

## SPECIAL REPORT: KENYA'S LAKE REGION Short Rains Rapid Food Security Assessment

February 2006

Seven teams from the Kenya Food Security Steering Group (KFSSG) conducted food security assessments in 32 chronically food insecure districts from February 5 to 23, 2007. The goal of the assessment was to determine the impact of the short rains season (October to December) on household food security following a sustained period of flooding coupled with the outbreak of Rift Valley Fever (RVF). The objectives of the assessment were three-fold: (i) to determine, at the sub-district level, the impact of the 2006 short rains season on key sectors, (ii) to assess the geographic spread of the floods and determine their impact on livelihoods and (iii) to determine the emergency food and non-food interventions required for the region through August 2007. The Lake Region team, comprising representatives from the Government of Kenya's (GoK) Office of the President, the Ministry of Health (MoH), the Ministry of Water and Irrigation (MoWI) and FEWS NET, visited seven flood-affected districts around Lake Victoria, including Busia, Kisumu, Migori, Nyando, Rachuonyo, Siaya and Suba.

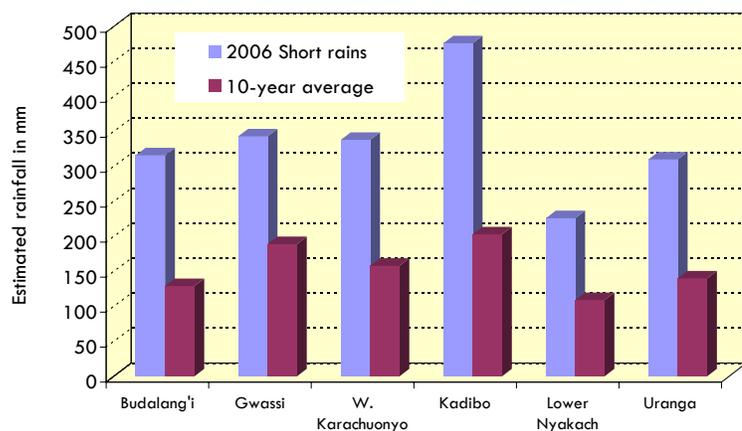
The Lake Region team used both rapid needs assessment and detailed food security assessment methodologies developed by the KFSSG and outlined in its *Field Assessment Handbook for Rapid Food Security Assessment Missions*. Reports from the six other assessment teams deployed throughout Kenya will be summarized in the FEWS NET March 2007 monthly report for the country.

### Background

The Lake Region team's seven districts are home to an estimated 3.1 million people, or 10 percent of Kenya's total population. There are four main livelihood zones in the Lake Region: marginal agricultural/mixed farming, highland mixed farming, fishing and formal/informal trade centers (Annex 1). Less than 20 percent of the region's population resides in the highlands. The vast majority, situated in lowland areas, are prone to both drought and floods.

The long rains (March to July) is the principal production season in the Lake Region, contributing up to 70 percent of its total annual crop output. Nonetheless, the Lake Region is a deficit production area, due in part to the high cost of inputs such as certified seeds. Local production normally accounts for less than half of local demand. Crops grown in the lake districts include maize, beans, sweet potatoes, sorghum, millet, cotton, sugarcane, tobacco and cassava. Improved breeds of cattle are also reared in the highland areas of the region, and indigenous zebu cattle are reared throughout the rest of the region. Fish production provides an additional important source of food and income for many families residing in drought-prone areas along the lake's periphery.

**Figure 1.** Comparison of 2006 short rains with ten-year average in flood-affected areas

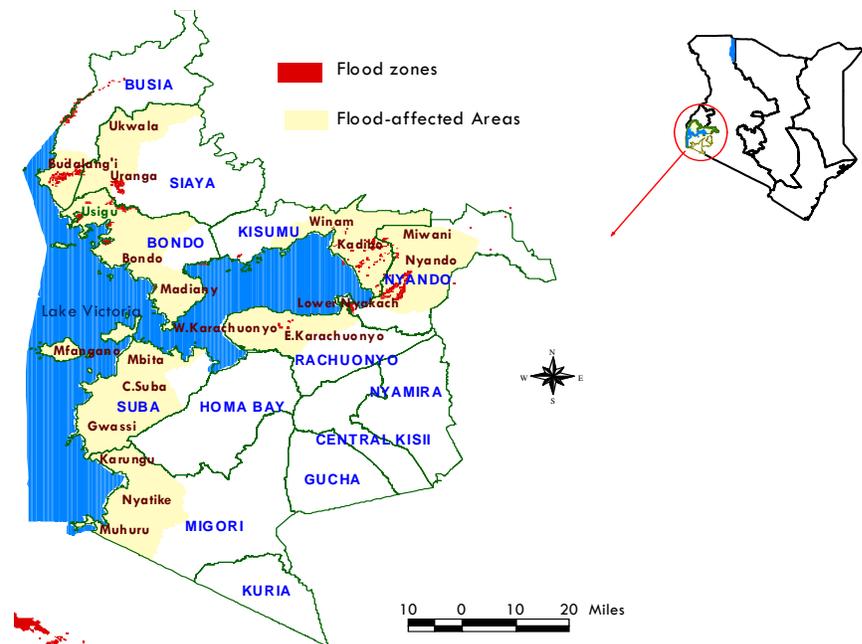


Source: Lake Region MoA

## Flooding during the 2006 short rains season

The Lake Region assessment team found that farm households in flood-affected lowlands adjacent to Lake Victoria remain highly vulnerable to food insecurity, and face a deepening crisis. The 2006 short rains season in the Lake Region brought severe flooding from above-average rainfall and significant highland run-off to lowland areas (Figure 1). The banks of several dykes and rivers in the region, including Miriu, Awach, Lwanda, Migori, Nyando and Yala, broke, causing severe flooding downstream that affected Budalang'i in Busia District; Kadibo and Winam in Kisumu District; Nyatike, Karungu and Muhuru in Migori District; Nyando in Nyando District; East and West Karachuonyo in Rachuonyo District; Ukwala and Uranga in Siaya District and Central Suba in Suba District (Figure 2).

**Figure 2. Flood-affected areas**



Sources: MoA, MoWI, NGOs

An estimated 40,000 people lost their short rains crops and small stock due to flooding in the region.

A significant proportion of these people were displaced and their farm structures and tools were destroyed or washed away. While the short rains season only contributes about 30 percent of the total annual agricultural output for the region, prospects for the more agriculturally important long rains season are not optimistic in flooded areas, as soils have not yet dried and remain unworkable. If the long rains arrive on schedule, populations in flood-affected areas, where household stocks have been depleted, will be able to plant little or no main season crop. Normal or above-normal rains could also lead to a resurgence of malaria, diarrhea and other waterborne diseases, pushing child malnutrition rates – already high from the October to December period – even higher. Floods have also compromised fish production, as polluted flood waters have pushed fish breeding grounds into cleaner, deep waters that are far from shore and inaccessible to local fishermen. In addition, infrastructure such as roads, schools, water and irrigation facilities incurred extensive damage in this region. Food and non-food interventions targeted exclusively to flood-affected households are required.

The GoK provided an estimated 8 to 10 MT of food commodities to each of the seven districts from October through January. In addition, several NGOs and UN organizations, including UNICEF, CARE, the Kenya Red Cross, ADRA, CCF, World Vision, MSF/Spain, Action Aid and community-based organizations, provided shelter materials, medicines, water purifiers and mosquito nets to flood-affected populations. However, the Kenya Red Cross noted that interventions in the region fell short of needs by close to 50 percent.

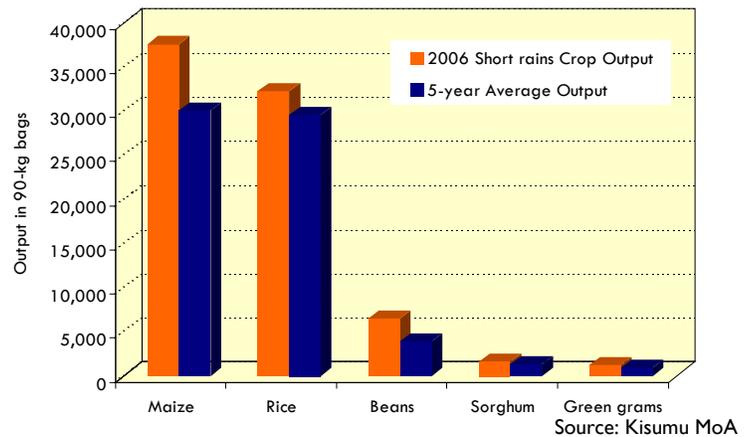
## Situation analysis by Sector

### Crop production

The 2006 short rains season began in late August, earlier than usual for the Lake Region, and ended abruptly after two weeks. A long dry spell ensued until the season re-started in October. Kenya's MoA reported that 30 percent of the crop that had been sowed early withered during the extended dry spell and was replanted after rains resumed. When rains re-started in October, they continued through January and, in most instances, were much higher than normal.

The assessment team found that higher than normal aggregate production for key crops in the Lake Region tended to mask devastating crop losses in flooded areas. An estimated 4,000 hectares of crops were either washed away or waterlogged and failed to mature in the flood-affected areas of the seven districts. However, highland areas that escaped the flooding greatly benefited from good rains, resulting in favorable overall production for the region. Total maize output in the seven districts was about 20 percent higher than average. For example, Kisumu District produced a higher than normal crop output for every crop, in spite of substantial crop losses due to flooding in Kadibo and Winam Divisions (Figure 3).

**Figure 3.** Comparison of 2006 crop output with five-year average in Kisumu District



While production in flood-affected areas normally accounts for less than 10 percent of the total agricultural output for the region, farm households in these areas lost 80 to 100 percent of their crops. These farm households face chronic food insecurity, compounded by recurrent droughts and floods over the past five years. Most of the flooded areas remain submerged, and farms are still inaccessible. The long rains season is expected to begin soon, and the assessment team found that at the time of data collection, less than 10 percent of land preparation for the season has begun, as the soils remain largely unworkable. Many farm households have also lost their seeds and tools. Because the long rains season is the critical production period in the region, accounting for close to 70 percent of its total annual output, a substantial food deficit is likely to occur among flood-affected lowland populations this year. Households that lost crops and other assets to the floods remain unlikely to recover until July 2007, if they are able to plant and harvest crops this season and experience no other shocks. If unable to plant this season, flood-affected populations in the region will require food and non-food assistance until at least the end of the year.

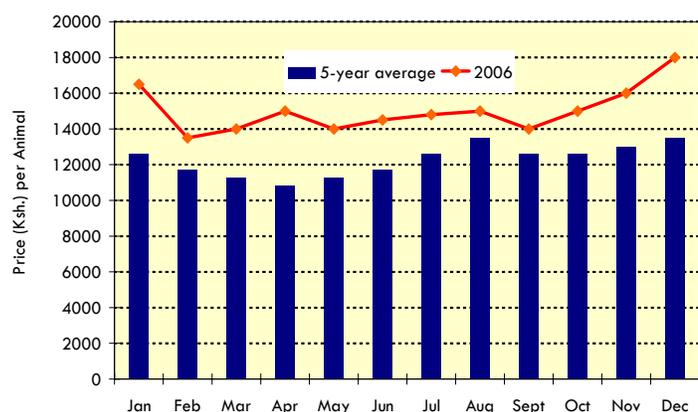
The assessment team also found a significant shift away from maize production to higher value and/or drought-tolerant crop varieties such as cassava in the regions visited. In Busia district, for example, total cultivated land increased from 18,000 hectares in 2001 to 36,000 hectares in 2006. The majority of crops grown on this additional land are not maize, but crops with higher gross margins. The higher gross-margin crops, and larger area for cultivation, should increase household disposable income and improve food security overall. However, in several of the Lake Region districts, the impact of the HIV/AIDS epidemic is severe and has left production activities to less-able children and the elderly.

### Livestock production

In general, livestock benefited greatly from the good 2006 short rains. Favorable pastoral conditions, including widespread regeneration of pastures and recharged water sources, promoted marked recovery among cattle, sheep and goats. Unfortunately, floods washed away many farm households' poultry, adding to their asset losses. Large stock were generally able to migrate to highland areas of the region and escape the floods.

Livestock prices rose significantly in the region from September through December (Figure 4) in response to improved animal health and productivity. Milk yields improved and milk

**Figure 4.** Comparison of 2006 livestock prices with five-year average in Siaya District



Source: Siaya MoA

prices declined between 5 and 10 percent in several assessment districts from September 2006 onward.

Another, less encouraging, factor in the region's rising livestock prices is declining tropical livestock units (TLUs), a composite measure of the number of livestock per household. Livestock officers in the Lake Region indicated that the TLUs per household – currently ranging between three and seven – were low and falling. One significant causality for the decreasing number of household livestock is that animals are traditionally slaughtered for funerals. The number of funerals and resultant livestock depletion has, however, increased significantly over the years, particularly as a result of HIV/AIDS. This increased mortality is therefore depleting an important household asset.

Vaccination campaigns intended to stop an upsurge in diseases, including foot and mouth disease, trypanosomiasis, lumpy skin disease and RVF, as well as Newcastle and fowl typhoid in poultry, were on-going in the Lake Region at the time of the assessment. However, at 30 percent, the vaccination campaign's coverage was much lower than is required. In addition, less than 10 percent of cattle spray pens were functional. Random samples taken for RVF testing have all returned negative results.

While overall livestock productivity in the Lake Region has improved significantly since the short rains season, the low number of livestock per household limits the role animals can play in alleviating increasing levels of food insecurity.

### Fishing

Close to 60 percent of the households in flood-affected areas of the Lake Region are dependent on fish, either directly or indirectly, as a source of food and income. However, fish production has declined significantly over the past few years, due to deforestation, lower water levels and overfishing. Fish prices for all species have increased markedly (Figure 5) as a result of this low production and due to a significant shift in demand from beef and goat to fish and chicken following an outbreak of RVF in several districts of the country. However, fish production continued to decline during the flood period. Reduced fish output coupled with crop and asset losses have therefore exacerbated food insecurity among many households.

Polluted flood waters flowing into Lake Victoria

interfered with fish breeding and pushed the plankton on which fish feed into deeper waters, causing fish to move to cleaner areas away from shore that are inaccessible to most local fishermen. Floods also destroyed roads leading to beaches, thereby reducing fishermen's access. Parts of the Lake were covered with water hyacinth weed, pushing fish further away from shore and making them even less accessible to small scale fishermen.

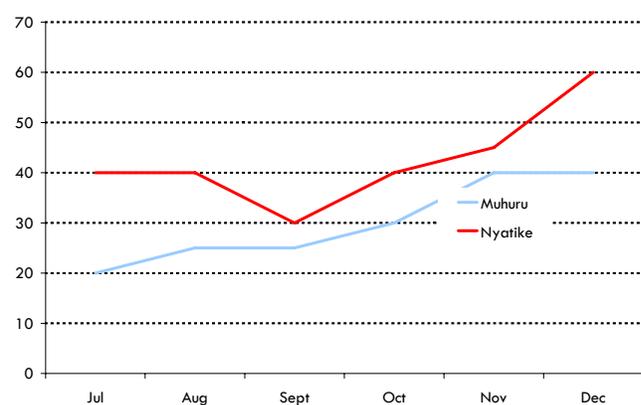
Fish farming is further threatened by Lake Victoria's declining water levels, which are attributed to deforestation and the destruction of lake catchments. Piracy has also become a major issue in areas such as Busia District, because armed pirates from Uganda often steal fishing boats and fish.

### Recommendations

#### Crop, livestock and fish production

- Provide emergency maize, beans, sorghum and millet seed for an estimated 4,000 hectares of land, assuming that current high temperatures allow some fields to dry out in time for planting.
- Institute food for work programs for flood-affected populations. Activities would include opening canals, reconstructing toilets and rehabilitating boreholes.

**Figure 5.** Fishing prices in Migori District, July-December 2006



Source: Migori MoF

- Expand the use of land that has the potential for flood-recession cropping to make use of flood waters.
- Conduct region-wide on-farm demonstrations to encourage adoption of recommended agronomic practices.
- Support school feeding programs, especially in districts with the highest HIV/AIDS prevalence, such as Siaya, Suba and Rachuonyo.
- Expand RVF and lumpy skin disease vaccination campaigns in all flooded areas that remain conducive to the outbreak of these diseases.
- Rehabilitate cattle spray pens to enhance the control of livestock diseases.
- Clear silted canals so that plankton do not continue moving out to deeper waters.
- Remove water hyacinth weed to improve lake access for small-scale fishermen.
- Provide motorized boats to security personnel to more effectively police against lake pirates.

## **Water source and infrastructure damage**

The 2006 floods in the Lake Region had a marked negative impact on water sources and other infrastructure. While the distances to water sources have declined following the floods, water quality is poor and the capacity to assure adequate water supply will be limited after the floods recede because of extensive damage to existing water infrastructure, including broken dykes along rivers, heavy silting of canals and damage to sluice gates, sections of pipelines and other structures along rivers that supply water to households. In addition, boreholes have overflowed, are contaminated and are no longer fit for human consumption; distribution points have been damaged; water points have been submerged in flooded areas; and raised embankments on irrigation structures have been damaged or washed away.

Other infrastructure damage includes: 11 roads damaged in Rachuonyo District; seven roads and seven bridges damaged in Kisumu District; 11 roads, a police station and five health centers submerged in Migori District; two roads, a bridge and two health centers damaged in Busia District; two roads leading to 10 irrigation schemes damaged in Nyando District; and seven key roads damaged in Suba District.

Apart from reducing access to markets and other areas, the extensive infrastructural damage has greatly compromised production activities. Many irrigation schemes are unlikely to be functional during the upcoming long rains season. In addition, areas supplied by damaged roads have reported significant price differentials for key commodities. For example, the retail price of 2.2 kg of maize during the most recent harvest period is Ksh. 20 compared to Ksh. 35 in remote markets in Siaya District. This wide price disparity underlines the precarious food security situation that flood-affected farm households face.

## **Recommendations**

### **Water and irrigation**

- Repair dykes, weirs and sluices on rivers.
- Rehabilitate strategic dams and boreholes.
- Construct check dams upstream to arrest run-off from the highlands.
- Excavate and de-silt rivers that drain into swamps instead of the lake.
- Facilitate excavation of pans, dams and roads.
- Train the course of the rivers so as to reduce the intensity of their flow.

### **Infrastructure**

- Repair roads leading to flooded areas to improve access to flood-affected populations, markets and other facilities.
- Repair damaged or washed-out roads and bridges in flood-affected areas.

### **Environmental**

- Establish soil and water conservation structures on farms and on river catchments.

- Develop tree nurseries and encourage planting of trees, both in the lowlands and upstream areas.

## Health, nutrition and HIV/AIDS

The assessment team found an upsurge in malaria, diarrhea and other waterborne diseases across most of the flood-affected districts in the Lake Region. For example, in Kisumu District, deaths resulting from malaria increased from 0.8 to 1 percent; deaths from diarrhea from 2.4 to 3.3 percent and deaths from respiratory infections from 0.9 to 1.25 percent during the flood period. However, no major epidemic outbreaks were reported, which is attributed principally to timely prevention and control measures such as water treatment programs adopted by the Ministry of Health (MoH), MSF Spain, World Vision, the Kenya Red Cross, UNICEF, Action Aid and CCF. A slight increase in rates of child malnutrition was also noted (Figure 6), and was exacerbated by the upsurge in disease. For example, global acute malnutrition

rates in some districts increased from 3.7 percent prior to the flooding in October to 7 percent in December, at the peak of the flooding. While there was an increase in the number of persons seeking medical attention for the treatment of malaria and other waterborne diseases, the MoH indicated that up to 50 percent of the population requiring medical attention were not able to access health care.

The HIV/AIDS pandemic is perhaps the most critical health issue underlying the rising food insecurity in the flood-affected districts. HIV/AIDS prevalence ranges between 14 percent in Migori to 35 percent in Suba District (Figure 7). Out of 152,000 school-aged children in Siaya District – where the HIV/AIDS prevalence is 29 percent – 37,000, or 25 percent, are orphans, due primarily to the pandemic. These students often go to school without proper feeding. NGOs such as CCF, ADRA, CARE and some local community-based organizations have instituted school feeding programs to minimize the food gaps facing these vulnerable children. While helpful, these programs reach only a small proportion of the vulnerable. The impacts of the pandemic on household food security cannot be overstated and require systematic and urgent redress, to save lives and livelihoods and maintain school attendance for children in the Lake Region.

Apart from poor nutrition among young children, their continued education beyond primary school is doubtful. This is another underlying cause of growing chronic food insecurity in the Lake Region.

### Recommendations

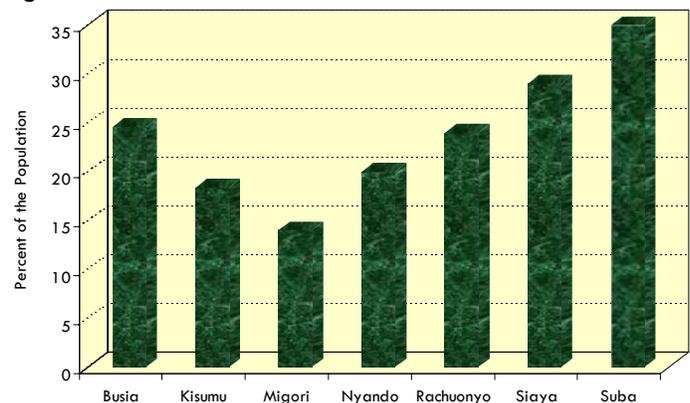
- Institute supplementary feeding programs in flood-affected households where child malnutrition is already visible.
- Expand water testing and purification interventions to all flood-affected areas.
- Establish a mechanism to carry out periodic detailed nutritional surveys.
- Promote community outreach clinics so as to target the substantial proportion of households that have limited access to health care facilities.

**Figure 6.** 2006 weight for age among children under-five in Suba District



Source: MoH

**Figure 7.** Rates of HIV/AIDS prevalence in 2006 for the Lake Region



Source: MoH

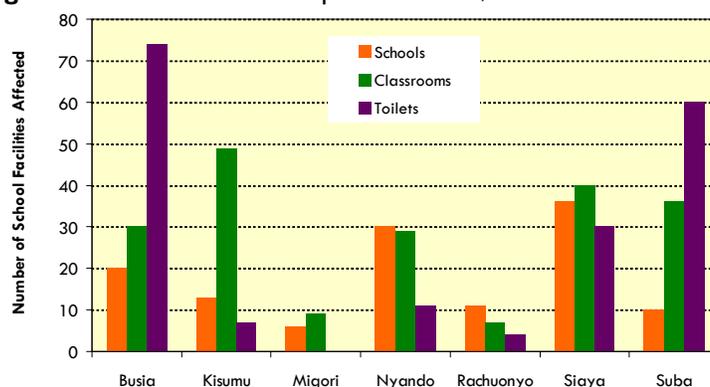
## Education Facilities

Education facilities in flood-affected areas suffered substantial damage (Figure 8). Most have not yet been rehabilitated, though many schools have re-opened and have been operating for two months. In Migori, students from the worst-affected schools were transferred to other areas, causing even more congestion in schools.

### Recommendations

- Hasten rehabilitation of classrooms, toilets, and other school facilities.
- Provide replacement desks and teaching materials.

**Figure 8.** Number of flood-impacted schools, classrooms and toilets



Source: MoE

## Rationale for continued highly targeted interventions in flood-hit areas

- Flood-affected farm households lost substantial food stocks harvested from the last long rains season after storage facilities were submerged. These households are unlikely to be able to participate in the important long rains season this year because production lands remain flooded and soils waterlogged.
- The potential for irrigated cropping has been reduced substantially, as damaged irrigation structures have not yet been repaired.
- Rates of child malnutrition have been increasing since October.
- The impacts of the HIV/AIDS pandemic has exacerbated the impact of the floods and deepened food insecurity.
- Fish output, an important source of food and income, declined markedly during the floods.
- Key roads remain inaccessible and food prices are increasingly prohibitive for flood-affected households.
- Urgent rehabilitation of dykes and canals is needed to mitigate additional flooding during the upcoming long rains season.

## Conclusion

While continued emergency food and non-food interventions are necessary, food insecurity in the Lake Region is chronic. Droughts, floods and reduced fish output compound key underlying factors such as the impact of HIV/AIDS and lack of education - critical determinants of food security in the region. The scale of the HIV/AIDS pandemic has far exceeded response capacities, and an urgent, systematic approach to reduce the impacts of HIV/AIDS is urgently required. In addition, structural interventions to prevent flooding and activities that mitigate the impact of droughts are required in the Lake Region to mitigate the impact of shocks on food security.

