition. However, livestock productivity was hindered by endemic livestock diseases as well as vectors that impede access to pasture. In general, child malnutrition levels are on a declining trend and below emergency level across the cluster as a result of improved milk availability and consumption.

3.2.5 Current Shocks and Hazards

3.2.5.1 Rainfall
The onset of the short rains was early in mid-October across the cluster. The rainfall amounts were generally above normal and ranged between 200-300 percent of the normal across the cluster, with the exception of central parts of Tana River that received less than 80 percent of normal rains. The spatial distribution of the rains was evenly above average in the northern part of the cluster. However, the rains were poorly distributed temporally. For example, the northern parts of Wajir and Mandera received more than 200 millimeters of rain, which was about half of seasonal total, in a single day. The rains ceased during the first week of December, which was up to three weeks earlier than usual.

3.2.5.2 Other shocks and hazards
The shocks and hazards that have negatively impacted on household food security in the cluster are high food prices, cattle rustling, floods and bush fires. In Mandera, flooding along river Daua led to destruction of crops in farms within the irrigated zone. Meanwhile, ongoing military operation in Somalia has cut off supply lines leading to high food prices in Mandera, Elwak and Wajir. In addition, politically motivated conflicts, particularly in Isiolo, and clashes between pastoralists and farmers in Tana River have led to loss of livelihood assets and displacements.

3.2.6 Impact of Shocks and Hazards

3.2.6.1 Crop Production
Though long rains are most important for crop production, short rains crop production improved significantly and was near or just above normal. About 3,350 hectares of maize was planted in the cluster, against the long term average of 3,500 hectares and production was estimated to be 3,200 MT compared to an average of 2,600 MT. However, poor rainfall distribution, floods and pests resulted in 10-25 percent crop failure in the agro-pastoral zones in Wajir and Mandera.

3.2.6.2 Livestock Production
Pasture and browse condition was generally good across the cluster except in Tana River where they were in good to fair conditions. The good forage condition and reduced trekking distances resulted in good livestock body condition across the cluster, with the exception of Tana River where livestock body condition were good to fair. The available pasture was expected to last for 3-4 months, which is longer than normal while available browse may last beyond the long rains. The current average return trekking distances from grazing to watering points range between 3-6 kilometers, which is normal in most parts of the cluster.
Livestock trekking distances have declined significantly, for example, in Mandera from 30-50 kilometers, at the height of the drought, to about 6-7 kilometers. Milk availability at household level is about 1-3 liters per day compared to the normal of 2.5-5 liters and is lowest in Garissa. However, milk availability increased by about 50 percent, to six liters, in Kipini and Garsen areas of Tana River.

Nevertheless, milk availability is still below normal as most livestock are in gestation. Below normal milk availability is manifesting in high milk prices that are nearly 70 percent above average. With the exception of livestock movements from Moyale into northwest Wajir, and from Ijara into Garissa, livestock migrations have remained unusually minimal across the cluster. No livestock disease outbreaks were reported. However, endemic diseases such as CCPP and CBPP were reported in many places. In Garissa suspected cases of Foot and Mouth Disease (FMD) and Sheep and Goat Pox Disease were also reported.

### 3.2.6.3 Water and Sanitation

The above average rains resulted in 80-100 percent recharged of main surface water sources in the cluster. Available water was estimated to last unusually longer in many places by 1-3 months. The average return distance to water points were normal and ranged between 1-3 kilometres, with the exception of Mandera where distances averaged 6-7 kilometres from up to 15 kilometres previously.

Waiting time at water points was stable and averaged 5-10 minutes. The average price for water from boreholes was normal at Ksh. 2-5 per 20 litre jerrycan. However, in the urban areas of Wajir, water vendors were selling a 20 litre jerrycan of water for Ksh. 10-20. Average water consumption was normal at 15-20 litres per person per day except in parts of Isiolo where consumption averaged 7-10 litres per person per day.

### 3.2.6.4 Market performance

Market operations were disrupted by security operations along Kenya-Somalia border and clan feuds in southern Ethiopia. Maize prices ranged between Ksh. 2,700-5,600 per 90 kilogram, lowest in Tana River and highest in Mandera. Maize prices were above the five year average for February by 10-25 percent in Tana River and Isiolo; and 75-85 percent in Garissa Ijara and Mandera. Livestock prices were generally higher than LTA by 90-100 percent in the cluster. Currently price of a mature goat range from Ksh 2,700 in Mandera to Ksh 4,500 in Isiolo district. Similar grades of goats were sold for an average of Ksh. 1,250 in February 2011. High livestock prices are attributed to improved livestock body condition and the unwillingness of the pastoralist to sell their livestock when pastures are available. As figure 3.2.3 shows, terms of trade have improved across the cluster and households are able to access 40-75 kilograms of maize from sale of a goat, compared to an average of 30-65 kilograms.
3.2.6.5 Health and Nutrition

Malaria, respiratory tract infections and diseases of the skin, diarrhea and pneumonia are the most prevalent diseases for both children under-five years of age and the general population. However, rheumatism was also reported as prevalent in Isiolo. Malaria cases increased considerably across the cluster as enhanced rains provided good breeding environment for mosquitoes.

At the same time, measles outbreaks occurred in Garissa and Mandera districts while dysentery led to a death in Wajir. The crude mortality rate (CMR) and under five mortality rate (U5MR) were below the thresholds. However, in Mandera, U5MR was 1.58 per 10,000 per day, which was an increase from 0.6 per 10,000 per day in 2010.

Households were consuming 2-3 meals per day with diets consisting of 3-5 food groups, which is normal. As figure 3.2.4 illustrates, the proportion of children under-five year old ‘at risk’ of malnutrition has been declining steadily since September due to enhanced delivery of interventions and improvement in food access. MUAC rates are below February average across the cluster except in Mandera, where MUAC rate is about 50 percent above February average, mainly due to poor access to interventions due to insecurity.

3.2.6.6 Education

Enrolment rates have generally improved in all the districts within the cluster except in Isiolo where insecurity has led to closure of schools. Improvement in enrollment was attributed to return of pastoralists from distant grazing areas where they had migrated to at the peak of the drought. Primary school dropout rates were generally low across the cluster, with the exception of schools in Dadaab division of Garissa where pupils are engaged in casual labor activities in the refugee camps.

3.2.6.7 Coping Strategies

The coping strategy index (CSI) ranged between 0.1-0.2, lowest in Mandera and highest in Tana River. Households were generally not employing severe coping strategies. Among the coping strategies being employed by households included purchasing food on credit, charcoal burning, reduced number of meals, and reliance on gifts from relatives.
3.2.7 Food Security Prognosis
While food security has improved significantly, insecurity is a major hazard that is disrupting market operations and thus limiting access to food. The current food security situation is likely to be sustained if the long rains performance is good because water and forages are available while milk availability is expected to increase when livestock birthing intensify. However, a delay or poor performance of the long rains may lead to rapid deterioration of food security.

3.3 The Agropastoral Livelihood Cluster

3.3.1 Cluster Background
The Agropastoral livelihood cluster consists of the larger Kajiado, Narok, West Pokot, Baringo, Laikipia, Koibatek and Nyeri (Kieni East and West) districts. The cluster covers approximately 68,820 square kilometers and has an estimated population of 2,908,040 persons.

Annual rainfall ranges between 500 to 1500 mm. The main livelihood zones in the cluster as illustrated in figure 3.3.1 are mixed farming, pastoral, marginal mixed farming and agro pastoral, which represents 36, 28, 13 and 11 percent of the cluster population respectively.

Livestock production contributes 85 percent of cash income in the pastoral zone while crop production contributes 55 percent to cash income in agro pastoral livelihood zone. Households in this cluster access 30 and 60 percent of food from own production and market purchases respectively.

3.3.2 Current Factors Affecting Food Security
The main factors affecting food security in the cluster are high food commodity prices and endemic livestock pests and diseases. Other are civil insecurity and conflict, human wildlife conflict and the poor weather condition, which brought about frosting that affected crops and pastures. Poor infrastructure, illiteracy and environmental degradation are underlying factors to high food insecurity.
3.3.3 Overall Food Security Situation
The good performance of the short rains has contributed to improved food security that subsequently shifted the phase classification to Stressed Phase as shown in figure 3.3.2.

Across the cluster, the mixed farming zone in higher altitude areas are classified in the Minimal Phase. Despite improvements to food security in northern Baringo, incessant conflicts have kept households in the Crisis phase.

Improvements in the water situation are expected to impact positively on livestock productivity and access to water hence reduced trekking distance. The prices of livestock are good due to improved body condition in all livestock species. However, pasture availability may start to diminish due to effects of frost and the prevailing dry spell.

3.3.4 Food Security Trends
The food security situation has improved in most districts, which are now classified in the Stressed Phase compared to August 2011 when they were in the Crisis Phase. However, high altitude areas have remained in the Minimal Phase while the northern pastoral areas of Baringo district have remained in the Crisis phase.

3.3.5 Current Shocks and Hazards
3.3.5.1 Rainfall Performance
The rainfall onset was timely in most parts of the cluster, during the second week of October, apart from Baringo where it was early. The amounts received were generally above normal in all parts of the cluster and ranged between 200-300 percent of normal in the northern parts of the cluster. The southwestern areas received between 80-160 percent of normal rains. The lowest amounts were received in Namanga and Mashuru divisions of Kajiado (20-80 percent of normal) while eastern and central parts of Kieni East district and the eastern part of Kieni West received 50-80 percent of normal.
However, the rains were generally unevenly distributed spatially with the northern parts of the cluster receiving enhanced rains. The temporal distribution of the rains was poor as rains were received in 1-2 months instead of the normal three months. The rains ceased early across the cluster in mid December instead of mid January.

3.3.5.1 Other shocks and hazards
Other shocks and hazards that have negatively impacted household food security are civil insecurity, floods, frost and high food prices. At the same time livestock diseases have disrupted market operations in Koibatek and parts of Likipia besides causing loss of livestock.

3.3.6 Impacts of Shocks and Hazards

3.3.6.1 Crop Production
All districts within the cluster except Kajiado are dependent on the long rains. Maize is the main staple contributing to about 50 percent to food and 20 percent to income. The area under the main food crops increased in all districts within the cluster except Kajiado and Baringo. However, crop production declined across the cluster, for instance, maize, beans and potato production declined by 59, 72 and 24 percent respectively compared to the long term average (LTA). The decline in crop production was attributed to poor temporal distribution of rains; the effects of frost in Nyeri, Laikipia and Narok; and floods in Baringo, West Pokot and Narok.

Irrigation is carried out schemes in Narok, Baringo and Kajiado, and small scale irrigation done along river banks in other districts. Maize stocks held in the cluster were lower than the LTA in most areas and were estimated to last for 1-2 months except in Laikipia where the stocks were expected to last for about eight months. Low food stocks was attributed to poor performance of previous long rains and the current short rains, post harvest losses and damage to crops by elephants in Nyeri and Laikipia.

3.3.6.2 Livestock Production
The condition of pasture and browse was fair to good and was estimated to last 2-3 months. However, in Kajiado, some parts of West Pokot and Narok, the pasture and browse condition was fair to poor and was estimated to last 1-2 months. As a result, the return distances to water sources reduced to 1-5 kilometers compared to the normal of 7-10 kilometers, with exception of Kajiado and pastoral areas of Koibatek where distances averaged 10-15 kilometers, which was above normal.

The improvements in forage condition and reduced trekking distances resulted in fair to good livestock body condition across the cluster. However, milk availability at household level reduced across the cluster with most households accessing 0.5-3 liters against a normal of 2-5 liters per day. In Laikipia milk availability ranged from 8-20 liters with highest milk availability being recorded in the mixed farming livelihood zone. The price of milk ranged between Ksh. 28-50 per liter compared to normal Ksh. 22-30, which depicts below normal availability.
Although livestock migrations were minimal, some movements were reported in some areas of the cluster. For instance, internal migrations occurred in some parts of West Pokot, Kajiado and Narok. Meanwhile, outmigration from West Pokot to Trans Nzoia and Samburu to Laikipia were also reported. Livestock diseases were also starting to increase, for example, foot and mouth disease (FMD) outbreak was reported in Kajiado, Koibatek, Laikipia and Nyeri while suspected anthrax was reported in Kajiado, sheep and goat pox in Kajiado and Laikipia while Pestes des Petits Ruminants (PPR) was reputed in Baringo. Newcastle outbreak was reported in Kajiado and Nyeri while lumpy skin disease was reported in Baringo. Tick borne diseases that were reported in Baringo, Kajiado, Laikipia, Nyeri and West Pokot resulted in major production losses.

3.3.6.3 Water and Sanitation
The major water sources in the cluster are rivers, boreholes, water pans, springs, shallow wells and Lake Baringo in Baringo district. The temporal water sources were 80-90 percent recharged and were expected to last for 1-2 months. Water levels were significantly low in Nyeri due to increased abstraction for irrigation purposes. The average return distance to water points was normal, ranging from 1-2 kilometers in the mixed farming zones and 2-6 kilometers in the pastoral and agro-pastoral zones. Distances increased in Kajiado from the normal three kilometers to 5-8 kilometers, while water trucking had started in some areas.

The current waiting time was stable at five minutes in the mixed farming zones and between 15-30 minutes in the agro-pastoral zones, mainly due to drying up of water pans and dams. However, waiting time increased significantly in Kisanana division in Koibatek district from 45 to 120 minutes due to controlled pumping hours for boreholes and high livestock influx after water pans dried up.

The average price for borehole water ranged between Ksh. 2-5 per 20 liter jerrycan in all livelihoods, which is normal. However, water vendors were selling a 20 liter jerrycan of water for Ksh. 10-20 in most parts of the cluster. Normally, majority of households rarely pay for water as they rely on shallow wells, pans and dams, springs, and rivers.

Average water consumption was normal at 10-15 liters per person per day in the mixed farming zone and 8–10 liters in pastoral zone and agro-pastoral zones. No cases of water borne disease outbreaks were reported in the district. However, few cases of typhoid, diarrhea and dysentery were reported in localized areas within the cluster.

3.3.6.4 Market and Trade
Market operations were disrupted in Eldama Ravine, Marigat and Mogotio in Koibatek, and in Mukogodo in Laikipia due to outbreak of FMD, which lead to closure of livestock markets. In Laikipia, flow of goods and services was disrupted by insecurity and destroyed roads as result of floods.
Maize prices ranged from Ksh. 35 per kilogram in Koibatek and Ksh. 48 in West Pokot compared to the normal range of Ksh. 25-28. The prices were 60 percent above the LTA in most districts but were 40 percent below long term average in Koibatek. The price of a goat ranged between Ksh. 2,500 and Ksh. 4,000 compared to LTA range of Ksh 1,400- 2,500. Livestock prices were 60-110 percent above LTA in most part of the cluster. Figure 3.3.3 depicts the generally favorable terms of trade that were above LTA in most parts of the cluster, with the exception of West Pokot and Nyeri where terms of trade were 5-20 percent below the LTA.

3.3.6.5 Health and Nutrition
Morbidity patterns among children under five and the general population were similar across the cluster. Baringo and West Pokot reported an increase in diarrhea and dysentery cases among children under five attributable to poor hygienic practices. There was a measles outbreak in Narok and Kajiado, possibly due to low immunization and vitamin A supplementation coverage in these districts.

Crude mortality rates ranged from 0.006 deaths per 10,000 per day in Narok to 0.8 deaths per 10,000 per day in West Pokot while under five mortality rates were lowest in Narok at 0.02 deaths per 10,000 per day and highest in Baringo at 1.3 deaths per 10,000 per day. Current CMR and U5MR rates are below last year’s levels, which suggest that mortality has not changed significantly across the cluster.

Immunization coverage was generally below the national target of 80 percent across the cluster except in Nyeri, Laikipia and Koibatek. Lowest coverage was recorded in Narok (50.2 percent) while the highest was in Nyeri (94 percent). Vitamin-A supplementation for children under-five years was below the national target across the cluster except in Koibatek which recorded coverage of 89.1 percent. Nutrition status of children generally improved and was stable across the cluster as illustrated by the trends in Narok district shown in figure 3.3.4.
The proportion of under fives ‘at risk’ of malnutrition (MUAC<135 mm) ranged between seven and 12.6 percent in Laikipia, West Pokot, Kajiado and Narok. Proportion at risk was exceptionally low in Nyeri at 0.8 percent, but was highest in Baringo at 16.1 percent. Recent nutrition surveys in Baringo and Laikipia indicate global acute malnutrition (GAM) rates of 5.9 and 10 percent respectively which are below emergency threshold of 15 percent. Households were consuming 2-3 meals per day across the cluster compared to a normal of three meals. However, the pastoral communities were consuming 1-2 meals per day. Dietary diversity was on average fair across the cluster meals made up of 3-4 food groups compared to the usual 4-5 food groups.

3.3.6.6 Education
School enrolment increased across the cluster with exceptions in Koibatek and Kajiado districts that recorded 60 percent enrolment against the national target of 90 percent. There was a decline in the drop-out rates across the cluster. However, in Nyeri district, dropout rate markedly increased when compared to 2010, mainly due to high poverty levels, marital instability, increased child labor and few cases of parental negligence. Transition rate from ECD to lower primary was high. However, the transition rates, from primary to secondary school, generally declined due to lack of school fees.

3.3.6.7 Coping Strategies
The Coping Strategy Index (CSI) range between 0.07 (Baringo) and 0.2 (West Pokot) and no adverse coping strategies were being employed by households. Coping strategies employed in the district are diverse but not irreversible.

3.3.7 Food Security Prognosis
Overall, the cluster was classified in Stressed Phase. Food security situation was likely to remain stable over the following 1-2 months after the assessments, in the agro-pastoral, pastoral and marginal mixed farming livelihood zones. Food security in the mixed farming livelihood zone was likely to be stable for 3-4 months after the assessments even though high food prices were a major threat to stability of food security. The food security situation is highly dependent on the performance of the 2012 long rains, which are the main rains in most parts of the cluster.

3.4 The Southeastern Marginal Agriculture Cluster

3.4.1 Cluster Background
The South Eastern Marginal Agricultural Cluster comprises of the greater Kitui, Machakos, Makueni, Mbeere, Meru North, Mwingi and Tharaka districts. It covers about 52,000 square kilometres with an estimated population of 4.1 million. As figure 3.4.1 shows, the main livelihood zones in this cluster are: mixed farming and marginal mixed farming which account for 65 and 26 percent of the population respectively.
Crop production is the most important source of income, contributing 40 percent of household income. The other sources include; livestock production and employment which contribute 35 and 25 percent of household income, respectively. Remittances are also important in the cluster.

3.4.2 Factors Affecting Food Security
The main factor affecting food security is incidences of crop pests, specifically the African bollworm which significantly lowered crop yield. Other factors include the effects of the previous failed seasons, early cessation of the short rains; low livestock productivity, high food prices and poor agronomic practices.

3.4.3 Overall Food Security Situation
Generally, the cluster is classified in the Stressed Phase. However, Mbeere district and mixed farming livelihood zones of Meru North, Tharaka west, Mwingi, northwest Kitui, northwest Makueni and eastern parts of Machakos are in the Minimal Phase. Only a localized pocket of Tseikuru, Mwingi district, is in Crisis phase.

Figure 3.4.2 shows the food security situation in the southeastern marginal agricultural cluster in February 2012 compared to August 2011.

3.4.4 Food Security Trends
In August 2011, most parts of the cluster were classified in Crisis Phase with pockets of Emergency in southeastern parts of Kitui, northeastern and southeastern parts of Machakos, and eastern Mwingi. However, there were parts of northern Makueni, central Machakos, western parts of Mwingi and Mbeere, Tharaka and Meru North which were in the Stressed Phase. Mixed farming zones of Meru North were in the Minimal Phase. In February 2012, the food security situation significantly improved in most areas, attributed to the normal short rains experienced during the season, and households were classified in the Stressed Phase of food insecurity.
3.4.5 Current Shocks and Hazards

3.4.5.1 Rainfall
The onset of short rain was timely in all parts of the cluster except in Mwingi, which experienced an early onset, and Kitui where rains started late. In General, most parts of the cluster received 50-80 percent of normal rainfall. The rains were exceptionally poor in Kitui and southeast Mwingi that received 20-50 percent of normal short rains. However, Tharaka and Meru North received 120-160 percent of normal. The rains were unevenly distributed across the cluster. The rains were also poorly distributed temporally as many areas received erratic and sporadic high intensity rains. The rains ceased early during the beginning of December, instead of the usual end of December into the New Year.

3.4.5.2 Other Shocks and Hazards
Widespread incidences of crop pests and livestock diseases, civil conflicts and insecurity were other hazards that affected households in the cluster. The African bollworm infestation affected crop production, reducing yields by 50 percent across the cluster. In addition, the fear of cattle rustling and insecurity has restrained households from accessing pastures and browse which is available.

3.4.6 Impacts of Shocks and Hazards

3.4.6.1 Crop Production
The cluster is mainly dependent on the short rain season crop production. In general, area under rain fed and irrigated production was 382,195 hectares and 8,888 hectares respectively, which was 17-25 percent below normal. The factors that impacted negatively on area planted were high cost of inputs and limited access to affordable credit. The achieved production under rain-fed crops (38 percent) and irrigated farming (16 percent) was lower than the LTA by 20-35 percent. Below average production was attributed to erratic rains which also ceased early, crop infestation by the African bollworm pest, incidences of frostbite and high cost of inputs. Overall, maize stocks held by the households, traders, millers and NCPB are 618,240 ninety kilogram bags much below the long term average of 2.7 million bags. Stocks at household level were expected to last for about two months compared to the normal 3-4 months.

3.4.6.2 Livestock Production
Livestock production contributes 35 percent of household cash income in the cluster. The pasture and browse condition ranged from fair in the marginal mixed farming zones to good in the mixed farming zones and was expected to last 2-3 months. The average trekking distances to water ranged between 3-14 kilometres, which is normal. Livestock body condition was good to fair across the cluster however milk availability was low at 0.5-1 litres per household per day compared to the normal of four litres, except in marginal mixed farming zone of Mwingi where households were accessing only 400 millilitres of milk compared to the normal two litres. Low milk production was attributed to most animals being in-calf. The low milk production resulted in an increase in price of milk to Ksh. 50-60 per litre compared to the normal of Ksh. 40 per litre.
3.4.6.3 Water and Sanitation
Water sources recharged to about 30-50 percent of capacity across the cluster and available water was estimated to last three months, except in Meru North and Mwingi district where it was estimated to last for two months. Distances to water sources were normal and ranged from 0.3-6 kilometers, except in parts of Meru North and Makueni where households were covering 15-20 kilometers.

The cost of a 20 liter jerrycan of water averaged Ksh. 2-10 across the cluster, with the exception for Meru North, where water was selling for Ksh. 25 per 20 liter due to poor recharge of sources. Waiting time at source averaged 0-30 minutes and was within seasonal norms except for Meru North and Mbeere where households waited for 2.5 hours, up from a normal of 1.5 hours. Water consumption was normal at 15-20 liters except in Machakos and parts of Mwingi where consumption was 7-10 liters per person per day.

3.4.6.4 Markets and Trade
Markets operated normally except in Tharaka where livestock markets were closed between October 2011 and January 2012 due to outbreaks of livestock diseases. The traded volumes of food staples were higher than normal across the cluster, particularly where harvests were good. The bulk of food commodities traded were from local production. A 90 kilogramme bag of maize was selling for Ksh. 2,250-3,870 which was higher than the long term average of Ksh. 1,500.

As figure 3.4.3 shows, the prices of cereals have been high since January 2011. Though maize prices were on a downward trend, they were likely to start rising in two months after farmers depleted their stocks.

Livestock prices were 60-70 percent above the long term average in the cluster. A mature goat was selling for an average of Ksh. 2,885 with the highest price of Ksh. 5,000 in Makueni and the lowest price of Ksh 2,166 in Kitui. Terms of trade varied across the cluster, and were lowest in Kitui where a goat was exchanging for about 50 kilograms of maize. Meru North had the most favorable terms of trade as a goat was exchanging for about 130 kilograms of maize.

3.4.6.5 Health and Nutrition
Morbidity patterns for the under five and the general population was similar across the cluster. However, there was an increase in diarrheal cases in Mwingi district while measles outbreak occurred in Mwingi, Mbeere, Meru North and Kitui districts resulting 15 deaths in Mwingi district. Dysentery cases were reported in Machakos (1782 cases), Mbeere (533 cases) and Kitui (346 cases) districts.
The crude mortality rate (CMR) and under five mortality rate (U5MR) ranged between 0.01 per 10,000 per day and 0.3 per 10,000 per day and were below the thresholds. Immunization ranged between 54 and 78.2 percent and was below the national target of 80 percent across the cluster except in Machakos district.

Vitamin-A supplementation for under-fives ranged between 60-65 percent and was below the national target of 80 percent except in Makueni and Kitui districts which had achieved the target.

Households were consuming 2-3 meals across the cluster which was. In general, 4-6 food groups were being consumed. The proportion of children under five years of age ‘at risk’ of malnutrition was declining as figure 3.4.4 illustrates. MUAC rates were below normal across the cluster, indicating good access to food for households and effective ongoing interventions.

3.4.6.6 Education
The enrollment rates varied across the cluster. While there were no changes in enrollment rates in Machakos and Tharaka, rates increased in Kitui, Makueni and Mwingi. In Mbeere and Meru North, enrollment rates declined due to increased engagement in casual labour in miraa (Khat) farms and petty trade. There were high transition rates of above 90 percent from Early Childhood Development to Primary across the cluster. However, transition from primary to secondary level was between 60-75 percent with Kitui recording the highest rate of 95 percent while Mbeere and Meru North recorded the lowest rates of 30 percent. Other than Meru north, all the other districts in the cluster were either on Home Grown School Meals Programme (HGSMP) or Expanded School Meals Programme (ESMP)

3.4.6.7 Coping Strategies
The coping strategy index (CSI) ranged between 0.04 in Makueni and 0.13 in Tharaka, which was below the critical threshold of 0.4. Majority of the households were employing normal coping strategies such as brick making, charcoal burning, petty trade and measured sand harvesting.

3.4.7 Food Security Prognosis
Food security situation was likely to remain stable for 3-4 and 2-3 months, after the assessments, in the mixed farming and the marginal mixed farming livelihood zones respectively. Household stocks were rapidly depleting due to increased sales while food prices were likely to start increased after 1-2 months. The likely poor performance of the long rains season will be the fourth consecutive poor season in many areas, which may increase food insecurity for affected households.
3.5 The Coastal Marginal Agricultural Livelihood Cluster

3.5.1 Cluster background
The Coast marginal agricultural cluster consists of larger Kwale, Malindi, Kilifi Taita Taveta and Lamu districts. The cluster covers an area of 48,000 square kilometres with an estimated population of 2.3 million people. The five districts have been subdivided into thirteen smaller districts. The main livelihoods in the cluster as indicated in Figure 3.5.1 are mixed farming, formal employment including casual labour and business and marginal mixed and livestock farming, which account for 60, 20 and 15 percent of the cluster population, respectively. Livestock production, crop production and waged labour are the main sources of household income in the cluster. Livestock production accounts for 40 percent while crop production and waged labour each contribute 30 percent of household’s income.

3.5.2 Current Factors Affecting Food Security
The main factors affecting food security in the cluster are high food commodity prices and the poor agronomic practices employed by farmers. Other compounding factors include inadequate and erratic rainfall and the high poverty levels. The ongoing Kenya Military operation in Somalia has also affected food security in the region as a large proportion of residents who live along the coastline, especially in Malindi and Lamu, are unable derive incomes from their normal livelihood activities that include fishing and tourism.

3.5.3 Overall Food Security Situation
The food security status has generally improved across the cluster in the last six months. Most areas in the cluster are in the Stressed Phase, while the coastal belt of Lamu, Malindi, Kilifi and Kwale are in the Minimal Phase. The 2011 short rains performance was better compared to the two previous seasons that failed. As a result, households were able to obtain some harvests while the previous acute water shortage dissipated. Figure 3.5.2 shows the food security situation in February 2012 and August 2011.
3.5.4 Food Security Trends

The food security situation has generally improved across the cluster after the failure of the previous 2-3 seasons. Most area in Kilifi, Kwale, Taita and Malindi that were in Crisis Phase in August 2011 have improved to Stressed Phase, while areas along the Coastal belt have improved from Stressed to the Minimal Phase.

3.5.5 Current Shocks and Hazards

3.5.5.1 Rainfall

The onset of short rains was timely in second dekad of October except in Shimba hills, Kubo and Matuga in Kwale where rains started early in the third dekad of September. Most areas of the cluster received 50-80 percent of the normal rains, with the exception of Lamu that received 160-300 percent of the rains and some parts of Taita Taveta that received 80-120 percent of normal rains. The coastal belt areas in Kilifi, Kwale and Malindi received the least rains which were about 20-50 percent of the normal short rains. The rains were unevenly distributed spatially. At the same time, the rains were poorly distributed spatially with rains that were received for about 20-30 days, were also characterized by numerous intervals of short dry spells averaging 5-10 days. The rains ceased on time during the third week of December in many places, with the exception of Kilifi where the rains ceased early in the first week of December.

3.5.5.2 Other Shocks and Hazards

Other shocks and hazards that have negatively impacted on household food security include wildlife destruction on crops, and crop pests and diseases. In addition, floods occurred in Taita Taveta, leading to displacement of households and destruction of crop.
3.5.6 Impacts of shocks and Hazards

3.5.6.1 Crop Production
The short rains contribute 30-50 percent of annual crop production in the cluster. Malindi, Kilifi and Taveta are mainly short rains dependent while Lamu and Kwale are long rains dependent. Maize is the main staple food crop grown in the cluster and it contribute to 45 percent to food and seven percent to income.

Area under maize production increased by about 17 percent compared to the long term mean while production increased by five percent, mainly due to distribution of relief seeds, adoption of conservation agriculture in some areas, increased demand for food commodities and anticipation of enhanced rains by farmers. The factors that adversely impacted on crop yields were poor rainfall distribution, shortage of certified seeds, infestation by maize stalk borers, poor cultivation methods, late planting, flooding and water logging in parts of Taita-Taveta and Kwale.

The cluster was holding about 41,000 MT of maize compared to the long term average of 56,000 MT. Available maize stocks was estimated to last for an average of three months. Kwale and Kilifi had higher stocks compared to LTA. In Kwale there was substantial increase in area put under maize while in Kilifi stocks were boosted by production from the coastal belt which is normally a long rains dependent zone. Poor storage practices led to post-harvest losses amounting to 20-30 percent of harvested grain mainly through damage by weevils and larger grain borer.

3.5.6.2 Livestock Production
Livestock body condition for all livestock species was good, mainly attributed to good pasture and browse situation which was projected to last 2-3 months. Livestock trekking distances from pastures to water sources were normal and ranged between 3-5 kilometres, with exception of livestock farming zone in Lamu where trekking distance were reaching 10 kilometres. Milk availability at household level increased from three to five litres across the cluster except in Taita Taveta and Lamu where milk availability ranged between 1-2 liters compared to the normal five litres. Milk prices were 30-100 percent above normal indicating below normal availbility. In addition to the endemic livestock diseases such as trypanosomiasis, CCPP, CBPP and worm infestation, there were an outbreak of Newcastle disease in poultry in Kilifi.

3.5.6.3 Water and Sanitation
Households accessed water from the normal water sources that recharged to 50-75 percent of capacity. Available water was estimated to last for 1-3 months. Trekking distances to water ranged between half a kilometer to 5 kilometers across the cluster except in parts of Malindi, Taita Taveta and Lamu districts where distances were just below 15 kilometers. Waiting time at water sources ranged between 5-20 minutes across the cluster, with exception of parts of Lamu and Taita Taveta where the waiting time was 20-60 and 45-60 minutes respectively. Waiting time doubled in Taita Taveta and Lamu but reduced by 50 percent in Kwale.
The cost of water was normal across the cluster at Ksh 1.5 per 20 liter jerrycan, except in fishing and mangrove livelihood zones of Lamu where prices ranged from Ksh. 20-25 compared to LTA of Ksh. 10. Household water consumption ranged from 10-15 liters per person per day across all livelihood zones which were normal. However, there was a slight decline in Kwale and Taita Taveta from a normal of 15-20 to 10-15 liters. Lamu district reported a 50 percent decline from a normal of 30-40 liters to 10-20 liters.

3.5.6.4 Markets and Trades
Market operations were normal across the cluster. A kilogram of maize was selling for Ksh. 38 in Taita Taveta and Ksh. 45 in Lamu. Maize prices were 70-80 percent above long term average in Kwale, Malindi and Kilifi. The maize prices were relatively higher because of low supply due to poor harvests and general inflation. Meanwhile, the price of a goat ranged between Ksh. 1,600 in Kilifi and Ksh. 3,000 in Taita, which was 70-115 percent above long term average.

In Malindi and Taita Taveta goat prices were 100-115 percent above average. As figure 3.5.3 shows, terms of trade were favorable across the cluster. A household was able to obtain 35-40 kilogram of maize from sale of a goat compared to a normal 20-30 kilograms.

3.5.6.5 Health and Nutrition
The top five diseases for both the general population and the under fives are malaria, upper respiratory tract infection (URTI), skin diseases, diarrhea and pneumonia. Measles outbreak and nearly 2000 cases of dysentery were reported in Malindi district. The crude mortality rate (CMR) and under five mortality rate (U5MR) were below the alert thresholds of 1.0 per 10,000 people per day and 2.0 per 10,000 people per day respectively.

However, Immunization coverage was above the national target of 80 percent across the cluster except in Lamu and Taita Taveta where immunization rates were 72.8 and 75 percent respectively. Vitamin-A supplementation was above 80 percent across the cluster.
Households were consuming 2-3 meals per day which was composed of 3-6 food groups. Nutrition status was stable with the percentage of children under five-years ‘at risk’ of malnutrition depicting a declining trend as figure 3.5.4 illustrates. In general, MUAC rates were below average in all the districts within the cluster.

3.5.6.6 Education
With the exception of Kilifi and Taita Taveta districts, the enrolment rates increased across the cluster. Meanwhile, all the districts recorded 100 percent transition rates from ECD to primary but low transition of about 60-70 percent from primary to secondary schools. In Kwale district, transition from primary to secondary was notably low due to the town’s proximity to coastline resulting in beach employment of primary school leavers. The school meals programmes in the cluster include the Home Grown School Meals Programme (HGSMP) covering 134,844 pupils, Expanded School Meals Programmes (ESMP), only in Kilifi, Malindi and Taita Taveta districts targeting 115,527 pupils and the Regular School Meals Programmes in Kilifi and Kwale districts with a caseload of 66,929 pupils.

3.5.6.7 Coping Strategies
The coping strategy index ranged between 0.17 in Kilifi and 0.32 in Kwale. In general, the CSI was below the critical threshold of 0.4. The most commonly employed coping strategies included charcoal burning, seeking for casual labor, and food related insurance strategies such as, reduced portions of meals and reliance on less preferred meals.

3.5.7 Food Security Prognosis
Food insecurity situation is likely to remain in the Stressed Phase until the next season in the livestock farming livelihood zone. Pasture and water availability is estimated to last until the onset of the 2012 long rains, which will sustain livestock productivity. However, food security for households with low livestock holdings is likely to be precarious.

In the mixed farming livelihood zone, especially in the hinterland where crops performed poorly as a result of late planting and poorly distributed rains that ceased early, food security situation may start to decline soon. The food insecurity situation in the mixed farming zone may reach Crisis level in the next three months, as household food stocks will only last for 2-3 months and the next harvests is expected in August 2012. In the cropping zone in coastal belt improvement in food security is contingent on the performance of the 2012 long rains. If the long rains performed well the situation is expected to improve through the season, with corresponding improvement in food security in the next six months.
4.0 Conclusion

The early onset and above average 2011 October-December rains resulted into marked improvement in food security situation for drought affected households in the pastoral and marginal agricultural livelihood zones. However, improvements in food security situation remain fragile because of the lingering effects of previous two to three poor seasons in succession.

Furthermore, much of the improvements in food security are attributed to ongoing interventions. While household resilience had not recovered significantly, impacts of the good short rains has started to dissipate following the early end to the season and uncharacteristic above average temperatures in January and February.

The prognosis for the next six months points toward the reversal of improvements in food security situation because of the likely poor March-May, 2012 long rains. The increased probability of highly depressed long rains in Moyale, Mandera, Wajir, eastern Marsabit, northeastern Isiolo and northern Garissa is particularly worrisome because food security situation is still precarious in these areas.

Meanwhile, forecasts indicate that long rains are likely to be slightly depressed and poorly distributed in the southeastern and coastal marginal agricultural lowlands, which may exacerbate the usually unreliable long rains, implying that harvests are likely to be below normal. Below normal and poorly distributed long rains may trigger rapid deterioration of food security in many parts of the pastoral and southeast marginal agricultural zone. Therefore, implementation of short term recommended interventions and other preparedness activities will be necessary to avert rapid decline in food security.
## 5.0 Proposed Emergency Sectoral Interventions

### 5.1 Agriculture Sector – Priority Interventions, March-August 2012

Among the factors identified as contributing to high food insecurity are poor agronomic practices including late land preparation and use of poor quality seed; heightened sale of harvests immediately after harvesting to avoid post harvest losses; low diversification into non-rain fed agriculture; and poor storage practices, leading to heightened post harvest losses. Other underlying factors are environmental degradation and low adoption of appropriate agricultural practices. Among the interventions recommended for enhancing agricultural production are as follows:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>District</th>
<th>Cost (Ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Water harvesting for agricultural production.</td>
<td>Wajir, Tana River, Ijara, Mandera, Isiolo, Marsabit, Samburu, Moyale and Turkana</td>
<td>800,000,000</td>
</tr>
<tr>
<td>2. Provision of drought tolerant certified seed.</td>
<td>Marsabit, Turkana, Wajir, Mandera, Tana River, Isiolo, Garissa, Ijara, Samburu, Mbeere, Kilifi, Kwale, Malindi, Kitui, Mwingi, Tharaka, Baringo, West Pokot and Taita Taveta</td>
<td>500,000,000</td>
</tr>
<tr>
<td>3. Support irrigated agriculture.</td>
<td>Wajir, Mandera, Garissa, Tana River, Kwale, Mwingi and Turkana.</td>
<td>500,000,000</td>
</tr>
<tr>
<td>4. Support to post harvest management activities.</td>
<td>Makueni, Meru North, Kilifi, Kwale, Malindi and Taita Taveta.</td>
<td>100,000,000</td>
</tr>
<tr>
<td>5. Provision of farm inputs such as ox-ploughs and establishing green houses.</td>
<td>Malindi, Kilifi, Turkana, Marsabit and Mwingi.</td>
<td>60,000,000</td>
</tr>
<tr>
<td>6. Soil conservation and environmental rehabilitation.</td>
<td>Kitui, Machakos and Marsabit.</td>
<td>40,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2,000,000,000</strong></td>
</tr>
</tbody>
</table>

### 5.2 Livestock Sector – Priority Interventions, March-August 2012

Above normal pasture regeneration was recorded in most of the pastoral zone. However, there is need for pasture conservation to ensure availability in the short to medium term. Meanwhile, households have noted that restocking with goats and camels is likely to ensure quick recovery of livelihoods, and also enhance resilience to future droughts. There is growing interest for diversification into alternative sustainable livestock enterprises. While pasture availability is assured, watering distances are likely to increase in areas where long rains are likely to be highly depressed thus increasing the risk for livestock disease outbreaks. Among the recommendations in the livestock sector include the following:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>District</th>
<th>Cost (Ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Livestock restocking with camel and small stocks.</td>
<td>Moyale, Samburu, Turkana, Makueni, Mbeere, Mwingi, Wajir and Garissa.</td>
<td>230,000,000</td>
</tr>
<tr>
<td>2. Livestock vaccinations, deworming and branding.</td>
<td>Lamu, Kwale, Moyale, Samburu, Garissa, Isiolo, Mandera, Wajir, Isiolo, Marsabit, Ijara, Turkana, Baringo, Koibatek and Laikipia.</td>
<td>500,000,000</td>
</tr>
<tr>
<td>3. Rangeland rehabilitation and pasture seed bulking.</td>
<td>Moyale, Turkana, Marsabit and Samburu.</td>
<td>150,000,000</td>
</tr>
<tr>
<td>4. Livestock feed conservation and supplementation.</td>
<td>Turkana, Moyale, Marsabit, Garissa, Mandera, Ijara and Isiolo.</td>
<td>85,000,000</td>
</tr>
<tr>
<td>5. Livestock disease surveillance.</td>
<td>Makueni, Machakos, Mbeere, Meru North and Tharaka.</td>
<td>20,000,000</td>
</tr>
<tr>
<td>6. Support to diversification of livestock production.</td>
<td>Kilifi, Lamu and Kwale.</td>
<td>15,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1,000,000,000</strong></td>
</tr>
</tbody>
</table>
5.3 Water Sector – Priority Interventions, March-August 2012
Although available water is likely to last until the onset of the long rains, water sources may not be replenished adequately due to likely poor performance of the long rains. Meanwhile, above average temperatures are expected throughout the season implying that increased evaporation may rapidly deplete surface water sources leading to increased pressure on boreholes and other water sources. While early preparedness activities are necessary, water provision will be imperative in areas where rains will be highly depressed. The following interventions are proposed in the water sector:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>District</th>
<th>Cost (Ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Construction and rehabilitation of boreholes; dams and pans; and repair of water supplies.</td>
<td>Kwale, Lamu, Malindi, Kilifi, Taita Taveta, Turkana, Samburu, Marsabit, Moyale, Garissa, Ijara, Mandera, Isiolo and Tana River, Mwingi, Kitui and Makueni.</td>
<td>1,300,000,000</td>
</tr>
<tr>
<td>2. Fuel subsidy.</td>
<td>Makueni, Kilifi, Turkana, Mandera, Wajir, Moyale, Marsabit, Garissa, Isiolo, Samburu, Tana River, Mwingi and Kitui.</td>
<td>500,000,000</td>
</tr>
<tr>
<td>3. Drilling and equipping of boreholes.</td>
<td>Meru North, Machakos, Turkana, Mandera, Wajir, Moyale, Marsabit, Garissa, Isiolo, Samburu, Tana River, Mwingi and Kitui.</td>
<td>1,000,000,000</td>
</tr>
<tr>
<td>4. Water trucking.</td>
<td>All districts</td>
<td>300,000,000</td>
</tr>
<tr>
<td>5. Capacity building for water committees; and purchase and distribution of plastic water tanks.</td>
<td>All districts</td>
<td>200,000,000</td>
</tr>
</tbody>
</table>

Total: 3,000,000,000

5.4 Education Sector – Priority Interventions, March-August 2012
School enrollment, attendance and transition rates have improved in all livelihood zones. However, improvements in school attendance may disrupt when environmental resources deplete and households are compelled to migrate in search of water for livestock. Since many schools continue to experience water shortages, which force pupils to spend time searching for water instead of attending classes and also disrupt meal preparation, there is need to provide water storage equipment to schools. Also, establishment of low cost boarding facilities and mobile schools ensures that pupils in drought affected areas are able to access education, adequately. The following are the proposed interventions in the education sector:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>District</th>
<th>Cost (Ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provision of school meals including home grown school meals program and support to secondary schools.</td>
<td>Machakos, Kitui, Mbeere, Meru North, Tharaka, Makueni, Mwingi, Moyale, Marsabit, Samburu and Turkana.</td>
<td>2,500,000,000</td>
</tr>
<tr>
<td>2. Low cost boarding and establishing of mobile schools.</td>
<td>Garissa, Ijara, Isiolo, Mandera, Garissa, Turkana, Marsabit, Moyale, Tana River, Wajir and Samburu.</td>
<td>1,000,000,000</td>
</tr>
<tr>
<td>3. Provision of water for schools – water tanks and gutters</td>
<td>Kilifi, Lamu, Kwale, Mbeere, Turkana, Samburu, Tana River, Ijara, Garissa and Samburu.</td>
<td>500,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>4,000,000,000</strong></td>
</tr>
</tbody>
</table>
5.5 Health and Nutrition Sector – Priority Interventions, March-August 2012

Though percentage of children under-five years ‘at risk’ of malnutrition is below normal in most parts of the southeast and coastal marginal agricultural, malnutrition trends may start rising when food insecurity intensifies. Meanwhile, malnutrition rates are high in most parts of the pastoral. Among the drivers of high malnutrition rates are poor young child feeding, poor hygiene practices and inadequate health services coverage. The ongoing nutrition interventions have been important in keeping malnutrition rates below emergency levels in many places. Continuation of short term nutrition interventions together with implementation of interventions aimed at addressing the underlying causes of malnutrition are necessary to enhance nutrition status. Proposed health and nutrition interventions are as follows:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>District</th>
<th>Cost (Ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Blanket supplementary feeding programme.</td>
<td>Kwale, Lamu, Malindi, Kilifi, Taita Taveta, Wajir, Moyale, Marsabit, Mandera, Isiolo and Garissa.</td>
<td>2,500,000,000</td>
</tr>
<tr>
<td>2. Integrated mobile outreach services and provision of drugs and other equipment such as solar powered refrigerators.</td>
<td>All districts</td>
<td>2,000,000,000</td>
</tr>
<tr>
<td>3. Construction, equipping and staffing health facilities.</td>
<td>Turkana, Samburu, Moyale, Mandera, Wajir, Garissa, Isiolo, West Pokot, Baringo, Laikipia, Ijara, Kilifi, Lamu, Kwaile, Malindi and Tana River.</td>
<td>1,000,000,000</td>
</tr>
<tr>
<td>4. Conduct comprehensive nutrition surveys.</td>
<td>Malindi, Kwale, Lamu, Kilifi, Taita Taveta, Machakos, Kitui, Meru North, Makueni and Mbeere.</td>
<td>300,000,000</td>
</tr>
<tr>
<td>5. Training of community health workers on infant and young child feeding and integrated management of acute malnutrition.</td>
<td>All districts</td>
<td>200,000,000</td>
</tr>
<tr>
<td>6. Promotion of good hygiene practices.</td>
<td>Turkana, Samburu, Moyale, Mandera, Wajir, Garissa, Isiolo, West Pokot, Baringo, Laikipia, Ijara, Kilifi, Lamu, Kwaile, Malindi and Tana River.</td>
<td>100,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,100,000,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

5.6 Markets and Trade Sector – Priority Interventions, March-August 2012

Food markets have generally been operating without major disruptions. However, high food prices have remained among the major drivers of food insecurity across all livelihood zones. Markets in remote areas are poorly integrated while market infrastructure is underdeveloped in many areas. Traders operating in remote areas should be supported to enable them access food stocks more effectively. Proposed interventions in the market sector are as follows:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>District</th>
<th>Cost (Ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Market infrastructure development and establishment of appropriate voucher schemes.</td>
<td>Turkana, Moyale, Samburu, Marsabit, Wajir, Mandera, Garissa, Isiolo, Tana River and Ijara.</td>
<td>700,000,000</td>
</tr>
<tr>
<td>2. Support to traders in poorly integrated markets to enable them source supplies cheaply and enhance economies of scale.</td>
<td>Turkana, Moyale, Samburu, Marsabit, Wajir, Mandera, Garissa, Isiolo, Tana River and Ijara.</td>
<td>190,000,000</td>
</tr>
<tr>
<td>3. Livestock off-take, particularly for large stock, in a timely manner, before the drought situation intensifies.</td>
<td>Turkana, Moyale, Samburu and Marsabit.</td>
<td>110,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,000,000,000</strong></td>
<td></td>
</tr>
</tbody>
</table>
5.7 Food Sector Priority interventions, March-August 2012

Although food security situation has improved in many drought affected areas, a significant proportion of households are still unable to access food adequately. Therefore, food intervention will be required to address the immediate food needs for affected households. In addition, food distribution can be used to build resilience of households to future shocks through FFA and CFA, and GFD where FFA and CFA are not possible to implement. The table below shows the number and locations of the population in need of food intervention in March-August 2012.

<table>
<thead>
<tr>
<th>District</th>
<th>Total District Population</th>
<th>September 2011 – February 2012</th>
<th>March 2012 – August 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>% in need</td>
<td>Number of people requiring food assistance</td>
</tr>
<tr>
<td>Turkana</td>
<td>539,264</td>
<td>60</td>
<td>322,500</td>
</tr>
<tr>
<td>Wajir</td>
<td>619,220</td>
<td>50</td>
<td>308,700</td>
</tr>
<tr>
<td>Mandera</td>
<td>337,800</td>
<td>50</td>
<td>167,600</td>
</tr>
<tr>
<td>Garissa</td>
<td>411,728</td>
<td>32</td>
<td>130,400</td>
</tr>
<tr>
<td>Marsabit</td>
<td>187,367</td>
<td>77</td>
<td>144,100</td>
</tr>
<tr>
<td>Samburu</td>
<td>223,947</td>
<td>43</td>
<td>95,600</td>
</tr>
<tr>
<td>Laikipia</td>
<td>399,227</td>
<td>16</td>
<td>61,900</td>
</tr>
<tr>
<td>West Pokot</td>
<td>512,690</td>
<td>13</td>
<td>67,900</td>
</tr>
<tr>
<td>Tana River</td>
<td>240,075</td>
<td>45</td>
<td>107,600</td>
</tr>
<tr>
<td>Isiolo</td>
<td>143,294</td>
<td>63</td>
<td>90,000</td>
</tr>
<tr>
<td>Kajiado</td>
<td>687,312</td>
<td>13</td>
<td>90,600</td>
</tr>
<tr>
<td>Baringo</td>
<td>389,329</td>
<td>28</td>
<td>107,200</td>
</tr>
<tr>
<td>Moyale</td>
<td>103,799</td>
<td>48</td>
<td>50,100</td>
</tr>
<tr>
<td>Ijara</td>
<td>92,663</td>
<td>34</td>
<td>31,200</td>
</tr>
<tr>
<td>Narok</td>
<td>576,388</td>
<td>5</td>
<td>27,000</td>
</tr>
<tr>
<td>Koibatek</td>
<td>166,232</td>
<td>27</td>
<td>45,100</td>
</tr>
<tr>
<td><strong>Subtotal Pastoral Districts</strong></td>
<td><strong>5,630,335</strong></td>
<td><strong>33</strong></td>
<td><strong>1,847,500</strong></td>
</tr>
<tr>
<td>Makuueni</td>
<td>884,527</td>
<td>44</td>
<td>385,800</td>
</tr>
<tr>
<td>Kwale</td>
<td>649,931</td>
<td>23</td>
<td>150,900</td>
</tr>
<tr>
<td>Mwingi</td>
<td>384,948</td>
<td>52</td>
<td>198,700</td>
</tr>
<tr>
<td>Kilifi</td>
<td>709,221</td>
<td>14</td>
<td>97,800</td>
</tr>
<tr>
<td>Kitui</td>
<td>627,761</td>
<td>37</td>
<td>233,500</td>
</tr>
<tr>
<td>Taita Taveta</td>
<td>284,657</td>
<td>42</td>
<td>119,000</td>
</tr>
<tr>
<td>Malindi</td>
<td>400,514</td>
<td>20</td>
<td>81,100</td>
</tr>
<tr>
<td>Mbeere</td>
<td>219,220</td>
<td>43</td>
<td>93,500</td>
</tr>
<tr>
<td>Tharaka</td>
<td>130,098</td>
<td>47</td>
<td>61,300</td>
</tr>
<tr>
<td>Machakos</td>
<td>1,098,584</td>
<td>20</td>
<td>217,900</td>
</tr>
<tr>
<td>Meru North</td>
<td>775,982</td>
<td>27</td>
<td>206,000</td>
</tr>
<tr>
<td>Kieni</td>
<td>324,659</td>
<td>9</td>
<td>30,300</td>
</tr>
<tr>
<td>Lamu</td>
<td>101,539</td>
<td>27</td>
<td>27,400</td>
</tr>
<tr>
<td><strong>Subtotal Marginal Agricultural Districts</strong></td>
<td><strong>6,591,641</strong></td>
<td><strong>30</strong></td>
<td><strong>1,903,200</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12,221,976</strong></td>
<td><strong>31</strong></td>
<td><strong>3,750,700</strong></td>
</tr>
</tbody>
</table>