Fighting Hunger Worldwide

Comprehensive Food Security and Vulnerability Survey: Summary report

Kenya 2016

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food security analysis

The 2016 Kenya Comprehensive Food Security and Vulnerability Survey (CFSVA) aims to give the first 47-county overview of food security and nutrition in Kenya since the process of devolution began in 2013.

The data and analysis for the report is drawn from the 2014 Kenya Demographic and Health Survey (KDHS), which was designed to monitor and evaluate population and health situations in Kenya. It marks the first time that food security indicators have been included in any DHS survey.

Fieldwork for the main survey took place from May 7 to October 20, 2014. A total of 36,430 households were successfully interviewed.

WFP's analysis of the DHS data for the CFSVA explores two key food security indicators, the Food Consumption Score and Coping Strategy Index, in an effort to profile food secure and food insecure households, and discusses possible causes of food and nutrition insecurity.

FRONT COVER PHOTO BY REIN SKULLERUD

Can Kenya feed itself?

Agriculture is the mainstay of the Kenyan economy, contributing 30 percent to GDP[1], but Kenya is a food deficit country, meeting the needs of its growing population through formal and informal imports of maize as well as rice and wheat. This makes the country vulnerable to international price fluctuations as well as to trade barriers sometimes imposed by neighbouring countries from which it imports.

Growth in the agriculture sector rarely keeps pace with that of other sectors. It fell from 5.2 percent in 2013 to 3.4 percent in 2014 but rebounded to 5.6 percent in 2015 thanks to favourable rains.[2] One of the reasons is that smallholders, who face multiple constraints that erode their production potential, dominate the sector.

They find it hard to access the credit needed to buy inputs such as fertilizers and pesticides, the costs of which are rising mainly because of transaction costs from the source to the destination, middlemen and high demand occasioned by insufficient supplies.

According to the DHS data they are mainly farming small plots of less 0.5 hectares. Only about 6–8 percent of the land has been irrigated, leaving smallholders highly vulnerable to poor rainfall and floods.

The arid and semi-arid lands (ASALs), which cover about 80 percent of the country's landmass, are characterized by erratic, low rainfall and are prone to prolonged drought and flash floods. Some eight counties have experienced a high number of droughts in the past 15 years, namely Turkana, Marsabit, Samburu, Isiolo, Wajir, Taita Taveta, Kajiado and parts of Kitui. The highly drought prone areas also experienced a high number of poor growing seasons for both the short and long rains between February 2001 and February 2016.

Most have no legal title to their land, which deters them from investing in land improvement and can lead to land grabbing conflicts and expropriation by the state. Intensive maize cropping and unsustainable land management practices degrade soil fertility.

[1] Kenya National Bureau of Statistics Economic Survey 2016.

[2] KNBS Economic Survey 2016.

CFSVA finding

Overall households with land tend to be more food secure than those with no land. In order to be significantly more food secure a household needs to own more than one hectare.

In the north east counties of Garissa, Wajir and Mandera individual land ownership is virtually unknown. While these particular 'landless' counties do not have worse food consumption (by the FCS) than the rural Kenyan average, their dietary diversity is very low.

Lack of adequate storage leads to 20–30 percent of maize being lost post harvest from insect pests, rodents and pathogens, which affect not only food availability, but also household income and their ability to buy food. Lack of drying facilities means the highly toxic Aflatoxin fungus, which is linked to liver disease and cancer and is associated with immune-system suppression and growth retardation, continues to grow in contaminated maize post-harvest.

Livestock production

Livestock production, most of which is concentrated in ASALs, plays a major role in food security. For subsistence pastoralists livestock ownership is critical in times of stress because they survive on meat and milk alone when market prices rise.

The average number of TLUs[3] owned by a rural household is three (equivalent of, for example, 14 goats) but in Marsabit, Garissa and Narok they own at least 10, followed by Wajir, Samburu, Isiolo, Baringo, Mandera and Tana River. In times of prolonged drought pastoralists lose livestock to disease and lack of pasture and water. Flash floods can also wash away weakened animals. This is compounded by the high cost of fodder during droughts.

[3] Tropical livestock Unit (TLU) is a convenient method for quantifying a wide range of different livestock types and sizes in a standard manner. The standard used for one TLU is one cow with a body weight of 250kg.

CFSVA finding

Livestock ownership is associated with greater food security: households with acceptable food security own on average 2.3 TLUs and those with unacceptable own 1.4 TLUs. Similarly those with 'high coping' own 1.8 versus 2.5 for those using no coping.

Maize supply and prices

Small and medium scale farmers produce about 75 percent of the main staple, maize, while large-scale farmers (farms over 25 acres) produce the rest.[4] During normal to good years, national maize production may cover 98.5 percent of consumption, but in drought years it may fall to 62 percent as was the case in 2009.[5] The total maize production in 2015, from both the long and short rains, is estimated at 3.1 million metric tons (MT), approximately nine percent above the five-year average thanks to two successive favourable cropping seasons and continued cross-border imports, giving the country a surplus of about 0.41 million MT.[6]

One of the major challenges that dominates maize production is how to keep farm prices high enough to incentivise farmers to grow it, but low enough to ensure poor consumers can afford to buy it. Maize price instability is a major impediment to smallholder productivity growth and food security.

Across the country households are highly dependent on buying their food so market integration and food prices are key determinants of household food security. Rural households purchase around 76 percent of their food consumption days, while the pastoralist communities in Kenya's poorest and most remote counties - such as Turkana, Mandera, Garissa, Wajir, Isiolo and Samburu - have to buy all commodities apart from livestock products and milk.

[4] Analysis of price incentives for maize in Kenya 2005-2013, FAO.

[5] Analysis of price incentives for maize in Kenya 2005-2013, FAO.

[6] Source: Kenya Food Security Steering Group (KFSSG), the 2015 short rains season assessment report, February, 2016.

Most markets in these areas – particularly those off main transport routes – are weakly integrated both amongst themselves and with the main supply markets because of poor infrastructure and low population densities.

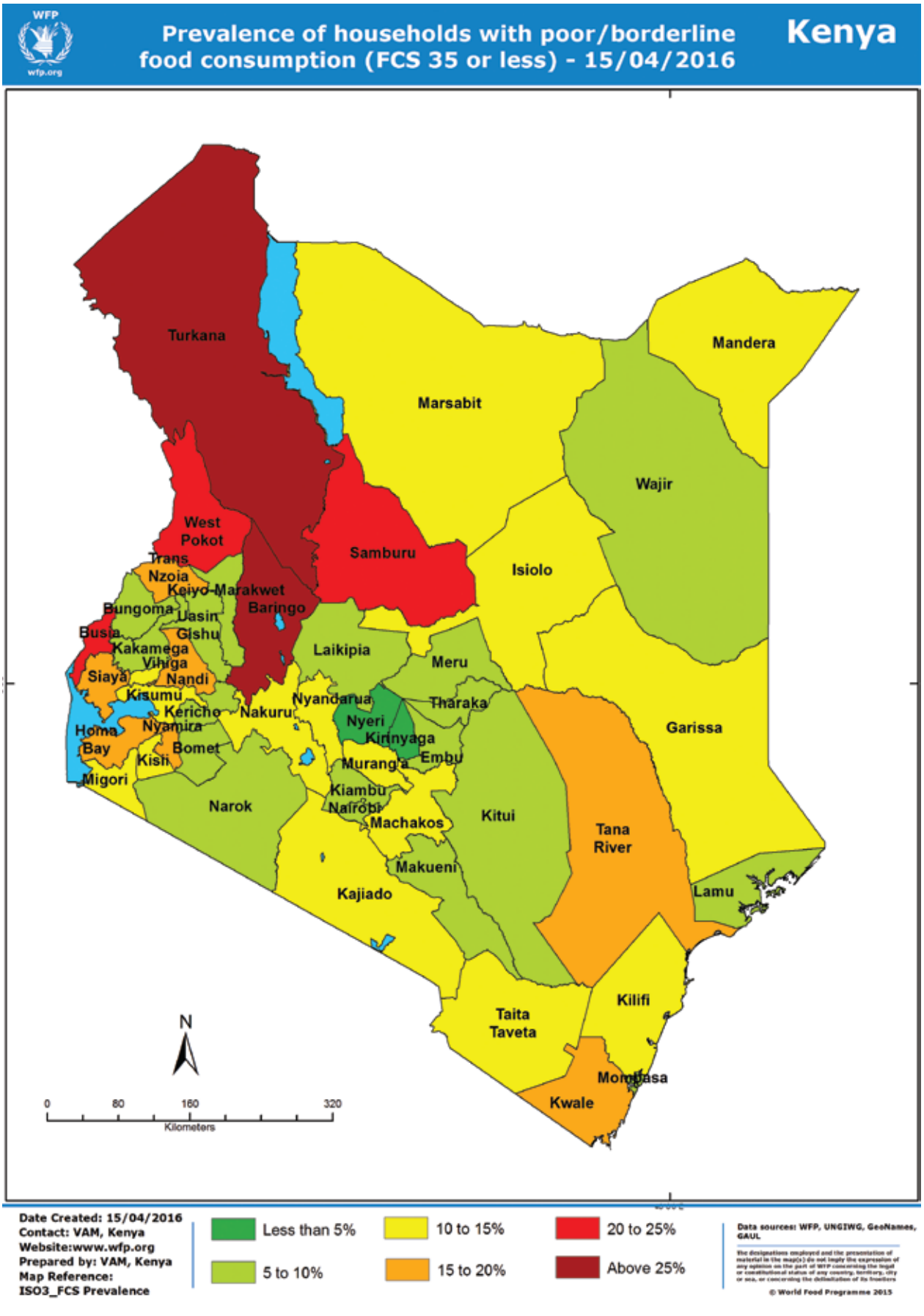
It can take up to four days to reach remote markets during the dry season. In the rainy season routes are sometimes impassable, increasing supply times, reducing availability and pushing up prices. Prices increase by about 1.3% for every additional hour of delivery time from the hub market to the county headquarters and 1.8% for each hour between the county headquarters and the remote markets off the corridor. Prices are generally lower between November and May. The highest market prices are indeed in the most remote counties of Turkana and Mandera, where they are more than 100 percent above those of the base market on average, followed by Garissa, Wajir, Marsabit, Samburu and Kajiado.

The food security situation

While most Kenya households have acceptable food consumption (88%), around four million people (12% of households) have unacceptable consumption, which translates into a diet that consists chiefly of a staple, flavoured with green vegetables and oil.

Turkana stands out as being far more food insecure than any other county: almost one in five households (19%) have poor consumption and a further 24 percent borderline. No other county comes close to this level of food insecurity. The next most food insecure counties (by FCS indicator) are Samburu, Tana River, Baringo, West Pokot, Busia and Siaya.

The four pastoralist counties that are relatively food secure by the FCS have very low dietary diversity, namely Marsabit, Mandera, Garissa and Wajir. Nationally almost one in ten (9%) rural households have low diversity i.e, they consumed only four groups or fewer in the previous week (IFPRI threshold), but the prevalence reached some 37 percent in Marsabit followed by 33 percent in Turkana.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Prevalence of households with poor/borderline food consumption (FCS 35 or less) - 15/04/2016
Kenya
Turkana
Marsabit
Mandera
Wajir
West Pokot
Samburu
Trans Nzoia
Isiolo
Keiyo-Marakwet
Baringo
Bungoma
Uasin Gishu
Busia
Kakamega
Vihiga
Laikipia
Meru
Siaya
Nandi
Kisumu
Nyandarua
Tharaka
Kericho
Nakuru
Nyeri
Garissa
Homa Bay
Nyamira
Kirinyaga
Bomet
Embu
Kisii
Murang'a
Migori
Kiambu
Nairobi
Narok
Machakos
Kitui
Tana River
Makueni
Lamu
Kajiado
Kilifi
Taita Taveta
Mombasa
Kwale
N
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80
160
320
Kilometers
Date Created: 15/04/2016
Contact: VAM, Kenya
Website:www.wfp.org
Prepared by: VAM, Kenya
Map Reference:
ISO3_FCS Prevalence
Less than 5%
5 to 10%
10 to 15%
15 to 20%
20 to 25%
Above 25%
Data sources: WFP, UNGIWG, GeoNames, GAUL
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On average almost three in 10 (31%) reported having faced food shortages in the preceding week. Again, rural households were more likely to do so than urban (36% vs 23%). Lack of food was most extreme in Turkana (86%) followed by Busia, Homa Bay, Baringo, Siaya and Wajir where more than 60 percent experienced shortages in the week before being interviewed.

When faced with this situation, households have no choice but to cut the quality and/or quantity of what they eat so the Coping Strategy Index is a reliable measure of short term hunger. 'High' levels of food related coping were most prevalent in Marsabit, Tharaka-Nithi, Samburu, Baringo and Siaya.

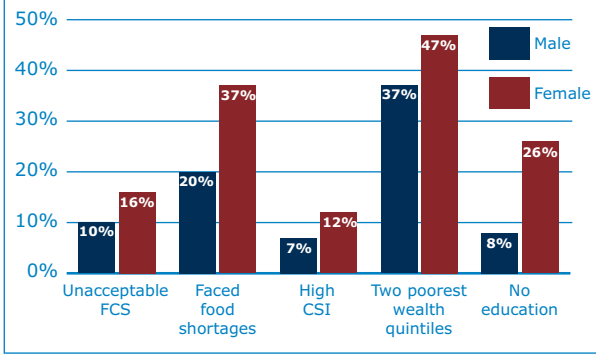
In some counties more than 60 percent of households consumed no HEME iron rich foods in the previous week, namely Wajir, Kitui, Murang'a and West Pokot.

Most Kenyans have a vitamin A-rich diet, with 83 percent of households consuming foods containing the vitamin every day in the previous week – but in Turkana 38 percent of households consumed no vitamin A rich foods during that time.

Who is food insecure?

Food insecure households are likely to be poor, rural and headed by someone with little or no education. The data shows that households headed by women are poorer and that these women household heads are far less educated

Figure 1: Food security, poverty and education indicators male vs female headed households



than their male counterparts, which goes a long way to explaining why these households are considerably more food insecure. There is also an association between food insecurity and higher fertility rates.

County wise high levels of poverty and low levels of education are overwhelmingly found in the north of the country. The link between lack of education and food insecurity by the FCS indicator is clear. Figure 1 shows that more than half of households with unacceptable FCS have little or no education. Completing secondary school or above radically improves a household's chance of being food secure. There is a very similar pattern by CSI.

In Wajir and Mandera more than 80 percent have no education and in Turkana and Marsabit the prevalence is above 70 percent.

Given the strong link between poverty, lack of education and food insecurity it is hardly surprising that Turkana food insecurity outcomes are so low. What is perhaps more surprising is the relatively high levels of food security among the other pastoralist counties. In Wajir, Mandera, Garissa and Marsabit household levels of adequate food consumption are average or even above average despite their poverty levels. This is most likely because their high milk consumption (six days a week) inflates the FCS.

However, these four counties have a high percentage of households with low dietary diversity. It is likely that these pastoralist communities are still managing to maintain 'acceptable' diets by migrating when pasture becomes poor so that their livestock can survive and

CFSVA finding

Despite high poverty and low education levels the pastoralist counties of Wajir, Mandera, Garissa and Marsabit are relatively food secure by the FCS indicator because of their high consumption of animal products, especially milk. But they have high levels of low dietary diversity. Food security levels would quickly drop in the likely event of a drought that would make their animals less productive (or kill them) and in the event of food price rises.

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maintain milk levels. However, climate poses a serious threat to the pastoralist way of life. As mentioned above, each successive drought is likely to weaken their animals more and more and further erode their traditional coping mechanisms. If their animals fail to produce milk their dietary diversity will be further compromised. That these counties are highly vulnerable to food insecurity is not without doubt.

Another interesting insight is the vulnerability of households in four counties bordering Lake Victoria (Homa Bay, Migori, Siaya and Busia) where they experience high levels of not having enough money to buy food. Homa Bay and Migori have particularly high levels of men working as agricultural labourers, employment that is more closely associated with poverty and food insecurity than any other (on average they earn 6,503 Ksh a month).[7] Seasonal work is very common, implying they are likely working on someone else's land rather than tending to their own during the most needed times.

Some 16 percent of working age men (aged 15-54 years) have not worked in the past year, rising to over 30 percent in Bungoma, Vihiga, Garissa, Wajir, Kwale, Marsabit and over 50 percent in Mandera. Along with agricultural workers the unemployed are over-represented in the two poorer wealth quintiles and are significantly more likely to be food insecure by both indicators. For unskilled manual labourers the correlation is less clear. All other livelihood groupings have average food security levels.

[7] Ministry of Labour, Social Security and Services

The elderly are also highly vulnerable. In rural areas almost one in four households are headed by someone over the age of 60 years. Almost half are in the lower two wealth quintiles and they are far more likely to be food insecure and to employ more corrosive food-related coping strategies when faced with food shortages. The counties with well above average proportions of elderly household heads are Vihiga (35%), Siaya (31%) and Murang'a (27%).

A growing urban issue

Food security is not just a rural problem. The highest number of food insecure households is in the capital Nairobi, where 96,356 households have poor or borderline consumption. Of these, 18,967 have poor consumption.

Kenya's urban population has grown at a rate of five percent over the last decade partly due to natural growth, rural to urban migration and also because of territorial expansion of existing urban areas. Almost one in three Kenyans now lives in urban areas compared with 16 percent 20 years ago. It is projected that by 2033, half of the population will be residing in urban areas.[8]

Urban residents often struggle to pay the high cost of city living or are unable to afford sufficient food to meet their minimum nutritional requirements. Unhygienic, crowded living environments with poor access to

[8] Kenya Country Strategy Paper 2014-2018, African Development Bank.

CFSVA finding

Food insecurity prevalence is higher in rural Kenya, But Nairobi has the highest number of food insecure households. Some 96,356 households have unacceptable food consumption, which translates into more than 308,000 food insecure people in the capital (average urban household size is 3.2 according to the DHS). Of these almost 61,000 people are estimated to be severely food insecure.

public services exacerbate the effects of urban informal dwellers' food insecurity. The urban poor frequently have a less diverse range of coping strategies to employ in the face of food insecurity than do their counterparts in rural areas: they do not have access to land and inter-generational support networks tend to be weaker.

Undernutrition

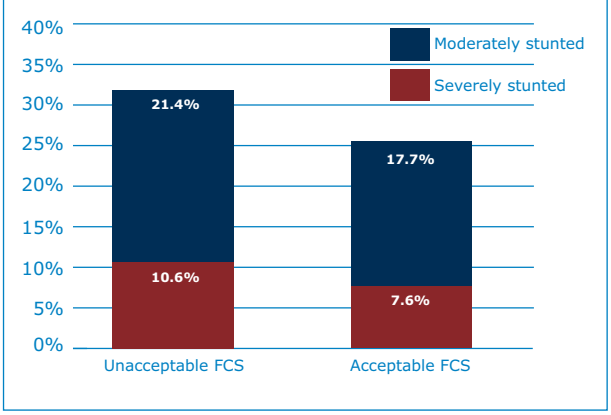
With 4.1 percent of 6-59 month old children wasted, acute malnutrition in Kenya is considered acceptable by WHO cut-offs,[9] a marked improvement since the 2008 DHS prevalence of 6.7 percent. However, levels are 'poor' for children in the poorest households, in households with poor food consumption, and in households with high coping strategies, and 'serious' for children whose mothers have no education. Children born to thin mothers are also more likely to be wasted.

Wasting is 'critical' in the country's northern counties of Turkana, Marsabit , Mandera, West Pokot and Wajir and 'serious' in Samburu and Garissa.

Each county with a serious or critical prevalence of wasting has well above average levels of poverty, poor sanitation and drinking water quality, poor education of the household head and underweight women of childbearing age. Most face high levels of food shortages and have to resort to corrosive food-related coping mechanisms. Any link between wasting and food insecurity by the FCS indicator is less clear.

[9] The cut-offs are provided in the WHO publication *The management of nutrition in major emergencies*, Geneva 2000. <5% acceptable; 5-9% poor; 10-14% serious and ≥15% critical.

Figure 2: Percentage of stunted 6-59 month olds by household food consumption group



Stunting among Kenyan children aged under five years is considered 'poor' by WHO thresholds with 26 percent either moderately or severely stunted down from 35.3 percent in the KDHS 2008. However, there is a marked urban/rural difference: the prevalence rises to 29.1 percent in rural areas, which is considered 'serious' versus 19.8 percent in urban which is 'acceptable' by WHO cut-offs.

At county level the prevalence is 'critical' in West Pokot and Kilifi and 'serious' in Kitui, Bomet, Mandera, Tran-Nzoia, Tharaka-Nithi, Narok, Elgeyo Marakwet, Nandi, Uasin Gishu, Baringo, Nyandarua and Samburu.

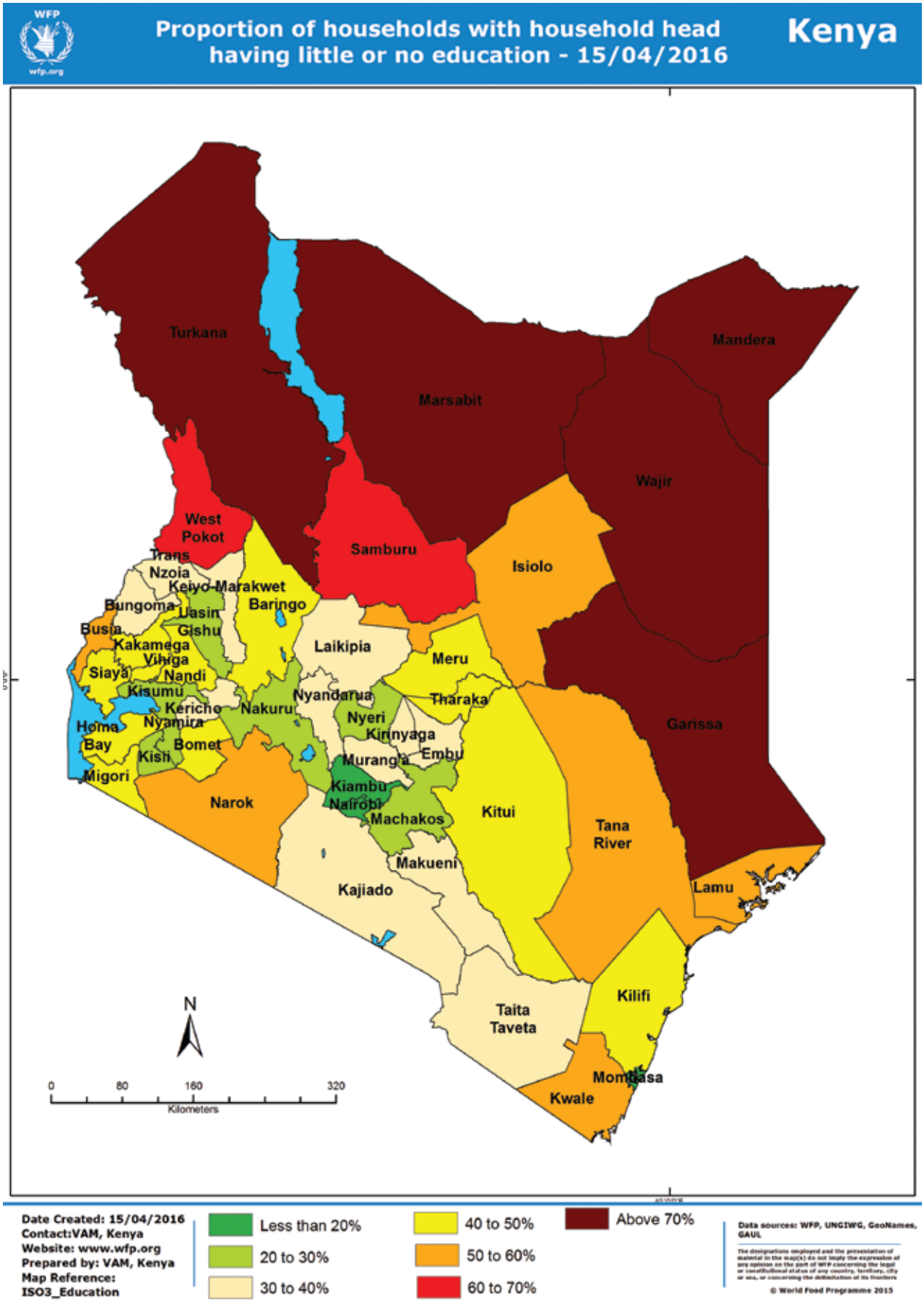
The data shows a clear correlation between poverty and stunting. While under fives who are stunted are more likely to have unacceptable food consumption the link with CSI groupings is less clear. There is however a very strong correlation with a mother's education level.

Nationally, women of child-bearing age are more likely to be overweight than underweight: 8.9 percent have a BMI of less than 18.5 while 22.7 percent are overweight (BMI 25-29.99) and 10.1 percent obese (BMI>/= 30). The poorer the household, the greater the likelihood of its female occupants being thin. The richer the household, the higher the chances of them being overweight or obese.

The prevalence of thin women is highest in Turkana (45.3%), Samburu (40.8%) and Garissa (33.2%) followed by Tana River, Wajir, Mandera, Marsabit, West Pokot and Baringo.

Factors that may underlie malnutrition

Malnutrition is not a simple problem with a single cause. Underlying causes include inadequate dietary intake and illness, which can create a vicious cycle: a malnourished child's resistance to illness is lowered and when he/she


Proportion of households with household head having little or no education - 15/04/2016
Kenya
Turkana
Marsabit
Mandera
Wajir
West Pokot
Samburu
Trans Nzoia
Keiyo-Marakwet
Baringo
Isiolo
Bungoma
Uasin Gishu
Busia
Kakamega
Vihiga
Siaya
Nandi
Laikipia
Meru
Kisumu
Kericho
Nakuru
Nyandarua
Tharaka
Nyeri
Kirinyaga
Garissa
Homa Bay
Nyamira
Bomet
Kisii
Migori
Murang'a
Embu
Kiambu
Nairobi
Machakos
Narok
Kitui
Tana River
Makueni
Kajiado
Lamu
Taita Taveta
Kilifi
Mombasa
Kwale
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0
80
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320
Kilometers
Date Created: 15/04/2016
Contact:VAM, Kenya
Website: www.wfp.org
Prepared by: VAM, Kenya
Map Reference: ISO3_Education
Less than 20%
20 to 30%
30 to 40%
40 to 50%
50 to 60%
60 to 70%
Above 70%
Data sources: WFP, UNGIWG, GeoNames, GAUL
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falls ill, malnourishment worsens. Children entering this malnutrition-infection cycle can fall into a potentially fatal spiral as one condition feeds off the other.

These causes are related to underlying issues: insufficient health services, an unhealthy living environment (poor sanitation, drinking water and hygiene practices) and inadequate knowledge regarding caring and feeding practices.

The 15 percent of under five year olds who suffered from diarrhoea in the fortnight before the survey were more likely to be in poor households and slightly more likely to be food insecure. The prevalence of diarrhoea was above 20 percent in Kilifi, Tana River, Tharaka-Nithi, Kakamega, Vihiga, Bungoma, Homa Bay and Migori.

Around one in four children suffered a fever in the two weeks before the survey and again they were more likely to be in the poorer wealth quintiles. The counties with the highest levels of fever were Kilifi, Narok, Bungoma, Busia, Siaya, Kisumi, Homa Bay and Migori.

Exclusive breastfeeding practices have improved markedly since the 2008 DHS: now 61.4 percent of children are exclusively breastfed compared with 31.9 percent then and just 12.7 percent in 2003. Nationally though just 22 percent of babies under a year old received the minimum acceptable diet falling to 2.7 percent in the north east part of the country, where wasting levels are critical.

In rural Kenya 23 percent of households consume water that is from an unimproved source and either not treated or 'inappropriately' treated.[10] Some counties have very high levels of unsafe drinking water at 40 percent of households or more in Narok, Baringo, Samburu, West Pokot, Turkana, Mandera and Wajir. Counties with high levels of stunting and wasting also have high levels of unsafe drinking water.

Around two thirds of rural Kenyan households (64%) use a non-improved toilet, most commonly a pit-latrine without a slab or an open pit. However in 31 out of the 47 counties more than half of households use unimproved toilets peaking at more than 80 percent in Turkana, Tana River and Samburu. Again counties with high levels of undernutrition also have high levels of poor sanitation.

[10] Improved water sources include piped water into the dwelling, yard or plot; a public standpipe or borehole; a protected well or protected spring water; rainwater and bottled water. Unimproved sources include unprotected wells or springs, water delivered by tanker trucks and surface water. We have also added 'no or not appropriate' water treatment to unimproved sources. Appropriate treatment methods include boiling, bleaching/chlorine, filtering/straining and solar disinfecting. Inappropriate treatment methods include covering the water container and letting the water stand and settle.

Recommendations

1 There needs to be a concerted effort to support agricultural development activities that build the capacity of smallholder farmers to generate a sustainable income. The Government needs to create a new policy framework to make the agricultural sector more profitable, competitive and sustainable.

2 Lobby the Government to continue to accelerate the improvement of road infrastructure, which is key to economic development in the arid lands.

3 Ensure universal primary education for all children and advocate for school meals programmes in all schools.

Advocate for adult literacy and numeracy training in geographically targeted counties with extremely low adult education levels. Emphasis is needed in the seven counties where more than 60 percent of household heads have little or no education (Wajir, Garissa, Marsabit, Mandera, Turkana, Samburu and West Pokot).

4 Focus on integrated programming, which includes natural resource management, resilience building and food security that also reinforces disaster risk reduction, preparedness and response measures, including continued support for improved Early Warning Systems with county ownership.

5 Redouble efforts to understand the complexity of issues that urban households face, to address their food insecurity in a systematic manner, ensuring that food security interventions are as relevant for urban populations as for their rural counterparts.

6 Reinforce efforts to increase the nutritional content of food items consumed, focussing on food rich in proteins and iron. Efficiency gains could be realised by equipping agricultural extension service workers with the skills to provide household-level nutritional advice – for instance, on complementary feeding, food preparation, crop diversification and child care practices.

7 Continue to advocate for land reforms and adoption of land policy principles that would facilitate access to land and land rights for farmers, pastoralists and other vulnerable groups, including involving these groups in decision-making.

8 Continue to work towards universally accessible, quality and responsive health systems with the aim of substantially reducing morbidity and mortality,

Improve maternal, neonatal and child survival rates, reduce malnutrition and the incidence of communicable and non-communicable diseases as well as stabilize population growth.

9 Ensure that the formal and informal sectors, in both urban and rural economies, create employment that is safe, healthy, secure, productive and profitable and is equitably accessible, particularly for women, youth and vulnerable groups.

10 Ensure that the social protection systems that aim at eradicating severe poverty and hunger, are integrated, adequately resourced, well-coordinated, effective, efficient and sustainable at national and county levels.

11 Promote the use of appropriate technologies for improved access to and utilization of sustainable water and sanitation services, safe hygiene practices and solid and liquid waste management. In addition, increase efforts to improve overall sanitation practices at household level.

12 Increase awareness of nutritional issues that cause weight gain and promote healthy diets, especially in growing urban areas.

This executive summary was produced by a team of six people managed by Yvonne Forsen, head of VAM and nutrition in Kenya. The data analysis was carried out by Peter Horjus, it was written by Katy Williams and designed by Lynn Clark. Further technical and editorial support was provided by Allan Kute and Julius Kisingu in Nairobi.