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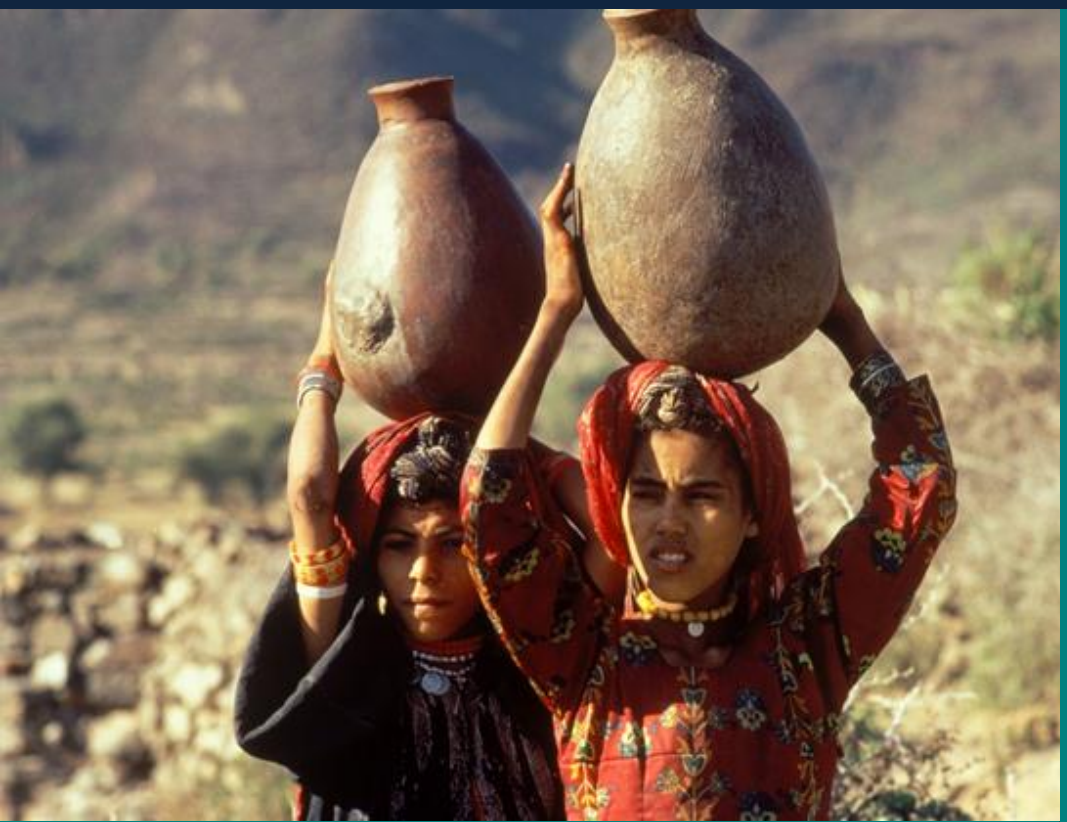
The State of Food Security and Nutrition in Yemen

Comprehensive Food Security Survey



2012

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Key messages

- The number of severely food insecure people nearly doubled between 2009 and 2011
- The poorest people are the most vulnerable
- Food prices have risen dramatically
- The quality of diet has fallen sharply
- Coping strategies have become more widespread and more severe
- Families have limited the quantity and quality of their diet, and are accumulating debt to do so
- One-quarter of all food is bought using borrowed money
- Malnutrition rates are soaring
- Civil unrest is exacerbating food insecurity
- Water shortages and qat cultivation and consumption are limiting agricultural potential

Foreword

This publication is the product of extensive, wide-ranging research and consultation. It offers a picture of the state of food security and nutrition in Yemen. It assesses the causes of food and nutrition insecurity and highlights the major issues that will expose Yemenis to further risk, revealing the vulnerabilities and identifying areas where targeted assistance may be required.

The picture is one of a country on the brink of a disastrous and rapid decline into humanitarian crisis.

Yemen, once prosperous and home to successful and innovative systems of agriculture, now faces a troubled economic outlook, with dwindling oil reserves. Its level of unemployment is huge. Its people are hungry. These are elements that fuel discontent, instability, and insecurity.

WFP's previous Comprehensive Food Security Survey in 2009 highlighted a deteriorating state of food security. It called for "urgent, bold, and immediate interventions to avoid the situation from worsening".

But far from an improvement, the last two years have brought a sweeping decline in food security. The number of food insecure people has doubled, and today nearly half of all Yemeni people do not have enough to eat. Millions regularly go to bed hungry, having skipped meals and, in far too many cases, having gone the whole day without eating. Millions too have resorted to borrowing money as the only way with which to buy food. Children in ever growing numbers are malnourished, because their parents cannot feed them properly.

This report is an urgent call to action. It demands that no time is spared in addressing the suffering of ordinary, but hungry, people, and the causes of that suffering.

WFP would like to thank the Ministry of Planning and International Cooperation which, through the Central Statistical Agency, provided technical guidance and support for the data collection. In addition, WFP would like to thank UNICEF for advice and guidance on the nutrition component of the analysis.

The CFSS was prepared by a team of WFP analysts including Amit Wadhwa, Ahmad Shah, Ahmed Ismail, Mahdi Khalil, Siemon Hollema, Christiana Hobbs, Tom Woodhatch and Dr Wissam Al Timimi from UNICEF.

WFP is ready to face the challenge in Yemen and support the Government of Yemen in its fight against poverty, food insecurity, and malnutrition.

The task is as great as it is urgent.

Lubna Alaman
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vam
food security analysis

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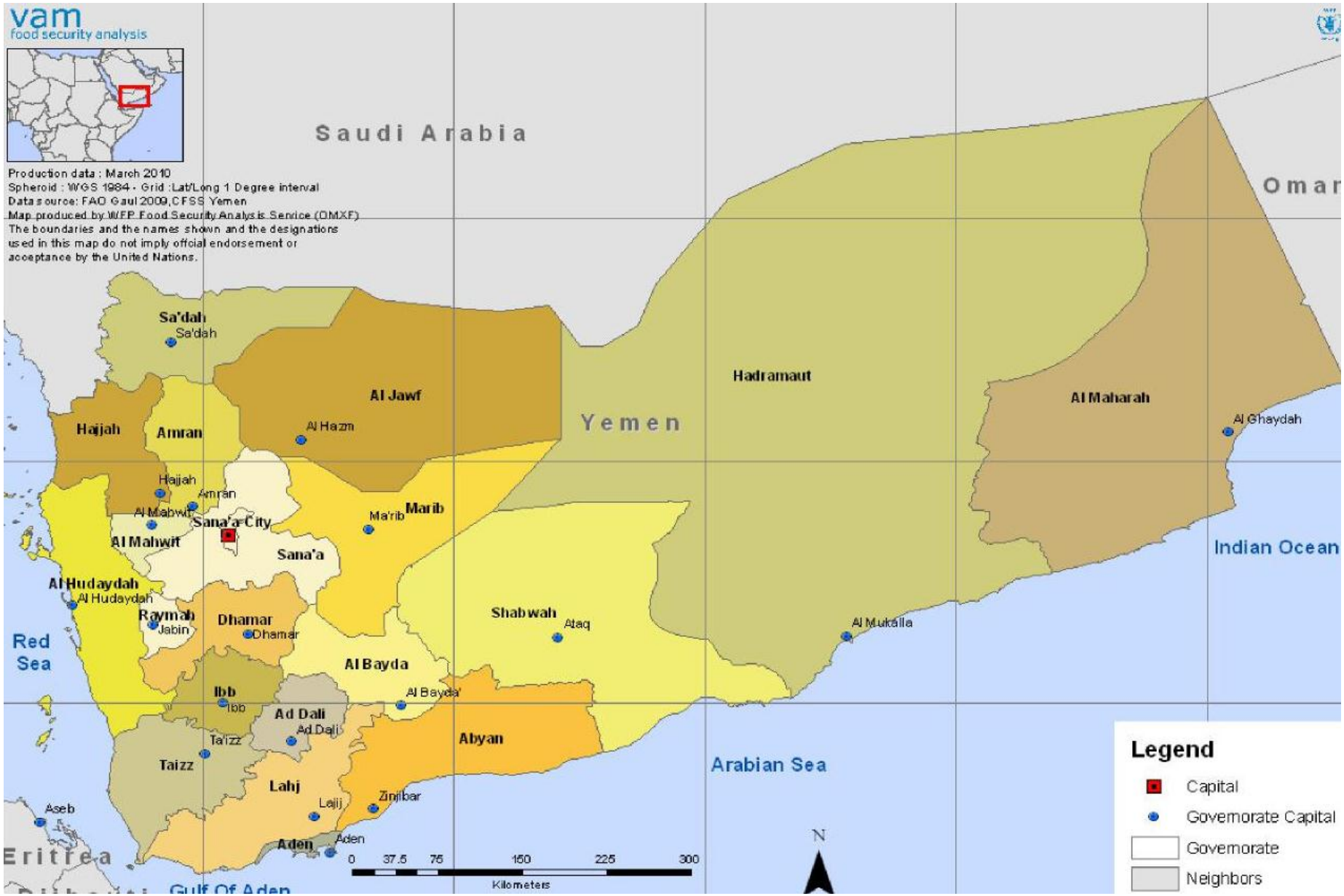
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Production data : March 2010
Spheroid : WGS 1984 - Grid :Lat/Long 1 Degree interval
Data source: FAO Gaul 2009,CFSS Yemen
Map produced by WFP Food Security Analysis Service (OMXF)
The boundaries and the names shown and the designations used in this map do not imply offcial endorsement or acceptance by the United Nations.
Saudi Arabia
Yemen
Oman
Red Sea
Arabian Sea
Indian Ocean
Eritrea
Gulf Of Aden
Sa'dah
Sa'dah
Al Jawf
Al Hazm
Hajjah
Amran
Hajjah
Amran
Al Mahwit
Al Mahwit
Sana'a City
Sana'a
Ma'rib
Marib
Al Hudaydah
Al Hudaydah
Raymah
Jabin
Dhamar
Dhamar
Shabwah
Ataq
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Al Mukalla
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Summary

Concern has been growing about Yemen's food security situation. The country has the region's highest rates of chronic malnutrition, along with known pockets of acute malnutrition. It is also the region's poorest country, with 45 percent of the population living below the poverty line. It is almost entirely dependent on food imports and as such Yemenis are hugely vulnerable to any volatility in prices. The poorest households are the most vulnerable.

A series of destabilizing events during 2011, including the Arab Spring, subsequent violence in the Sana'a City, continuing conflict relating to the Al Houthi movement in the northwest and the growing influence of Al Qaeda in the Arab Peninsula in the south, plus rising food and fuel prices have severely disrupted household access to food. That, on top of their already limited access, with one third of the population considered food insecure in 2009. The ramifications of these events have had two grave consequences: an erosion of an already poor diet and an accumulation of household debt.

The number of severely food insecure households nearly doubled between 2009 and 2011, rising from 12 percent to 22 percent by December 2011. This means that an additional 2.7 million Yemenis have become severely food insecure during that tumultuous two-year period. Analysis of the change from 2009 to 2011 has shown several alarming results. People have drastically reduced their intake of micronutrient-rich foods including meat, fruits and vegetables, pulses, and dairy products. In some governorates, households consume half the amount of these food groups as they did two years ago.

There has also been a dramatic rise in the use of coping strategies that households adopt in the face of hunger. The Coping Strategies Index, a measurement of the severity and frequency of food related coping behaviours, more than doubled between 2009 and 2011.

The rising cost of food has had a huge effect on households. Nine out of ten households reported that rising food prices negatively affected their household's ability to obtain food. The overall food inflation rate over the same period is more than 20 percent, with some particular food items having more than doubled in price from one year previously. Not only are households responding by limiting the quantity and quality of their diet, but they are also accumulating debt to do so.

At the time of the survey, more than one-third of households had a food-related debt. Among food insecure households, 45 percent of those who already have a poor diet have debt related to food. Buying food on credit has become common. In rural areas, 28 percent of food is bought on credit, a massive increase of 43 percent since 2009. As household debt builds, there is grave concern that diets will worsen further.

Despite the severity of the food situation in Yemen, qat consumption remains emphatically unabated. Households spend an average of 10 percent of their expenditure on qat – more than on health and education combined.

The nutrition situation in Yemen is therefore of serious concern. The survey found 13 percent of children under five years old to be acutely malnourished. Hudeidah has the country's worst global acute malnutrition at an estimated 28 percent, well above WHO emergency thresholds. This is similar to the

findings of a recent SMART survey. Chronic malnutrition among children is also deeply worrying, with nearly half of Yemeni children stunted, and further underlines the seriousness of the situation.

With the economy in decline and food prices peeking, peoples purchasing power is been eroded. Food security is the prerequisite for a stable nation.

The Yemen context

History

Happy Arabia The Greek geographer, Ptolemy, called Yemen Eudaimon Arabia (Greek), or Fortunate Arabia. The description referred to its fertility and climate that helped to sustain a stable population. Nomadic Semites had settled in Yemen by the 23rd century BC, but also migrated as far north as Mesopotamia. They dealt in spices and traded heavily and lucratively along the Red Sea coast. In later centuries, the Romans rendered Ptolemy's words into the Latin Arabia Felix, Happy Arabia.

Sedentary agriculture and trade Between the 8th and the early 3rd centuries BC, south-western Yemen was ruled by the Sabaeans. Theirs was a prosperous rule, founded on agriculture and trade, notably of aromatic resins such as frankincense and myrrh, which were exported (by camel and ship) as far afield as India, the Mediterranean rim, and Abyssinia. The success of agriculture is attributed largely to a splendidly innovative irrigation system that developed dams and extensive water tunnels bored through the mountains. One of those dams, that of Mar'ib, was in place for more than a thousand years. Legend has it that Mar'ib, close to present day Sana'a, was founded by Noah's eldest son, Shem, and that the Sabaean kingdom was that known in the Old Testament as Sheba.

Kingdoms rise, kingdoms fall Various kingdoms vied with each other from the earlier Christian era, alternately rising, extending their reaches through conquest, before eventually falling.

Islam and medieval squabbles Islam arrived in around 630, and Yemen became a province in a rapidly expanding Islamic empire. Imams, mainly of the Zaidi, sect controlled much of northern Yemen and established a theocratic political structure that continued into the 20th century. Local feuding between Imams and occasional foreign military conquests characterized the 600 years from the 12th century, when the Ottomans and the British came to lay their own stakes to Yemen.

The Turks and the British In the mid-19th century, the Ottomans moved into northern Yemen, taking Sana'a in 1872, which they made the district capital. The rapidly expanding British Empire, meanwhile, was looking to protect and support its shipping routes to and from India, and captured Aden in 1832, making it a fuelling stop for shipping. With the opening of the Suez Canal in 1869, Aden acquired even more strategic value, and its surrounding areas became known as then Aden Protectorate. A border between north and south Yemen was formalized by a treaty between the British and the Ottomans in 1904.

Independence and the modern era Aden became a crown colony in 1937, transferring rule from Delhi to London. Oil was discovered in Arabia at around the same time, contributing to Aden's continued prosperity. Egypt's General Nasser opposed European imperialism in the Middle East while strongly advocating pan-Arab nationalism. Fighting between the Egyptians, the British and guerrilla forces over control of Yemen continued through much of the 1960s which, with the closure of the Suez Canal in 1967, succeeded in forcing the British to withdraw from Yemen.

The two countries that emerged – the Yemen Arab Republic (North Yemen) and the People's Democratic Republic of Yemen (South Yemen) – fought twice in the 1970s and only the intervention of the Arab League stopped the fighting. On 22 May 1990, the two Yemens united into the single Republic of Yemen,

with Ali Abdullah Saleh as President. But political infighting in the new government translated into violent clashes in many parts of the country and led to a brief civil war in 1994.

The Arab Spring Saleh remained President until 2011. Popular uprisings in North Africa and in other Middle Eastern countries began at the end of 2010 and spread to Yemen in January 2011. Major protests in Sana'a and Aden called for President Saleh to resign. After several false starts, Saleh did eventually relinquish his presidency in November 2011. A presidential election was held on 21 February 2012, which returned former Vice-President Abd Rabbuh Mansur al-Hadi, the only candidate, to power with a stunning majority for an interim period of two years.

Government

The Republic of Yemen (Al Jumhuriyah al Yamaniyah) has a bicameral legislature that is designed to govern the country. The Shura Council has 111 members, who are appointed by the President. The House of Representatives has 301 seats, with members elected by popular vote to serve eight-year terms. In practice, the President has dominated Yemen's government. There are at least 10 active political parties, plus unelected groups such as the Muslim Brotherhood, Women's National Committee, conservative tribal groups, Huthis (or Ash-Shabab al-Muminin), southern secessionist groups, and al Qaeda in the Arabian Peninsula that also exert political influence.

Population

Yemen has a population of around 24 million, more than double that of 1975. It is an overwhelmingly young population, with around 46 percent under the age of 15, and a median age of 18.1 years. Ethnically, the country is predominantly Arab, with small minorities of Africans (notably from Somalia) and South Asians. Almost the entire population is Muslim, with Shias (Zaydi) and Sunnis (Shafai) represented almost equally.

The urban population makes up around one-third of the total, with an urbanization rate of about 4.6 percent per year. The infant mortality rate in 2007 was almost 58 deaths per 1,000 live births, while life expectancy for men stood at 60.6 years and 64.5 years for women.

World Bank figures for 2005 show a 73 percent literacy rates for males, while only 35% females are literate.

Geography

Yemen is the second largest state by area on the Arabian Peninsula, where it is situated at the southernmost tip between latitudes 12°N and 20°N and longitudes 41°E and 54°E. Administratively, the country is divided into 21 governorates and 333 districts. These administrative regions fall into six agro-ecological zones: (1) the Upper Highlands (above 1,900 m), (2) the Lower Highlands (below 1,900 m), (3) Red Sea and Tihama Coast, (4) Arabian Sea coast, (5) the Internal Plateau, and (6) Desert (Annex X).

Yemen has 1,906 km of coastline on the Red Sea, the Gulf of Aden, and the Arabian Sea. It shares a 1,458 km land border with Saudi Arabia, and 288 km with Oman. Its total land area is 527,968 km2. Yemen has a narrow coastal plain backed by flat-topped hills and rugged mountains, and dissected upland desert plains in the centre slope into the desert interior of the Arabian Peninsula. At 3,760 m, its highest point is at Jabal an Nabi Shu'ayb.

The country has four broad geographical zones. The arid western coastal plains give on to the heavily terraced western highlands. This area receives Arabia's highest rainfall, which supports diverse cultivation, including sorghum, cotton, and fruit. The drier central highlands are also cultivated, with crops including irrigated wheat and barley. Finally, in the east the Rub al-Khali desert receives almost no rainfall and is populated by Bedouin camel herders.

Yemen's topography varies widely from sea level to inter-mountain plains, steep slopes and rugged mountains. This extremely diverse topography leads to climatic conditions that are highly dissimilar across the country. Overall, Yemen's climate is semi-arid to arid. The mountains are temperate year round, while the Tihama coast and the desert zones are hot and dry during winter and even hotter in summer, with temperatures rising to over 50°C. There are two main rainy seasons — in spring between March and May, and in the summer from July to September. Precipitation ranges from less than 50 mm along the coast to 500-800 mm in the western highlands, but is below 50 mm inland. The highlands contain wadis, or dry riverbeds, that fill up with water during the rainy seasons, creating pockets of biodiversity (MoPIC, 2003; Alabsi, 2006).

The climate is variable, with seasonally intense, short-lived heavy storms that produce flash floods, interspersed with long dry periods resulting in widespread droughts, all exacerbated by the impact of climate change. Climate change is expected to intensify the variation in precipitation distribution, most likely leading to a hotter climate with more frequent droughts and increased desertification across the country and heightened vulnerability along the coastal areas as a result of rising sea levels.

Yemen is already one of the most water-scarce countries in the world, lacking rainfall and surface water. High population growth and water scarcity result in a chronic imbalance between water needs and availability. The per capita water resources stand at 125 m^3 compared to 1,250 m3 in the Middle East and North Africa region, already one of the driest regions in the world, and the global average of 7,500 m^3 (WFP, 2008). Per capita consumption exceeds water supply (WFP, 2008). The annual deficit was 0.4 km^3 in 1990 and is expected to reach 1 km3 in 2010 (MoPIC, 2009). The country has limited freshwater, and overall water withdrawals exceed recharge rates by 123 percent of renewable water resources (World Resources Institute, 2003). Agriculture uses by far the most water, with 96 percent of water use (Shetty, 2006), while qat alone accounts for around 40 percent (Ministry of Agriculture and Irrigation).

As underground water becomes harder to reach and the cost of new wells rises, irrigation resources will tend to be concentrated in the hands of the wealthier farmers. The current context of rising inequality in water access, ownership of irrigated land and competition between agricultural and urban users suggests a worrying outlook for the poorest sectors of rural society.

Economy

After unification in 1990, the Government had to work to integrate two distinct economic systems. Their efforts were hampered by the immediate return of some 850,000 Yemenis from the Persian Gulf states, major reductions in aid flows, and the 1994 civil war. Through the 1990s, the World Bank and the International Monetary Fund supported the Government's economic reform programmes, which included plans to reduce the country's dependence on oil. In 2009, Yemen exported its first liquefied natural gas as part of wider efforts to diversify its economy. Then, in January 2010, the Friends of Yemen group was established by the international community in an effort to further boost economic and political reform.

Despite this, petroleum products make up around 70 percent of government revenue and some 25 percent of Yemen's GDP. Its 2011 GDP (PPP) was estimated to be $63.24 billion, which represents a negative growth of around 2.5 percent over 2010. The country's labour force stands at roughly 7,000,000, of whom most work in agriculture and herding. But agriculture contributes just 8.3 percent to GDP, while the figures for industry and services are estimated at 41.6 percent and 50.1 percent respectively. In 2011, GDP per capita was estimated at $2,500. More than one-third of Yemen's population is unemployed, while around 45 percent live below the poverty line. In 2011, inflation was estimated to be 20 percent. China and India are the main destinations for Yemen's exports, while the country's main imports come from UAE, China, and India.

Food security

Yemen is characterized by widespread poverty, food insecurity, malnutrition, unemployment, low levels of education, high gender disparities, rapid population growth and insufficient access to safe water and to land. Multiple and simultaneous shocks have exacerbated the vulnerability of families and left millions trapped in absolute poverty and hunger.

Yemen is facing an increasingly complex and worrying humanitarian crisis. Families displaced by the Sa'ada conflict and refugees from the torn Horn of Africa continue to rely on humanitarian assistance for survival. At the same time the combined effects of the global food, fuel and financial crises have increased poverty in Yemen and have further exacerbated the vulnerability of a population that is already suffering from alarming rates of hunger and malnutrition.

Yemen is ranked as the 11th most food-insecure country globally with one in three Yemenis suffering from acute hunger (IFPRI, 2011).

Half of Yemen's children are chronically malnourished and one out of ten does not live to reach the age of five. Such emergency levels of chronic malnutrition – or stunting – are second globally only to Afghanistan. The proportion of underweight children is the third highest in the world after India and Bangladesh.

The country suffers from rising unemployment and high poverty rates. Low education levels have led to illiteracy rates at 66 percent for women and 27 percent for men. The situation of women is of particular concern, as the gender gap in Yemen is consistently ranked highest in the world. Yemen's population of 23 million is growing rapidly.

Besides civil unrest, a variety of internal and external factors are putting further strain on Yemen's limited resources. The food, fuel and financial crises led to an increase in poverty to an estimated 43 percent from 35 percent in 2006. At the same time, the government's ability to provide basic services is challenged by oil prices and oil production. A six-year conflict in north-western Sa'ada governorate has displaced some 350,000 people and affected many more. In addition, thousands of refugees continue to cross the Gulf of Aden from the Horn of Africa each year. The dire situation is further compounded by climate change, water scarcity, general insecurity, and limited access to basic services such as clean water and land. In the current situation where families are trapped in extreme vulnerability, any new shock no matter how minor could easily push millions over the edge.

Poverty

Yemen remains one of the world's poorest countries. In 2011, it was ranked 154th in the Human Development Index, a ranking that has generally held steady since 1990. But with population growth of around 3 percent annually, Yemen's population is expected to double in less than 25 years.

A 2010 a simulation analysis by the International Food Policy Research Institute based on an economy-wide model to assess the impact of the high food and fuel prices and the global financial crisis. The so-called 'Triple F' (food, fuel, financial), crisis affected the country particularly badly between 2007 and 2009, and has since been challenging the country's economy at the macro-level and the overall well-being of its population at the micro-level.

The World Bank reports that poverty in Yemen is deeper and more severe than in other Middle Eastern and North African countries. There are also major differences (between 5 percent and 71 percent in 2010) in the incidence of poverty between governorates. Governorates with the greatest poverty include Amran, Al Bayda, Hajja, and Shabwa, while it is lowest in the Sana'a City and Al Mahra governorates.

Security and political instability

One disturbing consequence of the continued high poverty level has been the emergence of an al Qaeda presence in Yemen. Al Qaeda in the Arabian Peninsula (AQAB) is considered the most active of the various branches of al Qaeda that emerged after the death of Osama bin Laden (whose father was born in Yemen). In 2010, an American press report claimed that the CIA believed AQAB to be a greater threat to the USA than Osama bin Laden's core group. According to a British newspaper, "with its conservative Islam, ragged mountains, unruly tribes and problems of illiteracy, unemployment and extreme poverty, Yemen has been dubbed the new Afghanistan by security experts".

It is not hard to understand that high unemployment, persistent poverty levels, external shocks, and government instability can readily combine to catalyse forms of resistance, of which AQAB is one, particularly in a country with a very high proportion of youth. In some parts of southern Yemen, the Government has struggled severely to control a series of *jihadis*, lawless tribes, secessionists, and plain old-fashioned bandits. Although the groups may have little ideology in common, they are the product of, and contribute to, conditions in which extremism can flourish.

Methodology

Objectives

The CFSS is designed to enhance the food security knowledge base in Yemen. It aims to inform programme decision-making to combat transitory and chronic food insecurity. The survey objectives were to:

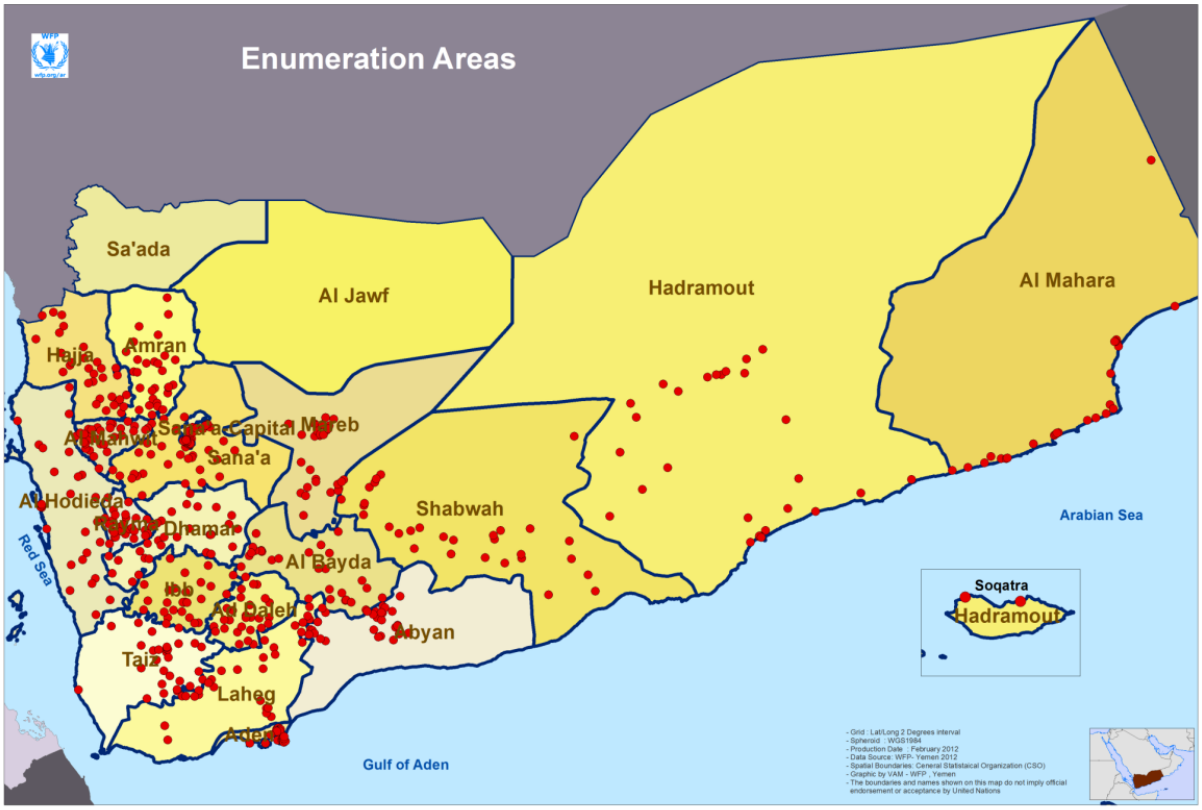
- Update statistics on the number of food insecure households at national and sub-national levels and to identify the underlying causes of food insecurity;
- Fine-tune the response options and targeting for the 2012/13 WFP programme;
- Provide a baseline with which to monitor food security outcomes; and
- Feed into the humanitarian response plan, the national food security strategy and the five-year development plan.

Method

The main source of information for the CFSS analysis was from primary data collected through household interviews, measurements, and interviews of women of reproductive age, measurements of children under five years old, focus group discussions in all of the communities visited and trader surveys in important markets across the country. The Central Statistics Office (CSO) provided the sampling frame, which was designed to provide representative statistics at governorate, agro-ecological zone, urban/rural and national levels. A two-stage cluster sampling approach was applied (Annex 1).

Data were collected during November and December 2011 – the same months as the previous CFSS in 2009. Nineteen of the 21 governorates in Yemen were visited. Sa'ada and Al Jawf were not accessible, because of security issues. Twenty teams, each with four enumerators and a supervisor, visited 570 communities across Yemen. In total 7,750 households were interviewed. More than 10,000 women were interviewed and more than 11,000 children were measured. In addition, over 170 markets were visited.

Figure 1 Map of communities visited during data collection



The CFSS is a multi-dimensional study and includes modules on:

- Demography
- Education
- Water and sanitation
- Household assets
- Agriculture and livestock
- Income and livelihoods
- Expenditures and debt
- Food consumption
- Sources of food
- Coping mechanisms
- Household exposure to shocks
- Nutrition
- Child feeding practices
- Access to markets, health facilities and schools
- Market availability
- Market prices
- Impact of shocks to markets and recovery

MEASURING FOOD INSECURITY AND NUTRITION

> Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life
>
> **World Food Summit, 1996**

This report provides an overview of food security at the national (urban and rural) and governate level in Yemen. Food security depends upon three main factors:

1. Availability of food This is the extent to which sufficient quantity and quality of food is physically present in an area. This includes food found in markets, produced on local farms or home gardens, or provided as food aid or gifts.

2. Access to food Even when food is available, people cannot always access it. Food access is ensured when communities, households, and all individuals have enough resources to obtain sufficient quantity and quality of food for a nutritious diet through a combination of home production, stocks, purchase, barter, gifts, borrowing, or food aid.

3. Utilization of food Even if food is available and can be accessed, inadequate utilisation of it will lead to malnutrition. Proper child care, providing a diet with enough energy and nutrients, safe drinking water, adequate sanitation as well as knowledge of food storage, processing, illness management, and basic nutrition are essential to achieving adequate food utilization.

The nutritional status of a population can be assessed by anthropometric measurements of the most vulnerable, i.e., children under the age of five and women. Malnutrition is not a simple problem with a single cause and silver bullet solution. Its immediate causes are inadequate dietary intake and illness, which can create a vicious circle: a malnourished child's resistance to illness is lowered and when he/she 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 immediate causes are related to underlying causes: inadequate access to food in a household, insufficient health services, an unhealthy living environment, and inadequate care for women and children.

Measuring food insecurity In this report, the state of household food insecurity is assessed by calculating the food consumption score (FCS). The FCS combines food diversity, food frequency (the number of days each food group is consumed), and the relative nutritional importance of different food groups. The FCS uses standardized thresholds that subsequently divide households into three groups: poor food consumption, borderline food consumption, and acceptable food consumption. Households with poor food consumption are considered severely food insecure, those with borderline food consumption moderatey food insecure, and households with acceptable food consumption are considered generally food secure.

A household coping strategy is also taken into consideration. When confronted with sudden negative events such as a natural disaster, food price rises, illness of household member or loss of employment, households compromise by, for example, buying cheaper products and/or switching to less preferred food, limiting portion size and reducing the number of meals eaten in a day. These are known as coping mechanisms and they may have severe nutritional impacts. A coping strategy index (CSI), based on the frequency and severity of coping strategies for households reporting food consumption problems, can

be calculated as an indicator of food insecurity. Higher CSI scores indicate a more serious food security situation, and lower scores, a better one. Weights are assigned to different coping strategies according to their severity. So, 'relying on less preferred and/or less expensive foods', 'limiting portion size at meal times' and 'reducing the number of meals eaten in a day' are all given a score of one. 'Borrowing food or relying on help from a friend or relative' is assigned a score of two, while 'restricting adults' consumption to allow small children to eat' is given three.

Measuring malnutrition This is done by comparing the anthropometric indicators for children under the age of five (stunting, wasting, and underweight) against a healthy reference population as defined by the World Health Organization. Stunting, or low height-for-age, is defined as having a height at least two standard deviations below the median height for a reference population. Stunting among children is a strong nutritional indicator for chronic food insecurity as insufficient calorie intake translates into reduced child growth. Underweight or low weight-for-age is similarly defined and reflects both chronic and acute malnutrition. Wasting is based on standardized weight-for-height and low values can be a measure of acute malnutrition.

The food security situation

KEY ISSUES

- Ten million Yemenis, nearly half of the population, are food insecure
- There has been a significant increase in the number of people with poor food consumption
- Political instability and insecurity negatively affects people's ability to access food
- High food prices affected nine out of ten Yemenis

NEARLY HALF OF THE POPULATION IS FOOD INSECURE

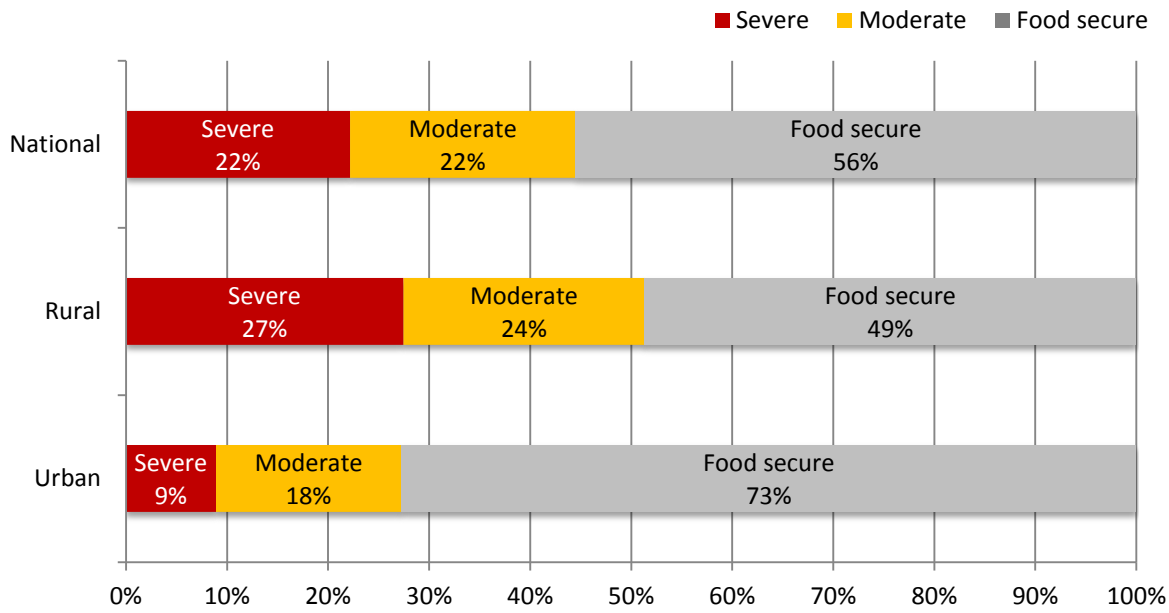
The survey found 44.5 percent of the population to be food-insecure. That is a marked increase – of more than 40 percent – over the figure recorded by the 2009 Comprehensive Food Security Survey. It also means that around 10 million people in Yemen had limited or no access to sufficient, nutritious food, and were eating a poor or borderline diet according to agreed international standards. Just over half the rural population (51 percent) was food-insecure compared to 27 percent in urban areas.

There are significant differences in food insecurity between governorates and agro-ecological zones. More than half the populations in eight out of the 19 surveyed governorates were food insecure – a staggering increase over the 2009 level. Only two of the governorates surveyed had a prevalence of less than 20 percent. All but one governorate now have higher rates of food insecurity than they did in 2009, with several showing substantial rises. Al-Bayda, Mahreb, and Sana'a governorates

More than 44% of the population does not have enough access to food

have experienced the highest rates of increase. Only Rayma and Al Mahweet have seen falls in their food-insecurity prevalence.

Figure 2 Prevalence of food insecurity



Source CFSS 2012

There are sharp differences in the state of food security between rural and urban areas, between governorates, and between agro-zones. There are nearly four times as many food-insecure people living in rural areas than in urban places, a marked increase both in absolute and proportional terms over the 2009 figures. Rural areas are not homogenous and may vary considerably in the quality of facilities and assets, such as the environment in which people make a living.

Figure 3 Prevalences of food insecurity by rural and urban

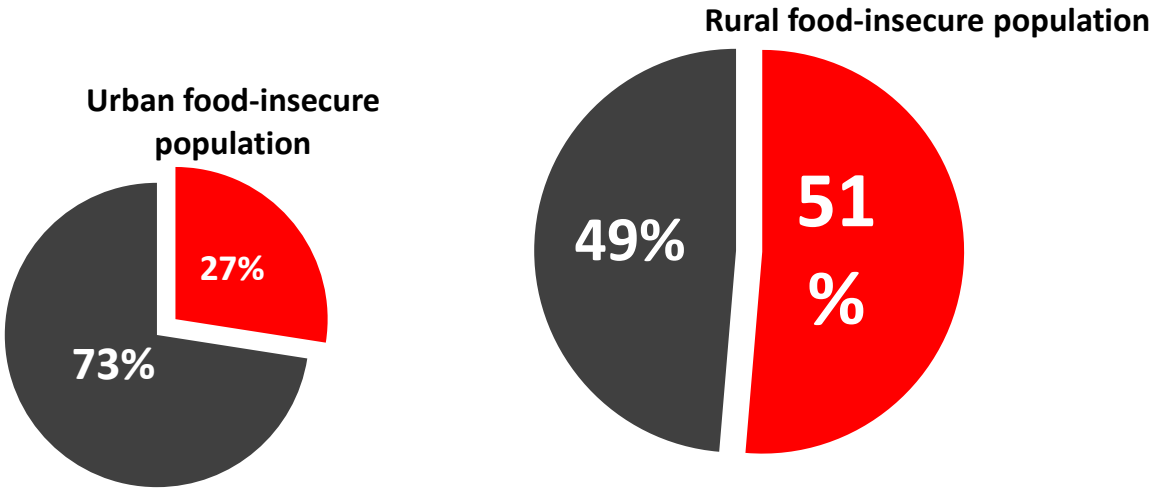


Table 1 Food-insecurity prevalence and number at national and governorate level*

Governorate	Total Population	Percent Food Insecure			Number Food Insecure		
		Severe	Moderate	Total	Severe	Moderate	Total
Ibb	2,504,937	27.1%	27.4%	54.5%	679,340	687,096	1,366,436
Abyan	508,826	19.9%	29.7%	49.7%	101,499	151,296	252,795
Sanaa City	2,426,868	7.6%	19.9%	27.6%	184,934	483,887	668,821
Al Bayda	669,921	61.0%	15.5%	76.5%	408,454	104,166	512,620
Taiz	2,813,950	22.4%	25.4%	47.8%	630,258	714,860	1,345,118
Hajja	1,795,456	30.7%	22.6%	53.3%	551,121	405,983	957,104
Hudeida	2,651,416	15.9%	17.4%	33.3%	422,191	461,543	883,734
Hadramout	1,252,473	2.9%	15.2%	18.0%	35,870	189,998	225,868
Dhamar	1,493,977	24.1%	22.0%	46.1%	360,727	327,930	688,657
Shabwa	551,450	10.3%	27.5%	37.8%	56,702	151,922	208,624
Sana'a	1,052,409	45.4%	23.7%	69.1%	477,548	249,276	726,824
Aden	745,792	5.7%	17.7%	23.4%	42,670	131,719	174,389
Lahej	858,777	23.5%	34.5%	58.0%	201,767	295,905	497,671
Mareb	286,107	52.7%	23.1%	75.8%	150,740	66,050	216,791
Al Mahweet	594,260	12.8%	17.2%	30.0%	75,994	102,275	178,269
Al Mahra	116,935	1.7%	12.1%	13.8%	1,961	14,162	16,124
Amran	985,929	25.9%	20.1%	45.9%	255,209	197,813	453,022
Ad Daleh	587,170	29.4%	27.2%	56.6%	172,737	159,847	332,585
Rayma	478,387	31.1%	19.5%	50.6%	148,804	93,464	242,268
National	**23,833,000**	**22.2%**	**22.3%**	**44.5%**	**5,290,926**	**5,314,759**	**10,605,685**

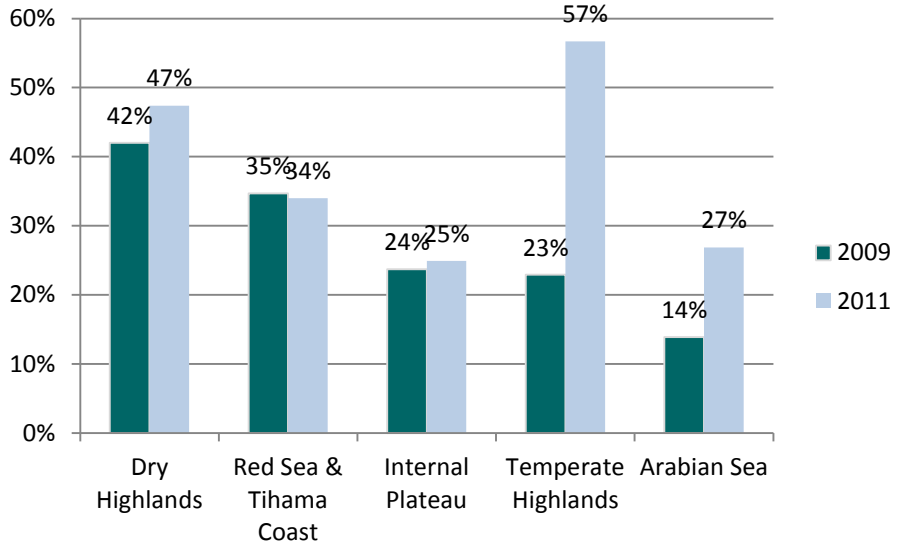
***excludes Saada and al-Jawf governorates
Source CFSS 2012

By agro-ecological zone, there is an upward trend for all but the Red Sea and Tihama Coast zone (Figure 4). Although the Desert zone suggests a huge rise, the small sample size may not have captured the true

picture in either the 2009/10 or 2011/12 surveys and the figures for both years should be treated with caution.

The Temperate Highlands have the highest prevalence of food insecurity, followed by the Dry Highlands. The largest increases in 2011 over 2009 were experienced by the Temperate Highlands and the Arabian Sea zones. The Dry Highlands is the most densely populated zone where more than 30 percent of the country's population is concentrated, which puts pressure on the region's severely declining land and water resources. The Red Sea and Tihama Coast is the country's poorest zone and its extremely hot temperatures make agriculture impossible without access to water pumps.

Figure 4 Prevalence of food insecurity, 2009 and 2011, by agro-ecological zone (%)



Between 2009 and 2011, some 2.5 million *more* Yemeni people became severely food insecure

Source CFSS 2012; Desert not included due to low number of households surveyed

CHANGE IN FOOD INSECURITY PREVALENCE, 2009-2011

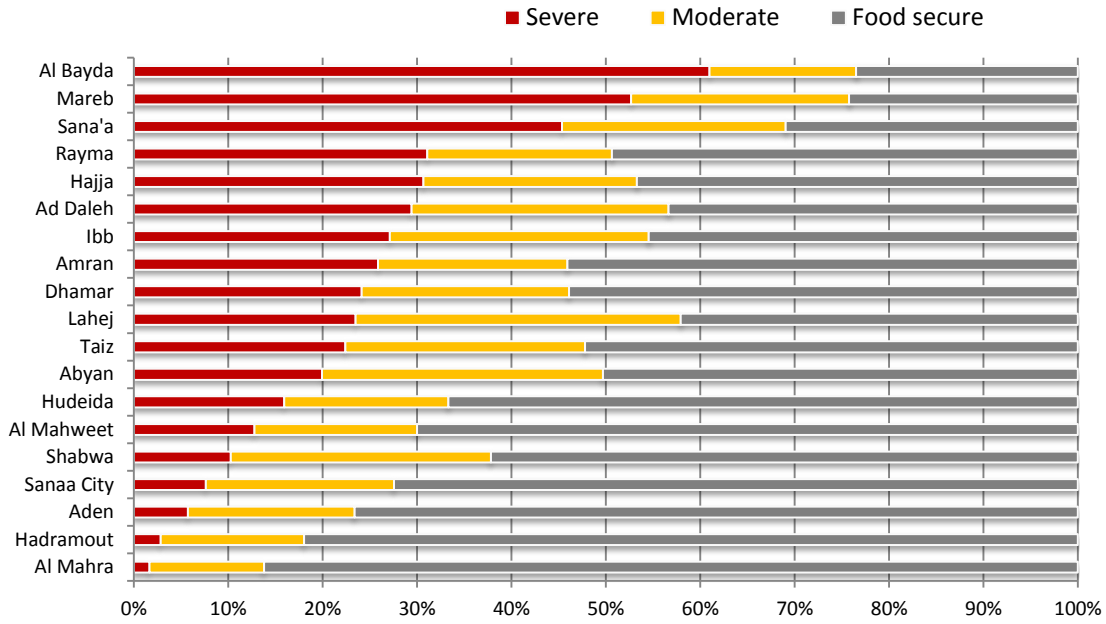
There are also strong variations by governorate, with more than 70 percent of the al Bayda and Mareb populations being food insecure, while Hadramout and Al Mahra have less than 20 percent food insecurity.

Table 2 Change in food security since previous WFP study

Year	Severely food insecure	Moderately food insecure	Total food insecure
2009	11.8%	19.7%	31.5%
2011	22.2%	22.3%	44.5%
% change	**87.3%**	**13.3%**	**41.1%**

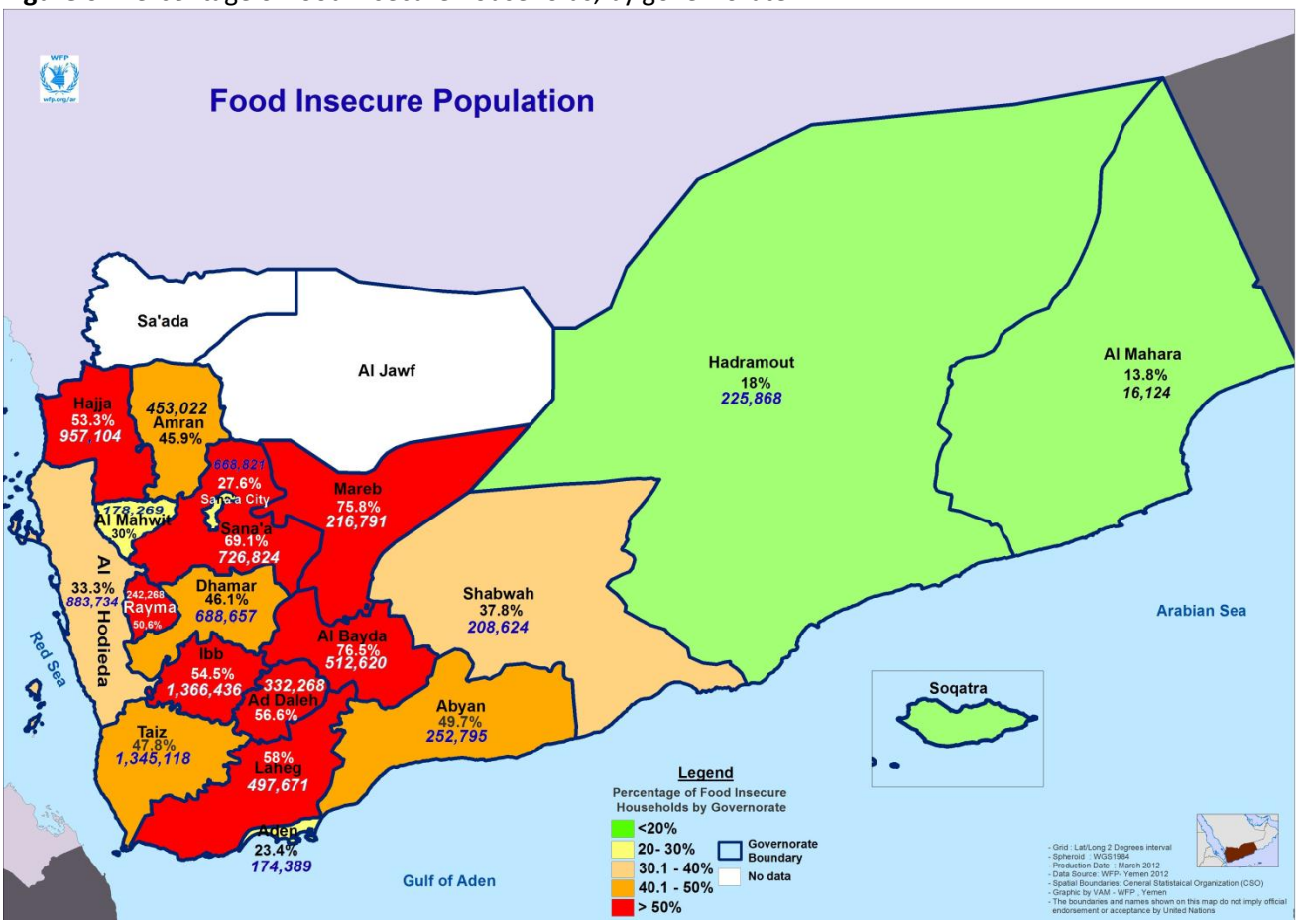
Source CFSS 2012

Figure 5 Food insecurity by governorate



Source CFSS 2012

Figure 6 Percentage of food insecure households, by governorate



Source CFSS 2011

WHAT ARE PEOPLE EATING?

Severely food insecure households have poor food consumption and tend to eat cereals daily, sugar six days per week, oil on five days, with few other food groups consumed. Meat, fish, and eggs, essential sources of protein and vitamins, are rarely eaten. Moderately food insecure households with borderline food consumption see the introduction of some vegetables, meat, dairy, pulses, and fruit, but at very low levels. A diet of this type clearly lacks sufficient nutrition, and people in those households would be expected to suffer from micronutrient deficiencies.

There are some significant differences between rural and urban consumption patterns. Urban households ate a greater diversity of foods than their rural counterparts, with vegetables consumed at least four days per week in Abyan, Sana'a City, Hadramout, and Haden governorates. Beans were reportedly eaten four days per week in Sana'a City. Agricultural and livestock households in Al Mahra governorate have the highest proportion of dairy products in their diet. Households in Internal Plateau and Arabian Sea agro-ecological zones, and those in Hadramout, Aden and Al Mahra governorates, depend on fishing and have better access to meat and fish.

Table 3 Daily consumption of key foods, by consumption group

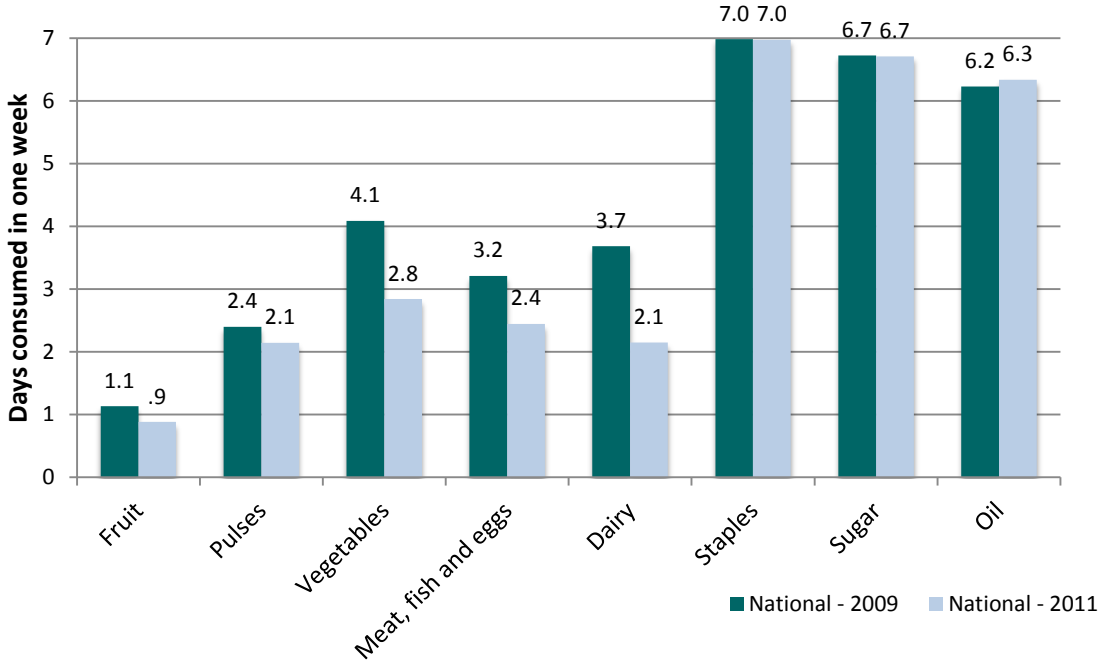
Food consumption group	Vegetable days	Fruits/fruit juice days	Beans, lentils, peas, nuts days	Eggs days	Dairy products (exc butter) days	Ghee, butter, oil, fat days	Sugar/honey days	Condiment days	Bread, rice, pasta, potato days	Meat, fish, chicken days
Poor	1	0.1	0.1	0	0.1	5.3	6.3	4.6	6.9	0.3
Borderline	2.3	0.5	1.3	0.3	0.8	6.5	6.7	5.3	7	1.2
Acceptable	3.8	1.3	3.3	1.4	3.5	6.7	6.9	6.1	7	3.8

Source CFSS 2012

The decline in dietary diversity is sharply apparent between 2009 and 2011, years that saw a significant fall in the consumption of fruits, vegetables, pulses, meat, and dairy products. Falls in the consumption of vegetables and dairy products are most pronounced, particularly in rural areas. In urban areas, where diet diversity is generally better, meat and pulse consumption have also dropped off significantly (Figure 7).

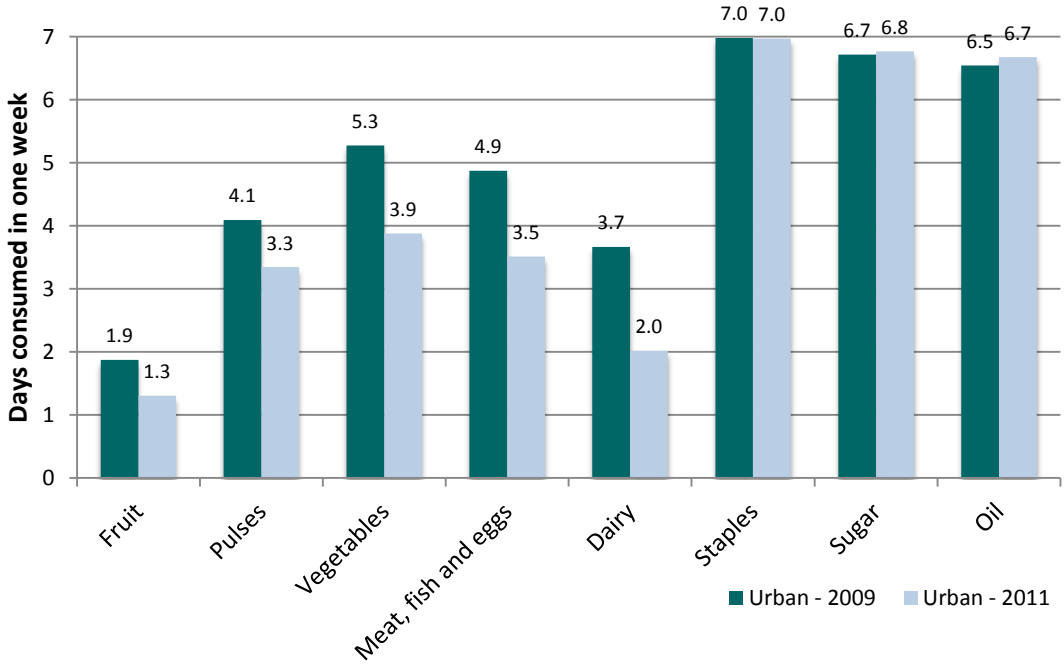
Decline in diet diversity is sharply apparent between 2009 and 2011

Figure 7 Change in diet from 2009 - 2011 (National)



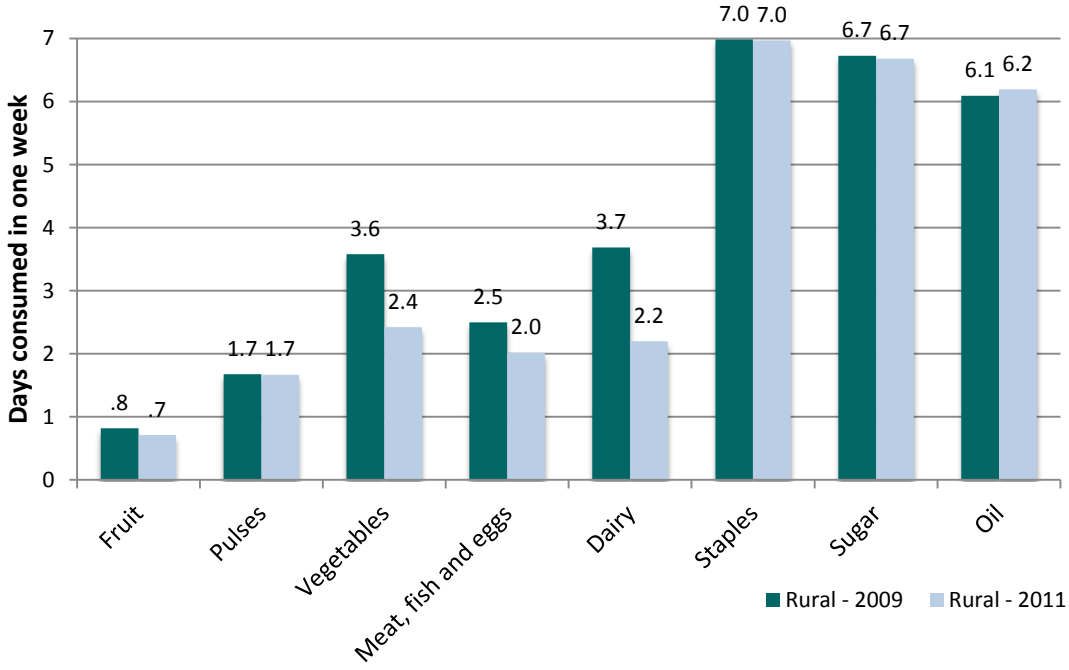
Source CFSS 2012

Figure 8 Change in diet from 2009 - 2011 (Urban)



Source CFSS 2012

Figure 9 Change in diet from 2009 - 2011 (Rural)



Source CFSS 2012

WHO ARE THE FOOD INSECURE?

More households headed by women are food-insecure than those headed by men

Smaller households Nationally, households have an average of 7.3 people. Larger households were found to be better off in terms of food consumption and wealth. Households with acceptable food consumption have an average of 7.5 members, while those with poor food consumption have an average of 7.2 members. A similar pattern is found for the wealth quintiles, with wealthier (fifth quintile) households having an average of 7.9 members compared to 6.8 in poorer (first quintile) households. Wealthier households have a larger number of adults who are able to earn an income, which may help to explain their relative wealth. Female-headed households, meanwhile, have an average of 6.6 members, compared to 7.3 members for male-headed households. On average, households have an average of 1.4 children under the age of five.

Women-headed households Women-headed households make up 5.4 percent of the total sample. The largest proportion of women-headed households was found in Shabwa, Aden, Ad daleh, and Lahei governorates, at between 7 and 9 percent. There is a higher proportion of women-headed households that are food-insecure than male-headed households (52 percent compared to 44 percent). There is little difference between rural and urban areas, but it is interesting to note that 12 percent of women-headed households are illiterate while just 1.4 percent has had higher education. More than 30 percent of the women heading households are widowed, and over 10 percent are divorced.

Uneducated households Literacy rates vary substantially across all categories, with marked differences observed between rural and urban areas, between governorates, by gender, by wealth status and livelihood clusters, and by food consumption score. Total illiteracy stood at 27.3 percent, with rural and urban figures of 31.9 percent and 16 percent respectively. Nearly 22 percent had received no formal education, but could read and write. Marginally more than 19.2 percent had completed primary school, while slightly less than 19 percent had completed secondary school, and 12.7 percent had completed higher education. Nearly half (48 percent) of agricultural wage labourers were illiterate. Government employees are the most literate group (32.5 percent). By gender, just one-quarter of men (25.4 percent) are illiterate, but for women that figure jumps to 63.7 percent with just 3.5 percent having completed higher education.

Illiteracy in heads of household is highest in the livelihood categories of agricultural wage labour, fishing, and support (family or social fund), as well as in the poor food consumption scores category.

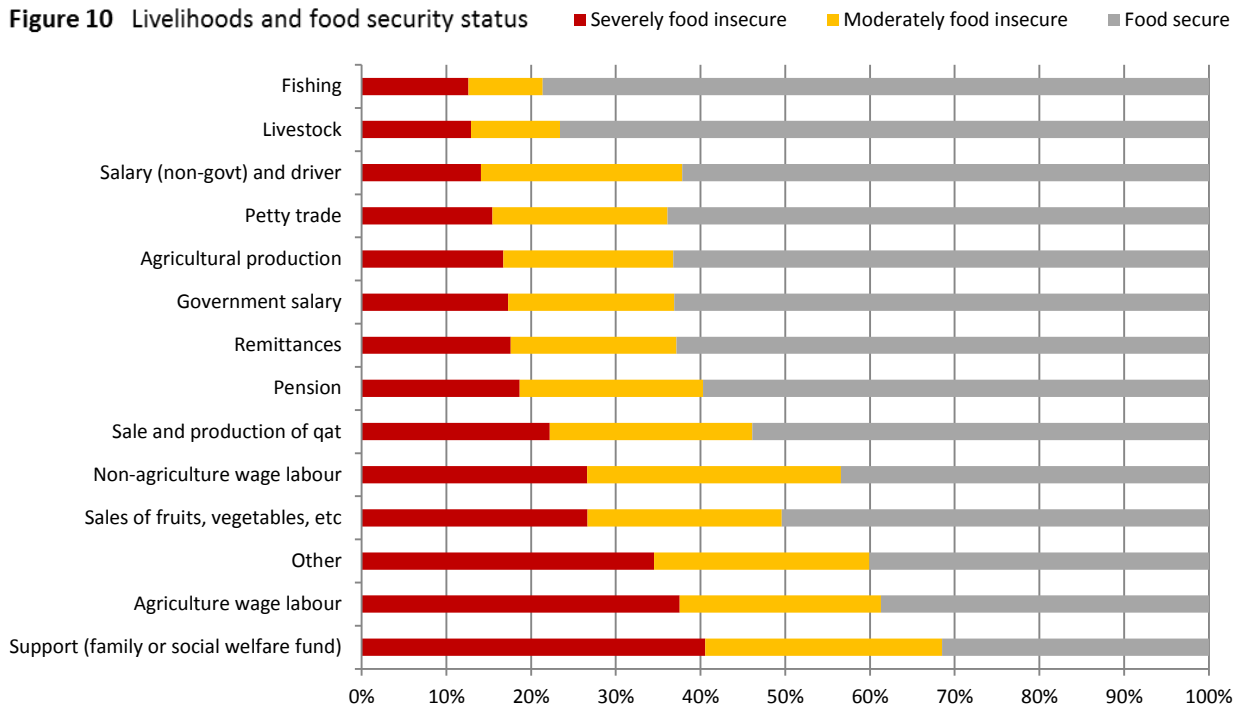
By agrozone, the Red Sea and Tihama Coast zone recorded the highest rate of illiteracy (41.5 percent), while the lowest rate was found in the Arabian Sea zone (18.5 percent). Historically, there was compulsory education in South Yemen (but not in the North), which may have increased perceptions of the value of education and contributed to continuation of the practice to the present day.

Only 3 percent of the spouses of the heads of household had completed higher education, and 59 percent are illiterate. The illiteracy figure jumps to over 70 percent in Hajja, Al Mahweet, Ad Daleh, and Rayma governorates, while just 31 percent are illiterate in Aden. Illiteracy in spouses of the heads of household was highest in households whose livelihood depends on livestock, and in poor food consumption households.

Around three-quarters of girls and 84 percent of boys are enrolled in (at least) primary school. The proportions are higher for both genders in urban than rural areas. More than 80 percent of girls go to school in Sana'a City, Aden, Hadamout, and Almahar, where 52 percent of girls from poor food consumption households also attend school.

Families depending on support and agricultural wage labourers The CFSS module on household income was used to create livelihood groups based on the main income sources and their relative importance to the household's ability to obtain food either through purchases or own production.

Figure 10 Livelihoods and food security status



Source CFSS 2012

Support receivers, including those dependent on family or the social welfare fund, have the highest rates of food insecurity. More than 40 percent of these households are severely food insecure, with another 28 percent moderately food insecure. Agricultural wage labourers also have high rates of food insecurity, with more than 60 percent of households being food insecure (38 percent severely and 24 percent moderately).

The CFSS uses current food consumption to measure food security status, so it is important to note that certain livelihoods that have, by virtue of their profession, a higher intake of animal protein will show a low prevalence of food insecurity. That is reflected in Figure 10, where livestock and fishing households have the lowest prevalence of food insecurity. But their poverty status is relatively poor, which suggests that if their livelihood is diminished or lost, their food security status would be greatly affected (Figure 12).

Nearly one-third (31 percent) of households work in agriculture, most in the Temperate Highlands. Overall, just under a quarter of households own the land they farm, with the rest renting their land. However, only 3 percent of Yemen's total land area is under arable cultivation – of which qat accounts for an astonishing 12 percent. The average landholding is small – just half a hectare. More than three-quarters of the land is rain-fed, with just 7 percent being entirely irrigated. The main crops grown are sorghum, wheat, and maize. A substantial majority of the main staple crops produced was used by the producers themselves, because they do not produce enough to sell. However, half of all fruits and vegetables produced are sold at market.

Table 4 Household use of crop produce

Crop	% used by producer households
Wheat	89.9%
Sorghum	83.4%
Maize	86.1%
Millet	91.5%
Barley	84.6%
Legumes	83.5%
Average	**86.5%**

Source CFSS 2012

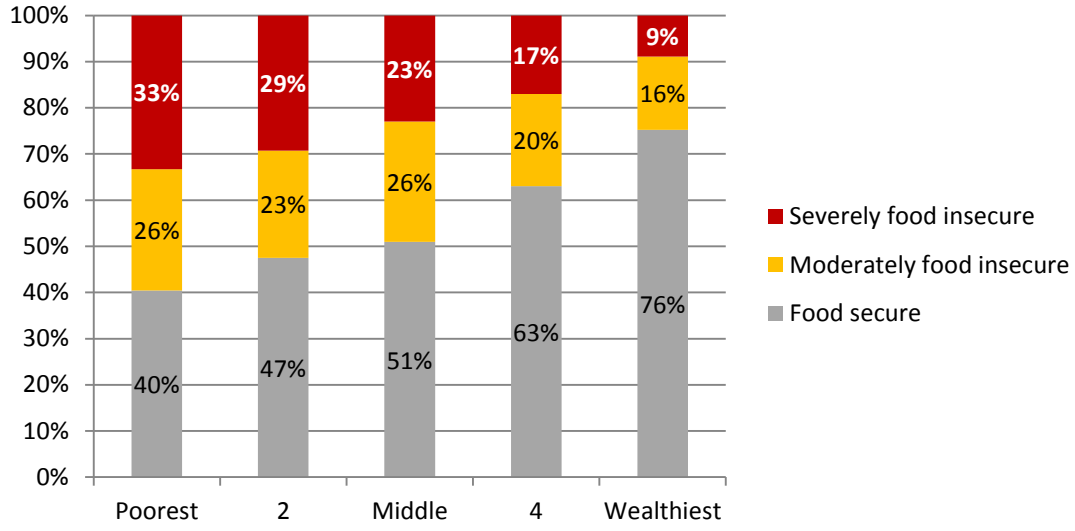
More than three-quarters of all farmers reported a lower harvest in 2011 than in 2009

Most farmers reported a lower harvest in 2011 than in 2009. The main reasons for that were lack of rainfall, high cost of inputs (e.g., fertilizer, seeds), and lack of water. The main reasons for the fall in number of livestock are lack of fodder and of grazing areas, along with animal pest. Only 21 percent of households have more than one animal, suggesting that livestock is not important in the livelihoods of most Yemenis – except for those dependent on agriculture and livestock.

Around 38 percent of households with livestock reduced the number of sheep and goats they kept over the previous year. For cattle, camels, and donkeys, the reduction was substantial. Most reduction is noted in the Arabian Sea zone. In Hardamout governorate, all households that raised cattle increased the number of their stock. Hadramout is also the governorate with the highest reported increase in the number of camels kept – although nine out of 10 households reduced the number of donkeys they kept.

Poor households The CFSS uses wealth (determined by a number of indicators on asset ownership) as a proxy for poverty (Annex 2). There is a direct relationship between wealth status and food security, with 60 percent of the poorest households experiencing severe or moderate food insecurity. Among the wealthiest households, 25 percent live with severe or moderate food insecurity. Households with low financial access to nutritious food have a particularly poor diet.

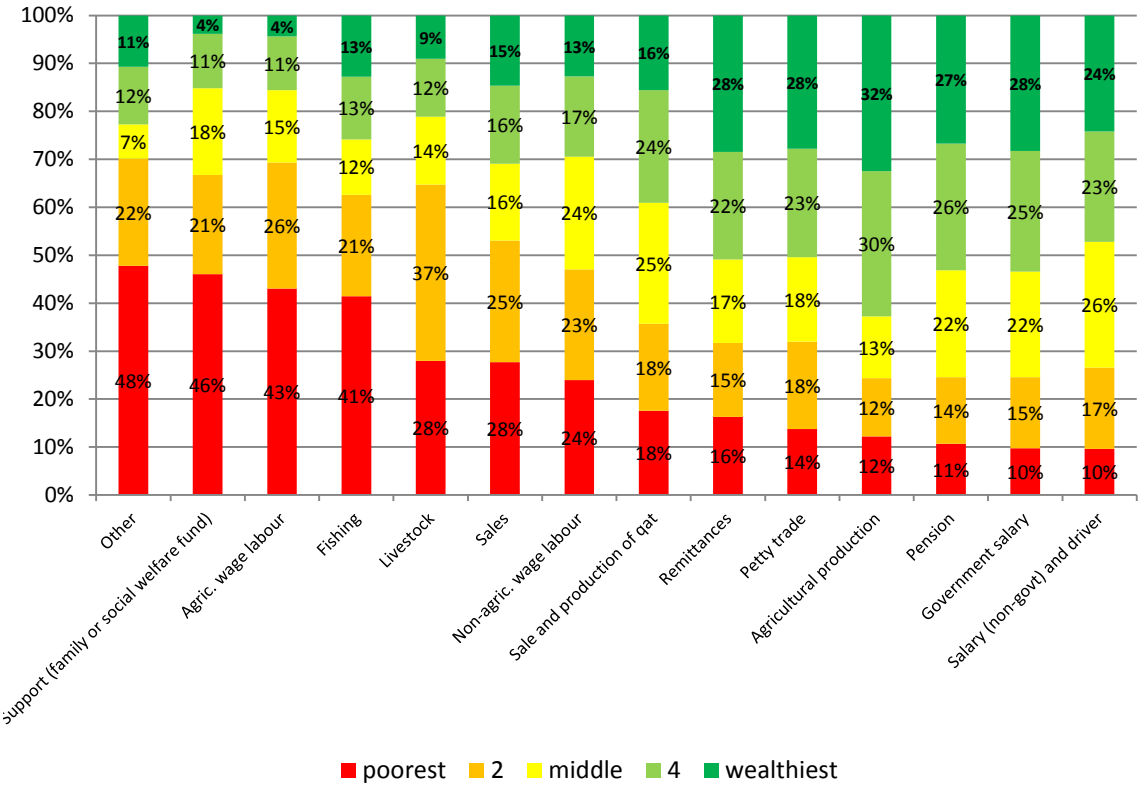
Figure 11 Food security status, by wealth quintiles



Source CFSS 2012

The analysis shows that food insecurity and poverty again go hand in hand for fishing and livestock households, who have a low resilience to potential livelihood shocks.

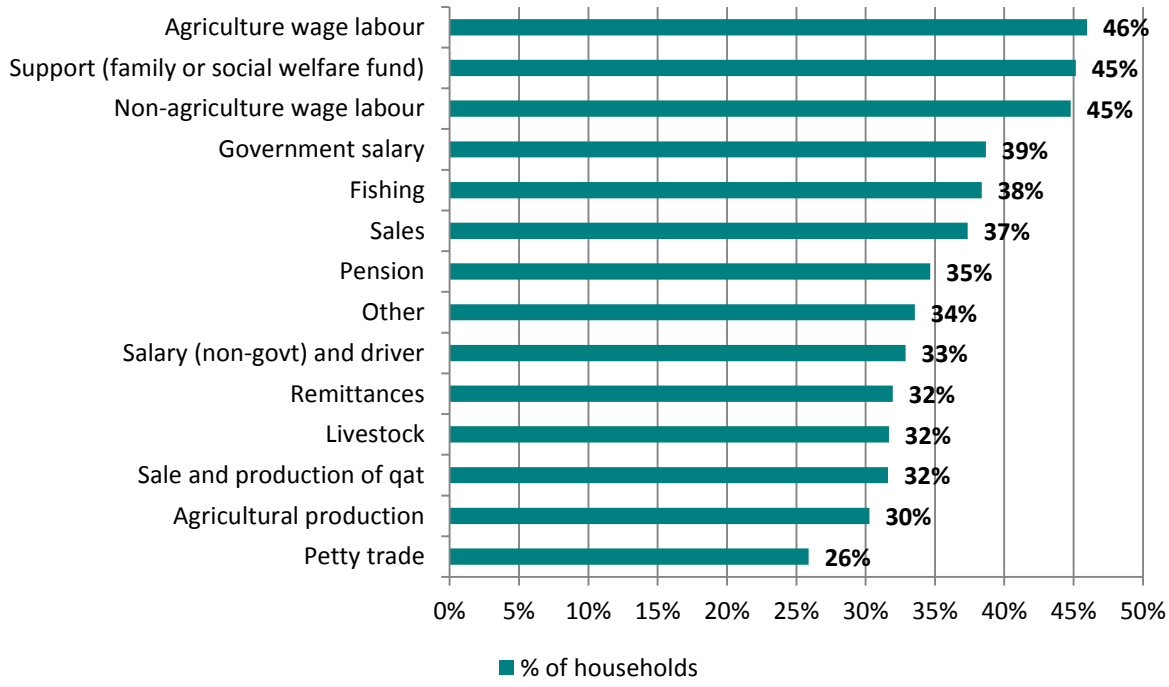
Figure 12 Livelihoods and wealth quintiles



Source CFSS 2012

Indebted households The CFSS module on debt asked households about any current debt and, specifically, about the cause of the debt. The presence of a food-related debt is highly correlated to food insecurity and negative coping behaviours. This indicator shows also that wage labourers and support receivers are not only disadvantaged in current food consumption and wealth, but also in food-related debt (Figure 13).

Figure 13 Livelihoods and debt for food



Source CFSS 2012

The nutrition situation

KEY ISSUES

- Yemeni children suffer from high rates of both acute and chronic malnutrition
- Hudeidah has alarmingly high rates of acute malnutrition amongst children under five
- Child feeding practices, including breastfeeding and introducing the right nutritious food, are very poor
- Low consumption of animal proteins, vitamin A rich food, and vitamin A supplements raises concerns about major micronutrient deficiencies
- The nutrition status of mothers is a significant determinant of child nutritional status

HIGH RATES OF ACUTE AND CHRONIC MALNUTRITION

Malnutrition is strongly associated with poor feeding practices, low diet diversity, high morbidity, poor water and sanitation, poor access to health services, chronic poverty, and low levels of education. Yemeni children are highly exposed to all of these causal factors and the results are high levels of both chronic and acute malnutrition. According to the CFSS findings, nearly half of all children under five years old in Yemen are chronically malnourished (47 percent) and 13 percent suffer from acute malnutrition. With rates of chronic malnutrition this high, the physical and mental development of Yemeni children is severely at risk, a disadvantage from which they cannot recover. The situation is further exacerbated by high rates of acute malnutrition. At 13 percent, the situation in Yemen is, by WHO standards, in a serious phase.

The CFSS measured the height and weight of all children under five in the households that were visited. Using WHO's 2006 child growth standards, standard child malnutrition indicators were determined. These include weight-for-height (a measure of wasting, which is an indicator of acute malnutrition),

height-for-age (a measure of stunting, which is an indicator of chronic malnutrition), and weight-for-age (a measure of underweight, which is considered a combination of both acute and chronic malnutrition).

Acute malnutrition rates are equally high in urban and rural areas, where 13 percent of children were found to be wasted. Chronic malnutrition is particularly high in rural areas where more than half of children under five (51 percent) are stunted. In urban areas, the percentage of children stunted is also high at 36 percent. Underweight, like chronic malnutrition, is higher in rural areas than in urban. Some 39 percent of rural children were found to be underweight, compared to 28 percent of urban children (Table 5).

Table 5 Malnutrition status, by rural/urban

		Acute malnutrition (Wasting)		Chronic malnutrition (Stunting)		Underweight	
		Global	Severe	Global	Severe	Global	Severe
Urban	N	315	87	843	315	649	207
	Percentage	**13.2%**	**3.7%**	**36.3%**	**14.0%**	**27.9%**	**9.6%**
	Confidence Interval (95%)	(11.1% - 15.6%)	(2.7% - 5.1%)	(32.8% - 39.9%)	(11.7% - 16.8%)	(24.6% - 31.5%)	(7.6% - 12.1%)
Rural	N	901	251	3974	1930	2910	990
	Percentage	**12.9%**	**3.6%**	**51.1%**	**25.0%**	**38.9%**	**13.9%**
	Confidence Interval (95%)	(11.5% - 14.5%)	(2.9% - 4.5%)	(48.9% - 53.2%)	(23.4% - 26.8%)	(36.7% - 41.2%)	(12.4% - 15.5%)
Total	N	1216	338	4817	2245	3559	1197
	Percentage	**13.0%**	**3.6%**	**46.6%**	**21.7%**	**35.5%**	**12.6%**
	Confidence Interval (95%)	(11.8% - 14.3%)	(3.0% - 4.3%)	(44.6% - 48.5%)	(20.2% - 23.2%)	(33.6% - 37.6%)	(11.3% - 13.9%)

Wasting, stunting and underweight are based upon WHO 2006 growth standards for weight for height, height for age and weight for age. Global refers to < -2 SD while severe refers to < -3SD

Source CFSS 2012

The CFSS examined differences between boys and girls in terms of nutrition outcomes. Boys are more acutely malnourished than girls (15 percent and 11 percent respectively). The difference in these rates is statistically significant. However, chronic malnutrition does not show a significant difference between genders (boys 47 percent, girls 46 percent). Underweight rates are fairly similar between boys (37 percent) and girls (34 percent).

Table 6 Malnutrition status, by gender

		Acute malnutrition (Wasting)		Chronic malnutrition (Stunting)		Underweight	
		Global	Severe*	Global	Severe	Global	Severe
Boys	N	708	217	2530	1197	1883	637
	Percentage	**14.8%**	**4.6%**	**46.9%**	**22.5%**	**37.0%**	**13.0%**
	Confidence Interval (95%)	(13.3% - 16.4%)	(3.8% - 5.6%)	(44.6% - 49.2%)	(20.8% - 24.2%)	(34.9% - 39.2%)	(11.7% - 14.5%)
Girls	N	508	121	2287	1048	1676	560
	Percentage	**11.1%**	**2.6%**	**46.2%**	**20.8%**	**34.0%**	**12.1%**
	Confidence Interval (95%)	(9.7% - 12.7%)	(2.0% - 3.3%)	(43.7% - 48.6%)	(19.0% - 22.7%)	(31.6% - 36.4%)	(10.6% - 13.8%)

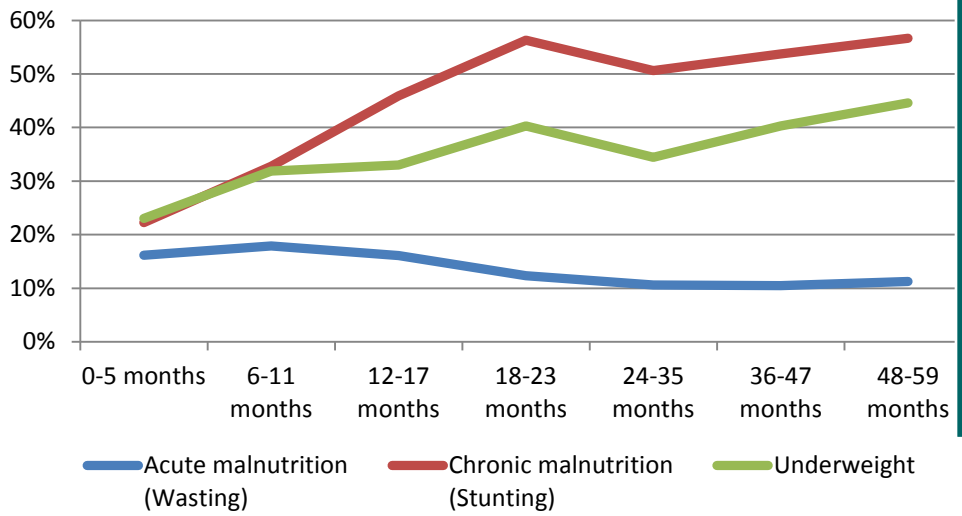
Source CFSS 2012

The prevalence of wasting is more pronounced in infants under 18 months old. The phenomenon is not uncommon and is usually associated with poor weaning practices. But in Yemen, wasting rates are also high in infants less than six months old, before the usual expectation of weaning. With 16 percent of infants under six months of age wasted, there is significant cause for new born children in Yemen.

Stunting rates show an expected accumulation over age, but rates are very high with 47 percent of children under five years old stunted. Underweight is a combination of wasting and stunting factors.

Half of Yemen's children are chronically malnourished and one out of ten does not live to reach the age of five. These emergency levels of chronic malnutrition are second only to Afghanistan. The proportion of underweight children is the third highest in the world after India and Bangladesh.

Figure 14 Child malnutrition by age



Source CFSS 2012

Although the CFSS was not designed to provide representative governorate level nutrition statistics, the results show a concerning trend, particularly in a few key areas. Wasting rates in Hudeida at 28 percent are well beyond the WHO critical threshold of 15 percent and further corroborate findings from UNICEF. Children in Hudeida require immediate attention to address the critical situation they currently face. The prevalence of acute malnutrition in Hudeida was also found to be significantly worse than all other governorates. The prevalences of wasting are at the critical threshold level in Lahej and Aden at 15 percent in both. Annex 2, Table 3 provides rates of malnutrition by governorates including confidence intervals.

Governorate-wise comparisons of chronic malnutrition found that four particular governorates had alarmingly high rates (more than 60 percent of children under five stunted). Rayma has the highest rate of chronic malnutrition, with more than 68 stunted while in Amran (61 percent), Al Maweet (64 percent), and Sana'a (60 percent) of children under five are stunted.

Hudeida has the greatest prevalence of underweight children (58 percent), and is significantly worse off than all other governorates (Figure 15). Hajja, Al Mahweet, Rayma, and Amran all have higher rates of underweight children than other governorates.

Figure 15 Child acute malnutrition, by governorate

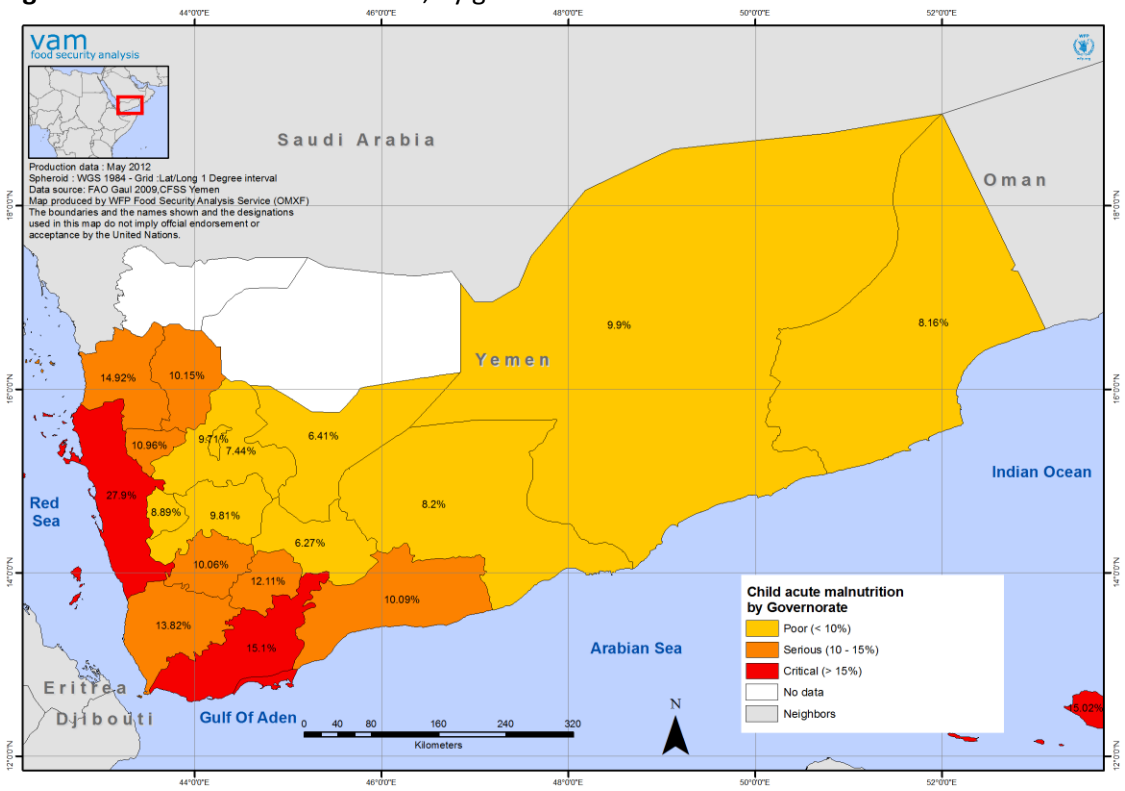
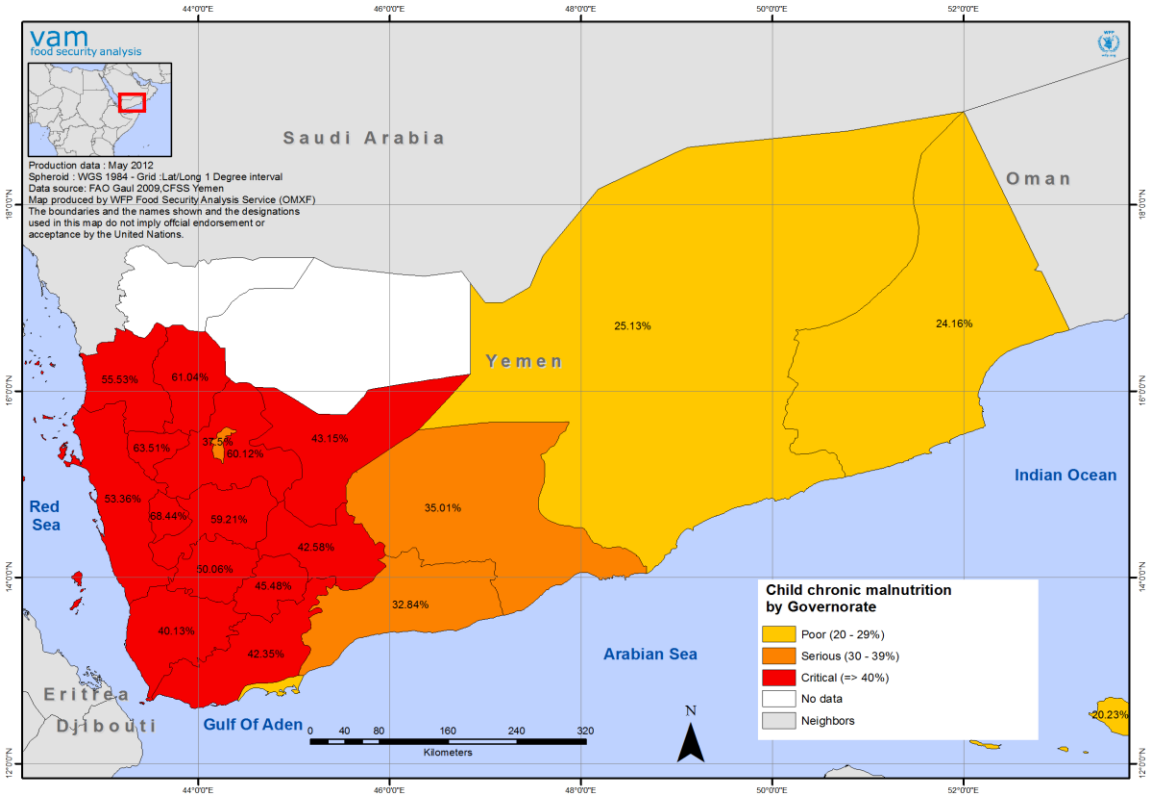
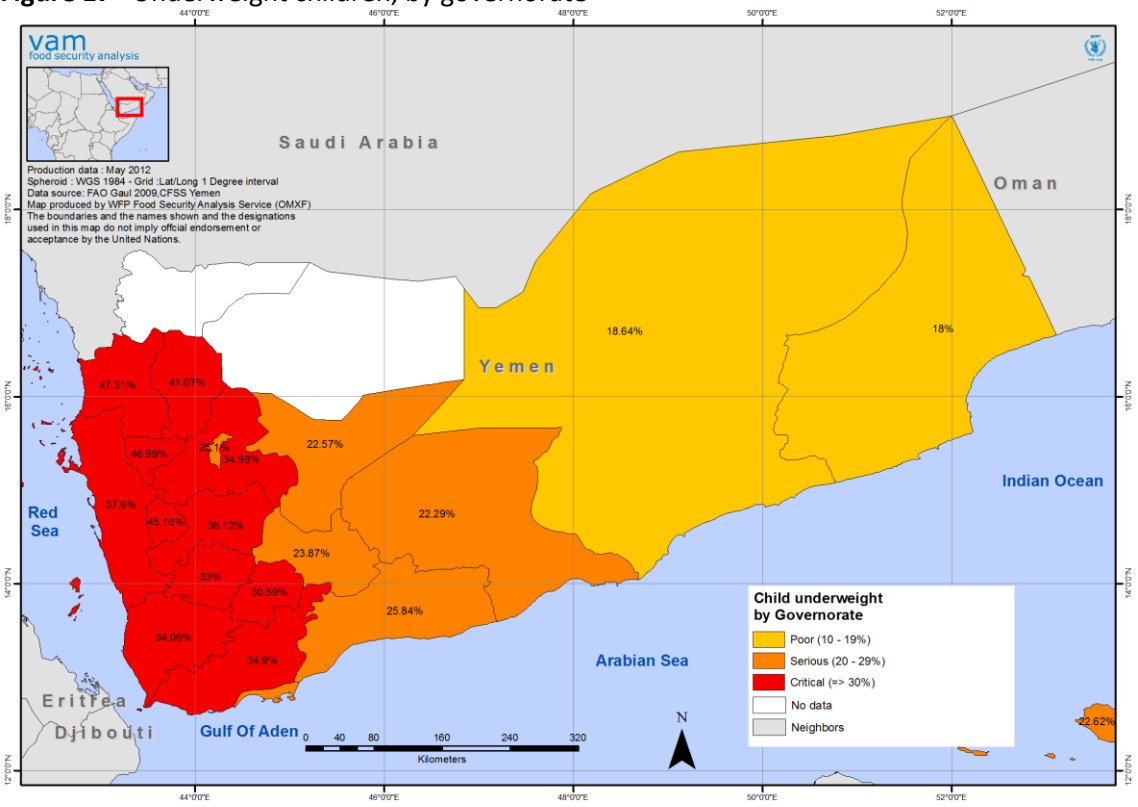


Figure 16 Child chronic malnutrition, by governorate



Source CFSS 2012

Figure 17 Underweight children, by governorate



Source CFSS 2012

INFANT AND YOUNG CHILD FEEDING PRACTICES IN YEMEN ARE POOR

As well as collecting anthropometric measurements for determining nutrition status, the CFSS interviewed mothers and caretakers of children to obtain information on feeding practices. This includes information on breastfeeding as well as consumption of various food groups. The CFSS found that 43 percent of children of breastfeeding age (6-23 months) were breastfed the day prior to the survey. And a shockingly low 40 percent of children below six months were breastfed in the preceding 24 hours. The lack of adequate breastfeeding practices also has implications for appropriate family planning, a major concern for Yemen's fast growing population in an extremely resource limited environment.

Table 7 Children breastfed in the past 24 hours (%)

Age group	National	Urban	Rural
< 6 months	39.7%	39.6%	39.8%
6 - 11 months	43.0%	39.2%	44.6%
12 - 17 months	48.3%	52.4%	46.7%
18 - 23 months	41.5%	42.0%	41.3%
Total	**43.2%**	**43.5%**	**43.1%**

Source CFSS 2012

Although the CFSS did not directly capture exclusive breastfeeding practices, mothers were asked if children were breastfed and if they consumed any food items the day before from an exhaustive list of seven food groups (using WHO dietary diversity indicator guidance; see below). Children who did not consume any of these food groups and were breastfed are categorized as having been "only breastfed". Exclusive breastfeeding for children under six months is critical for cognitive development as well as the development of a healthy immune system. In Yemen, just 12 percent of children under six months were only breastfed the day before showing extremely poor breastfeeding practices at this critical stage in a child's life.

Table 8 Infants who were only breastfed

	Percent of children under 6 months old only breastfed
National	11.6%
Urban	12.1%
Rural	11.5%

Source CFSS 2012

The CFSS did not capture complementary feeding practices in the standard form, but it did capture information on breastfeeding in combination with consumption of other food items. Nationally, only 32 percent of children 6-23 months are breastfed and consume at least one other food item. That low figure is of serious concern, because this is a critical age for the development of malnutrition (Table 9).

Table 9 Complementary feeding in young children

Age category	Percent of children breastfed and consumed other food items		
	Urban	**Rural**	**National**
6-11 months	29.0%	31.6%	30.8%
12-17 months	37.1%	33.3%	34.4%
18-23 months	32.4%	28.8%	30.0%
Total	**33.1%**	**31.5%**	**32.0%**

Source CFSS 2012

Using WHO guidance on infant and child feeding practices, the diet diversity of children aged between six and 24 months was also captured and analysed. Minimum diet diversity for children in this age group is defined as having consumed four or more food groups (out of seven). The seven food groups are:

- grains, roots and tubers
- legumes and nuts
- dairy products (milk, yogurt, cheese)
- flesh foods (meat, fish, poultry and liver/organ meats)
- eggs
- vitamin A rich fruits and vegetables
- other fruits and vegetables

Table 10 Children with minimum diet diversity

	Minimum dietary diversity	
Age category	< 4 groups consumed	>= 4 groups consumed
6-11 months	80.5%	19.5%
12-17 months	82.4%	17.6%
18-23 months	75.4%	24.6%
Total	**79.7%**	**20.3%**

Source CFSS 2012

Only 20 percent of children aged between six and 24 months met the recommended minimum diet diversity (Table 10). Some 80 percent of children in Yemen do not consume a minimum dietary diversity and are likely to have poor micronutrient density in their diet. When minimum dietary diversity is considered in combination with breastfeeding practices, further feeding practices can be assessed. Only 5 percent of Yemeni children aged between six and 24 months were breastfed and met the minimum diet diversity.

Table 11 Children with the minimum diet diversity and breastfeeding

Age category	Inadequate (not breastfed OR breastfed but not with minimum diet diversity	Breastfed and met minimum diet diversity
6-11 months	94.3%	5.7%
12-17 months	95.3%	4.7%
18-23 months	94.1%	5.9%
Total	**94.6%**	**5.4%**

Source CFSS 2012

Foods consumed by infants were further examined, along with vitamin A supplementation. It is recommended that infants receive animal protein daily (or receive iron supplementation) and consume vitamin A daily. In Yemen, only 15 percent of infants consumed vitamin A rich foods and 33 percent consumed meat, fish, or eggs.

The situation does not improve for young children (aged between two and five years) where only 11 percent consumed vitamin A rich foods and 33 percent ate animal based proteins. Coupled with poor vitamin A supplementation, there is a clear concern that Yemeni children suffer from micronutrient deficiencies.

Table 12 Children's vitamin A consumption, by age

	Vitamin A supplement in the last 6 months	child consumed meat fish and/or eggs	consumed vitamin A rich foods
6-11 months	32.6%	26.8%	17.2%
12-17 months	35.9%	31.3%	13.7%
18-23 months	31.7%	41.8%	13.4%
Total 6-23 months	**33.6%**	**33.1%**	**14.7%**
24-59 months	36.1%	33.0%	10.7%
Total	**35.1%**	**33.0%**	**12.2%**

Source CFSS 2012

CAUSES OF CHILD MALNUTRITION

Health status Mothers were asked if children under five years old in the household were sick in the two weeks prior to the survey – specifically, if they had had a cough, fever or diarrhoea. Around 70 percent of children had experienced one of those illnesses. There was a higher prevalence for each in children living in rural areas although the proportion reached almost 50 percent in urban areas as well.

Table 13 Percentage of children with sickness in the past week

	Presence of disease (cough, fever, or diarrhea)	Cough	Fever	Diarrhoea
Urban	66.4%	47.0%	50.1%	45.0%
Rural	71.3%	54.6%	56.2%	49.7%
National	**69.8%**	**52.2%**	**54.3%**	**48.2%**

Source CFSS 2012

Illness in children is associated with malnutrition, among other factors. In urban areas particularly, child health impacts on nutrition outcomes. Some 15 percent of children in urban areas who were sick were also wasted. That compares to 9 percent of children who were wasted, but not sick (Table 14).

However, in rural areas, the prevalence of wasting and stunting does not show a statistically significant difference between sick and healthy children. Around 40 percent of sick children in rural areas were underweight compared to 36 percent of children who were not sick – a significant difference. Other factors in rural areas are likely impacting or masking the relationship between morbidity and acute malnutrition.

Table 14 Impact of child morbidity on wasting, stunting, and underweight (rural/urban)

		Wasted	Stunted	Underweight
Urban	No disease	9.0%	31.5%	21.7%
	Disease	15.3%	38.8%	31.1%
Rural	No disease	12.5%	50.2%	35.5%
	Disease	13.1%	51.4%	40.3%

Source CFSS 2012

Diet In urban areas, the relationship between child diet diversity and nutrition outcomes is as expected. Around 17 percent of children without a minimum diet diversity are wasted, compared to 10 percent of those with an adequate diet. The figures for stunting are 45 percent and 36 percent respectively. There is no significant difference between children whose minimum dietary needs have been met and those that have not with respect to underweight.

In rural areas, we see an unexpected opposite effect of diet diversity on nutrition outcomes. Rural children with a diverse diet are actually more wasted and more underweight than those with minimum diet diversity (stunting does not show a significant difference). Diet diversity does not seem to be a

major explanatory factor of rural Yemeni child malnutrition, but other related factors may be influencing this result.

Table 15 Impact of diet on wasting, stunting, and underweight (rural/urban)

		Wasted	Stunted	Underweight
Urban	< 4 groups consumed	16.8%	35.9%	28.4%
	>= 4 groups consumed	9.7%	44.8%	28.1%
Rural	< 4 groups consumed	14.8%	47.8%	36.7%
	>= 4 groups consumed	18.9%	49.7%	42.2%

Source CFSS 2012

No statistically significant relationship was found between dietary diversity and morbidity. In rural areas, there was no relationship between morbidity and malnutrition outcomes, which suggest that for rural children, diet diversity and illness alone, are not sufficient explanatory factors for child malnutrition. This finding requires more in-depth nutritional studies to find more appropriate explanatory factors.

But urban areas show a highly significant correlation. The prevalence of wasting in urban children who are well and who have an adequate diet is just 2 percent, while for children who are sick and have an inadequate diet the figure climbs to 19 percent (Table 16).

However, stunting does not show a statistically significant difference between groups. Only 10 percent of healthy, well-fed children are underweight. For urban children in Yemen, the combination of illness and diet diversity has a significant impact on wasting and underweight outcomes.

Table 16 Impact of child morbidity on wasting, stunting, and underweight (urban)

Urban children age 6-23 months		Wasted	Stunted	Underweight
< 4 groups consumed	No disease	9.8%	34.3%	23.4%
	Disease	19.4%	36.4%	30.2%
>= 4 groups consumed	No disease	2.4%	36.9%	10.3%
	Disease	11.8%	47.2%	33.3%

Source CFSS 2012

Household food security Household food security status alone is not a determinant of acute malnutrition. Although severely food insecure households may have a higher prevalence of children who were wasted (Table 17), there is no statistically significant difference between them and food secure households. But there is a significant relationship in urban areas between household food insecurity and stunting. Half of the children in severely food insecure urban households are stunted. In rural areas, no significant difference was found between food security groups and child malnutrition outcomes again highlighting the need for further nutrition studies.

Table 17 Impact of food security on wasting, stunting, and underweight (rural/urban)

		Wasted	Stunted	Underweight
Urban	Severely food insecure	17.5%	49.8%	29.0%
	Moderately food insecure	10.5%	39.3%	31.5%
	Food secure	13.4%	33.9%	26.8%
Rural	Severely food insecure	11.8%	52.9%	39.6%
	Moderately food insecure	12.8%	52.9%	40.1%
	Food secure	13.6%	49.2%	38.0%

Source CFSS 2012

Wealth The wealth status of urban households is not a determinant of wasting among children, because there is no significant difference in the prevalence of wasting between groups. But stunting shows a very clear relationship with poverty in urban areas. Half of the children in the poorest urban households are stunted, compared to one-quarter in the wealthiest households. There is a significant difference in underweight status of children in the wealthiest and the poorest households (40 percent of the poorest households are underweight, compared to 18 percent in the wealthiest families), although there is little difference within the middle income households.

In rural areas, children from the poorest households have significantly higher rates of acute malnutrition than the wealthiest (17 percent and 9 percent respectively). At 4 percent, stunting is significantly lower in the wealthiest group, but there is little variation in the other groups. The prevalence of underweight children improves for those in middle wealth households and above.

Table 18 Impact of household wealth on wasting, stunting, and underweight (rural/urban)

		Wasted	Stunted	Underweight
Urban	Poorest	15.3%	49.6%	40.4%
	2	14.6%	42.4%	28.1%
	Middle	10.3%	34.4%	28.9%
	4	15.0%	31.2%	24.4%
	Wealthiest	10.6%	23.7%	17.7%
Rural	Poorest	16.6%	57.2%	47.7%
	2	16.1%	53.6%	44.1%
	Middle	10.5%	53.9%	40.6%
	4	12.1%	50.4%	35.8%
	Wealthiest	9.3%	40.1%	26.0%

Source CFSS 2012

Nutrition status of adult women Yemen has high rates of malnutrition among women. This study captured statistics on the health status of women of reproductive age using two measures: BMI and MUAC. While BMI is usually a more reliable indicator, cultural norms in Yemen meant that many women refused to be measured. That gave a smaller than expected number of women including in the BMI sample. MUAC, although less reliable, was more easily measured and shows the same general trend as the BMI results.

In urban areas, women who were classified as malnourished (i.e., those with a BMI of <18.5) had a significantly higher proportion of underweight children: 39 percent among malnourished women compared to 26 percent among well-nourished women. The trend for stunting is as expected, but the significance of the result is slightly above the desired threshold (p = 0.05).

In rural areas, the relationship between the malnutrition status of a mother and of her child is significant. Nearly one-fifth of children in rural areas with a malnourished mother (using BMI) were acutely malnourished (Table 19). Chronic malnutrition among children is also influenced by the mother's nutrition status.

Table 19 Impact of maternal undernutrition (BMI) on child malnutrition

		Wasted	Stunted	Underweight
Urban	Not malnourished	13.1%	34.3%	26.1%
	Malnourished (BMI < 18.5)	16.0%	39.2%	38.6%
Rural	Not malnourished	11.0%	47.6%	34.2%
	Malnourished (BMI < 18.5)	19.3%	55.9%	50.2%
Total	Not malnourished	11.7%	43.1%	31.5%
	Malnourished (BMI < 18.5)	18.6%	52.2%	47.6%

Source CFSS 2012

Using MUAC as the barometer of women's nutrition status produces a similar result. In urban areas, 17 percent of the children of malnourished women are stunted. That compares to 13 percent of the children of healthy women, a statistically significant difference. Stunting mirrors the differences in the BMI measure, but with slightly less statistical significance. Underweight is nearly identical and is also statistically significant.

In rural areas, the figures below (all of which are significant) further illustrate the direct relationship between the health of a mother and of her child.

Table 20 Impact of maternal undernutrition (MUAC) on child malnutrition

		Wasted	Stunted	Underweight
Urban	not malnourished	12.7%	35.7%	26.5%
	malnourished (MUAC < 21.3)	17.3%	40.1%	38.7%
Rural	not malnourished	11.3%	49.3%	36.2%
	malnourished (MUAC < 21.3)	18.2%	57.6%	48.1%
Total	not malnourished	11.8%	44.8%	33.0%
	malnourished (MUAC < 21.3)	18.0%	54.2%	46.3%

Source CFSS 2012

Causes of deterioration

The human impact of a combination of shocks during and before 2011 has been immense

KEY ISSUES

- Yemen is fully dependent on international markets for its food, remaining highly vulnerable to increasing food prices globally
- High food prices are the main shock (90%) affecting people
- Supply and demand in food markets are lower than one year ago for nearly half the markets surveyed
- Almost one third of households in urban areas report that the security situation has impacted their ability to access food

A COMBINED IMPACT OF SHOCKS

2011 was a hugely unsettling year for Yemen. The country is facing a profound and complex political and economic crisis, which both leads to and continues to be stimulated by social unrest and outbreaks of violence. The backdrop to the recent violence are trends of deteriorating economic fundamentals – declining oil production, an increasing current account deficit, expanding fiscal deficit, depreciating currency and rising inflation. The World Bank predicts that Yemen's oil and gas revenues will plummet over the next two years and could fall to zero by 2017 as supplies run out[1]. Given that oil provides around 90 percent of the country's exports, this could be catastrophic[2]. Fuelled by the reduction in oil

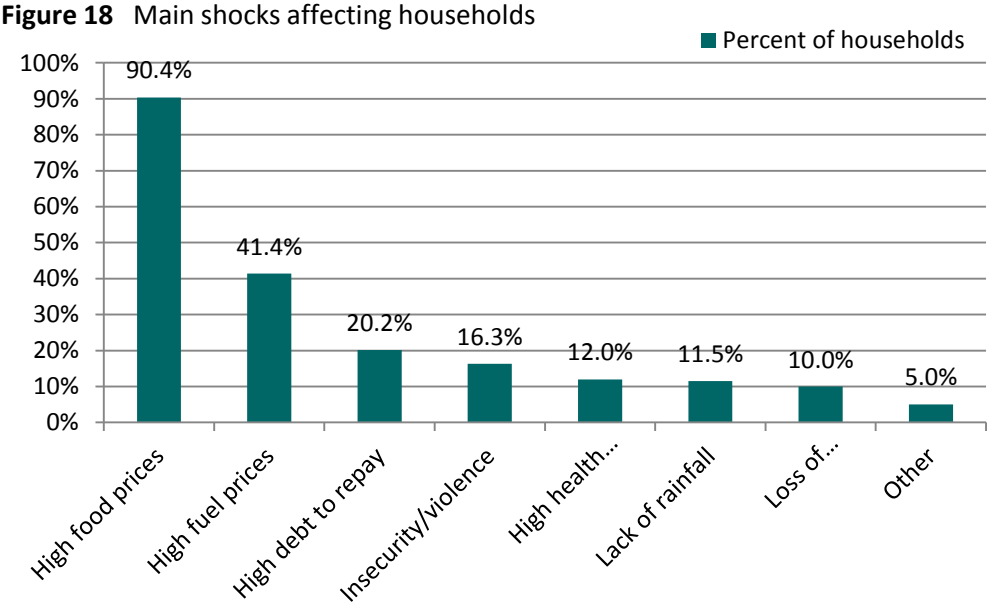
[1] World Bank & IMF, *INTERNATIONAL DEVELOPMENT ASSOCIATION AND INTERNATIONAL MONETARY FUND REPUBLIC OF YEMEN Debt*
[2] World Bank Report, cited in: ^ Richard Fontaine and Andrew Exum (5 January 2010). "Yemen's coming disaster; Its oil is expected to run out in 2017, but Yemen hasn't planned for its young, poverty-ridden population's post-oil future". *Los Angeles Times*. http://www.latimes.com/news/opinion/commentary/la-oe-fontaineexum5-2010jan05,0,5758223.story.

exports amongst other factors, the national currency, the *rial,* has depreciated significantly from 50 rials per dollar in 1995 to over 220 rials to the dollar by early 2010. During the peak of the crisis in 2011, the rial reached close to 240 to the dollar[3]. Given the country's high reliance on imported commodities – particularly food commodities – the currency's deflation has contributed to significant, broad-based inflationary pressures to the basic cost of living[4].

The rapidly worsening economic situation is driving a complex context of political and social instability with divisions among and within Government forces, the military, tribal leaders, opposition groups, youth movements, and external forces. Major protests and deadly violent clashes broke out in March 2011 and were associated with the regional phenomena of the Arab Spring. The conflict sent shockwaves through Yemen's already fragile economy, its society, and the food security of its people. The human impact has been immense.

The CFSS asked households to list the three main shocks that they were affected by in the six months prior to the survey. High food and fuel prices were the foremost shock for nine out of ten households. Insecurity and violence affected more than 16 percent of people.

Figure 18 Main shocks affecting households



Source CFSS 2012

The survey investigated the impact of shocks on households and, specifically, the impact of shocks on access to food. High food prices along with insecurity were the major impacts on access to food. For these shocks, further analysis by urban and rural areas was conducted. High food prices affected almost every household's access to food, and had a higher impact in rural areas. Access to food in urban areas was more likely to be influenced by insecurity than in rural areas, with some 27 percent of urban households reporting that insecurity negatively affected their ability to access food (compared to 11 percent in rural areas).

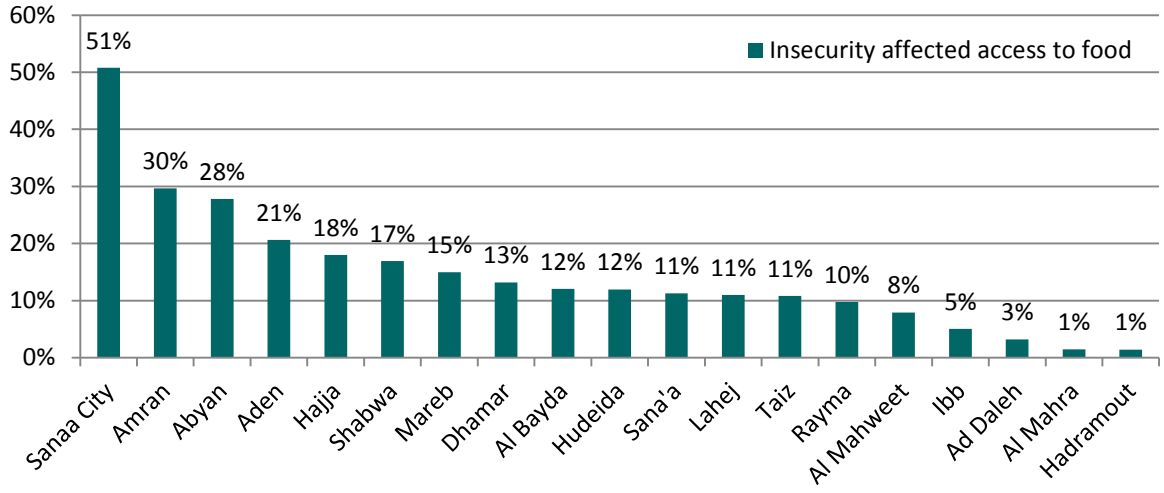
[3] Al-Samie. M., 'Yemeni rial appreciates against dollar, but prices remain high'. Yemen Times. 12 April 2012. http://www.yementimes.com/en/1563/news/701/Yemeni-rial-appreciates-against-dollar-but-prices-remain-high.htm
[4] Ibid.

POLITICAL INSTABILITY AND INSECURITY NEGATIVELY AFFECTS PEOPLE'S ABILITY TO ACCESS FOOD

Yemen is faced with an increasingly complex and worrying humanitarian crisis. Families displaced by the Sa'ada conflict and refugees from the Horn of Africa continue to rely on humanitarian assistance for survival. One of the most disturbing recent trends in Yemen has been the emergence of an Al Qaeda presence. Al Qaeda in the Arabian Peninsula (AQAB) is considered the most active of the various branches of Al Qaeda that emerged after the death of Osama bin Laden (whose father was born in Yemen). In 2010, an American press report claimed that the CIA believed AQAB to be a greater threat to the USA than Osama bin Laden's core group.[5] An increase in attacks in 2011/12 by Al Quaeda-linked groups on major national fuel and gas pipelines have intermittently shut down supply and resulted in high levels of fuel volatility and disruption to the economy, and have contributed to food price inflation.

Food prices in some governorates were particularly impacted by insecurity. In Sana'a City, for instance, insecurity negatively affected access to food for half of its households. While the direct impact of insecurity on food access was most visible in the capital, the ramifications that it had on food and transport prices affected all trade passing through Sana'a. Conflict and insecurity have hugely increased the number of internally displaced people. The governorates of Abyan in the south, and Hajjah in the north, have been particularly badly affected in early 2012, with an estimated 100,000 people forced to leave their homes between February and April 2012 alone. The two governorates reported reduced access to food by 30 percent and 28 percent of their populations respectively as a result of insecurity. UNHCR estimated that there were a total of 465,000 internally displaced people nationally in February 2012.

Figure 19 Impact of insecurity on food access, by governorate



Source CFSS 2012

[5] *The Washington Post*, 25 August 2010

When security threats and poverty are mutually reinforcing

Yemen has an established history of radical movements. In the late 1980s, many thousands of Yemenis returned home after fighting the Soviet invasion in Afghanistan. Many of these jihadists returned home, their social status heightened, to take up arms against the secular, socialist government in South Yemen, with some going on to support various radical and revolutionary groups. Al Qaeda chapters in Saudi Arabia and Yemen merged in 2009 to become Al Qaeda in the Arabian Peninsula (AQAB), which, in the words of scholar Greg Johnsen [1], "is the most representative organization in Yemen. It transcends class, tribe and regional identity in a way that no other organization or political party does."

Johnsen goes on to say that "Al-Qaeda has learned that the more chaotic Yemen is, the better it is for al-Qaeda. And Yemen is in extremely bad shape."

The political transition that saw Abdrabbuh Mansour Hadi assume the presidency in February 2012 was, according to the United Nations Secretary-General's Special Advisor on Yemen, Jamal Benomar, "fragile and just beginning… and there are really serious challenges in terms of security and politics that should not be underestimated."[2]

Not least among those challenges is the consequence of the 'Arab Spring' uprising in early 2011, and the simmering discontent it engendered. Civil unrest brought significant displacement of people in parts of Yemen, along with severe disruption of access to vital commodities, such as fuel, food, and water, which have led to livelihood protection and survival deficits and have limited labour opportunities[3]. That has opened up a great deal of space in which Al Qaeda and others can operate – where they can disrupt the economic life of the country, as well as food supplies, while appealing increasingly to that part of the population affected by unemployment, poverty, and disillusionment with a deteriorating political situation.

As Nadia al-Saqqaf, editor of the Yemen Times, observes, "Yemen is a conservative country and there are lots of people who sympathise with its religion - [especially] if Al Qaeda comes and drills a well, when the state doesn't do that for you. So Al Qaeda is giving you life and heaven."[4]

1. Greg Johnsen, Carnegie Endowment for International Peace talk
2. Yemen Times, 1 March 2012
3. USAID, Yemen Food Security Alert, 21 July 2011
4. BBC online report, 21 February 2012

A SHOCK TO PURCHASING POWER

When broad based inflation to the basic cost of living, including the cost of food, is coupled with economic contraction

Yemen is a net-food-importing country with an import dependency for 90 percent of its overall domestic wheat, the country's main staple. The high reliance on purchased food items results in households' food security being highly dependent on market dynamics. Poor households in Yemen are now experiencing a profound deterioration in purchasing power, the economy has contracted leading to increased unemployment and underemployment, food prices have faced strong inflation and the overall cost of living has risen steeply. Of most significant concern is that the underlying factors are expected to remain throughout 2012, with the potential of a deepening food crisis.

Economic contraction In 2011, Yemen experienced a worrying contraction in GDP, recording negative growth rate of 10.5 percent.[6] It is expected that Yemen's GDP will continue to contract throughout 2012. In 2010, before the GDP contraction, the official unemployment rate stood at 18.2 percent[7]. But with labour force participation estimated at just 42 percent and widespread underemployment, real unemployment is thought to be about 35 percent, rising to 60-70 percent in rural areas and among youth and graduates[8]. Given the economic contraction occurring over the course of 2011 and expected to continue into 2012, there have been widespread reports of increasing unemployment[9]. For poor households that have been impacted by reduced wage opportunities, the deteriorating economic situation has created direct pressures on the ability to purchase sufficient quantities of food.

Table 20 Real GDP growth and CPI inflation against select MENAP countries

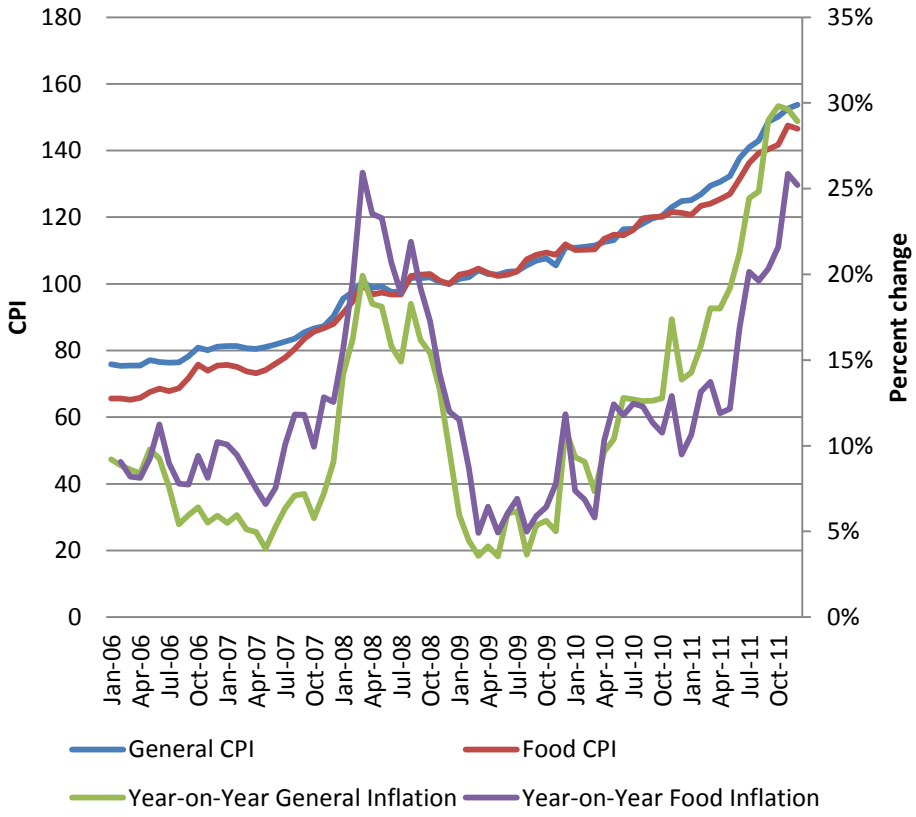
						projections	
	2007	2008	2009	2010	2011	2012	2013
Yemen	3.3	3.6	3.9	7.7	-10.5	-0.9	2.9
United Arab emirates	6.5	5.3	-3.3	0.9	4.9	2.3	2.8
Qatar	18.0	17.7	12.0	16.6	18.8	6.0	4.6
Saudi Arabia	2.0	4.2	0.1	4.6	6.8	6.0	4.1
Oman	5.3	12.9	1.1	4.0	5.5	5.0	4.0
Libya	7.5	5.4	-0.1	2.5	-61.0	76.3	21.0
Kuwait	4.5	5.0	-5.2	3.4	8.2	6.6	1.8
Iraq	1.5	9.5	4.2	0.8	9.9	11.1	13.5
Iran	6.4	0.6	3.9	5.9	2.0	0.4	1.3

Source: Regional Economic Outlook, Middle East, IMF, Washington, D.C. April 20, 2012

[6] Regional Economic Outlook, Middle East, IMF, Washington, D.C. April 20, 2012.
[7] As cited in the International Fund for Agricultural Development: REPUBLIC OF YEMEN YEMENINVEST – RURAL EMPLOYMENT PROGRAMME, 2011.
[8] As cited in the International Fund for Agricultural Development: REPUBLIC OF YEMEN YEMENINVEST – RURAL EMPLOYMENT PROGRAMME, 2011.
[9] For instance: United Press International. Unemployment grows in Yemen, 20 May 2012. http://www.upi.com/Top_News/World-News/2012/05/20/Unemployment-grows-in-Yemen/UPI-17371337523019/

Steep food price inflation In March 2012, year-on-year food price inflation stood at 21 percent. Despite some respite in the rate of inflation in early 2012 – from peaks of over 25 percent in late 2011 – concern remains that the rate of food price increases are once more escalating. While the rate of food price inflation is now similar to the peak experienced in 2008, the overall context of inflation is significantly worse. In 2008, overall inflation was generally contained at under 20 percent. But rapid rises in other costs of living, such as shelter, transport, and clothing, are now exceeding those of food, with general year-on-year inflation at 23 percent following rates as high as 30 percent in late 2011[10] (Figure 20). As a result, the erosion of the ability of households to purchase sufficient food, is related not only to the higher cost of basic food items, but also to the escalation of broader living costs. Several factors help explain this broad-based inflation, in particular the substantial deterioration in the national currency, which has increased the cost of imports[11], shortages in non-food items[12], fuel shortages, and rapid escalation of fuel costs. While the currency has appreciated somewhat since the formation of the national unity government in December 2011, this has not yet had a significant impact on curbing continued inflation.

Figure 20 Year-on-year national food price and general CPI Inflation



Source Yemen Central Statistics Office

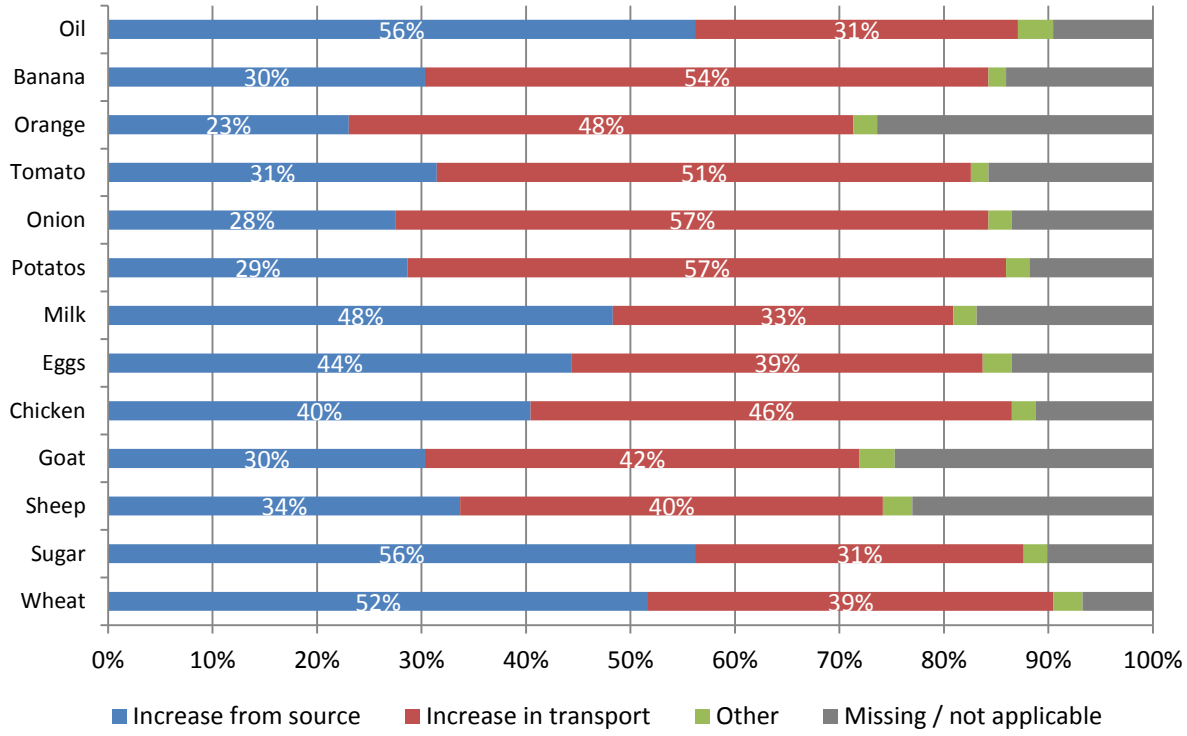
[10] As reported in the latest, report by the Economic and Social Development Research Center in Yemen, translated into English and cited by various sources, including AlMonitor: Inflation in Yemen at Record High, 04/05/12. http://www.al-monitor.com/pulse/business/2012/05/inflation-in-yemen-is-at-a-recor.html

[11] Regional Economic Outlook, Middle East, IMF, Washington, D.C. April 20, 2012.

[12] Ibid.

Food price increases have been most substantial for perishable food items such as meat, eggs, milk, vegetables, and fruits. According to traders, this is largely related to the need for timely transport, which is particularly affected by escalating fuel prices and the state of volatile fuel availability. For daily essentials including grains, oil, and sugar, price increases were most commonly attributed to higher wholesale prices.

Figure 21 Main cause of national food price increase cited by traders, 2011



Source CFSS 2012

A highly volatile fuel situation Fuel availability and prices play a major role in the economy of the nation and significantly influence the purchasing power of poor households. Because most food is imported, as opposed to grown locally, increased fuel prices for transportation have a direct influence on food prices. Traders typically source commodities in Aden, Al Hudaydah and Sana'a, which are then transported to local markets. Therefore, food prices in rural areas are to a considerable extent determined by fluctuations in fuel prices and transportation costs[13]. Fuel is also required to cook food, and for agricultural households it is critical for pumping groundwater for crop irrigation.

In recent years, targeted attacks on fuel pipelines, particularly by Al Qaeda-related groups, have escalated. That has availability of fuel and prices highly volatile. In early 2011, an attack on a major oil pipeline in Marib[3] resulted in fuel prices spiralling by more than 500 per cent[14]. The incident resulted in economic crisis and rapid food security deterioration among many poor households. Livelihoods and industry were damaged and already strained food availability and affordability deteriorated

[13] WFP Food Security Monitoring June 2011.
[14] Oxfam Briefing Paper: Yemen: Fragile lives in hungry times; 19 September 2011.

substantially[15]. In early 2012, a further series of attacks on Yemen's oil infrastructure has forced the main refinery to shut and the availability and price of fuel remains highly volatile[16]. The situation is reflected in the survey findings, which revealed that almost 30 percent of markets do not have sufficient availability of petrol, and almost 40 percent do not have sufficient availability of diesel. Similarly, fuel traders indicated that prices have increased dramatically compared to 2011, with the price of petrol more than doubling and diesel fuel increasing by nearly 90 percent (Figures 22 and 23).

Figure 22 Fuel availability in markets

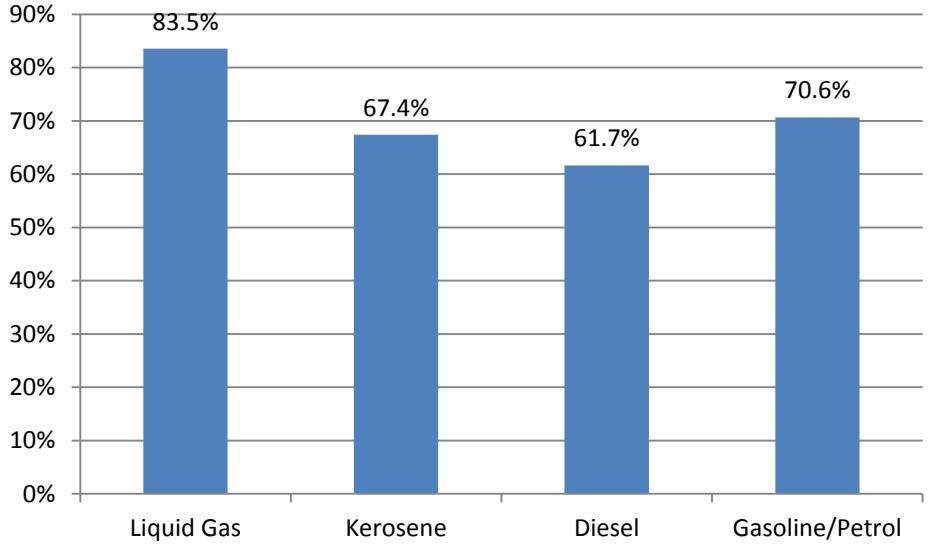
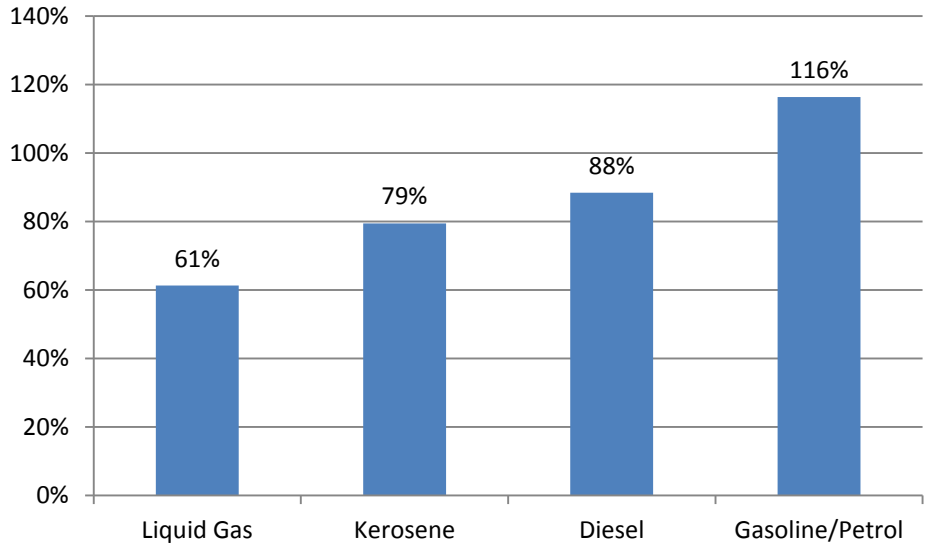


Figure 23 Increase in prices of fuel and cooking sources, 2011-2012



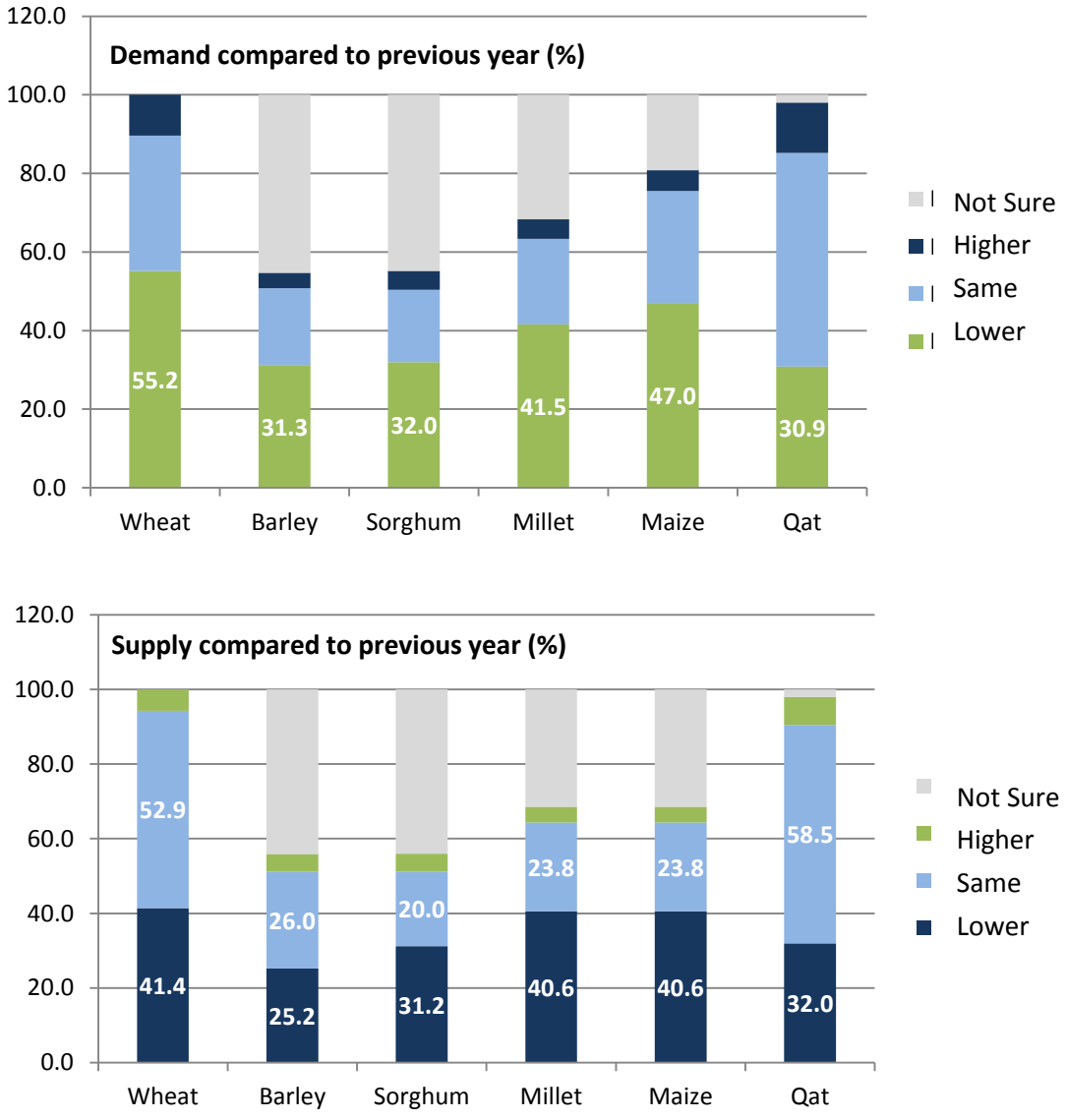
Source CFSS 2012

[15] Oxfam Briefing Paper: Yemen: Fragile lives in hungry times; 19 September 2011.
[16] See for example: The Yemen Times: **Fuel shortage** in Aden | **Yemen** Times; 22 March 2012. http://www.yementimes.com/en/1557/news/619/Fuel-shortage-in-Aden.htm

Erosion of purchasing power Poor households in Yemen are facing the dual shocks of both economic contraction and one of the highest periods of inflation that the country has ever experienced. In contrast to previous periods of rapid food price inflation, Yemen is now facing steep inflationary pressures across numerous sectors. The outcome is a serious erosion of purchasing power among the poor that has pushed the basic cost of living beyond the means of many households. Consequently, poor households are now struggling to purchase sufficient quantities of basic food items.

Despite the strong overall availability of food in almost all markets, the erosion of purchasing power has led to a slump in demand for food (Figure 24). Reduced consumer demand has been matched by a reduced level of sales and supply by traders.

Figure 24 Supply and demand of staples compared to the previous year

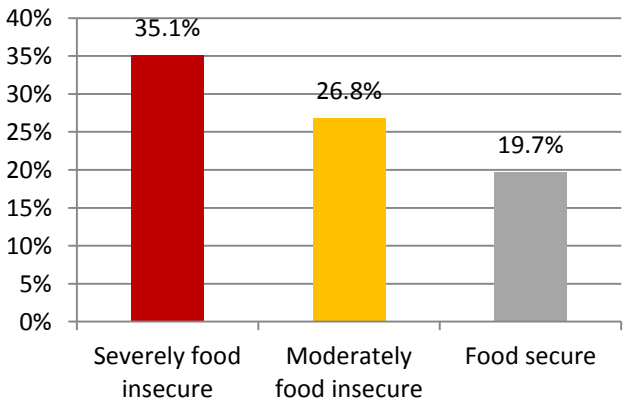


Source CFSS 2012

The lack of economic access to food is the primary cause of increased rates of food insecurity. Of most concern are the findings that the factors behind the state of significantly weakened purchasing power are likely to remain throughout 2012.

How much do people spend? The poorer a household, the less money it has to spend on all basic living costs, including food. Because adequate food intake is essential for a healthy life, poorer and food insecure households generally devote a significantly larger percentage of their income to purchasing food. The poorest wealth quintile of households spend more than three-quarters of their total expenditure on food. However, the share of expenditure on food does not show a significant difference between food security groups (Figure 25). Severely food insecure households spend an average of 47 percent of their total expenditures on food compared to 45 percent for moderately food insecure and food secure households. This suggests that households with the ability to spend more on food do so with the same share of overall expenditure (around 45 percent). But the more food secure households increase their spending on more expensive foods, such as meat, dairy products, fruits, and vegetables, while food insecure households spend most on cheaper stomach filling staples. Severely food insecure households spend more than one-third of their total expenditure on staples alone (Figure 26).

Figure 25 Share of expenditure on staples by food security status



Source CFSS 2012

The share of qat in households' expenditure, at around 9 percent of the total expenditure, was more than that spent on clothes, health, or education.

The custom and curse of qat

Chewing qat is a tradition among communities in the Arabian Peninsula and the Horn of Africa that goes back thousands of years, even predating coffee.

The leaves of the qat plant (*Catha edulis*) contain cathinone, an amphetamine-like stimulant said to cause excitement, loss of appetite, euphoria, insomnia, and inhibited sexual potency.

It is estimated that between 70 percent and 80 percent of Yemeni adults chew qat, with nearly 15 million person-hours per day spent in chewing qat – generally in the afternoon, after men finish work.

But the custom exacts a high price from Yemen. It takes around eight years for the qat plant to grow to its full height of up to 10 feet. It is thought that as much as 40 percent of the country's water supply goes into its cultivation, and production is increasing by up to 15 percent annually. The daily qat fix for one person requires about 500 litres of water for production, and that is thought to be a major reason for Sana'a's rapidly diminishing ground water supplies. However, farmers favour qat cultivation for its high returns – more than four times that of fruit – and the area under qat increased more than twelve-fold between 1970 and 2000.

Of all cash purchases made by households, food is by far the most significant. In all but one livelihood groups, well over half of all cash purchases went on food. The exception is households that depend on family or social support, who receive more than half of their food from credit or borrowing. Even farmers buy 73 percent of their food – just over 10 percent comes from their own production. Those working in petty trade use more than four-fifths of their cash expenditure on food.

People spend more on qat than on health, education, or clothes

Table 21 Household expenditure, by food security status

Share of expenditure on	Severely food insecure	Moderately food insecure	Food secure
Staples	35.1%	26.8%	19.7%
Vegetables	3.3%	4.8%	5.3%
Fruit	0.4%	0.8%	1.8%
Pulses	0.9%	2.0%	2.6%
Dairy	3.1%	3.9%	5.7%
Meat	0.8%	1.2%	2.5%
Fish	0.8%	1.3%	2.9%
Poultry	2.2%	3.4%	3.9%
Qat	8.0%	9.8%	10.5%
Food outside of home	0.2%	0.2%	0.4%
Tobacco	1.4%	1.5%	1.4%
Soap	4.5%	3.6%	3.3%
Water	1.8%	2.1%	2.1%
Transport	4.1%	4.7%	5.5%
Communication	1.2%	1.5%	2.3%
Cooking fuel	4.6%	5.2%	4.5%
Clothes	6.8%	6.3%	6.4%
Education	1.5%	1.2%	1.4%
Health	6.7%	5.0%	4.4%
Vet	0.1%	0.1%	0.1%
Rent	1.0%	1.6%	1.6%
House construction	0.5%	0.6%	1.0%
Labour	0.0%	0.0%	0.2%
Business inputs	0.2%	0.3%	0.3%
Farm equipment	0.3%	0.4%	0.4%
Celebrations	1.0%	1.4%	1.1%
Utilities	5.9%	6.5%	6.2%
Debt	2.8%	3.0%	2.1%
Remittances	0.4%	0.2%	0.4%

Source CFSS 2012

Where do people buy their food? Yemen imports most of its food, so most people depend on markets to buy food. There is generally good availability of key food items in markets across the country, with some relatively small variations between rural and urban areas.

While some markets reported insufficient availability of certain products, the analysis of staples and proteins shows that all markets surveyed had sufficient quantity of at least some form of staple and some form of protein.

WATER IS SCARCE

As underground water becomes harder to reach and the cost of new wells rises, irrigation resources will tend to be concentrated in the hands of the wealthier farmers. The current context of rising inequality in water access, ownership of irrigated land and competition between agricultural and urban users suggests a worrying outlook for the poorest sectors of rural society.

Yemen is already one of the most water-scarce countries in the world, lacking rainfall and surface water. High population growth and water scarcity result in a chronic imbalance between water needs and availability. The per capita water resources stand at 125 m^3 compared to 1,250 m^3 in the Middle East and North Africa region, already one of the driest regions in the world, and the global average of 7,500 m^3 (WFP 2008). Per capita consumption exceeds water supply (WFP, 2008d). The annual deficit was 0.4 km^3 in 1990 and is expected to reach 1 km^3 in 2010 (MoPIC, 2009). The country has limited freshwater, and overall water withdrawals exceed recharge rates by 123 percent of renewable water resources (World Resources Institute, 2003).

Agriculture uses by far the most water, with 96 percent of water use (Shetty, 2006), while qat alone accounts for around 40 percent (Ministry of Agriculture and Irrigation).

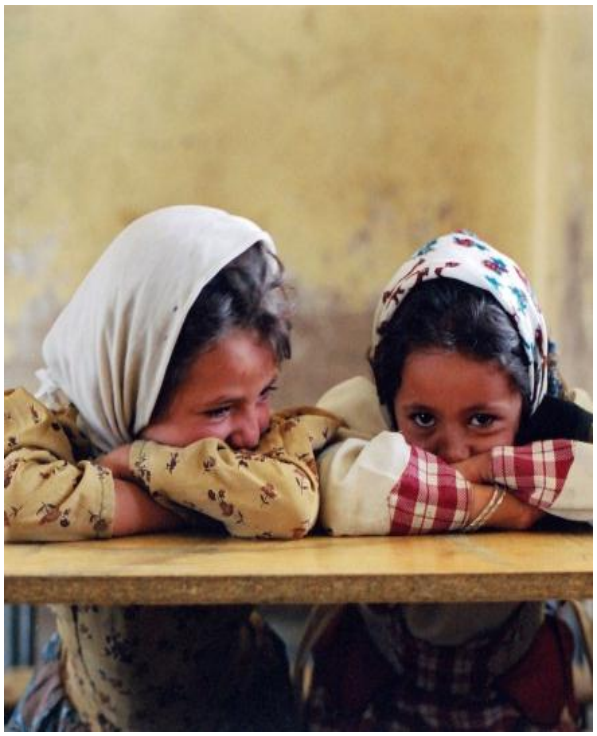
"Yemen could become the first nation to run out of water"

That October 2009 headline in The Times (London) reflects growing international concern over Yemen's increasing scarcity of water.

Agriculture accounts for nearly 90 percent of Yemen's water use, more than one-third of which is estimated to go into qat production.

Sana'a's water is supplied entirely by groundwater, but water levels are falling by between six and eight metres per year. Many wells today have to be drilled to a depth of more than one kilometre.

How people try to cope



KEY ISSUES

- More than half of the population said they do not have enough food
- Yemenis more than doubled their use of negative coping strategies between 2009 and 2011
- One quarter of food is now purchased on credit
- Rising use of credit has increased the debt levels of households, hence increasing their vulnerability

SHOCKS AND HOW PEOPLE COPE WITH THEM

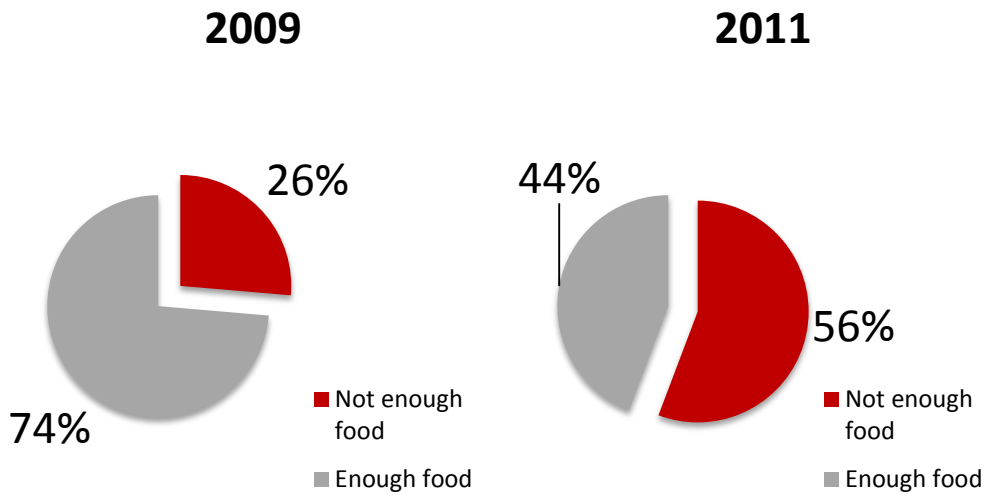
Nationally, around 56 percent of households said that they do not have enough food. The figure is significantly greater among rural (59.8 percent) than urban households (45.6 percent). A staggering 93 percent of Yemenis worry about their food security status. There are considerable differences between agro-ecological zones, livelihoods groups, food consumption groups, wealth groups, coping groups, and among education level groups.

Among agro-ecological zones, communities in the Red Sea and Tihama Coast zone were among the worst affected by insufficient food, with 22.5 percent reporting having gone whole days without eating.

Households dealt with limited access to food by skipping meals, eating less, and, in a disturbingly high number of cases, by going whole days without eating at all

Between 2009 and 2011, the deterioration of an already alarming situation in Yemen has been drastic as shown in the pie charts (Figure 26).

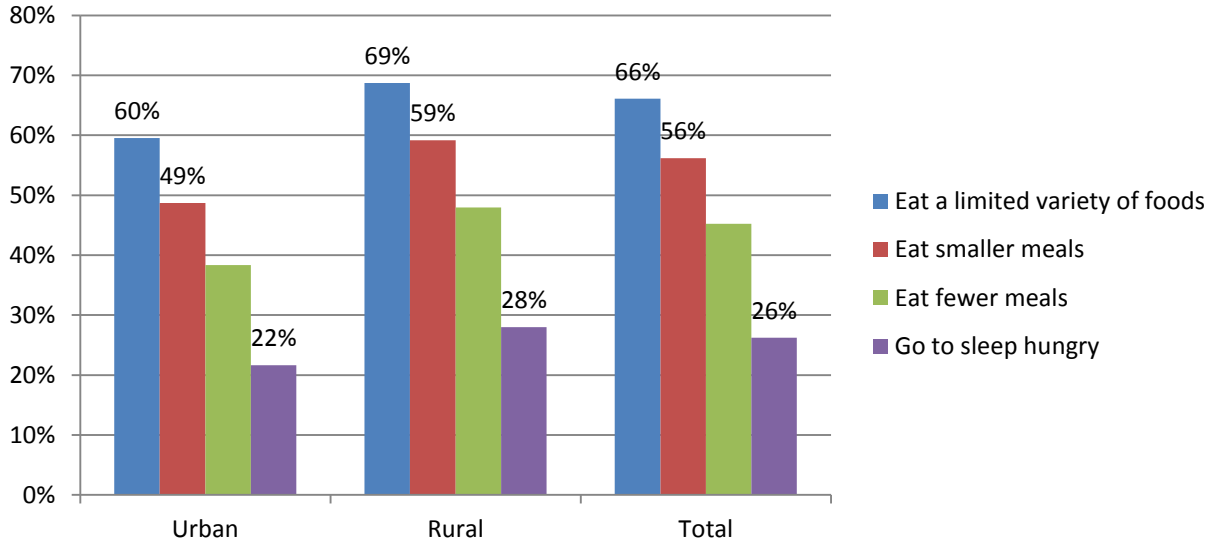
Figure 26 Households without enough food or money to buy food during the previous week



Source CFSS 2012

How do households deal with limited access to food? More than half of all households (54.4 percent) ate fewer meals, nearly three-quarters (72.8 percent) ate a limited variety of foods, while more than one-quarter has experienced going to bed hungry in the month preceding the survey (Figure 27).

Figure 27 Food coping by urban and rural

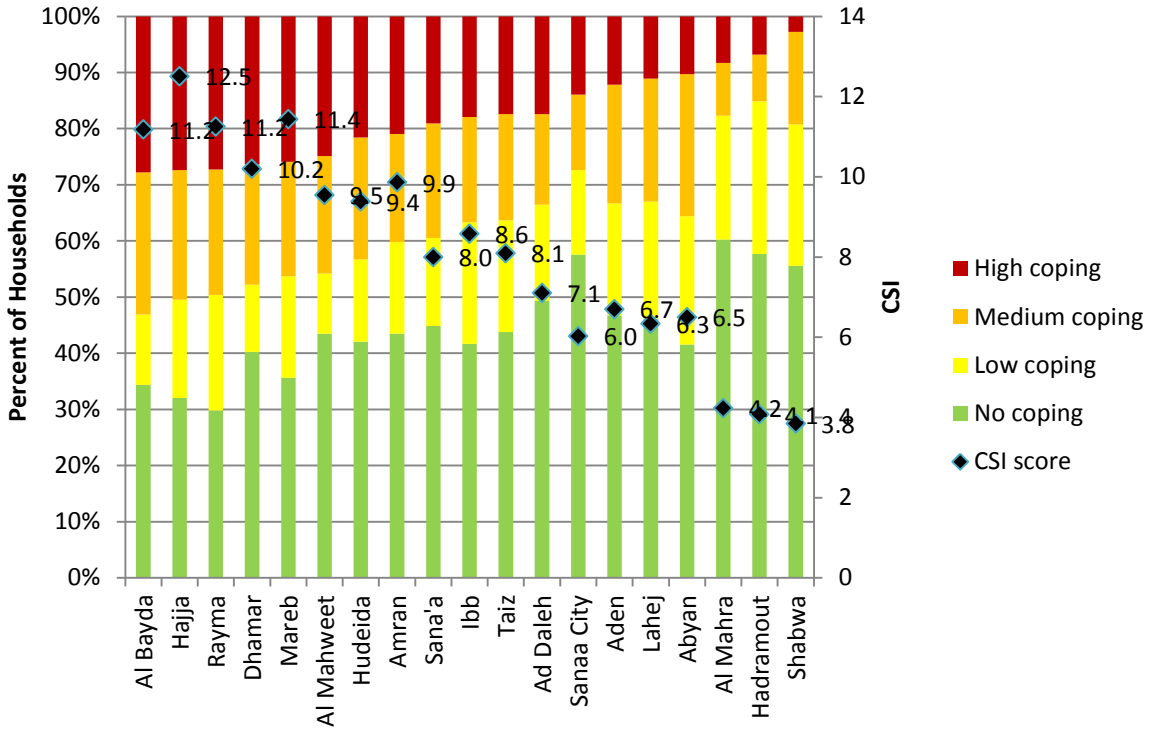


Source CFSS 2012

The coping strategy index (CSI) combines the use of these different coping strategies into a single index (Annex 2). The higher the score, the more severe the coping strategies adopted and the less likely it is that households will be able to recover by solely relying on their own resilience (Figure 28).

Households that rely on support from family and social benefits appear more than any other group in the high coping terciles (45 percent). They are followed by agricultural wage labourers and non-agricultural wage labourers. Urban households have a 13 percent share in high coping, compared to 21 percent of rural households. In Al Bayda, the most food-insecure governorate, 28 percent of households demonstrated the highest coping strategies of all governorates.

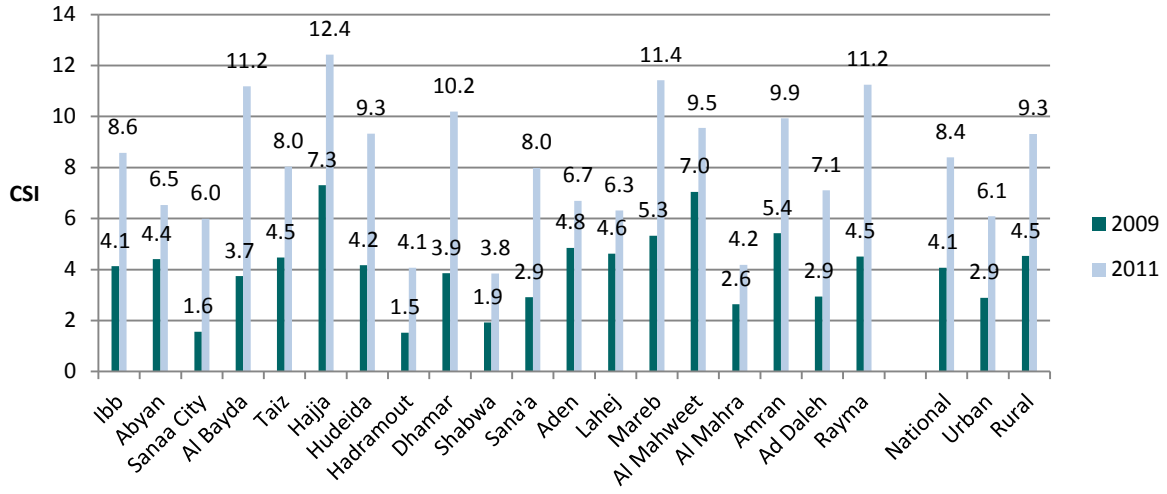
Figure 28 Level of coping, by governorate



Source CFSS 2012

Although CSI terciles are not comparable across years, average CSI scores are. Nationally, the average CSI in 2009 was 4.1. By 2011, it had risen to 8.4. That means that the frequency or severity of coping strategies adopted because of a lack of food had more than doubled. The increase is consistent across governorates and shows extreme deterioration in some cases (Figure 29).

Figure 29 Average CSI over time

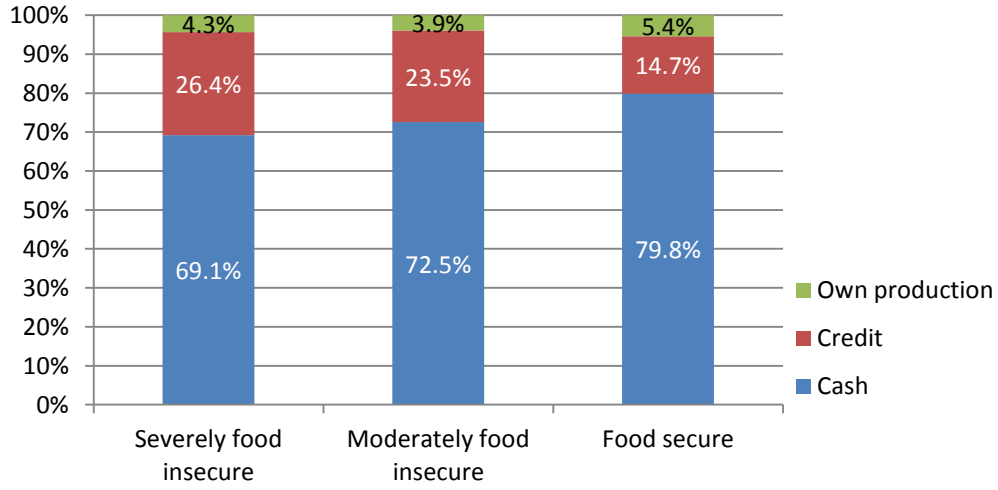


Source CFSS 2012

How do people pay for their food? With household's purchasing power eroded, an average of one-quarter of all food is now bought on credit. This applies particularly to rural households (28 percent), but there is considerable variance between governorates. In Abyan, Shabwa, and Lahej, for instance, more than 40 percent of food is bought on credit. The poorest households in all governorates buy more than one-third of their food on credit, while more than one-quarter of food expenditures (26 percent) in severely food insecure households used credit (Figure 30). That figure falls slightly to 24 percent in moderately food insecure households, and 15 percent in food secure households.

Many families resort to credit to buy food

Figure 30 Source of food expenditure by food security groups

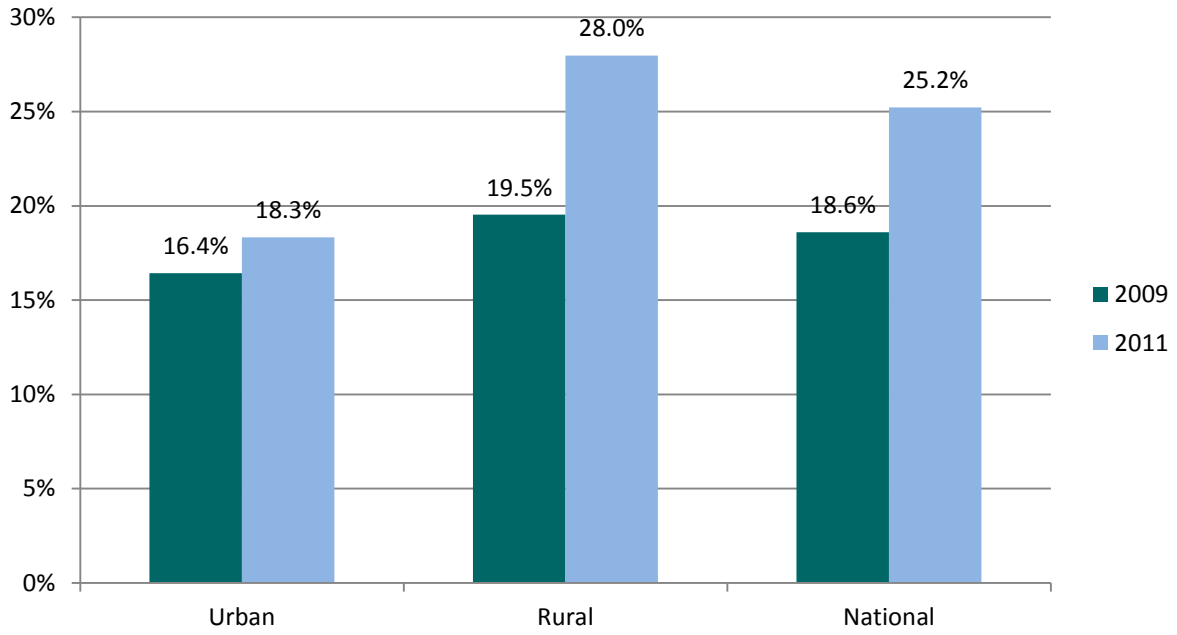


Source CFSS 2012

Households with high coping mechanisms use credit and borrow money for more than 40 percent of their food purchases. Just over one-quarter of all illiterate households use credit to buy food, while over a third of non-agricultural wage labour households resorted to credit to buy food.

The use of credit for purchases signifies the vulnerability of households to the risings costs of living and, most importantly, to the rising cost of food. The 2009 and the 2011 surveys used the same method (a household food consumption module) to determine the amount of food purchased on credit. Nationally, 19 percent of food was purchased on credit in 2009. That figure rose to 25 percent in 2011. Rural households are particularly affected by rising food prices and purchased 28 percent of their food on credit in 2011 compared to 20 percent in 2009: a 43 percent increase (Figure 31).

Figure 31 The use of credit in purchasing food, by rural and urban households



Source CFSS 2012

Credit and debt The rising use of credit has led to an increase in household debt. The survey found that 37 percent of all households had debt related to food (40 percent of rural households and 30 percent of urban households). In the Temperate Highlands and Desert zones, that figure rises to more than half of their respective populations, while in the governorates of Abyan, Lahej, and Al Mahra it stands at around 80 percent. Although debt is less severe in the Internal Plateau zone, nearly three-quarters of it is for food. Food-related debt affected food insecure households most, but there was no difference between severely and moderately food insecure households (Figure 32).

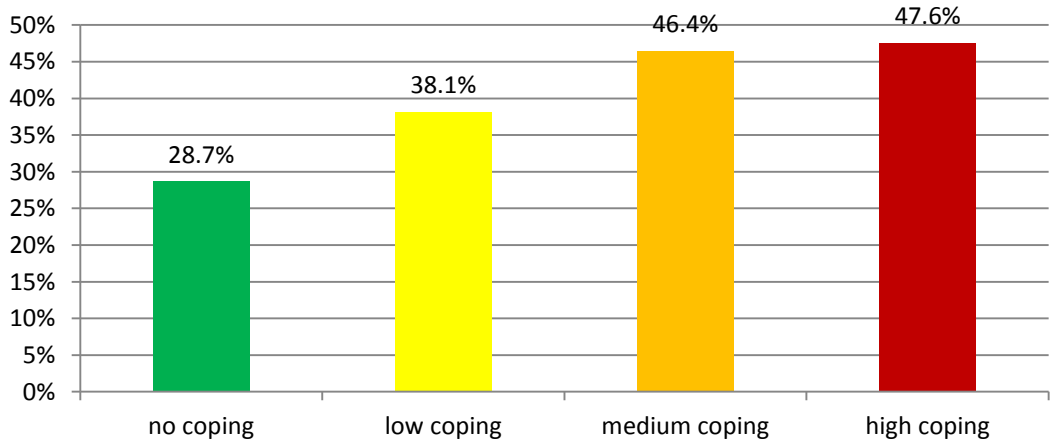
Almost all credit (96 percent) is taken from informal sources. In Abyan, Hadramout, Shabwa, and Al Mahra, for instance, more than three-quarters of credit is provided by local shopkeepers and moneylenders. Non-agricultural labourers owe around half of their debt to informal lenders.

Food and health are the main reasons for taking on debt. Nearly half of all poor families (46 percent) have a food debt. That rises to more than half in the governorates of Abyan, Lahej, and Al Mahra, while 45 percent of wage labourers and support receivers have a food debt. Health-related debts are also substantial, but are generally lower than debt for food. Around one-third of debt is related to health in the governorate of Dhamar and in in the Red Sea and Tihama Coast agro-ecological zone, and for people who make their living by rearing livestock.

Households are adopting negative coping behaviours and creating unsustainably high levels of debt just to meet dietary needs

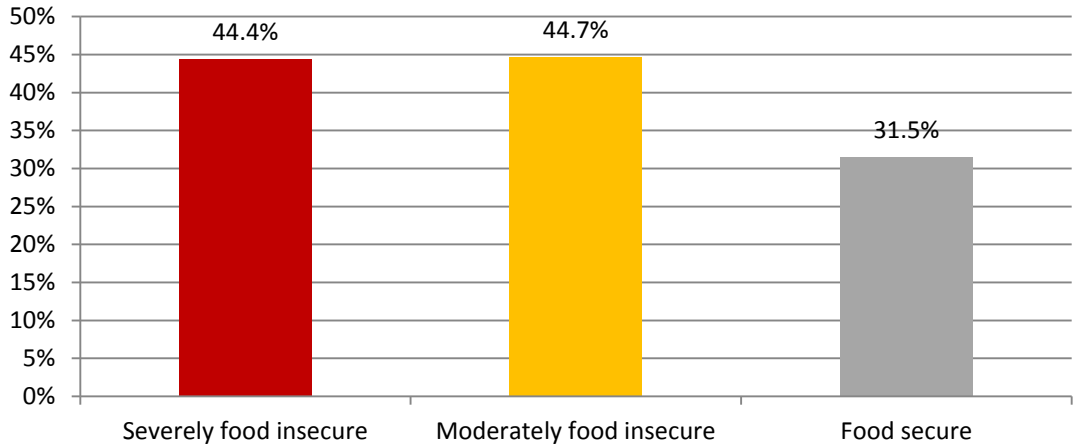
The implication is clear – households are adopting negative coping behaviours and building up unsustainably high levels of debt just to meet dietary needs. In severely food insecure households, this debt exists despite persistently poor diets. These households are unlikely to be able to improve their food consumption even if moderate improvements to living conditions occur because they are already accumulating debt just to purchase staples and oil.

Figure 32 Percent of households with food-related debt and level of coping



Source CFSS 2012

Figure 33 Percent of households with food-related debt



Source CFSS 2012

Conclusion

Prior to the conflict of 2011, there were existing government social protection mechanisms in place that can be immediately up-scaled and supported by the humanitarian community – through both renewed financial assistance and the provision of technical assistance to ensure the programme efficiently reaches the poorest and most needy households. Such structures include the Social Fund for Development (SFD) and the Social Welfare Fund (SWF) a Public Works Programme focused on cash transfers to the most vulnerable households in the country.

To ensure that the most vulnerable households are reached in a timely manner there are a number of United Nations agencies and non-government partners, including WFP, Oxfam, Save the Children and others already delivering effective and timely assistance despite the challenging context.

Timely and adequate humanitarian intervention is required to support the protection and restoration of livelihoods in areas that are not yet facing crisis conditions. The phenomenon of households sliding into debt to ensure family members are fed, as shown in this report, will result in a poverty trap that will severely inhibit the country's ability to rebound and rebuild if not curbed.

Actions required to address medium term needs

There are many broad-based social, economic, and political reforms that are required to ensure sustainable food security. The report does not attempt to discuss medium and long term actions required, as the prioritization of such actions must be led by the government of Yemen. However, the Report wishes to particularly highlight the urgent need for sustainable householdlevel food production and water usage.

A medium-term shift towards crops that require less water in their production and towards more efficient use of water is required to ensure that local production of food is not jeopardized.

Given the important role that women play in agriculture, it is important that their empowerment as producers is also considered.

> **"…priorities have to adjust to reflect the urgent need to… address the serious humanitarian problems – including the lack of food, water and power – that many ordinary Yemenis are suffering"**
>
> Chatham House, October 2011

Their heightened vulnerability, as outlined in this report, should be considered in future planning to address food insecurity.

Actions to achieve sustainable national food security

These need to be led by the Government of Yemen. They must include agreement over key development priorities with which to address the challenges. The National Food Security Strategy, developed in 2010 provides a solid framework for the government, the humanitarian community, and donors to address hunger in Yemen.

The strategy aspires to reduce food insecurity by one-third over five years through a combination of trade and agricultural policy reform, population growth control, and water policy reform. Since the strategy was designed, the situation has worsened considerably and has elevated needs for immediate food assistance and the plan as a whole remains highly relevant.

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