Household Food Security in Malawi: Results from a Comprehensive Food Security Survey

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MALAWI
Vulnerability
Assessment Committee

UN WOMEN
United Nations Entity for Gender Equality
and the Empowerment of Women

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1. National context

Malawi is a landlocked country located in the eastern part of Southern Africa bordering Tanzania to its northeast, Zambia to the west, and Mozambique along much of its southern and eastern borders. Lake Malawi, one of the largest and deepest lakes in the world, accounts for almost one-fifth of the country's area. The lake is third largest of the East African Rift Valley and is also known as the Lake of Stars; as it is rated one of the most beautiful fresh water lakes in the world.

Malawi is demarcated into three regions, Northern, Central and Southern regions. Lilongwe City in central Malawi is the national and administrative capital while Blantyre City is the regional capital of the Southern region and the country's commercial and manufacturing hub. Mzuzu city is the main town in the Northern region. Zomba, the former political capital and a trading centre between Blantyre and Lilongwe was declared a city in 2008. The country has two main seasons, cold-dry and hot-wet. The hot-wet season runs from October to April and the cool dry weather running from May to September. Climate varies with topography with temperatures averaging 14 to 32 degrees Celsius.

In terms of economic performance, the annual average growth rates of GDP and Agriculture between 2011 and 2016 were 4.0% and 2.8%, respectively according to the 2016 Integrated Household Survey (IHS). In addition to that, the survey states that a national poverty headcount of approximately 51.5 percent of the population live below the poverty line, up from 50.7 in the 2010/2011 survey while the percentage of those in the ultra-poor category has gone up to 24.5 percent from 20.1. The percentage of the population in the ultra-poor category cannot afford to meet the minimum standard for daily recommended food requirement. The report indicates that about 85 percent of people live in rural areas and that almost 25 percent of the rural households are female-headed. The situation seems to be worsening than improving and this shows in other surveys such as the Human Development Report which states that Malawi ranks 171 out of 189 countries on the global UNDP Human Development Index (HDR Statistical Update, 2018).

Overall, Malawi's climate is classified as tropical continental but it has several pockets of varied weather patterns due to the effects of Lake Malawi, high altitudes, and weather systems which come from the west and move eastward around the South African coast. The rainy season typically runs from October to April while the dry season is from May to October.

Malawi continues to face climatic change challenges such as delayed onset and erratic rainfall, land degradation and increased pressure on natural resources which are increasingly making it difficult for households to rely on own production as a sustainable source of food. This has resulted in consecutive poor seasons with deficits in agricultural production. Limited supply affects food availability and also aggravates access to food since restricted supply pushes prices to unusually high levels. Maize prices typically decrease during the harvest period (post-May), however, by June 2016 maize prices abnormally started to increase and they were the highest in the decade reaching a high of 244 MWK/kg[1] in December 2016. The 2015/2016 agriculture season was the worst and was characterised by the occurrence of the El Nino phenomenon believed to be the strongest in 35 years leading to sporadic rainfall across the country. As a result, Malawi saw unprecedented levels of food insecurity, which has necessitated the largest humanitarian response in the country's history affecting about 6.7 million people (39% of the population).

[1] National average per Ministry Of Agriculture And Food Security via FAO Food Price Monitoring and Analysis (FPMA) tool

The consecutive years of food insecurity and lack of coping capacity has largely eroded the most vulnerable households who require urgent, lifesaving assistance. However, the 2016/2017 main harvest saw a much-needed return to normalcy. The Agricultural Production Estimates were at projected at 3.5 million metric tons, a 46% increase from the 2.4 million metric tons harvested in drought-ridden 2016. The 2017/2018 on the other hand also faced climatic challenges of below normal rainfall in most places of the southern and parts of the central region. As such, production reduced by 22.1% over last year and 16.9% over a five-year average.

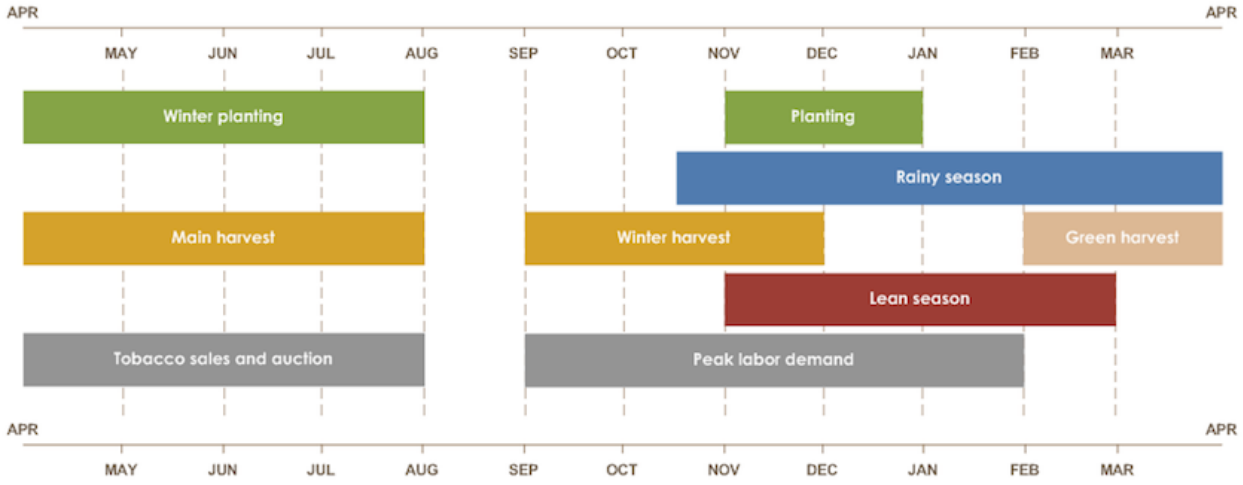
In terms of nutrition status, the most recent smart survey carried out in January 2018 showed an improvement in acute nutrition indicators compared to the two previous surveys of December 2016 and July 2017. Wasting among children under five was at its lowest compared to the previous assessments (1.3% GAM and 0.1% SAM) and within WHO acceptable range. This was down from GAM 4.3 recorded during the same lean season last year However, Malawi is still faced with high rates of chronic malnutrition. While stunting rates are declining – from 53% in 2006 to 37% in 2016 – they remain very high (Malawi Demographic and Health Survey 2015-16). The DHS 2015-16 includes district-level estimates of stunting. Per these findings, stunting is particularly problematic in Mangochi (45%), Neno (45%), and Mchinji (44%). While stunting has multiple causal factors including diet, care practices, and hygiene, its impact on children is severe and requires significant attention. A stunted child has the likelihood of cerebral potential and is more prone to disease. This adult will be less productive with a far great likelihood of being stuck in poverty, thereby perpetuating the cycle of food insecurity and malnutrition.

According to the most recent food security outlook by the Famine Early Warning System (FEWS NET), which looks at the Southern Africa Climate Outlook Forum (SARCOF) and other international climate models, the coming rainy season beginning in October/November is expected to have normal to above normal rainfall which is vitally important for next year's harvest.[2] Further, the latest FEWS NET outlook expects that household stocks will continue to last going into the lean season (November to March).

The most recent seasonal forecasts point to a significant likelihood of an El Nino materializing: currently this stands at 50-55% chance of it happening in the northern hemisphere autumn and 65-70% chance of it developing in the coming winter. Judging from the forecasts on how Surface Sea Temperatures (SST) are likely to evolve, this El Nino, is likely to be relatively short and over by mid-2019. A Press Statement for Southern Africa Regional Climate Outlook Forum (SARCOF) – 22 stated that the seasonal outlook puts a bulk of the SADC countries in a likelihood to receive normal to below-normal rainfall for most of the period from October to December 2018 and above normal rainfall over the northern half of Tanzania. The January – March 2019 period will be normal-to-below normal for most of the region.

[2] FEWS NET Food Security Outlook September 2017, Malawi. http://www.fews.net/southern-africa/malawi

Figure 1: Malawi's typical seasonal calendar



Source: FEWS NET. http://www.fews.net/southern-africa/malawi

With the reduced harvest for this year and prospects of an El Niño for the coming season, Malawi remains highly vulnerable to food insecurity. However, with a growing population, high rates of poverty and high dependency on agriculture for the livelihoods of the population, building resilience to future shocks is key.

2. Methodology

This comprehensive food security assessment report is based on the results of a household survey conducted from 12 July to 10-August of 2018. The survey and this assessment focus on rural populations only – urban populations have not been included in the sample frame. Twenty-seven districts were surveyed with a total of 8,117 households interviewed. The only district not included in this study is Likoma due to limited access, sparse population, and generally food secure status.

The sample design makes use of a two-stage cluster approach. The sample framework and execution of the sample were led by the Malawi National Statistics Office (NSO). In the first stage of sampling, enumeration areas were selected using probability proportional to size, meaning that high population enumeration areas were more likely to be selected. In the second sampling stage, ten households were randomly selected within the selected enumeration area along with a buffer of additional households in case the originally selected respondent was not able or willing to participate in the survey.

The questionnaire used during the interview follows standard food security survey design with modules on:

- Household demographics
- Household amenities and assets
- Crop and livestock production
- Income sources
- Household expenditures
- Food consumption
- Livelihood sources
- Shocks and coping strategies
- Market accessibility and food availability
- External assistance

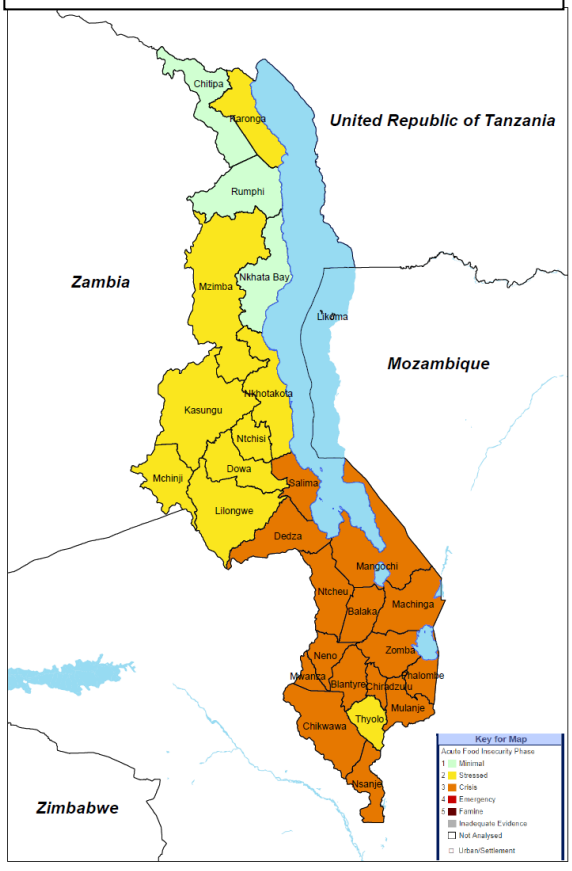
Data collection and data entry was facilitated using Open Data Kit[3] (ODK), a free and open source data collection application for Android phones. Enumerators were trained on the content of the survey and use of the ODK application prior to the commencement of field work. About 88 enumerators were divided into 11 teams covering 27 of 28 districts of Malawi. The interview was conducted face-to-face with the head of the household. If the head of household was not available, the spouse or another adult knowledgeable of the day-to-day income and spending of the household was interviewed. The survey took between 45 minutes and one hour to complete.

Data cleaning and analysis occurred in August of 2018. Standard food security indicators were calculated to describe the state of food insecurity and vulnerability to food insecurity. These indicators include information on the quality of the household's diet, sources of income, assets owned, and stresses the household may have faced in accessing food. Indicators were calculated per household while most reporting within this report is aggregated to the district level or by some form of household classification such as income source or food security status Additional details on the computation of key food security indicators used in this report are available in the annex beginning on page 86 of this document. IBM's SPSS software was used for executing statistical analysis of the survey data.

3. State of food insecurity

- Overall, 45% of rural Malawian households are classified in IPC Phase 1 (None or Minimal) 33% in Phase 2 (Stressed), 19% in Phase 3 (crisis) and 3% in Phase 4 (emergency).
- The districts with the highest rates of food insecurity Phase 3 and 4 are, Balaka 38%, Chikwawa 35%, Nsanje, 35%, Salima 32%, Mangochi 31%, Blantyre 30%, Mwanza 30%, Mulanje 30% and Neno 30%.
- Those with food insecurity above 20% in phase 3 and 4 include; Chiradzulu 28%, Phalombe 28%, Zomba 28%, Dedza 23%, and Ntcheu 20%.
- The most food secure during this season were Chitipa 81%, Rumphi 81% and Nkhata Bay 82% in Phase 1.

Figure 2: IPC District classification



Throughout this report, multiple aspects of food insecurity are described using a set of indicators as outlined in the IPC Analytical Framework. While household food insecurity is a multidimensional phenomenon, the ability to quantify and describe it is essential for effective program and policy planning. IPC outlines the various indicators which are used to

[3] https://opendatakit.org/

classify food insecurity based on the four outcomes; Food Consumption, Livelihood Change, Nutrition Status and Mortality.

In this report, the focus will be mainly on the food consumption, coping strategies and market price information as the key drivers of food consumption and the main components addressed during the survey.

Even though the survey collects data at household level, the same is computed to provide information at area level (District) as the main unit of analysis and the area is assigned one of five possible food security statuses: None or Minimal, Stressed, Crisis, Emergency or Catastrophe/Famine.

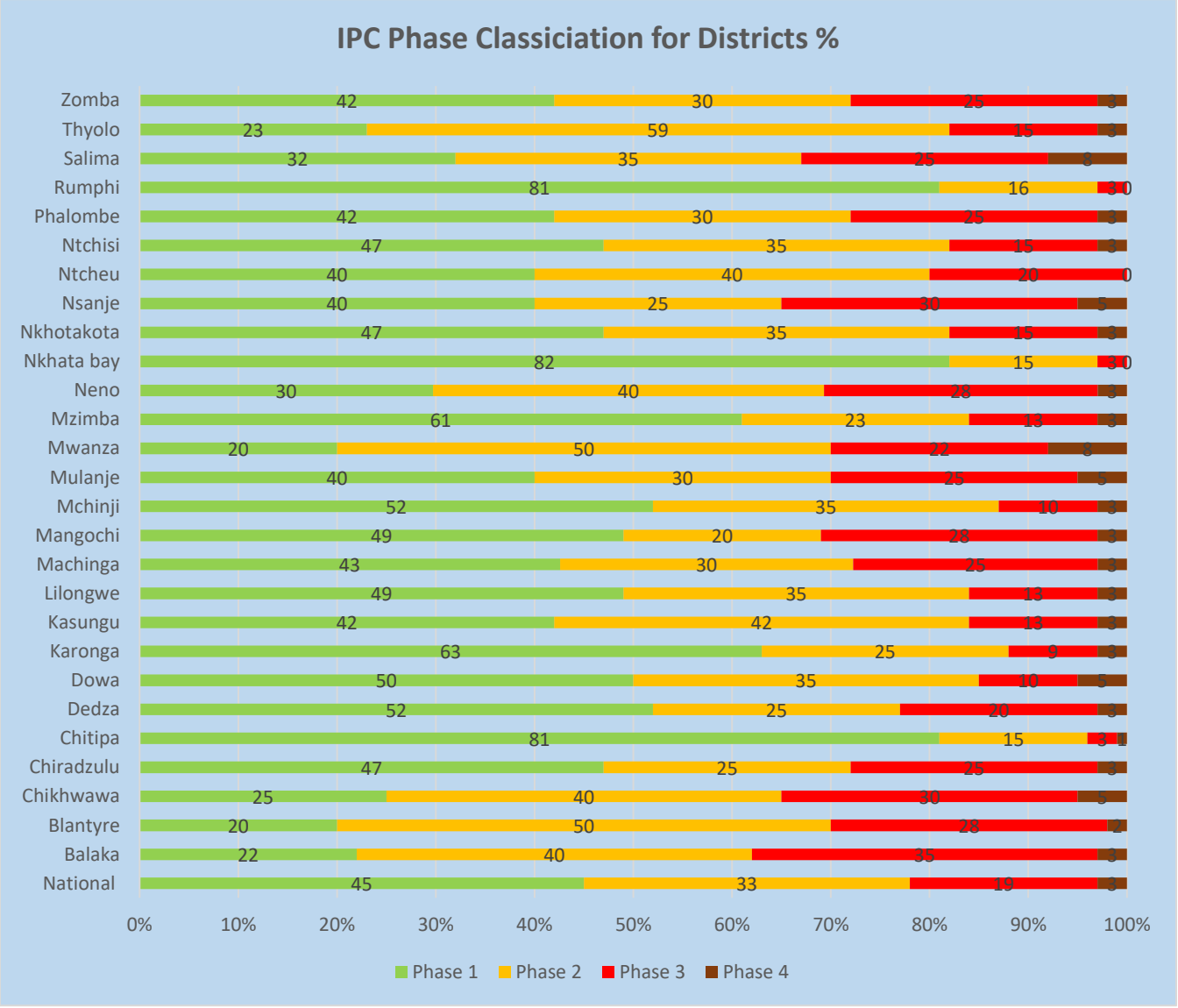
Table 1 below provides the details of the description of the different phases.

Table 1: IPC Phase descriptions

PHASE 1 Minimal	•HHs are able to meet essential food and non-food needs without engaging in atypical, unsustainable strategies to access food and income.
PHASE 2 Stressed	•HHs have minimally adequate food consumption but are unable to afford some essential non-food expenditures without engaging in irreversible coping strategies
PHASE 3 Crisis	Even with any humanitarian assistance: · HHs have food consumption gaps with high or above usual acute malnutrition; OR · HHs are marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that will lead to food consumption gaps.
PHASE 4 Emergency	Even with any humanitarian assistance: · HHs have large food consumption gaps resulting in very high acute malnutrition and excess mortality; OR · HHs have extreme loss of livelihood assets that will lead to large food consumption gaps in the short term.
PHASE 5 Famine	Even with any humanitarian assistance: · HHs have an extreme lack of food and/or other basic needs even with full employment of coping strategies. Starvation, death, and destitution are evident.

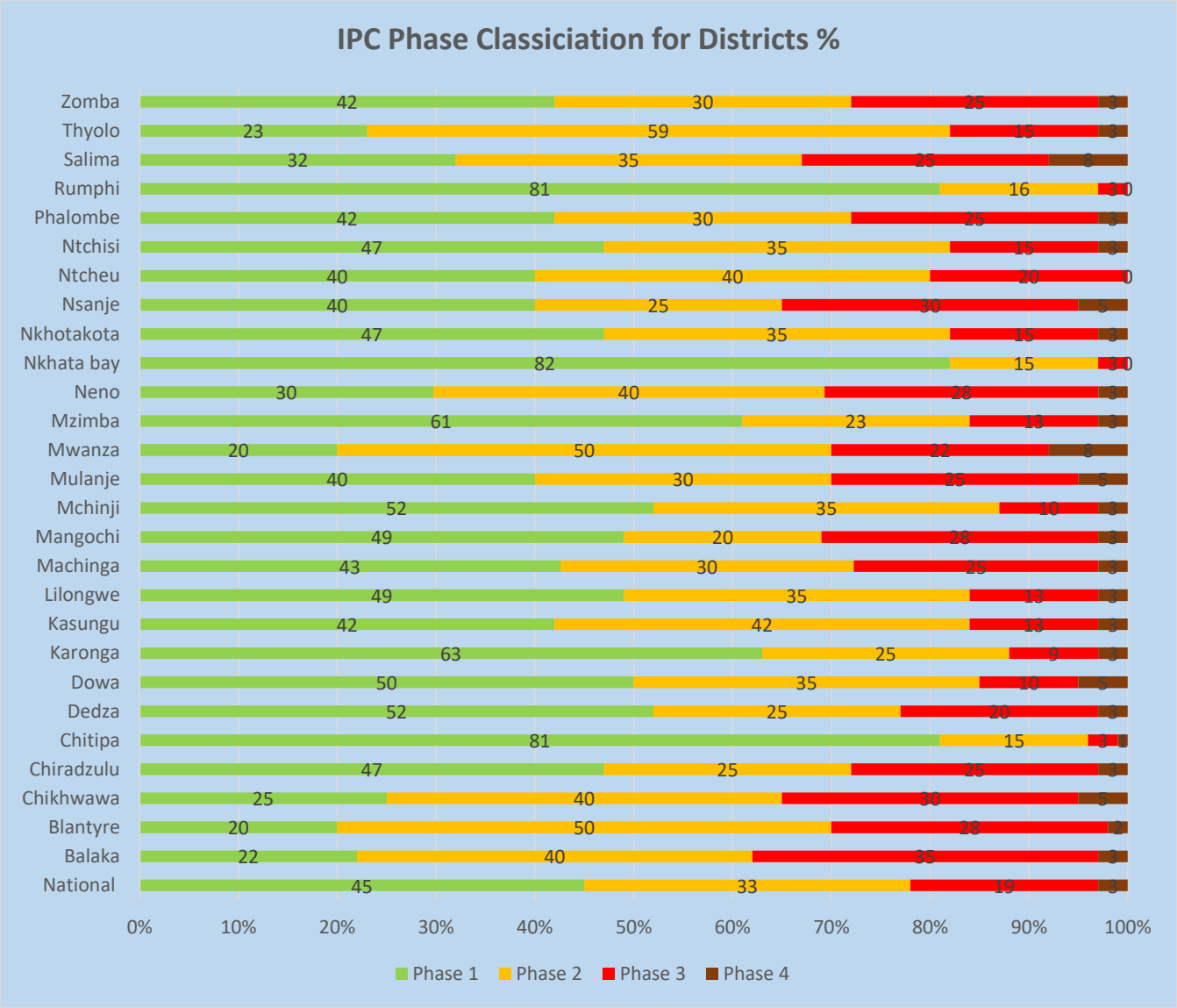
Overall, 22% of rural Malawian households are classified as food insecure. As noted above, these groups are categorized from those who are in phase 3 or worse on the IPC protocol out of these 22 % only 3 percent nationally fell into the emergency phase classification. These severely food insecure households have large food consumption gaps or are using extreme coping mechanisms and will face extreme consumption gaps in the future as a result.

The other 19% of food insecure households are in phase 3, meaning that they have high or significant food consumption gaps or are meeting food needs through the use of coping strategies that are irreversible.



below illustrates the food insecurity for all districts. Generally, the Southern region has more districts that with a high prevalence of food insecurity than the Northern and Central regions.

Figure 3: IPC Food Security Classification by District



4. Food consumption

The Food Consumption Score (FCS) is commonly used in World Food Programme food security surveys and monitoring systems. The FCS is a composite score based on dietary diversity, food frequency (number of days during the past seven days) and the relative nutritional importance of different food groups. Based on the standard thresholds within a country context, households are classified into three Food Consumption Groups: poor, borderline or acceptable. The indicator is correlated with caloric intake, and typically analyzed separately and together with Coping Strategies Index and household income.

The FCS serves as a proxy indicator of quantity of food consumption outcomes for IPC analysis. The FCS is a snapshot of one week of food consumption and therefore needs to be interpreted in the seasonal context, quantifying the food gap in terms of caloric intake, or showing how food consumption has changed as a result of a crisis (unless a pre-crisis baseline or data from a monitoring system is available).

During the survey, households were asked about food groups consumed in the past 24 hours and in the past seven days. For the seven-day recall, households were asked to respond with the number of days in the past week that they consumed various food groups.

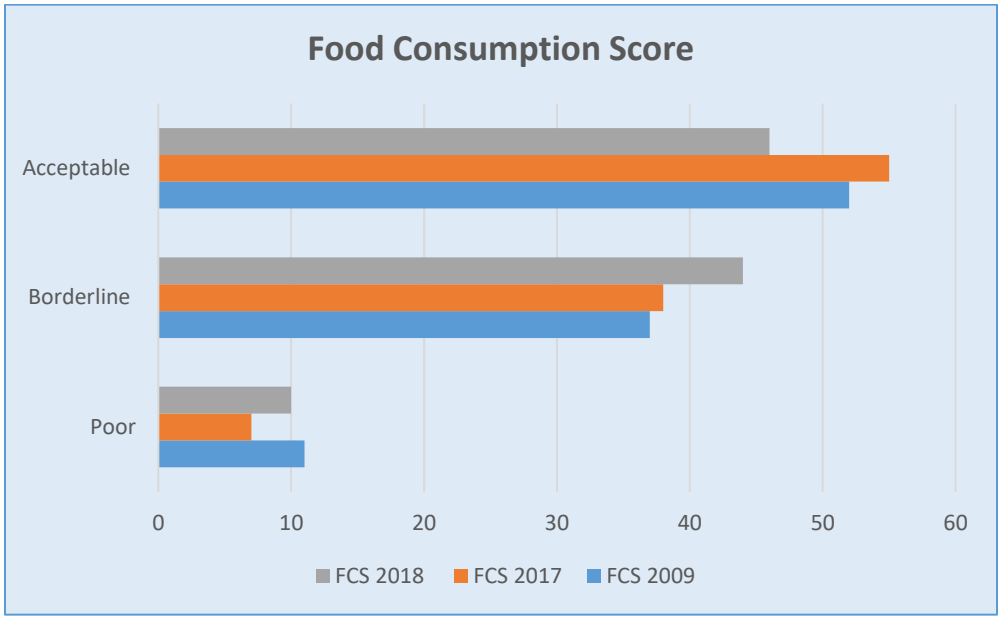
During the analysis, each of these food groups is assigned a weight based upon its relative nutritional value from a macro and micronutrient perspective. The weight of each food group is then multiplied by the frequency of consumption, measured in days. This result is the Food Consumption Score (FCS), a standard indicator collected in WFP surveys. Household diets are then classified as poor, borderline, or acceptable by applying standard thresholds to the FCS[4].

Generally, households with poor food consumption using this definition consume just staples (i.e. rice, maize, and cassava), vegetables, oil, and sugar. This diet seriously lacks in micronutrients and is associated with high rates of poverty and malnutrition.

In 2009 as well as 2017, WFP, MVAC, and partners implemented a survey similar to this one to assess the state of food insecurity. In the 2009 survey, the food consumption module was also implemented and the FCS calculated. **Figure 4** below compares the results of the food consumption score in 2009, 2017 and in 2018. In 2009, 48% of households had less than acceptable food consumption. In 2017, the situation had not improved much with 45% having a less than acceptable food consumption. In 2018, the worst off, those with poor food consumption did improve more than the borderline from 11% in 2009 to 7% currently.

[4] See page 77 in the annex for more details on the FCS methodology.

Figure 4: Food consumption groups in 2009, 2017 and 2018

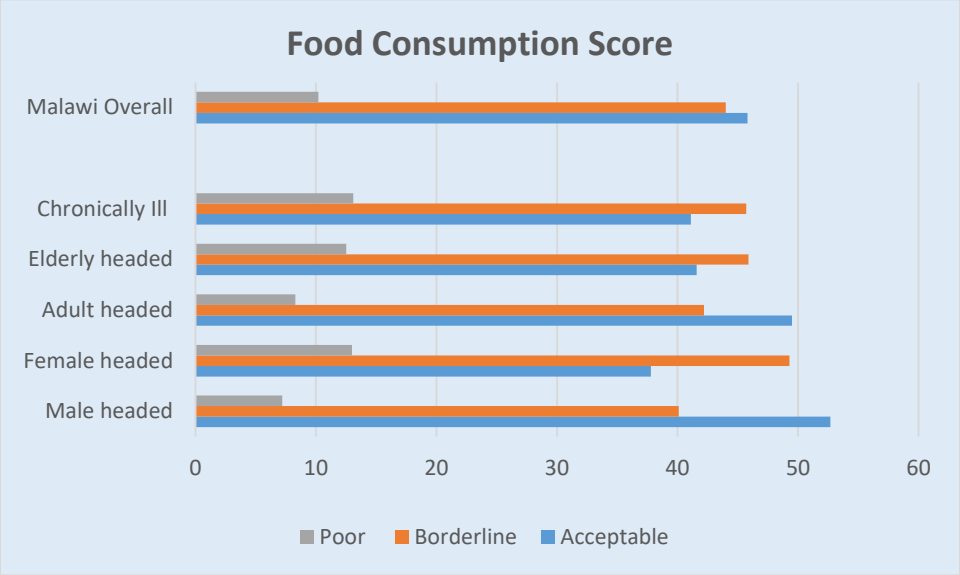


In 2017, overall, 7% of rural households have a poor diet and 38% have a borderline diet. In 2018, the rural households with poor FCS were 10% while borderline was 44% signifying a slight deterioration of the household consumption patterns. It is important to note that over 50% of the rural population have poor diets thus combining the Borderline and poor FCS which indicate communities are having repetitive types of food which consists mainly of starchy and vegetables and less of proteins.

The highest rates of poor food consumption were found in Nsanje, 13%, Dedza 16%, Mchinji 17%, Lilongwe 16%, Chikwawa 11%, Karonga 13% this indicates lack of diversification in diets in these areas. The districts with better quality diets of acceptable score of more than 60% were only evident in few districts especially Rumphi 70%, Mzimba 66%, Nkhata Bay 63%, Ntchisi 60% and Nkhota kota 62%,.

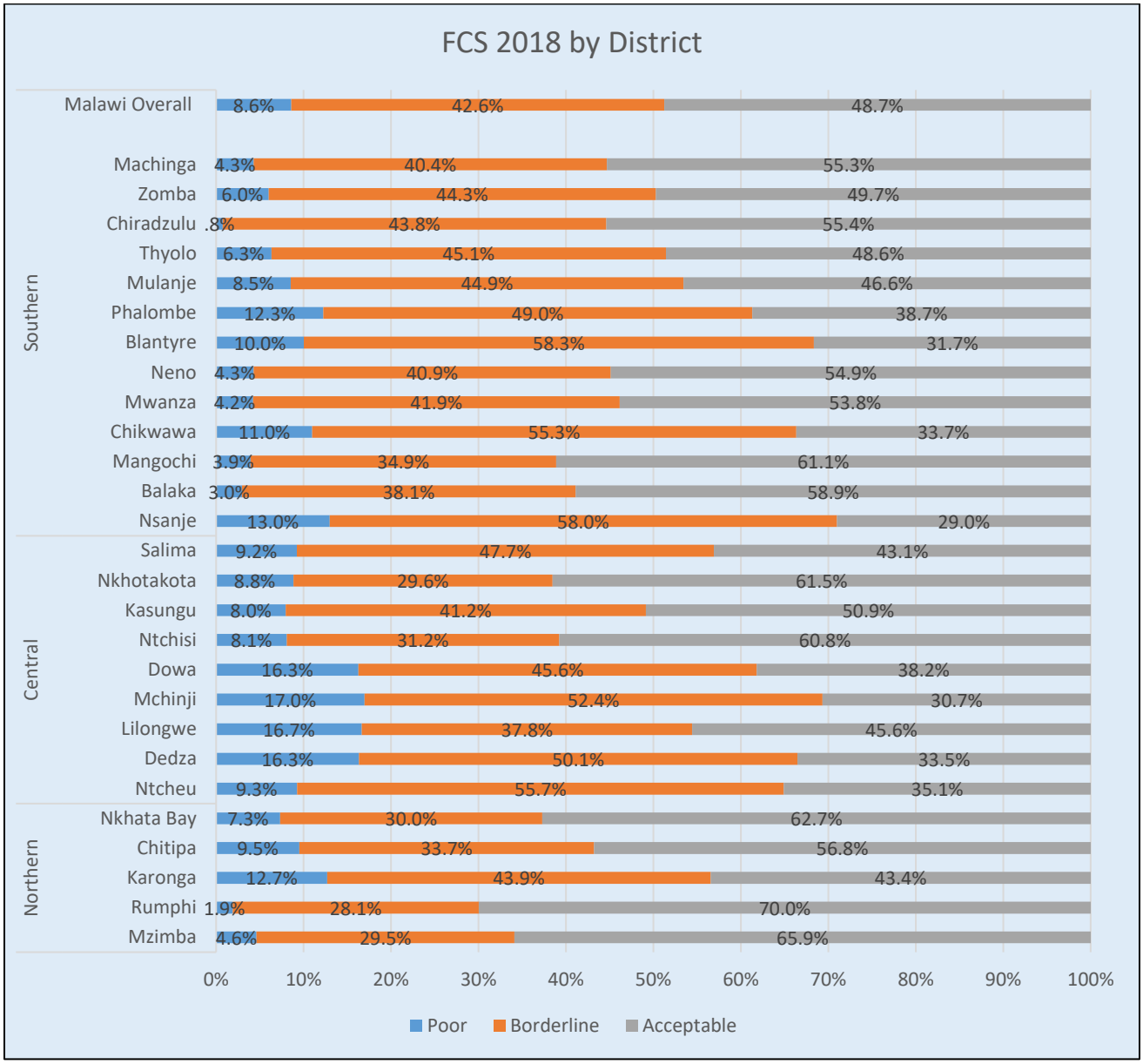
During the 2018 survey a gender aspect was considered and the results indicate that acceptable diets were better in male headed households at 52.7% compared to 37.8 % for the female headed households. Similarly twice the proportion of households with poor diets 13% were evident in female headed households compared to the male headed households at 7%. Of much interest was Elderly headed households where the head was over 65 years of age, and the results were pretty similar with households where at least one member of the household was chronically ill.

Figure 5: FCS based on gender categorization



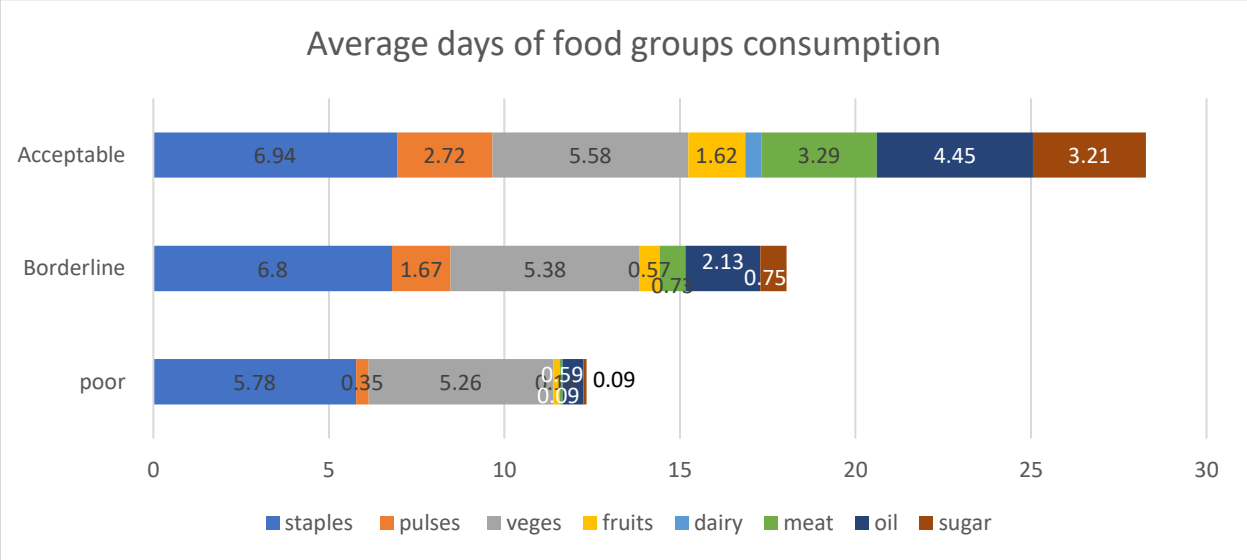
A breakdown of food consumption by district is presented in
Figure 6. Poor food consumption affected more than 10% of households in nine districts: Karonga, Dedza, Lilongwe, Mchinji, Dowa, Nsanje, Chikwawa, Blantyre, Phalombe. These households in general have very poor diets.

Figure 6: Food consumption by district



As shown in **Figure 7** below, households with a poor diet on average consumed staples at least six days a week, vegetables 5.5 days a week, and all other food groups were consumed less than daily. This means that these households are subsisting on diet which is extremely poor in terms of both micro- and macro-nutrients. A significant challenge for Malawi is to improve dietary diversity, including reducing the consumption of starchy staples in favor of increased intake of pulses, fruits, and vegetables.

Figure 7: Average days of consumption of food groups per week by food consumption group



Households with acceptable and borderline food consumption fare better, but still have a much less than optimal diet. On average, these households consumed staples nearly daily, vegetables more than 5 days a week, pulses 1.6 and 2.7 days a week for borderline and acceptable respectively, oil more than 4 times a week and 1.9 days a week, and all other groups less than one day a week. This diet is still very poor in terms of protein intake, and other vitamins derived from fruits and dairy.

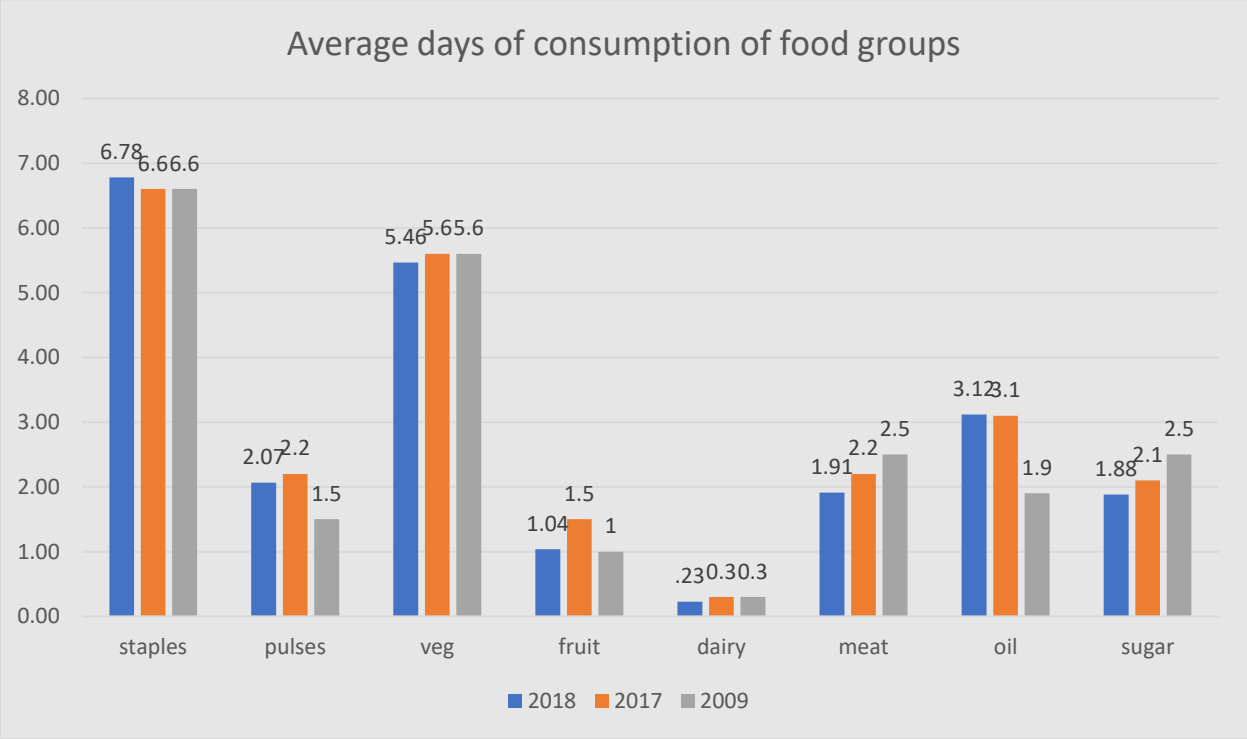
An analysis of the composition of household diets is depicted in Table 2. Consumption of staple foods (cereals and tubers) is daily as expected across Malawi. Vegetable consumption is near daily in most of the country with exceptions of some districts in the north and south regions where vegetables were consumed less than five days in a week on average. Consumption of pulses and meat varies across the country but on average is consumed less than two days a week nationally. Dairy consumption continues to be extremely low throughout Malawi with less than one day a week (0.24) of consumption on average.

Table 2: Average days of consumption of food groups per week by district

		staples	pulses	veg	fruit	dairy	meat	oil	sugar
District	Mzimba	6.96	2.10	6.19	2.25	.71	2.51	3.42	3.38
	Rumphi	6.99	2.31	5.66	1.81	.68	2.59	3.85	3.68
	Karonga	6.61	2.08	4.98	.84	.22	1.62	3.34	2.11
	Chitipa	6.70	2.70	4.78	1.55	.39	1.70	4.22	2.63
	Nkhata Bay	6.90	1.44	5.56	1.86	.69	2.83	4.34	3.84
	Total	6.84	2.13	5.48	1.71	.55	2.27	3.82	3.15
District	Ntcheu	6.96	1.92	5.66	.43	.12	1.35	3.02	1.47
	Dedza	6.74	1.68	5.66	.42	.09	1.37	2.52	1.45
	Lilongwe	6.18	1.74	6.09	.27	.18	2.04	2.49	1.74
	Mchinji	6.80	1.13	6.18	.47	.26	1.64	2.62	1.41
	Dowa	6.99	1.45	6.05	.41	.31	1.76	2.53	1.37
	Ntchisi	6.99	1.95	6.28	.60	.25	2.82	3.10	1.98
	Kasungu	6.98	1.83	6.05	1.01	.16	2.11	2.85	1.78
	Nkhotakota	6.74	1.17	5.83	.83	.11	3.22	3.15	2.42
	Salima	6.24	1.86	5.80	1.27	.29	1.75	2.84	2.00
	Total	6.72	1.64	5.96	.60	.20	1.96	2.76	1.70
District	Nsanje	6.64	2.20	4.73	1.12	.06	1.06	2.89	.90
	Balaka	6.93	2.24	4.87	2.59	.19	2.21	3.44	1.48
	Mangochi	6.91	2.18	5.01	1.15	.18	2.40	4.07	2.51
	Chikwawa	6.70	2.00	5.02	1.69	.12	1.07	3.53	1.05
	Mwanza	6.83	2.80	5.14	1.80	.04	1.63	3.08	1.56
	Neno	6.88	2.48	5.17	1.80	.30	1.78	3.71	1.91
	Blantyre	6.66	2.49	4.44	.88	.03	1.19	2.76	1.00
	Phalombe	6.63	2.49	4.88	.29	.03	1.59	2.37	1.36
	Mulanje	6.80	2.09	5.40	.39	.11	1.99	2.85	1.47
	Thyolo	6.89	2.03	5.64	.68	.28	1.90	2.90	1.90
	Chiradzulu	6.96	2.60	4.90	.61	.23	2.19	3.10	1.80
	Zomba	6.68	2.79	5.19	.66	.06	1.77	2.54	1.50
	Machinga	6.92	2.51	5.30	1.47	.09	1.69	3.44	1.61
	Total	6.81	2.37	5.08	1.14	.13	1.75	3.14	1.57

As noted earlier, dietary improvement has been limited compared to the previous year (2017). The prevalence of poor food consumption increased from 7% to 10%, borderline food consumption increased from38% in 2017 to 44% in 2018. A comparison of the average days of consumption of each food group in a week is shown below in **Figure 8**. There is no significant change on consumption of staples and vegetables. Fruit consumption averages at 1.09 days per week. Meat consumption, which includes fish, eggs, and all other animal-based proteins, decreased from 2.2 days to 1.9 days per week. Oil, which is often consumed more frequently in urban areas, remained at 3.1 days in consumption per week. Sugar consumption decreased from 2.1 days to 1.88 days per week. Dairy consumption remains extremely low consumed just 0.24 days per week on average.

Figure 8: Average days of consumption of food groups per week in 2009, 2017 and 2018



5. Economic vulnerability

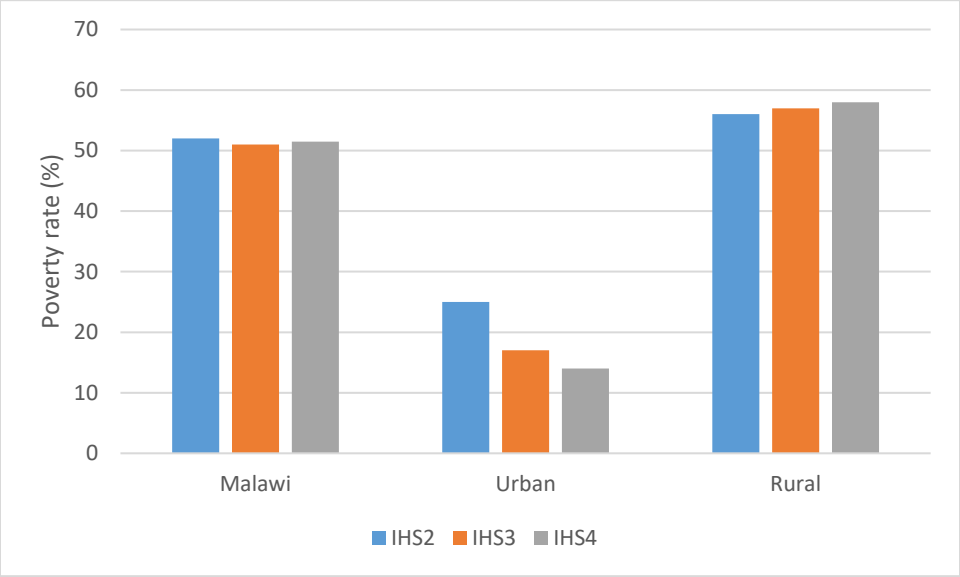
Malawi's economic development has been constrained by macroeconomic instability, poor infrastructure, high population growth, and poor health and education outcomes that limit productivity, and chronic levels of poverty. The economy is predominately agricultural which accounts for about one-third of GDP and 80% of export revenues. Heavy dependence on rain-fed agriculture, with Maize being the staple crop, Malawi's economy was hit hard by the El Nino-driven drought in 2015 and 2016, and now faces threat from the fall armyworm and occurrence of another El Nino in the 2018/19 agriculture season as projected by the World Meteorological Organization. Drought conditions also slowed economic activity, led to two consecutive years of declining economic growth.

Economic vulnerability in the context of food security refers to the capacity of a household to respond to risks which may jeopardize their access to food. The preferred measure is the poverty line, with the most vulnerable households being those who are severely poor often described as below the food poverty line. In Malawi, the Integrated Household Survey (IHS), which is implemented by the National Statistics Office with the World Bank, provides official poverty figures periodically.

The IHS4, which data was collected in 2016-2017, is the most recent publication providing official poverty statistics. Per the IHS4, 51.5% of the population lives below the national poverty line. This is a slight increase (by about 1%) from the IHS3, which covers 2010-2011. Poverty is particularly high in rural areas.

In 2016-2017, 58% of rural Malawians lived below the poverty line, a small increase from 57% in 2010-2011. Urban poverty on the other hand has improved, from 17% in 2010-2011 to 14% in 2016-2017.

Figure 9: Percent of population living below the national poverty line



The IHS also provides estimates of the ultra-poor, defined as those consuming less than the minimum cost of a food basket. In 2016-2017, an estimated 20% of Malawians were classified as ultra-poor, up from 25% in 2010-2011.

While the IHS4 captures comprehensive consumption and expenditure data from households to estimate poverty status, it is a time-consuming and infrequent survey with high costs. In the absence of a household classification of poverty status, a count of asset ownership was used in this study as a proxy for economic vulnerability. Households who are asset poor are likely to live well below the poverty line and unable to invest in necessities. If these households face a significant shock, they are likely to face greater hardships than others with a greater consequence on their food security status and are highly vulnerable to any economic shock to the household.

In this survey, asset ownership was counted based upon the number of household items owned and the presence of improved housing conditions. Housing conditions include:

- Construction material of household is permanent – bricks, iron sheet, cement
- Modern cooking fuel source – electricity, gas, or solar
- Improved source of drinking water
- Improved sanitation facilities[5]

Once a sum of assets and presence of housing conditions was calculated, thresholds were determined to classify households into one of four groups. The lowest threshold of owning less than three assets was determined based on a correlation with the percent of households living in extreme poverty. Nationally, 31% of rural households in Malawi owned less than three assets. Similarly, 20% or rural Malawians were

[5] See **Table 17** on page 52 for more details

classified as ultra-poor in the IHS4. The next threshold of owning three assets corresponds to the percent of households that were considered poor in the IHS4. Per the IHS4, 51.5% of Malawians are poor. In this survey, 53% of rural Malawians own three or less assets.

Table 3: Economic vulnerability and asset ownership

Economic vulnerability	Asset ownership	Percent of households in this category	Typical assets owned
Very high	Less than 3	31%	• Access to improved drinking water • Agricultural tools
High	3 assets	22%	• Access to improved drinking water • Agricultural tools • Either radio, mobile phone, bicycle or furniture
Medium	4-5 assets	30%	• Access to improved drinking water • Agricultural tools • Mobile phone • Bicycle • Either radio or furniture
Low	6 or more	17%	• Access to improved drinking water • Agricultural tools • Mobile phone • Bicycle • Radio • Furniture • Improved housing construction

Nationally, 31% of rural households are very highly economically vulnerable to food insecurity. These households have very limited resources and if faced with a significant shock will have extremely limited capacity to cope with the crisis. The highest concentration of very high economic vulnerability is in the Central region with 48% of households in Dedza in the severe classification, 41% in Lilongwe, and 40% in Ntcheu. In the Southern region, Blantyre district also has a high percent of households with very high economic vulnerability at 44%.

6. Coping with limited food access

Access to food is a major pillar of food security. However, lack of means to access may be caused by multiple factors, including reduced economic means to purchase food due to lower income and/or an increase in the cost of food. In the Malawi context, food accessibility is also determined by overall production which reduces availability of food commodities on the market, thereby determining the price at which this food is sold.

In response to reduced food access, households engage in multiple ways with some utilizing severe strategies that affect their well-being while others engage in strategies that reduce future coping capacity. To understand coping capacity in relation to food security during the survey, households were asked if they engaged in any set of strategies laid out to them. Each of these strategies is from a standard list with those most relevant to the Malawi context selected for this survey. Each strategy has a severity associated with it: stress, crisis, or emergency.

Distress strategies, such as borrowing money or spending savings, are those which indicate a reduced ability to deal with future shocks due to a current reduction in resources or increase in debts. Crisis strategies, such as selling productive assets, directly reduce future productivity, including human capital formation. On the other hand, emergency strategies such as selling one's land, affect future productivity and are more difficult to reverse. If a household engaged in any of these behaviors, the most severe strategy was used to classify the coping capacity of the household. See page in the annex for more details on this methodology.

A primary usage of the livelihood coping module is to construct a portion of the coping capacity dimension of the household food security index. Each of the potential responses is classified in terms of its severity, ranging from stress, to crisis, and emergency levels. The table below lists the severity of each behavior.

Table 4: Categorization of severity of livelihood / asset depletion coping strategies

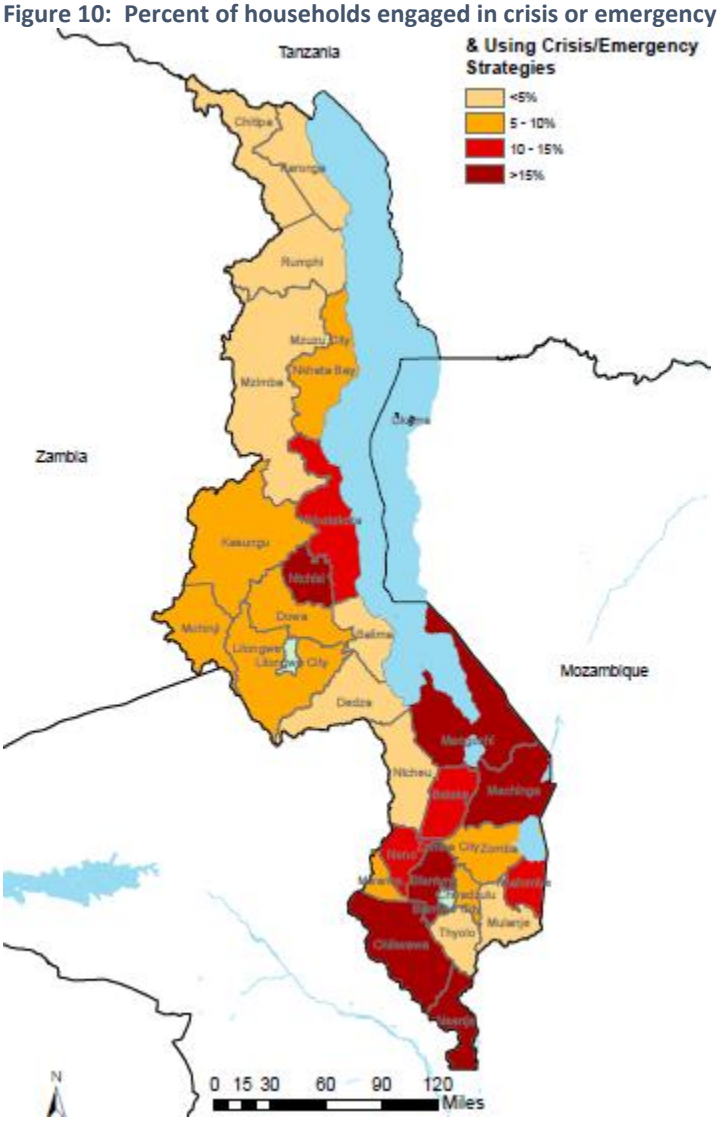
Category	Coping strategy
Stress	Sold more animals (non-productive) than usual
Stress	Sold household assets/goods (radio, furniture, refrigerator, television, jewelry etc.)
Stress	Spent savings
Stress	Borrowed money or food from a formal lender
Crisis	Sold productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, etc.)
Crisis	Reduced essential non-food expenses on health (including drugs) and education
Crisis	Withdrew children from school
Emergency	Sold house or land
Emergency	Engaged in illegal activities (theft, prostitution, etc.)

For each of these potential coping strategies, households were asked if they engaged in a specific behavior in the last 30 days due to a lack of access to food. If a household said no, they were asked to clarify if they did not because they did not have to or if they did not in the past 30 days because they already had and cannot continue to use this strategy. The latter response was considered equivalent to a 'yes' response during the analysis.

Each household was assigned a coping score from one to four. A value of one means that the household did not engage in any of these behaviors; two means that the household's most severe coping strategy is a stress-level strategy; three means that the most severe strategy is a crisis-level strategy; and four means that the household engaged in one or more emergency-level strategies.

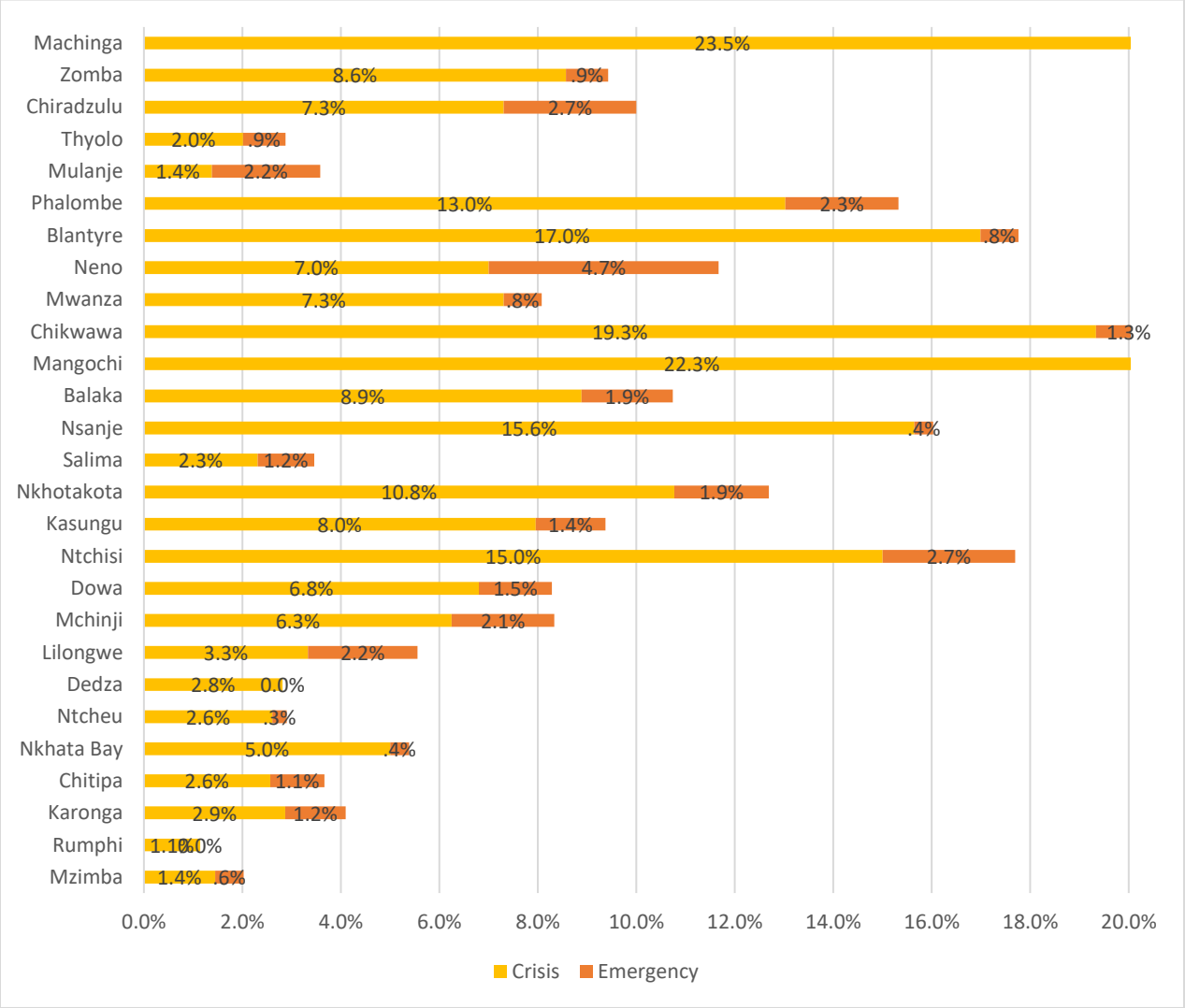
Figure 10 illustrates districts with a higher percent of households engaged in crisis or emergency (a value of three or four) behaviors. There are a few districts, especially in the southern region of Malawi that engage in emergency and crisis coping strategies with more than 15% of the households, notably Machinga, Mangochi, Chikwawa, Blantyre and Nsanje; one district in the central region Ntchisi and no district in the northern region of Malawi. Mchinji, Balaka and Neno districts have populations of less than 15% engaging in crisis and emergency coping strategies, an improvement from results of the 2017 survey.

Figure 10: Percent of households engaged in crisis or emergency coping strategies by district



Overall, emergency coping strategies are uncommon with just 1.4% of rural households employing a severe response to limited food access in the 30 days preceding the survey, similar to results obtained in 2017. Crisis strategies are used by 8.2% similar to 2017, stress strategies by 24.3%, a slight increase from the 20% found in the 2017 survey, while 66.2% of Malawian households did not have to utilize any of these strategies.

Figure 11: Percent of households engaged in crisis or emergency coping strategies by district



In addition to using livelihood coping and asset depletion behaviors to understand how households respond to food insecurity in terms of using assets and livelihood capabilities, changes in diet is also utilized. This is done using a standard indicator measuring dietary responses to acute food insecurity is the Coping Strategies Index (CSI). Households are asked if they engaged in any five standardized strategies as a response to limited food access in the seven days preceding the survey. In addition, households are asked on how many days in the past week they employed each strategy. Each strategy has an associated weight which corresponds to its severity (with higher weights being more severe).

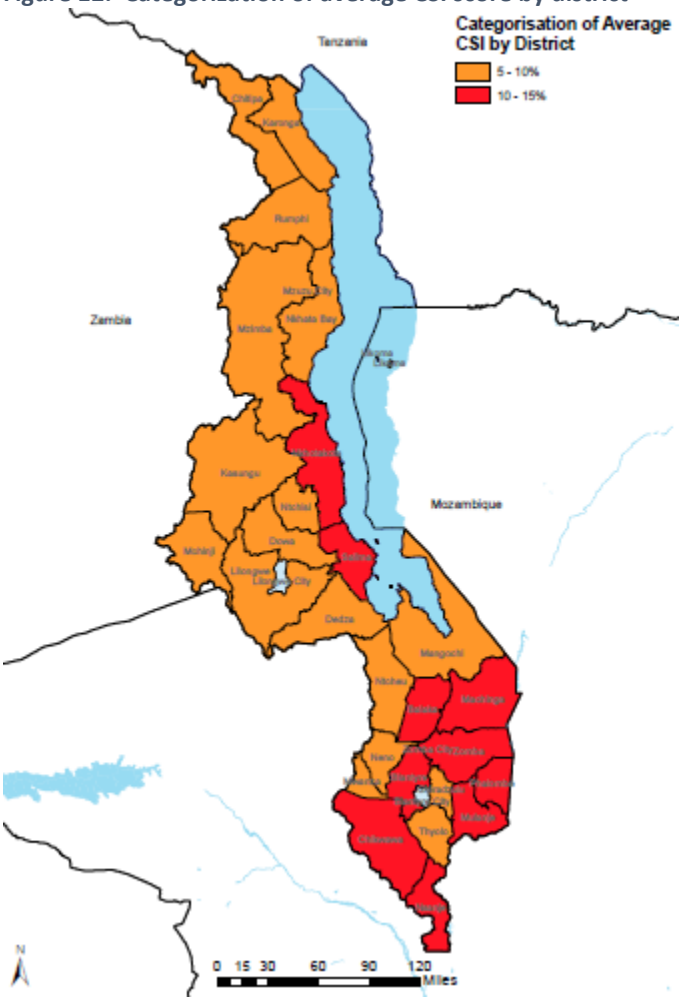
The five standard coping strategies and their severity weightings are:

- Eating less-preferred foods (1.0),
- Borrowing food/money from friends and relatives (2.0),
- Limiting portions at mealtime (1.0),
- Limiting adult intake (3.0), and
- Reducing the number of meals per day (1.0).

The combination of frequency and severity of each strategy is summed across all five responses to calculate the CSI. The higher the CSI, the more stressed a household is. CSI is not used as a component of the overall food security index calculation. However, households with a high CSI are very likely to also have poor food consumption as a result of the coping behaviors used.

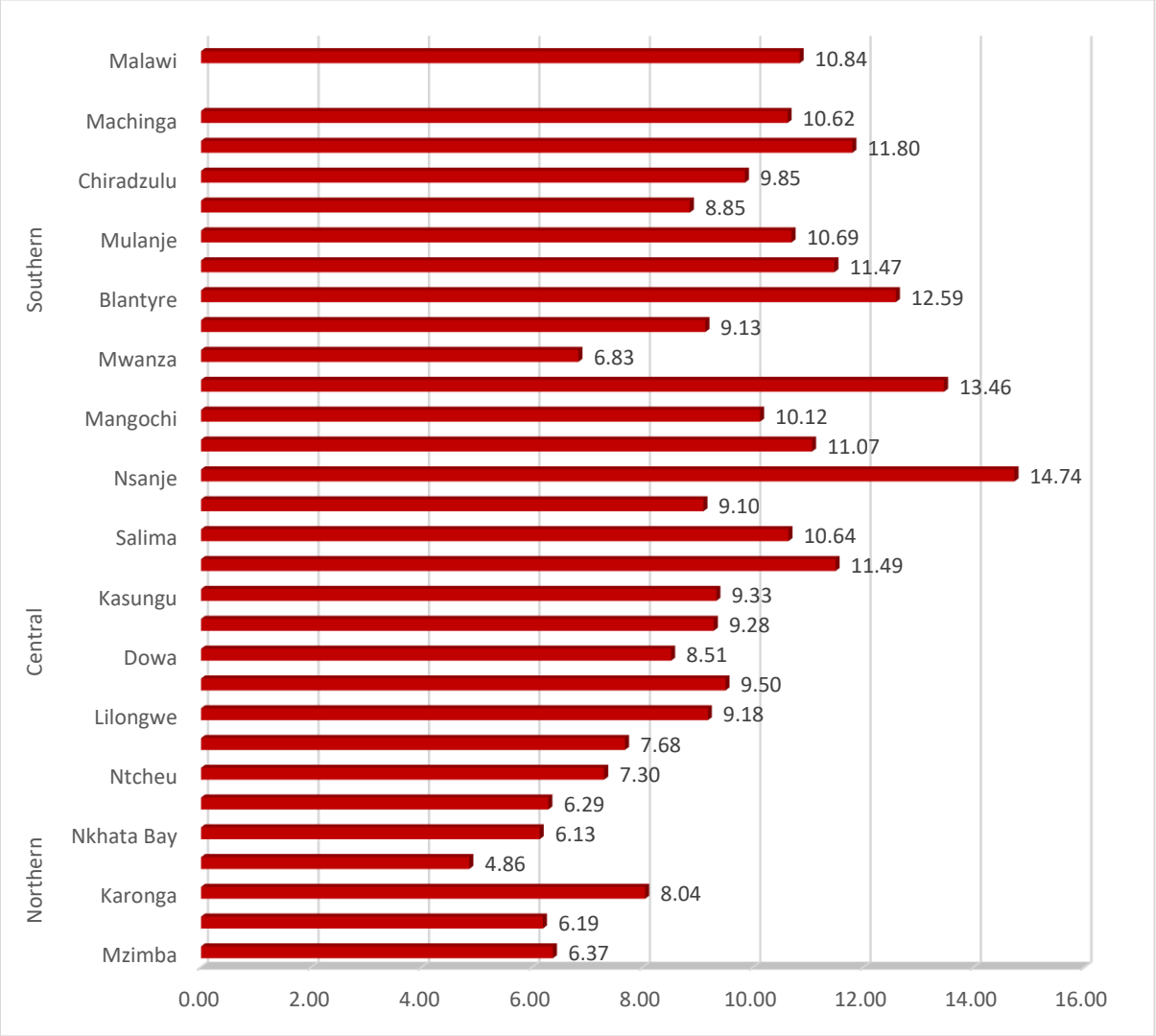
While there are no standard thresholds for categorizing CSI scores, it is useful to categorize and visualize the average score by district to depict areas which are facing limited food access. Figure 3 illustrates the average (mean) CSI score for each district by category. Nsanje district in the southern region of Malawi remained a district with the highest score of 14.7, similar to what it was in 2017 at 15.

Figure 12: Categorization of average CSI score by district



The average CSI score for each district is listed in most districts in the Southern region have the highest level of negative coping with a high of 14.7 in Nsanje, followed by 13.5 in Chikwawa and Blantyre 12.6. Nkhotakota in the central region was also among the ones with over 10. Nsanje and Chiwawa also topped the list last year in the same order. On the other hand, the lowest scores were observed in the northern region districts of Chitipa (4.9) and Nkhata Bay (6.13)., a shift from the results of 2017 where it was central region districts that had the lowest scores of 3.6 in Ntcheu, 4.5 in Kasungu, and 5.4 in Dedza.

Figure 13: Average CSI score by district



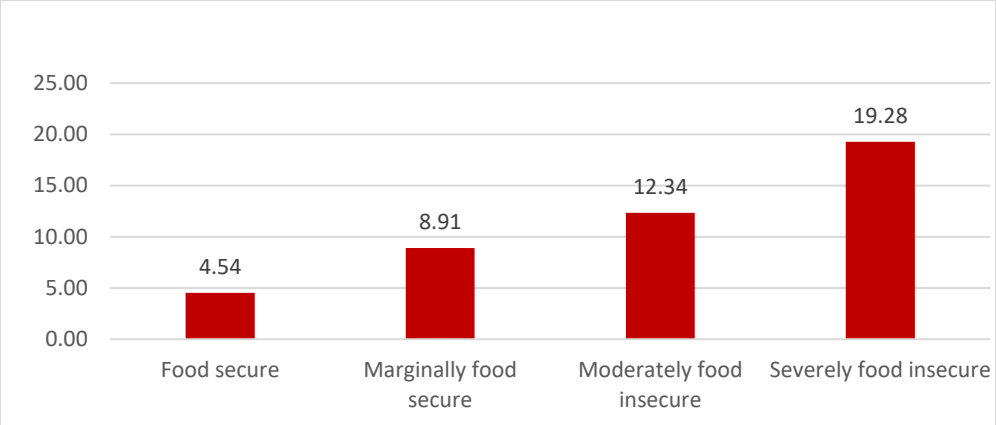
In terms of gender dynamics, there were more male headed households (42%) that had a small scale of coping of less than 5% compared to female headed household (30%). On the other hand, there are slightly more female headed households at 29.4% with a high coping strategy score of more than 15% compared to 20.4% for male headed households as shown in Fig 5

Table 5: CSI by gender

CSI By Sex					
Sex of HH Head	less than 5	5 to 10	10 to 15	more than 15	Total
Male	42.0%	23.1%	14.5%	20.4%	100%
Female	30.3%	22.6%	17.7%	29.4%	100%
Total	38.7%	23.0%	15.4%	22.9%	100%

There is some correlation between food insecurity and CSI. From the results of the survey, food insecure households have a higher CSI score with the severely food insecure engaging frequently in severe strategies as seen in Figure 14. Severely food insecure households on average have a CSI score of 19.3, a slight increase from the 2017 survey of 18.5; the food secure households compared to 11.9 in the moderately food insecure group – a 56% increase.

Figure 14: Average CSI score by food security classification



7. Livelihoods and food security

Livelihoods are a primary driver of household food security outcomes in Malawi. Main income source is one of the livelihood activities used to analyse food security from a livelihoods perspective. As such, during the survey, each household was asked about their main sources of income from a list of several income generating activities common throughout Malawi. The primary income generating activity is used as a means to describe household livelihoods.

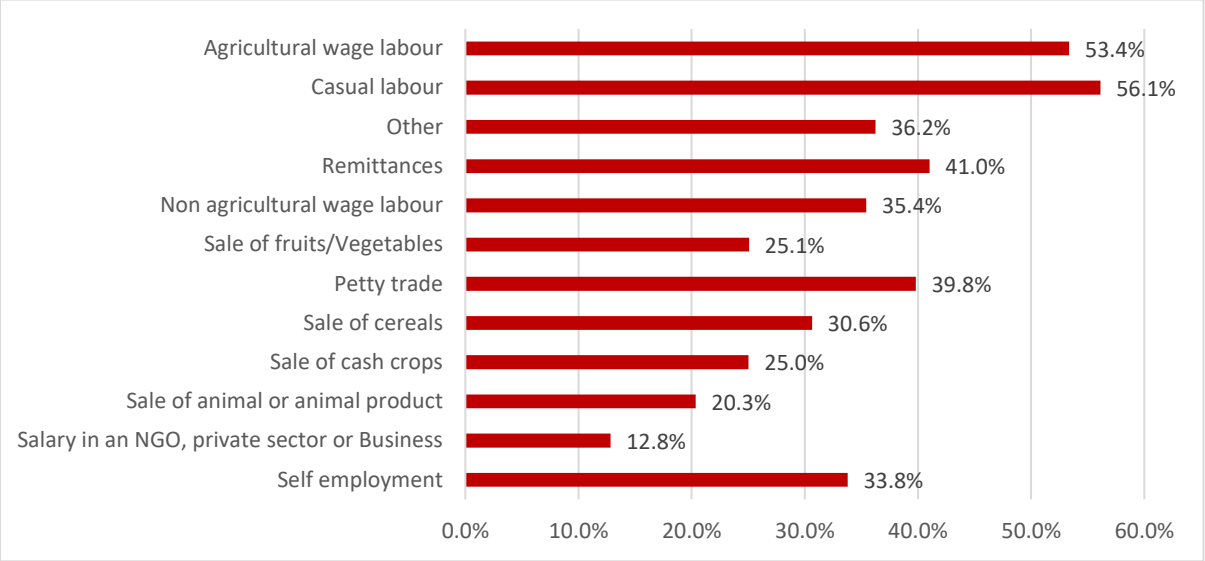
Unlike 2017, casual labour seems to dominate the categories as the most common source of income, at 30% followed by crop sales (cereals, fruit and vegetables, and cash crops accounting for 25% of households. Petty trade stands at 13%. Within districts, again casual labour seems to be the most common income source with some districts such as Blantyre, Nsanje, Machinga and Chikwawa having as many as 58%, 50%, 46% and 43% of the households relying on casual labour in that order. This is even though Malawi is an agro based economy. The districts with the highest percentage of households relying on crops were found in the northern region of the country with Rumphi Chitipa and Karonga having almost half of their income from crop sales, 49% for Rumphi, 48% for Chitipa and 47% for Karonga.

Table 6: Percent of households engaged in main income activities by district

Region	District	Sale of Crops	Sale of veg or fruits	Sale of cash crops	Sale of Livestock	Ag. Labour	Non-ag labour	Self-employment	Government employee	Non Govt Employee	Caual Work	Sale of handicrafts	Petty trade	Other
	Mzimba	15.9%	4.6%	14.7%	3.2%	7.2%	2.3%	6.4%	.9%	.9%	16.2%	1.4%	11.6%	14.7%
	Rumphi	13.3%	2.7%	33.1%	.4%	6.8%	1.1%	3.8%	2.3%	1.1%	11.8%	2.7%	9.9%	11.0%
	Karonga	37.3%	.8%	9.0%	3.7%	1.2%	.4%	6.6%	2.5%	.4%	15.6%	.8%	14.3%	7.4%
	Chitipa	26.0%	6.2%	15.0%	6.2%	1.5%	.4%	6.2%	1.8%	.7%	11.4%	.4%	11.0%	13.2%
Northern	Nkhata Bay	16.2%	7.3%	2.3%	5.4%	3.1%	3.5%	5.0%	3.1%	5.8%	16.9%	1.9%	20.0%	9.6%
	Ntcheu	6.1%	5.2%	14.5%	2.6%	7.5%	3.2%	6.1%	.3%	.6%	32.5%	.6%	13.6%	7.2%
	Dedza	5.4%	4.8%	16.1%	.6%	3.7%	2.3%	9.6%	.3%	.3%	33.5%	2.5%	13.5%	7.6%
	Lilongwe	7.6%	6.7%	12.2%	2.4%	8.7%	2.9%	11.1%	.4%	.4%	36.2%	.4%	5.1%	5.8%
	Mchinji	14.9%	4.2%	20.5%	.6%	16.1%	4.2%	4.2%	0.0%	0.0%	22.6%	0.0%	8.6%	4.2%
	Dowa	6.8%	3.0%	33.4%	3.3%	8.9%	4.4%	.9%	.3%	0.0%	21.9%	1.2%	11.2%	4.7%
	Ntchisi	9.2%	1.2%	19.6%	.8%	8.8%	2.3%	8.1%	1.2%	0.0%	32.3%	1.5%	11.2%	3.8%
	Kasungu	14.2%	2.3%	14.8%	1.1%	8.8%	2.3%	10.2%	.9%	0.0%	25.0%	.6%	11.6%	8.2%
	Nkhotakota	16.5%	.4%	1.9%	1.5%	10.0%	2.3%	13.5%	1.2%	0.0%	25.0%	0.0%	20.4%	7.3%
Central	Salima	8.1%	.8%	6.9%	3.1%	5.4%	.4%	18.1%	.4%	0.0%	31.2%	1.9%	16.2%	7.7%
	Nsanje	5.7%	2.7%	2.7%	.8%	6.5%	1.5%	6.5%	1.1%	.8%	50.4%	2.7%	13.0%	5.7%
	Balaka	18.9%	1.9%	4.1%	1.9%	2.6%	2.2%	8.5%	.7%	.4%	36.3%	.7%	12.2%	9.6%
	Mangochi	1.4%	2.8%	2.3%	2.5%	3.7%	3.4%	7.0%	.6%	1.1%	38.0%	2.8%	19.4%	14.9%
	Chikwawa	7.0%	3.0%	8.3%	3.7%	3.7%	1.7%	6.0%	1.0%	.3%	43.3%	1.3%	14.0%	6.7%
	Mwanza	10.0%	7.3%	10.8%	1.2%	9.2%	1.2%	7.3%	1.9%	1.5%	30.0%	1.5%	8.8%	9.2%
	Neno	6.6%	9.7%	1.6%	3.5%	2.3%	1.9%	8.2%	1.6%	0.0%	35.4%	.8%	16.0%	12.5%
	Blantyre	.8%	.4%	.8%	1.9%	1.5%	1.5%	7.3%	.4%	.4%	58.3%	1.5%	17.4%	7.7%
	Phalombe	22.2%	1.9%	2.3%	.8%	10.0%	1.1%	8.4%	.4%	.8%	34.1%	.4%	12.3%	5.4%
	Mulanje	4.7%	3.9%	4.1%	1.1%	17.1%	5.8%	9.1%	1.1%	3.0%	32.0%	.6%	9.9%	7.7%
	Thyolo	4.6%	8.6%	4.3%	2.0%	15.8%	4.6%	7.8%	.3%	3.4%	24.4%	0.0%	16.1%	8.0%
	Chiradzulu	5.4%	9.2%	3.1%	2.3%	5.0%	3.1%	8.1%	3.8%	2.3%	30.0%	1.2%	13.1%	13.5%
	Zomba	23.7%	6.6%	2.6%	.9%	6.9%	1.4%	9.7%	1.1%	2.3%	27.4%	1.1%	10.0%	6.3%
Southern	Machinga	6.6%	3.2%	4.6%	.3%	5.2%	2.9%	9.5%	.6%	1.1%	45.6%	1.1%	11.5%	8.0%
Malawi		**11.7%**	**4.1%**	**9.8%**	**2.1%**	**6.9%**	**2.4%**	**7.9%**	**1.1%**	**1.0%**	**30.3%**	**1.2%**	**13.0%**	**8.4%**

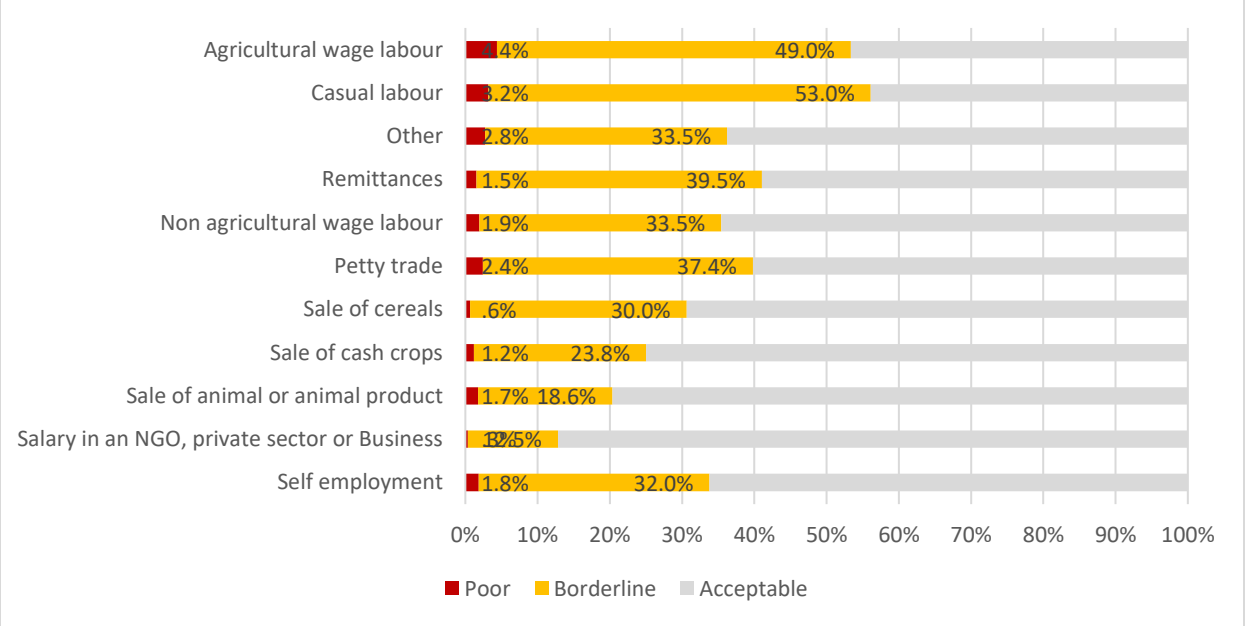
Household food insecurity (severe and moderate combined) was analyzed across various livelihoods with a large range of prevalence between these income sources. Those deemed the most food insecure livelihood are among those that rely on casual labour at 56.1%, followed by agricultural wage labour at 53.4%. This is typical for most households in the rural areas, especially among the poor households which make up about 50 percent of the population according to the National Statistical Office data on poverty. Unfortunately, these activities are sporadic, very informal, depend on seasonal patterns and are therefore unsustainable. As such, households depending on these income sources are most likely engaged in multiple income generation activities to supplement their income source. However, despite these unsustainable multiple incomes sources, the households are much more likely to be food insecure than other livelihoods such as sale of crops or livestock which are much lower and therefore classified as food insecure.

Figure 15: Percent of food insecure households (severe and moderate) by primary income source



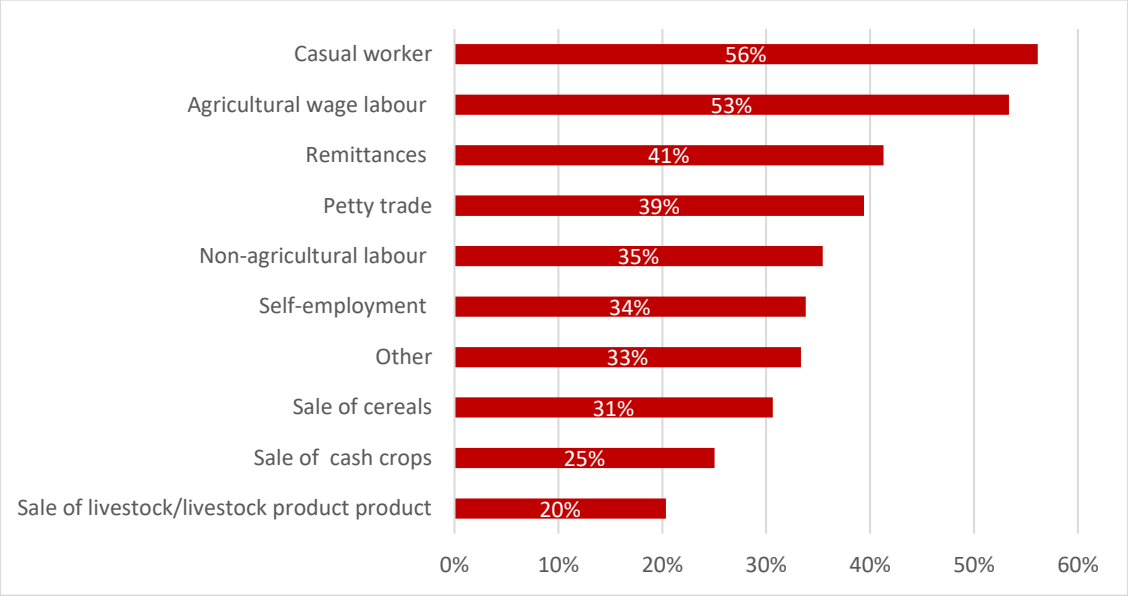
The same general relationship was found across multiple food security indicators. Poor food consumption is prevalent among those that rely on agricultural wage labour (4.4%) and casual labour (3.2%) compared to those who rely on sale of crops and livestock. However, the percentages are not as significant as those of last year when those with poor food consumption were as high as 14% in the agriculture labour category and 11% for those relying on remittances. The drop could be attributed to a season that preceded a better season in 2017. Most households had food from own consumption and prices of food commodities were stable.

Figure 16: Percent of households with less than acceptable food consumption (poor and moderate) by primary income source



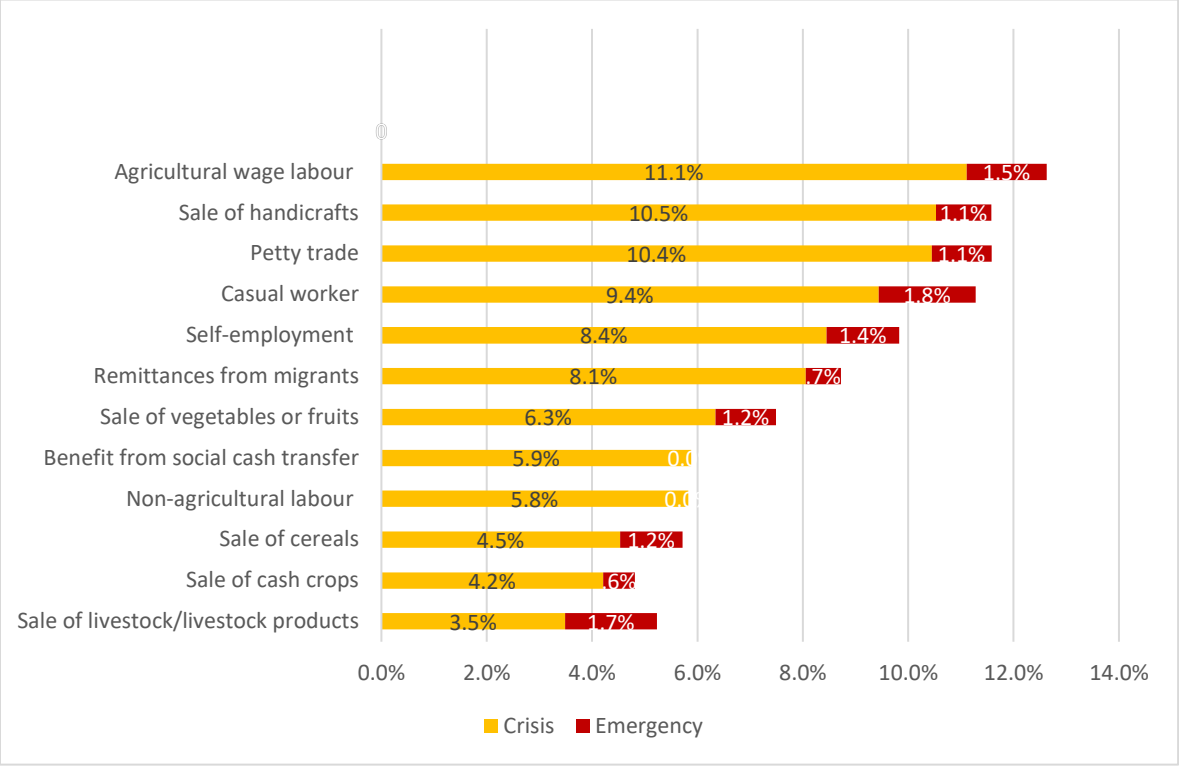
Economic vulnerability measured through asset ownership was also measured and followed a similar pattern. Among those that rely on casual labour, 56% are in the most vulnerable group followed by53% of those relying on agricultural wage labour. Although the pattern is similar to that of 2017, the percentages in the categories have increased a bit from 45% and 41% respectively in the two categories. However, as pointed out in the previous paragraphs, this is the case because these categories are not reliable and do not really fetch a lot of money.

Figure 17: Percent of households that are very asset poor by primary income source



In terms of coping behaviours, there were more people in crisis and emergency livelihood coping behaviors among those relying on agricultural wage labour, sale of handicrafts, petty trade and casual work with over 10% of the population in those categories. On the other hand, those relying on sale of cash crops and livestock were better off. Notably, emergency behaviors were almost nonexistent for those benefiting from social cash transfers and those relying on non-agriculture labour.

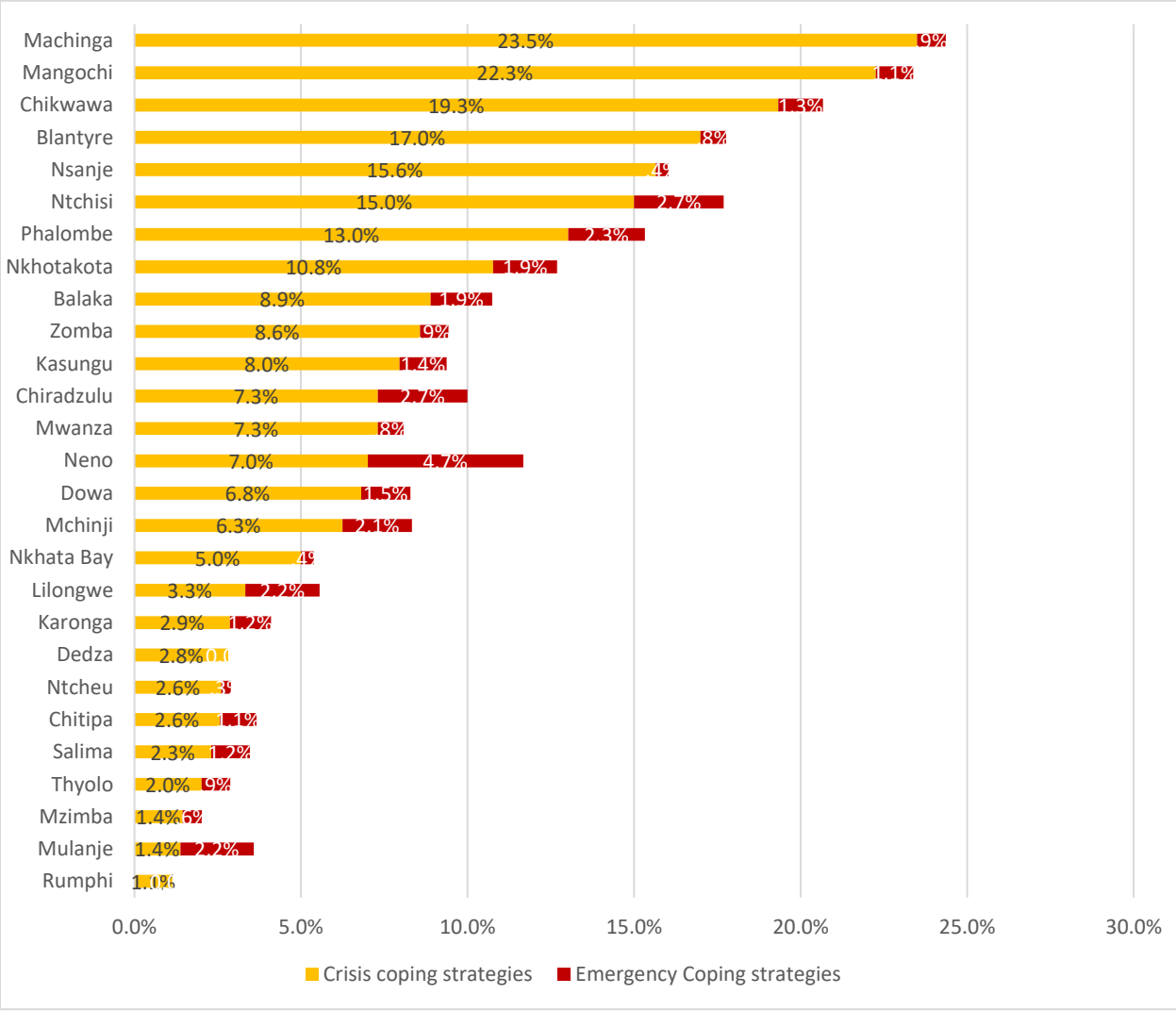
Figure 18: Percent of households engaged in crisis and emergency coping behaviors by primary income source



At district level, it was mostly those in the southern region that had 15% or more of the population in the crisis category compared to the districts in the north as shown in fig 10. Neno district in the southern region has the

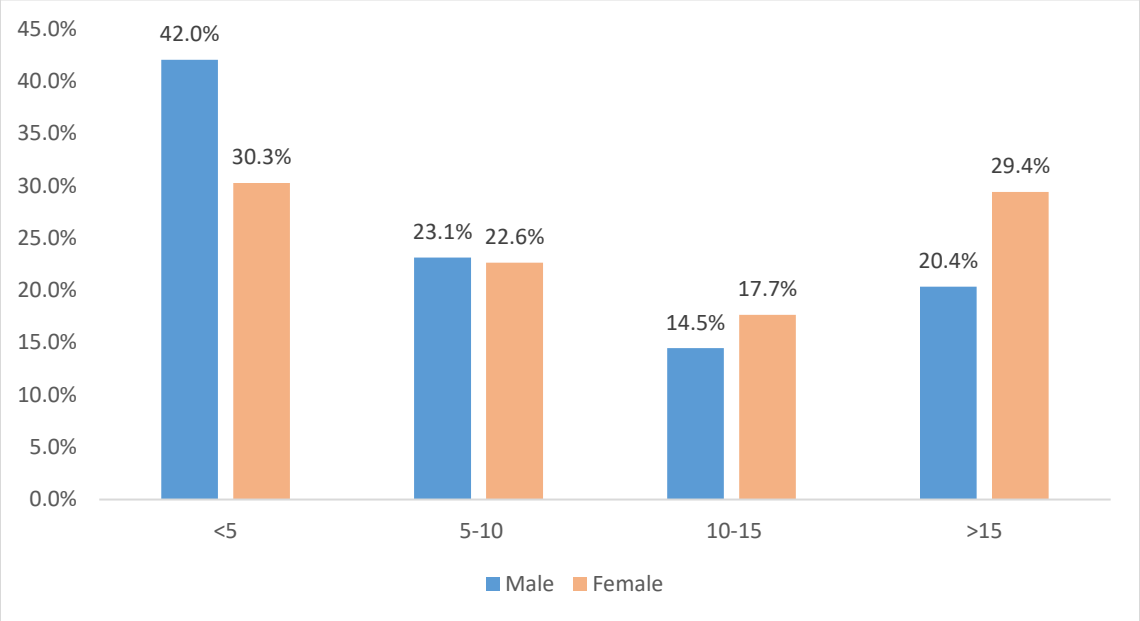
highest of the population in the emergency coping strategy category (5%) compared to any other while Dedza and Rumphi districts have zero population in that category.

Figure 19: Percent of households engaged in crisis and emergency coping behaviors by District



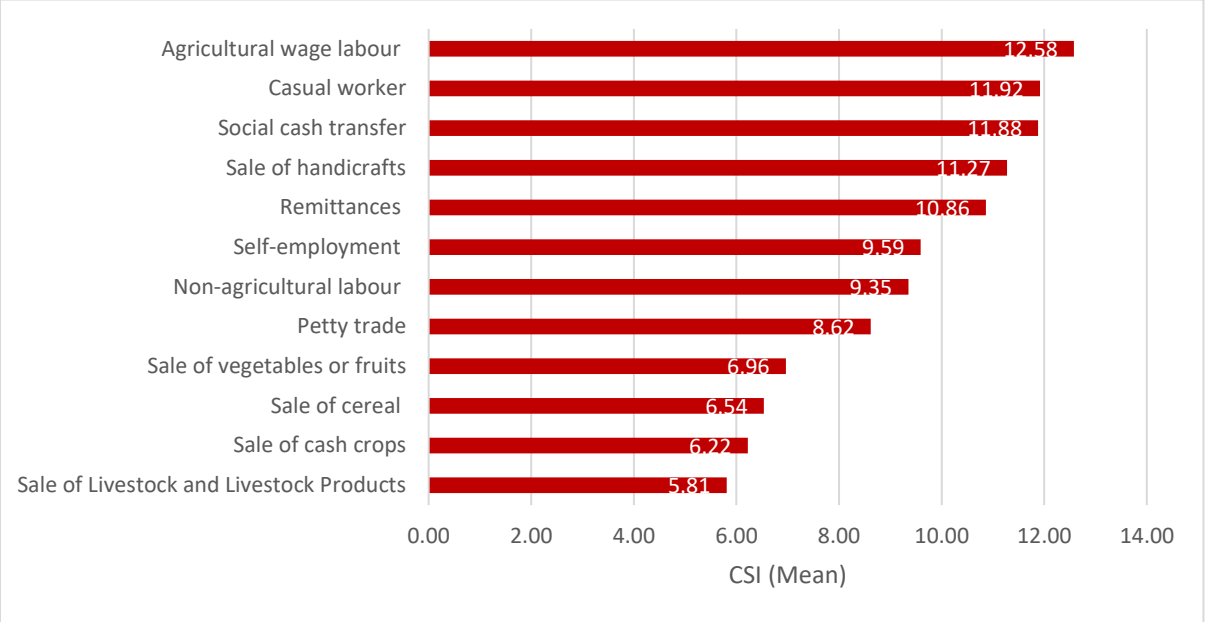
The Coping Strategy categories graph shows there are more men than women that are employing less than five categories of coping strategies. C Indeed, these figures are 42% for men and 30% for women. On the other hand, more women (29%) than men (20%) were employing more than 15 coping strategy categories. This shows female headed households are more vulnerable than their male counterparts.

Figure 20: Percent of Households employing various coping strategies by gender



As seen in Figure 21, the highest CSI was also among agricultural wage laborer (12.58), followed by casual laborer (11.92), similar to results of 2017. These households utilized a more severe and more frequent food related coping behaviors such has reducing meal sizes, skipping meals, or eating less preferred foods. The lowest CSI scores were found among households who primarily sold cash crops and livestock. This pattern has been followed for most indicators, the most vulnerable being those who rely on agricultural or casual labour, while those who rely on sale of crops and livestock are deemed better off and have fewer coping strategies.

Figure 21: Average CSI score by primary income source

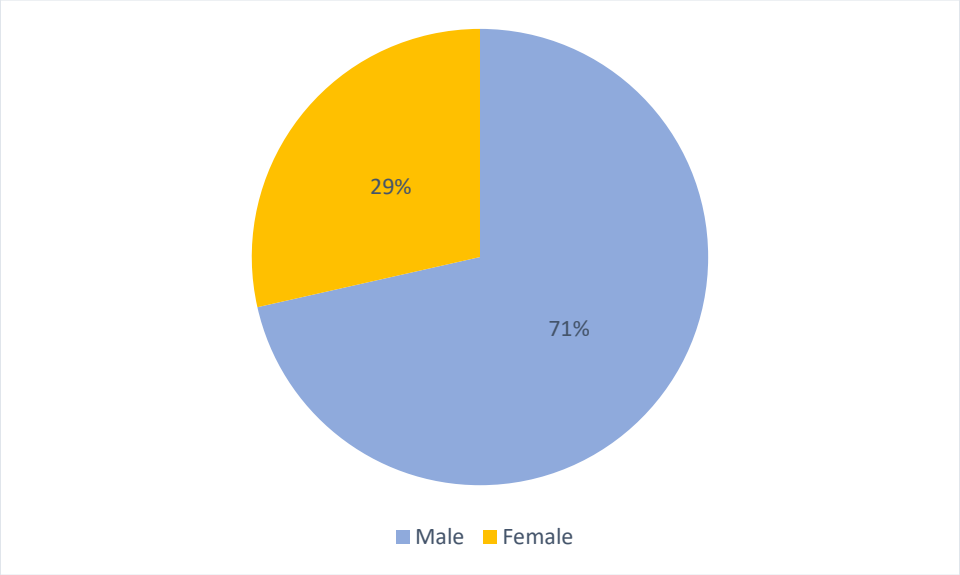


8. Demographics and food security

During the survey, several questions were asked about the demographic composition of the household. These range from gender, to education, and marital status of each member. The characteristics of the head of the household, noted as the primary decision maker in economic matters of the household, are used in this section to compare food security outcomes from a gender, education, dependency, and marital status perspective.

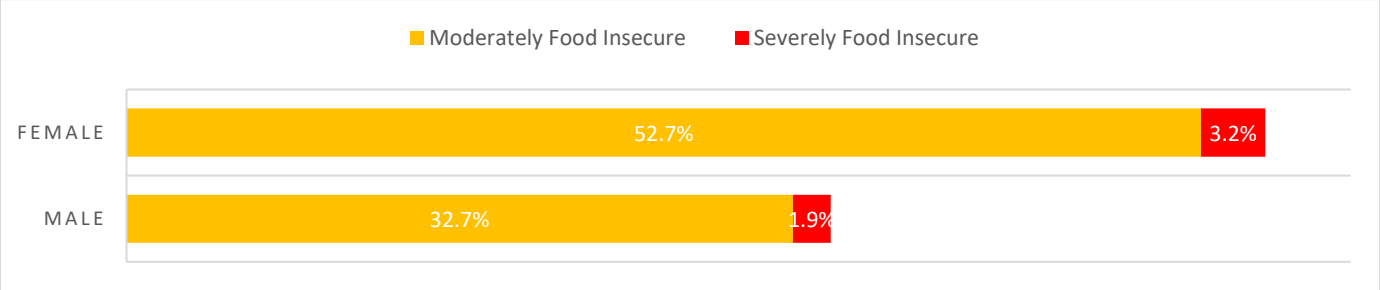
Nationally, 29% of rural households are headed by women. Female-headed households were most common in the Southern region, specifically Thyolo and Blantyre districts at 39%, and 37%, followed by Balaka and Machinga at 29% each.

Figure 22: Percent of male vs female headed households



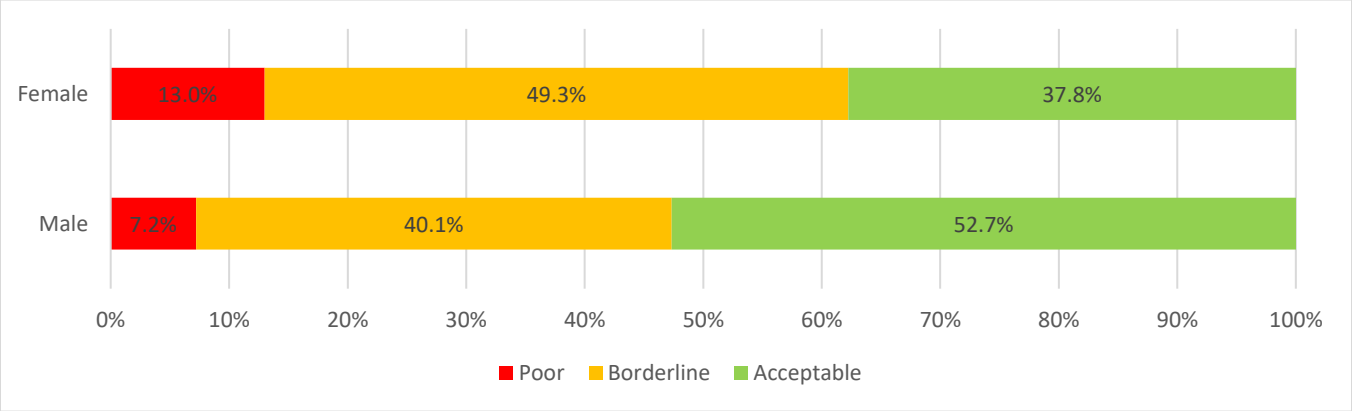
As seen in **Figure 23** below, female-headed households are much more likely to be food insecure than their male counterparts. On average, 52.7% of female-headed households are moderately food insecure compared to 32.7% of male-headed households, while 3.2% of female-headed households are severely food insecure, compared to 1.9% of male-headed households.

Figure 23: Food insecurity by gender of household head



This gender gap is seen through each food insecurity indicator analyzed in this study. Female-headed households have less quality diets than male-headed households. Thirteen percent of female headed households have a poor food consumption score and 49% have a borderline score compared to 7% and 40% in male-headed households.

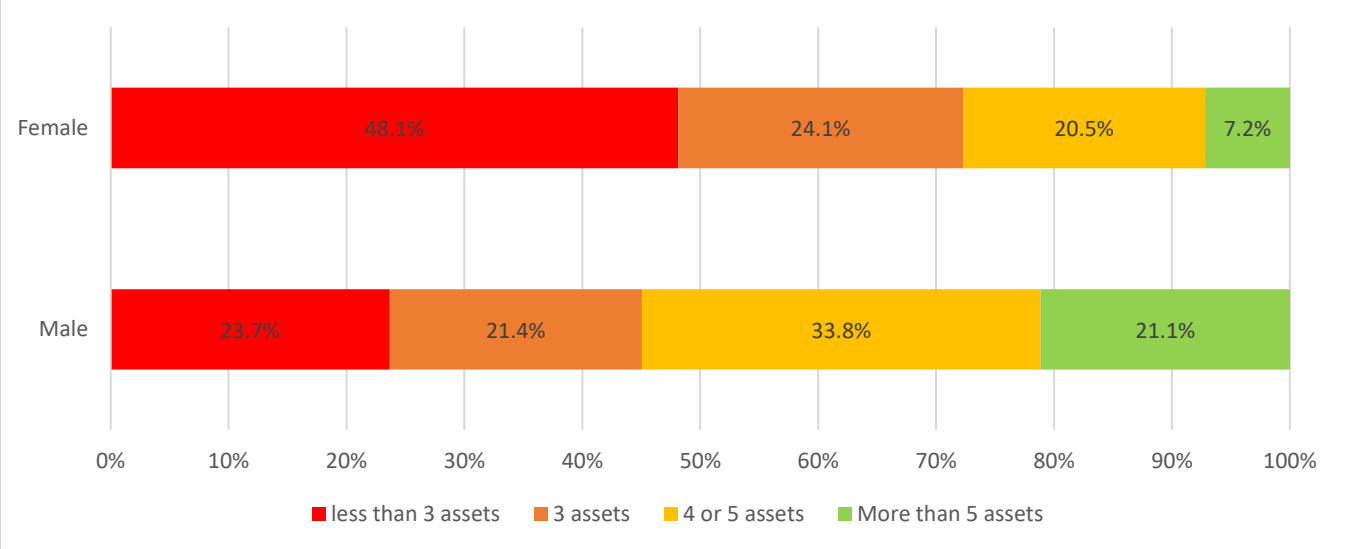
Figure 24: Food consumption by gender of household head



In addition to providing poverty statistics by geographic area, the IHS also examines poverty statistics by the gender of the household head. According to the HIS IV dataset of 2016, 71% of the population living in female-headed households were considered as not being able to fulfill their food needs compared to 61% of the population living in male-headed households.

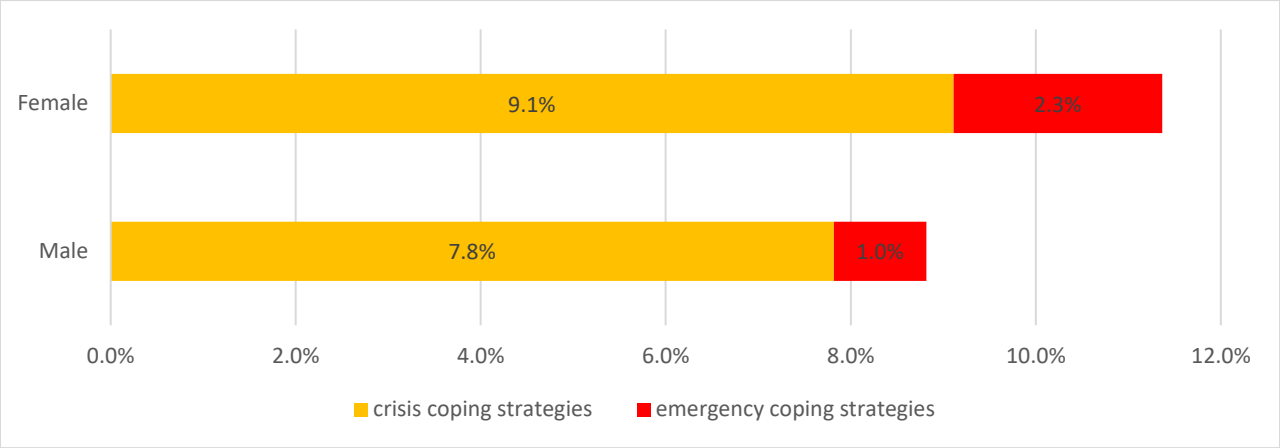
Female headed households have a lower coping capacity than their male counterparts. Nearly half of households led by a woman are asset poor, owning less than three of the assets, used to describe economic vulnerability compared to less than 25% of male headed households.

Figure 25: Percent of households' assets by gender of household head



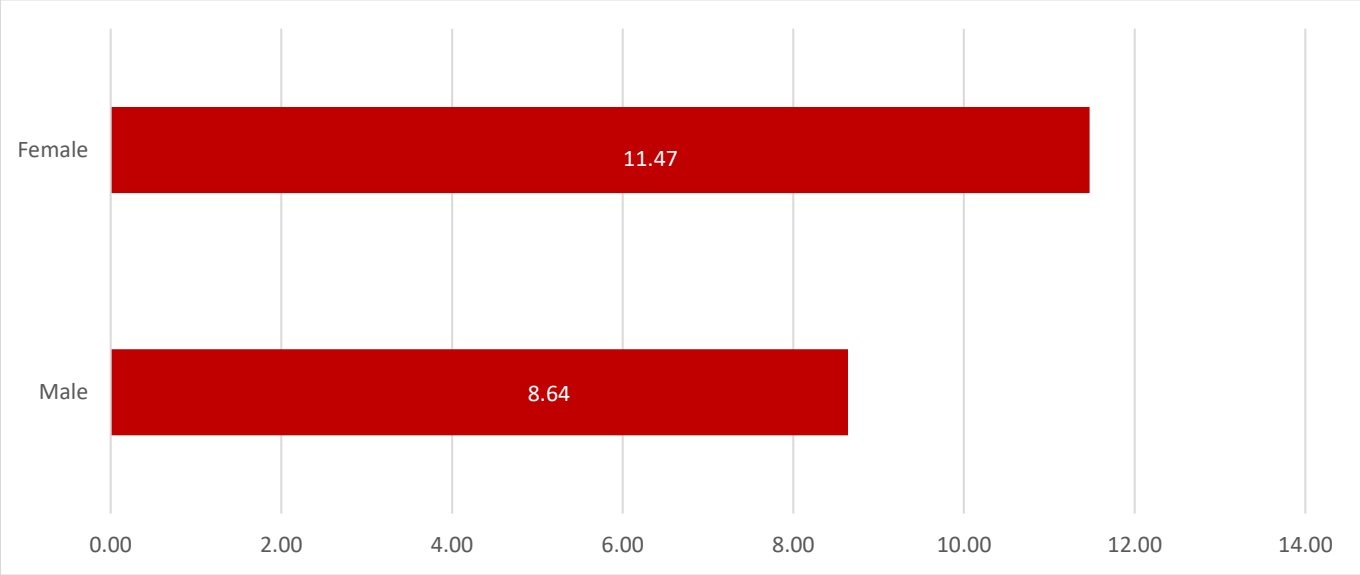
Though the prevalence rates are not high, households headed by women also were more likely to used crisis and emergency strategies than households headed by men with 9.1% of female headed households using crisis strategies and 2.3% using emergency strategies compared to 7.8% and 1.0% in male headed households.

Figure 26: Percent of households engaged in crisis and emergency coping behaviors by gender of household head



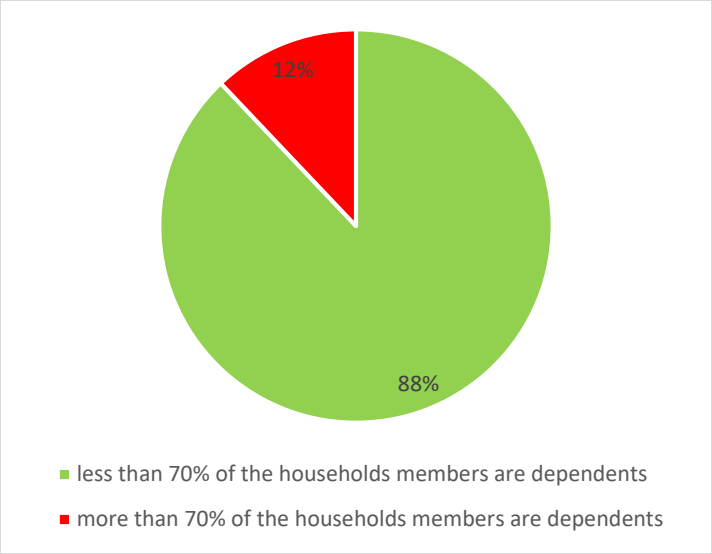
Female headed households used negative food-related coping strategies more often than male-headed households. The average CSI stood at 11.5 for female-headed vs. 8.6 for male-headed households.

Figure 27: Average CSI score by gender of household head



The demographic structure of a household, particularly the share of members who are dependents, is another factor potentially related to food security outcomes. Dependents, by definition, do not directly contribute to the income generation of a household. To assess the impact of high dependency within a household, the number of members aged 18 or less and members who are older than 64 were considered as dependents. If a household is composed of more than 70% dependents, it is considered to have a high percentage of dependents.

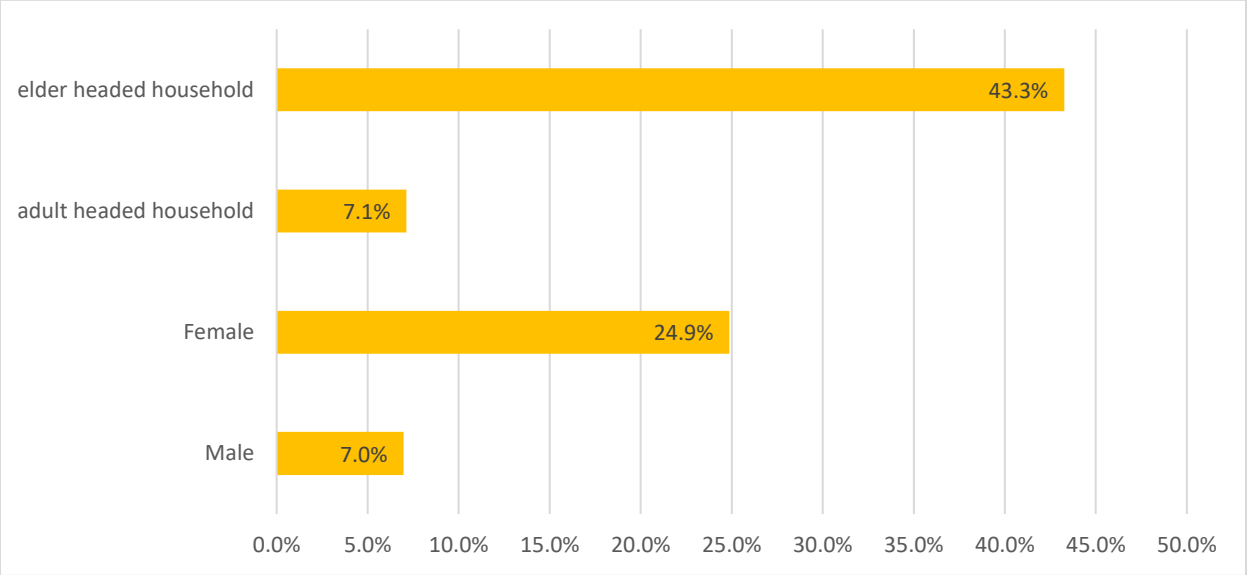
Figure 28: Percent of households with a high proportion of dependents



Nationally, 12% of rural households have a high percentage of dependents. This varies by district, with the greatest prevalence of high dependency found in the Southern region. In Nsanje, 19.8% of households have a high percent of dependents, followed by and 19.5% in Balaka and 15% in Mangochi.

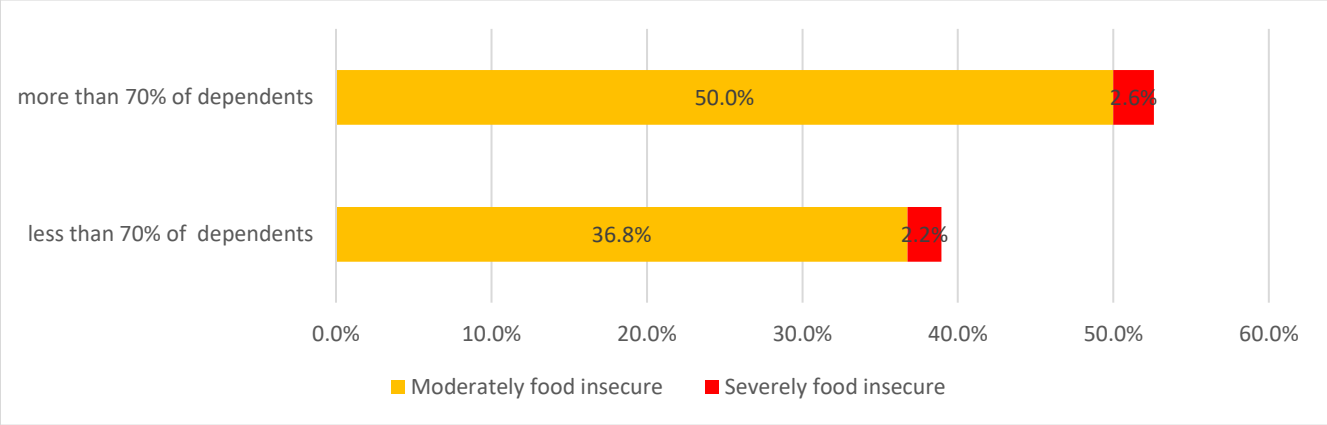
A further analysis regarding the households with high dependency rates indicates that female and elderly headed households tend to have a bigger share of dependents household members, compared to the male and adult headed households. Indeed, 25% of female headed households were considered having more than 70% of dependents members, whereas only 7% of the male headed households were in that situation. Similarly, 43% of elder headed households were in such a situation, while only 7% of adult headed households were having high dependency rates.

Figure 29: Percent of households with a high proportion of dependents, by age and gender of the head of the household



Households with a high percent of dependents have worse food security than other households. In total, 52.6% of these households were food insecure compared to 39% in households with lower dependency rates.

Figure 30: Food insecurity by proportion of dependents in households



In households with high dependency, 13% had poor diets, compared to 8% in lower dependency households. To the contrary, almost half of the households having a lower share of dependents are having an acceptable food consumption, whereas only 40% of the households with a high proportion of dependents are in this situation. These households are more likely to be asset poor, with 42% falling into the very low asset ownership category compared to 28% in their counterparts.

Figure 31: Food consumption by proportion of dependents in households

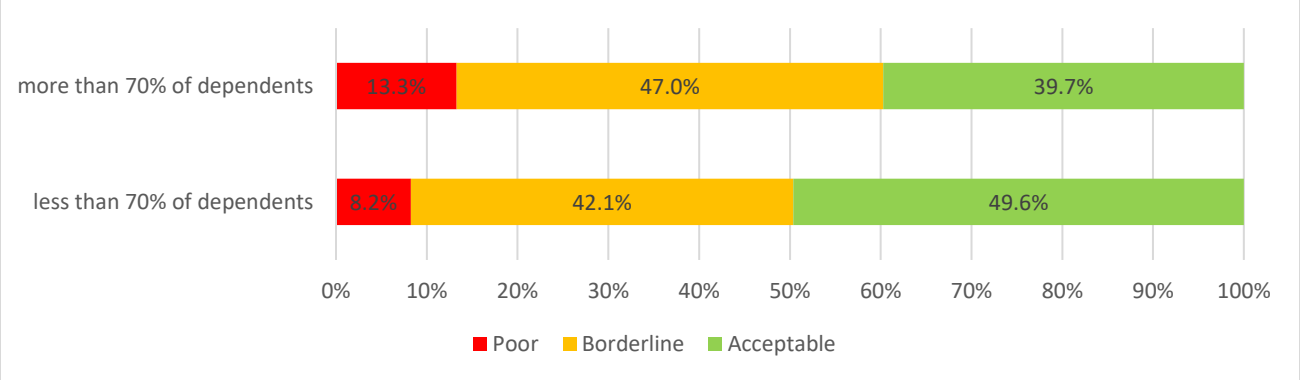


Figure 32: Very low asset ownership by proportion of dependents in households

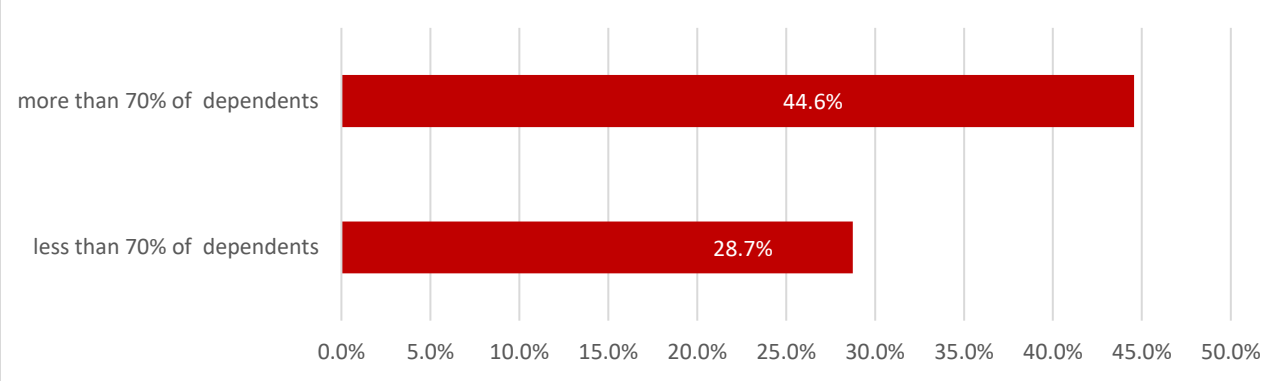
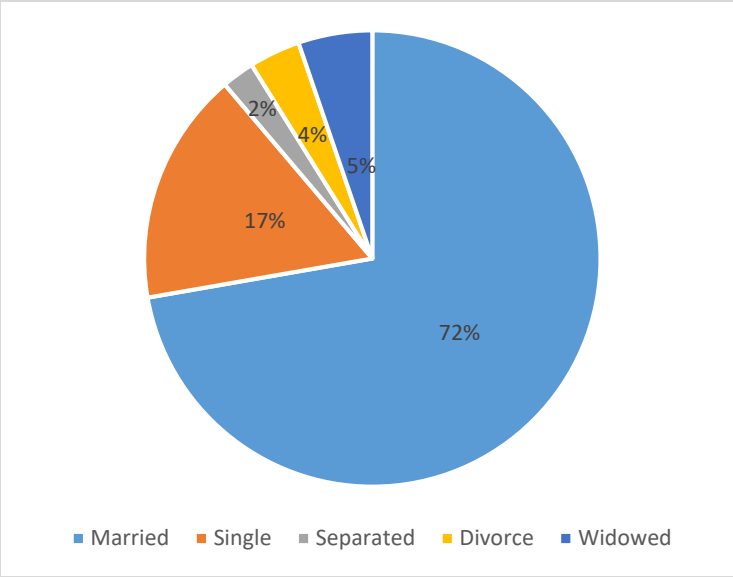
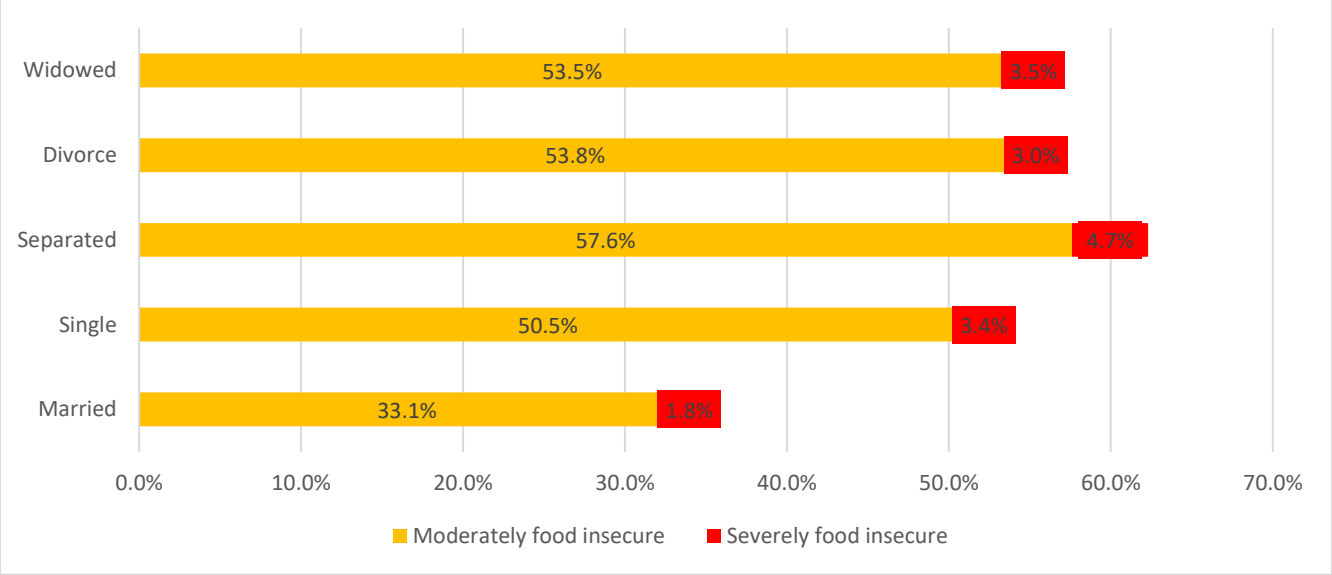


Figure 33: Percent of households nationally by marital status of the household head



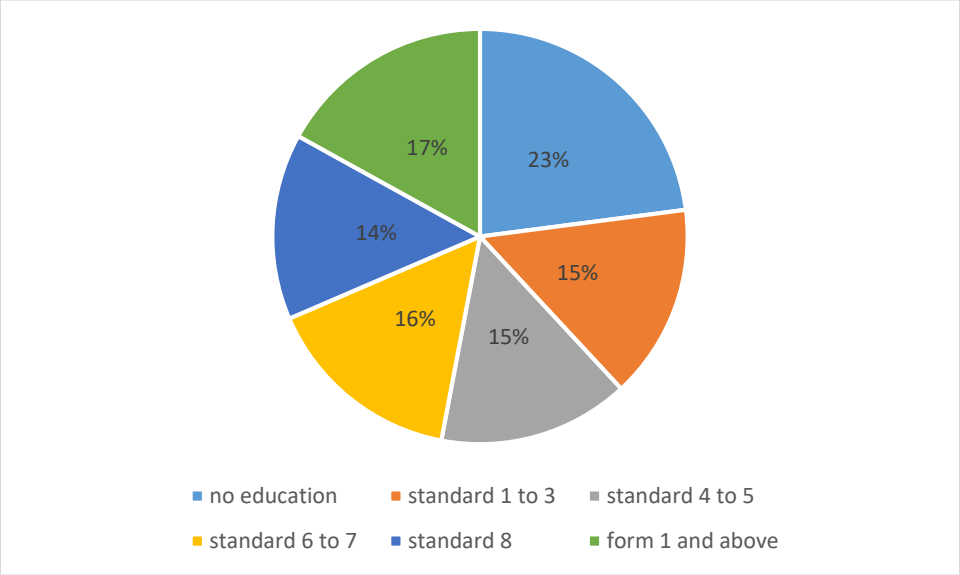
Marital status of the household head was also analyzed in terms of its potential relationship with food insecurity. Nationally, 72% of household heads are married, 17% single, 5% widowed. 6% of the households are either separated or divorced. In terms of food security, households with a married head are much less likely to be food insecure. Overall, 35% of households with a married head were food insecure, compared to 54% in single-headed households, and 57% in widowed households. Severe food insecurity was slightly more common in separated households at 5% vs 3% in single, widowed and divorced households, and 1.8% in married households.

Figure 34: Food insecurity by marital status of the household head



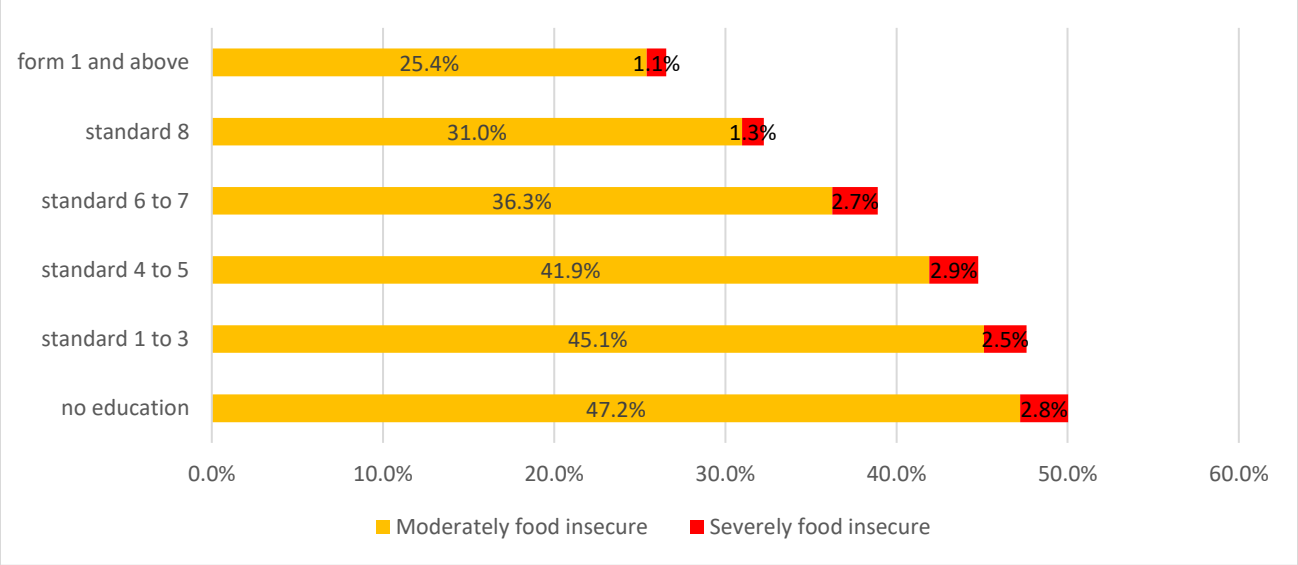
During the survey, households were asked to respond with the highest level of education attained by the head of the household. This response was categorized into the following categories: no education, standard 1-3, standard 4-5, standard 6-7, standard 8, and form 1 or above. These categories were evenly distributed across Malawi though the no education group was the most common at 23% as seen in **Figure 35** below.

Figure 35: Percent of households by highest level of education of household head



As expected, more educated household heads and their families are less likely to be food insecure. The highest prevalence of food insecurity (severe and moderate combined) is found in the no education group with 50% of households followed by households where the head has 1 to 3 standard education at 47%.

Figure 36: Food insecurity by education of the household head



The average age of the head of the household has an important influence on its level of education. Indeed, most of the head of household with no education were also elderly headed, having more than 65 years old -40% of elder headed households did not receive any education, against 20% of adult headed households-. Moreover, the female headed households also tend to have lesser levels of education, compared to the male headed households -31.6% of female head of households did not received any education, compared to 19% of the male headed-. A part of the vulnerability of the female and elderly headed households may therefore be explained by the levels of education associated with these

categories. These assumptions are strengthened by the average age of the head of the household according to the level of education.

Figure 37: Level of education, by household head characteristics

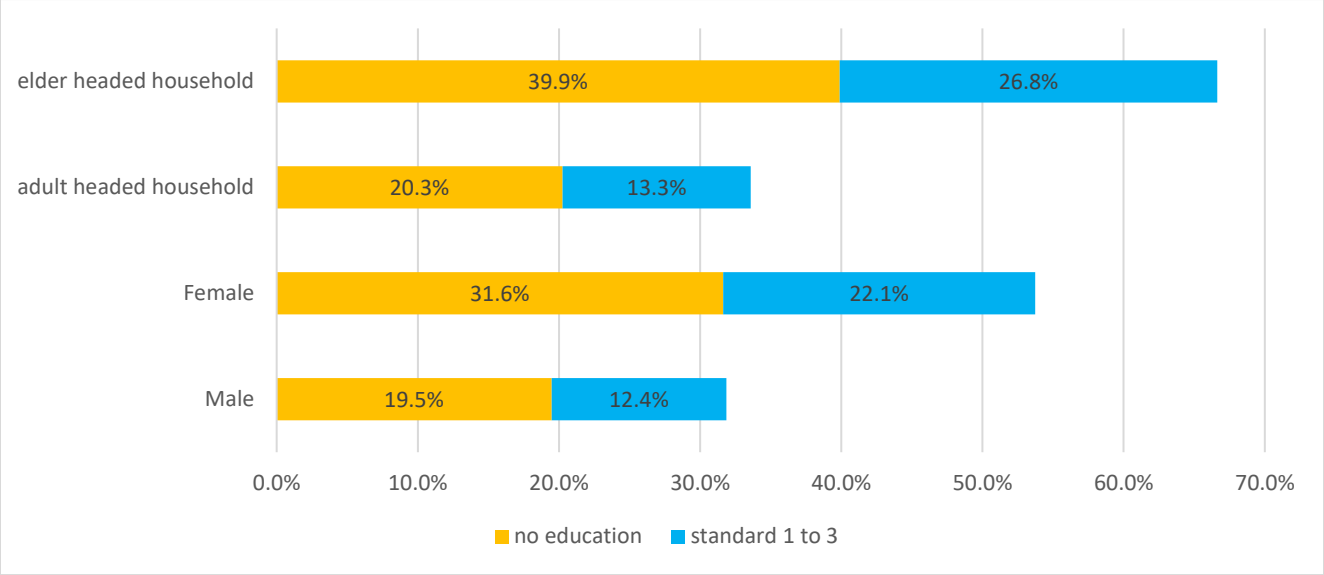
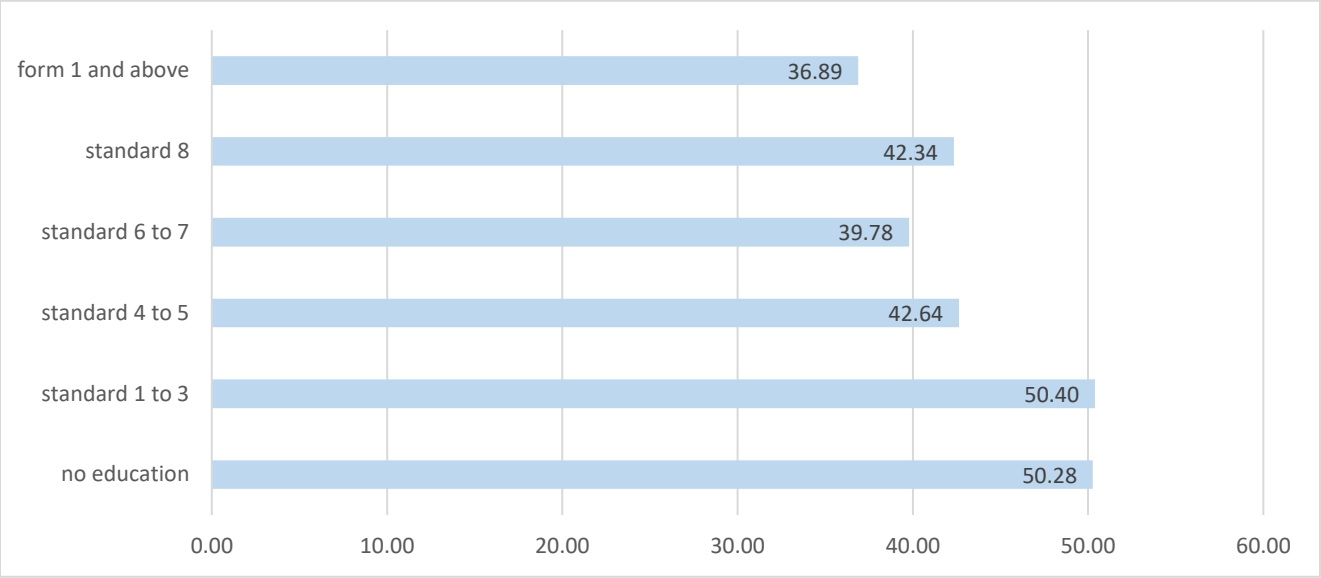


Figure 38: Average age of head of household by education level



Household heads with low or no education were also asset poor, with 42.5% in each category owning less than three assets. This indicator progressively decreases with the level of education to get to 15.7% when the head of the household reached form 1 and above. Food consumption follows a similar pattern with poor food consumption most common in the low and no education group with 12.1% and 10.8% each. Similarly, this figure decreases to reach 4.7% with the form 1 and above group.

Figure 39: Very low asset ownership by education of the household head

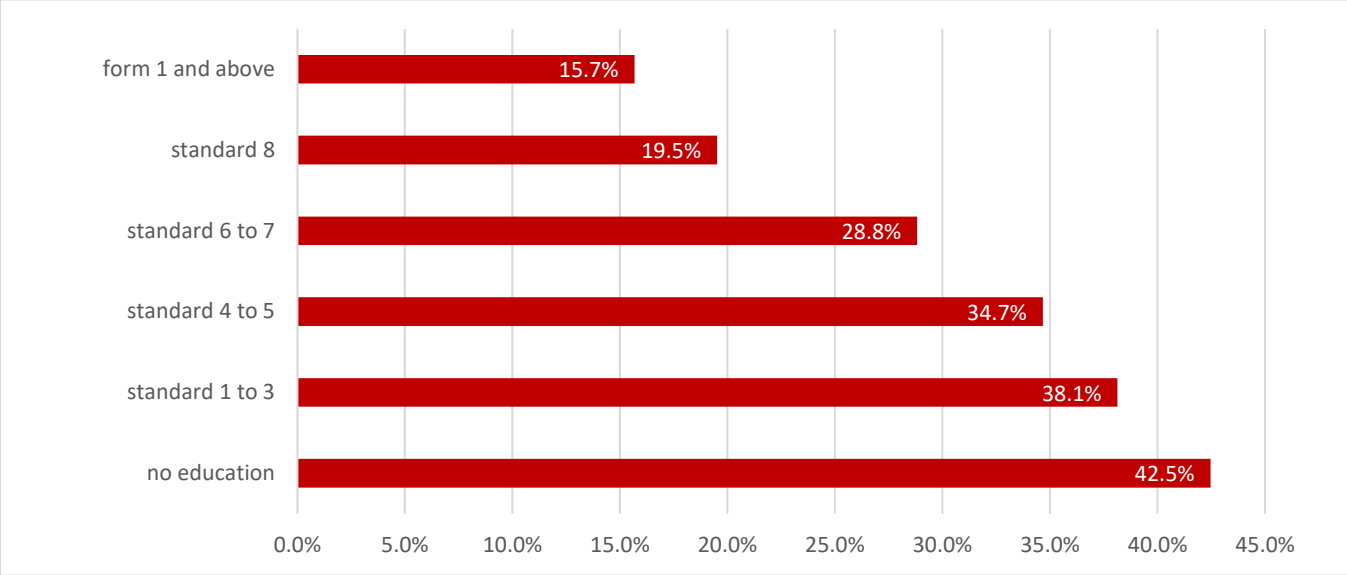
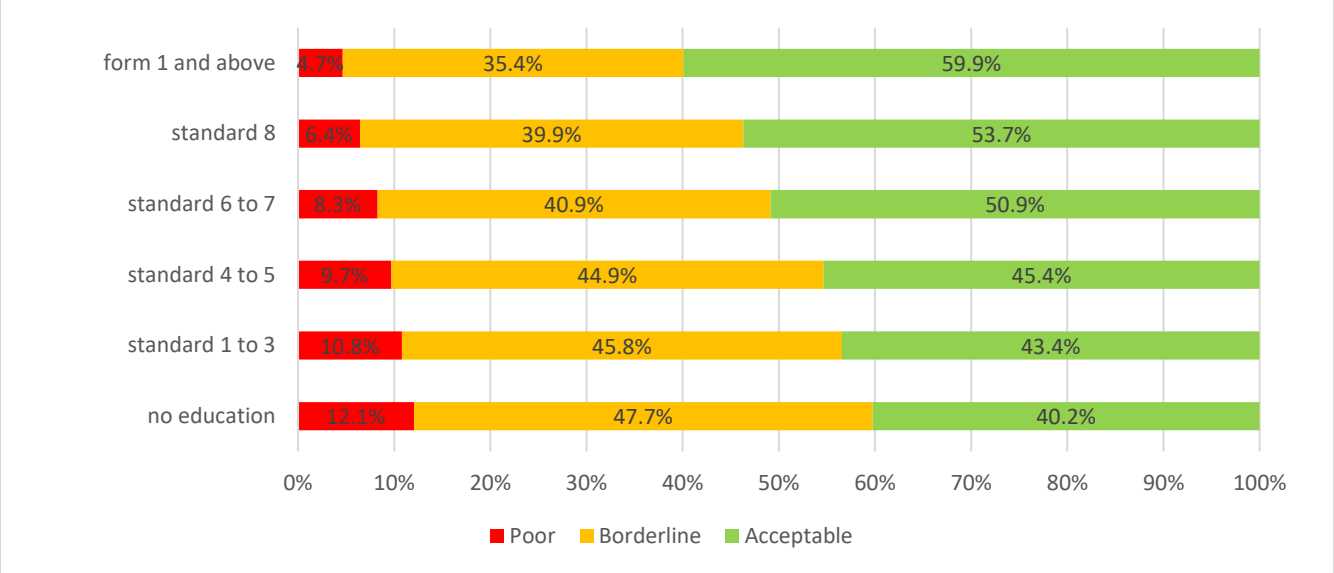


Figure 40: Food consumption by education of the household head



9. Crop production, Livestock and pests

Table 7: Percent of households that cultivated food crops by crop and district

	maize	sorghum	millet	rice	Irish	potato	cassava	Pigeon peas	Cpeas	beans	Ground nuts	soya	Cesame	sun flower	vegetables	Fruits
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Mzimba	98,3%	,6%	4,0%	,3%	,9%	37,9%	6,1%	,3%	0,0%	14,7%	48,8%	37,0%	0,0%	1,7%	6,9%	,9%
Rumphi	95,4%	1,5%	2,3%	2,3%	1,9%	26,2%	9,5%	1,1%	,4%	12,5%	48,3%	12,9%	0,0%	0,0%	9,1%	2,3%
Karonga	77,9%	,4%	,8%	47,5%	0,0%	18,0%	48,4%	14,8%	1,6%	1,2%	20,9%	,4%	5,7%	0,0%	4,5%	15,6%
Chitipa	92,7%	0,0%	3,7%	6,6%	1,8%	33,3%	21,6%	,7%	4,8%	37,7%	53,8%	14,7%	,4%	15,4%	13,6%	9,9%
Nkhata Bay	67,3%	0,0%	0,0%	13,5%	0,0%	30,0%	83,1%	0,0%	,4%	3,5%	5,4%	,8%	0,0%	0,0%	12,7%	22,3%
Total	87,2%	,5%	2,3%	12,7%	,9%	29,8%	31,7%	3,0%	1,4%	14,4%	36,7%	14,8%	1,1%	3,5%	9,3%	9,5%
Ntcheu	97,7%	2,0%	7,0%	,9%	4,3%	20,9%	1,2%	5,8%	8,7%	31,3%	40,6%	11,3%	0,0%	0,0%	25,2%	,3%
Dedza	96,9%	11,8%	2,8%	2,3%	7,3%	17,5%	3,4%	1,7%	5,4%	38,6%	45,4%	16,6%	0,0%	0,0%	27,6%	1,1%
Lilongwe	90,7%	0,0%	0,0%	0,0%	,9%	6,7%	1,3%	,4%	1,6%	5,8%	28,7%	10,0%	0,0%	0,0%	9,1%	1,1%
Mchinji	96,4%	0,0%	0,0%	,3%	1,2%	21,7%	,9%	0,0%	1,8%	4,5%	48,5%	31,8%	0,0%	,9%	10,4%	0,0%
Dowa	94,7%	0,0%	0,0%	,3%	2,4%	10,4%	,3%	0,0%	3,8%	8,6%	42,0%	22,5%	,3%	0,0%	6,5%	,6%
Ntchisi	95,0%	0,0%	0,0%	0,0%	3,8%	14,2%	2,3%	0,0%	2,3%	19,2%	22,3%	21,9%	,4%	0,0%	6,9%	,8%
Kasungu	95,7%	,3%	,3%	0,0%	0,0%	21,0%	5,4%	,3%	4,3%	13,4%	35,2%	41,8%	0,0%	,3%	3,7%	,9%
Nkhotakota	78,8%	0,0%	0,0%	47,7%	0,0%	16,5%	55,4%	1,2%	,4%	,4%	9,2%	,4%	0,0%	0,0%	3,1%	0,0%
Salima	95,0%	,8%	0,0%	8,8%	0,0%	5,8%	,8%	,8%	4,2%	1,2%	30,4%	3,5%	0,0%	0,0%	3,5%	,4%
Total	93,7%	1,8%	1,2%	5,4%	2,3%	14,9%	6,7%	1,2%	3,7%	14,1%	34,5%	18,3%	,1%	,1%	11,2%	,6%
Nsanje	58,8%	39,7%	33,2%	5,7%	0,0%	13,0%	3,4%	14,9%	11,5%	9,5%	10,7%	1,1%	6,9%	0,0%	5,0%	1,5%
Balaka	98,1%	8,9%	3,7%	1,5%	0,0%	13,0%	2,2%	47,4%	9,3%	,4%	16,3%	,4%	0,0%	0,0%	12,6%	0,0%
Mangochi	96,1%	6,2%	5,9%	6,5%	0,0%	10,7%	1,4%	29,3%	3,1%	3,1%	25,6%	2,0%	,8%	,3%	8,5%	,3%
Chikwawa	71,7%	61,0%	33,3%	6,3%	0,0%	7,0%	3,3%	20,0%	8,0%	9,7%	6,7%	,3%	3,0%	0,0%	12,0%	,7%
Mwanza	98,1%	3,8%	1,2%	0,0%	1,5%	30,8%	9,6%	64,6%	10,0%	12,7%	11,5%	,8%	0,0%	0,0%	31,2%	14,2%
Neno	98,1%	4,3%	1,6%	,4%	,8%	16,3%	7,4%	36,6%	25,3%	4,3%	12,1%	0,0%	0,0%	0,0%	18,7%	,4%
Blantyre	98,5%	18,1%	1,9%	,4%	0,0%	8,9%	6,2%	66,0%	3,1%	2,3%	14,3%	0,0%	0,0%	0,0%	10,8%	0,0%
Phalombe	98,5%	36,0%	2,3%	5,4%	0,0%	10,7%	1,5%	58,2%	13,4%	,8%	4,2%	4,2%	0,0%	6,1%	26,4%	4,6%
Mulanje	93,1%	16,5%	11,6%	6,9%	0,0%	17,6%	23,4%	64,7%	1,4%	1,7%	2,8%	,3%	0,0%	0,0%	11,6%	0,0%
Thyolo	96,0%	4,9%	4,3%	0,0%	,3%	10,1%	30,2%	54,9%	3,4%	6,3%	1,1%	,6%	0,0%	0,0%	15,5%	,3%
Chiradzulu	98,8%	12,7%	4,2%	0,0%	0,0%	14,6%	6,5%	58,1%	20,8%	18,5%	6,9%	,8%	0,0%	0,0%	17,3%	,4%

The agriculture sector employs 83% of the population and accounts for 30% of Malawi's GDP[6]. With 84% of the population living in rural areas, the importance of agriculture cannot be overstated. As this survey specifically focuses on rural areas, nearly all households surveyed have some stake in agriculture. In total, 98% of households cultivated at least one crop. On average, households cultivated three crops - including food crops and cash crops - in the past season.

[6] World Development Indicators, The World Bank

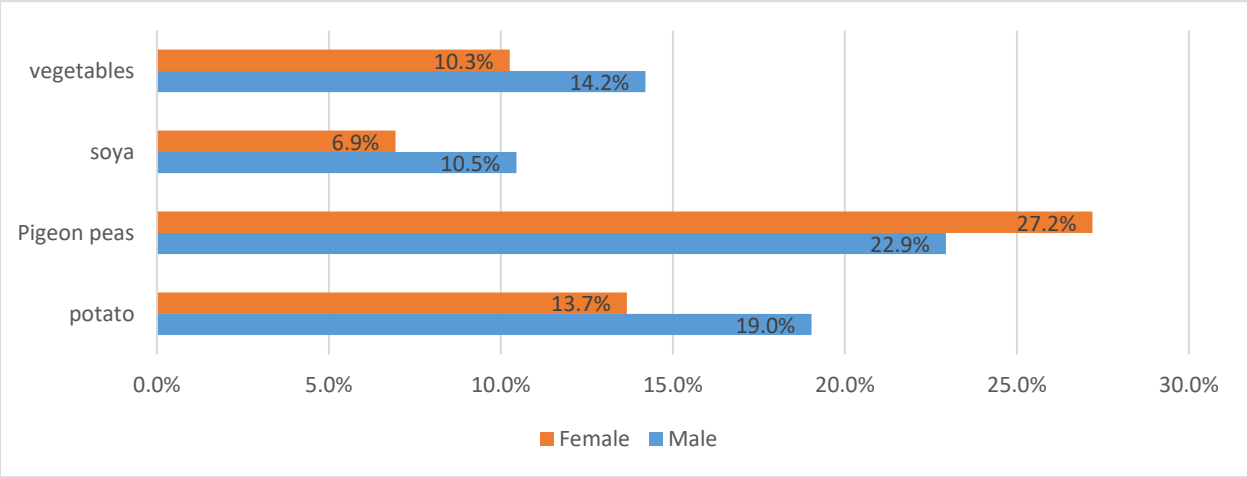
The most common food crop was maize with 95% of rural households cultivating this staple food in the past season. The second most common food crop was pigeon peas at 24%, followed by groundnuts at 23%.

While maize is by far the most widely cultivated cereal - sorghum, millet, rice, and cassava are also common in some districts. Sorghum cultivation is highest in Southern region districts, grown by 61% of households in Chikwawa and 40% in Nsanje. Millet is less common generally, grown by less than 5% at a national level, but can be widely grown in specific areas: for instance, a third of the households in the districts of Chikwawa and Nsanje were cultivating this crop. Rice cultivation is relatively common in the districts of Karonga and Nkotakota, where 46% of the households grow that crop. Cassava is heavily cultivated in Nkhata Bay with 83% of households cultivating, followed by 55% in Nkhotakota, 48% in Karonga, 30% in Thyolo, and 23% in Mulanje.

Beyond cereals, sweet potato and various pulses were cultivated regularly in some districts. Sweet potato, though cultivated by 17% of the households nationally, was very common in the Northern region, grown by 30% of the households on average.

In terms of pulses, pigeon peas are most common, cultivated by 25% of households nationally. Pigeon peas production is most common in the Southern region led by Blantyre district (66%), and followed by Mwanza, Mulanje (both at 65%), and Zomba (61%). Groundnuts and soya are relatively widespread in Malawi, as 22% and 8% of the households at a national level were cultivating them. These two pulses are particularly common in the Northern and Central regions. The districts growing the most ground nuts are the districts of Chitipa (54%), Mzimba, Rumphi and Mchinji (with 48% of the households). The soya crops are grown more specifically in the districts of Kasungu, with 42% of the households, Mzimba, with 37% and Mchinji with 32%.

Figure 41: Percent of households that cultivated food crops by gender of the head of the household.



There are few gender differences concerning the type of food crops grown in the household, as most of the crops are grown by the same proportion of male and females. Nevertheless, the men headed households grow more vegetables, soya and potatoes (with differences of around 5%) than female headed households. These differences may marginally explain the higher food security of the male headed

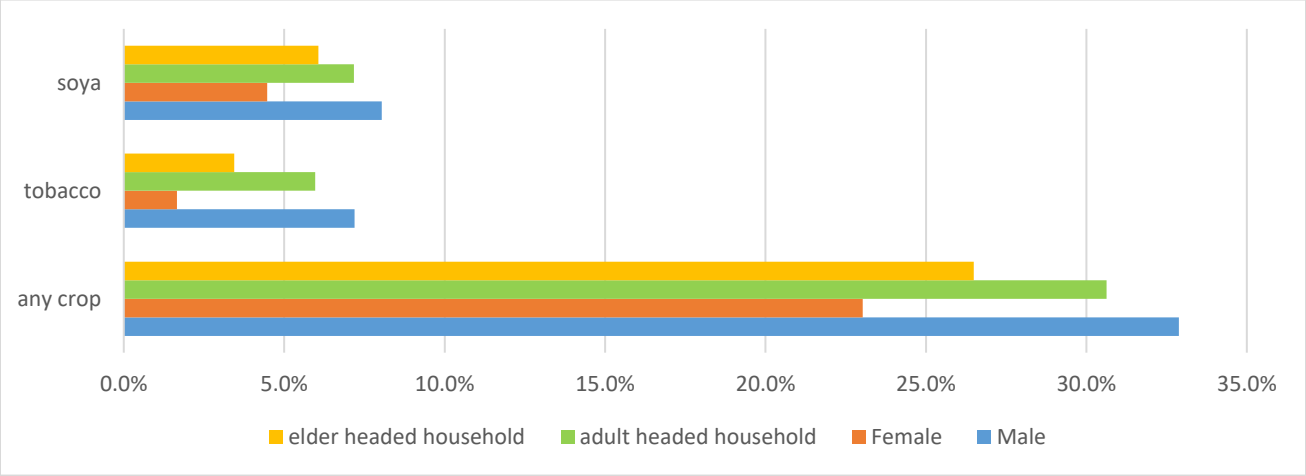
households, although other crops, such as the pigeon peas are more cultivated by the female headed households.

Table 8: Percent of households that cultivated cash crops by crop and district

		Any	Tobacco	Tea	Cotton	Sugar cane	Sun flower	Soya	maize	potato	irish	Ground nuts	rice
		%	%	%	%	%	%	%	%	%	%	%	%
Northern	Mzimba	39,0%	12,5%	,3%	0,0%	,9%	1,2%	16,2%	2,0%	7,5%	,9%	7,8%	0,0%
	Rumphi	55,9%	38,8%	,8%	0,0%	,8%	0,0%	5,7%	14,1%	7,6%	1,1%	14,4%	,4%
	Karonga	45,9%	2,5%	0,0%	4,5%	0,0%	0,0%	0,0%	23,4%	4,5%	0,0%	9,4%	25,0%
	Chitipa	47,6%	8,1%	4,4%	0,0%	2,2%	11,0%	4,8%	24,5%	11,4%	,7%	16,5%	,4%
	Nkhata Bay	27,3%	0,0%	,8%	0,0%	,4%	0,0%	0,0%	18,5%	11,2%	0,0%	1,5%	5,4%
	Total	42,9%	12,6%	1,2%	,8%	,9%	2,5%	6,1%	15,6%	8,4%	,6%	9,9%	5,6%
Central	Ntcheu	27,2%	7,0%	0,0%	1,4%	2,0%	,3%	4,1%	8,1%	1,7%	2,9%	7,0%	0,0%
	Dedza	38,3%	1,7%	0,0%	0,0%	3,1%	0,0%	16,9%	13,0%	3,1%	5,6%	16,1%	2,5%
	Lilongwe	31,3%	10,7%	0,0%	0,0%	1,1%	,2%	10,0%	8,7%	3,8%	,7%	13,3%	0,0%
	Mchinji	39,3%	5,1%	0,0%	0,0%	,9%	,6%	24,7%	3,0%	1,8%	,6%	17,0%	,3%
	Dowa	47,9%	22,8%	0,0%	,3%	,3%	0,0%	18,9%	,3%	1,2%	1,8%	14,5%	0,0%
	Ntchisi	52,3%	11,2%	0,0%	0,0%	0,0%	0,0%	35,8%	1,9%	6,2%	5,0%	6,5%	0,0%
	Kasungu	46,3%	11,4%	0,0%	0,0%	,3%	2,8%	32,1%	1,1%	1,1%	0,0%	5,7%	0,0%
	Nkhotakota	20,0%	,4%	0,0%	,4%	1,5%	0,0%	0,0%	,4%	,4%	0,0%	2,3%	15,8%
	Salima	43,5%	,4%	,4%	7,7%	0,0%	,4%	1,2%	1,2%	2,3%	,4%	23,8%	9,6%
	Total	38,2%	8,3%	,0%	,9%	1,1%	,5%	16,1%	4,6%	2,4%	1,9%	11,9%	2,6%
Southern	Nsanje	18,3%	0,0%	0,0%	3,1%	1,1%	0,0%	0,0%	6,5%	4,6%	,4%	2,7%	2,3%
	Balaka	21,5%	1,1%	0,0%	7,0%	,7%	0,0%	0,0%	9,3%	1,1%	,7%	2,2%	1,1%
	Mangochi	5,6%	1,0%	0,0%	,8%	,3%	0,0%	0,0%	,6%	1,1%	0,0%	2,3%	,6%
	Chikwawa	40,0%	0,0%	0,0%	32,0%	,3%	0,0%	0,0%	5,0%	1,3%	0,0%	0,0%	3,7%
	Mwanza	20,0%	0,0%	0,0%	,4%	3,5%	0,0%	0,0%	6,2%	11,5%	,4%	1,9%	0,0%
	Neno	8,9%	,8%	0,0%	3,9%	,4%	0,0%	0,0%	2,3%	0,0%	0,0%	1,6%	0,0%
	Blantyre	15,4%	,8%	0,0%	2,3%	,4%	0,0%	0,0%	11,6%	1,9%	0,0%	1,2%	,8%
	Phalombe	29,1%	3,5%	0,0%	,4%	0,0%	12,6%	5,4%	2,3%	3,4%	0,0%	,4%	4,2%
	Mulanje	26,7%	0,0%	1,4%	0,0%	4,4%	0,0%	,3%	16,5%	8,5%	0,0%	1,1%	2,2%
	Thyolo	23,3%	0,0%	,3%	0,0%	2,3%	0,0%	,3%	19,8%	2,9%	,3%	0,0%	,3%
	Chiradzulu	8,1%	2,7%	0,0%	0,0%	1,2%	0,0%	1,2%	,8%	2,7%	0,0%	0,0%	0,0%

Cash crop cultivation, specifically non-food crops, is practiced by 30% of households nationally. The most widely produced cash crops were also food crops, such as maize (7.5%), soya (7%) and Groundnuts (6.5%. amongst the non-food cash crops, tobacco is most common (5.6%), followed by cotton (2%), while sunflower and sugarcane were cultivated by 1% and less than 1% cultivated tea. As expected, this varies considerably by district. Tobacco was cultivated by 38% households in Rumphi, 23% in Dowa, 12% in Mzimba and 11% in Kasungu. Tea was most common in Chitipa (4%) while cotton was most common in Chikwaka (32%), and sugarcane in Mulanje (5%). Sunflower as a cash crop was most common in Phalombe where 12% of households cultivated, and 11% in Chitipa.

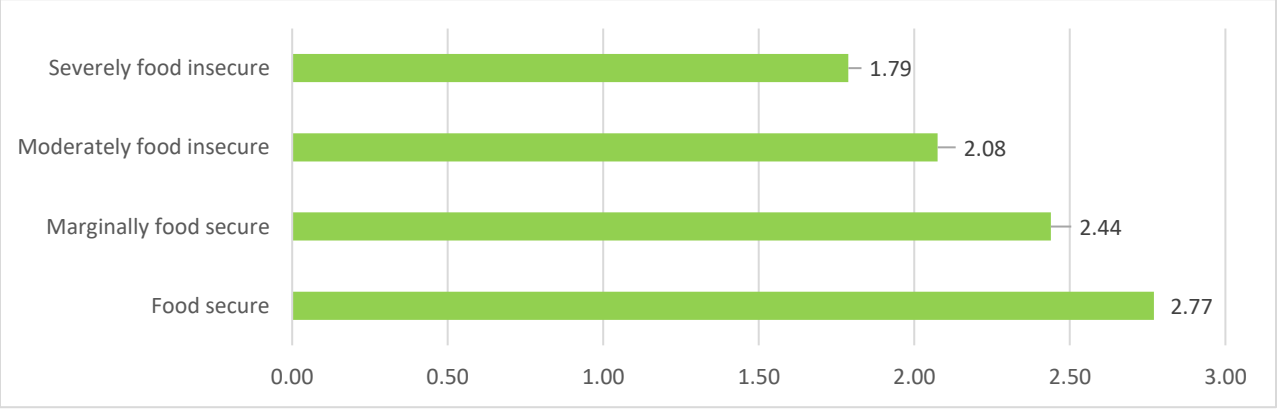
Figure 42: Average number of cash crop cultivated this season by gender and age groups



There are important disparities concerning the involvement of the households on cash crops by gender and the age groups. Overall, female headed households do much less cash crops than male headed households: indeed, 23% of female headed households do at least one cash crop, whereas 33% of the male headed households do. This difference is particularly important concerning the cash crops of tobacco -7.5% for male, 1.5% for females- and of soya. Similarly, the proportion of households involved in cash crops was more important amongst the adult headed households compared to the elderly headed households: 30% of the adult households were having cash crops, whereas only 26% of elderly headed were. Those differences can be due to the amount of extra energy and initial investments that requires cash crops. The female headed and the elderly headed households may have less investment capacities than the male and adult headed households. Moreover, this difference may also explain the higher vulnerability of these populations, as cash crops are an important source of income.

The majority of households (66%) cultivated three or more crops when considering cash and food crops. On average, households cultivated 2.75 crops nationally. However, food insecure households were less likely to grow more crops than food secure households, as show in Figure 43 below. Concerning the food crops, on average, severely food insecure households cultivated 1.8 crops nationally compared to 2.1 for moderately food insecure households, 2.4 for marginally food secure, and 2.8 for the food secure.

Figure 43: Average number of crops (cash and food crops) cultivated this season by food security status



The female headed households and the elderly headed households tended to have less types of different crops than the male and the adult headed households. Indeed, female headed households grew on average 2.5 types of crops, whereas the male headed households were growing 2.84 types of crops. Similarly, the elderly headed households were growing 2.72 types of crops. The degree of diversification of the crops has an important influence on the food vulnerability of the households.

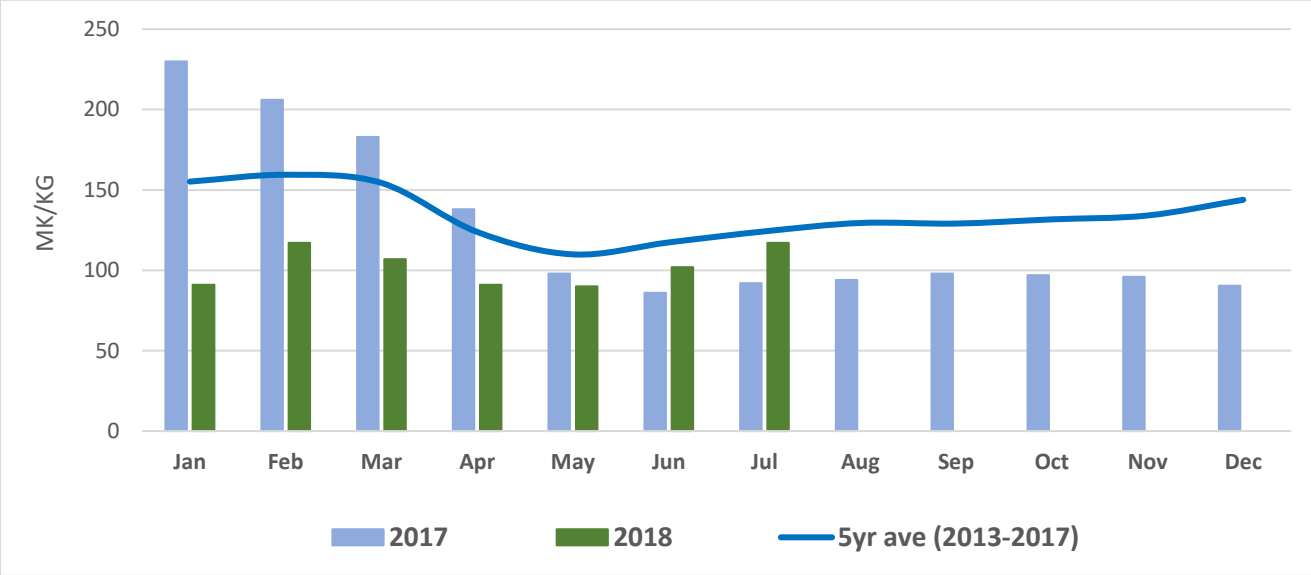
Table 9: Household estimates of maize harvest (kgs), percent lost and sold, current stock (kgs), and expected months of stock

		Maize harvested	Maize sold	Maize in reserves	Maize reserves in months
Northern		Average	Average	Average	Average
	Mzimba	683	34	517	5
	Rumphi	543	45	414	4
	Karonga	90	3	48	1
	Chitipa	495	25	430	5
Central	Nkhata Bay	153	6	103	1
	Total	416	24	320	4
	Ntcheu	439	34	262	3
	Dedza	306	9	210	3
	Lilongwe	289	19	178	2
	Mchinji	410	18	264	3
	Dowa	466	29	324	3
	Ntchisi	737	57	383	3
	Kasungu	344	8	243	3
Southern	Nkhotakota	169	9	87	1
	Salima	246	18	122	2
	Total	374	22	231	3
	Nsanje	70	2	27	1
	Balaka	227	33	104	2
	Mangochi	221	3	100	2
	Chikwawa	65	7	30	1
	Mwanza	278	9	153	3
	Neno	254	4	119	2
	Blantyre	81	4	30	1
	Phalombe	103	2	47	1
	Mulanje	135	3	58	1
	Thyolo	269	5	149	2

	Chiradzulu	218	7	120	2

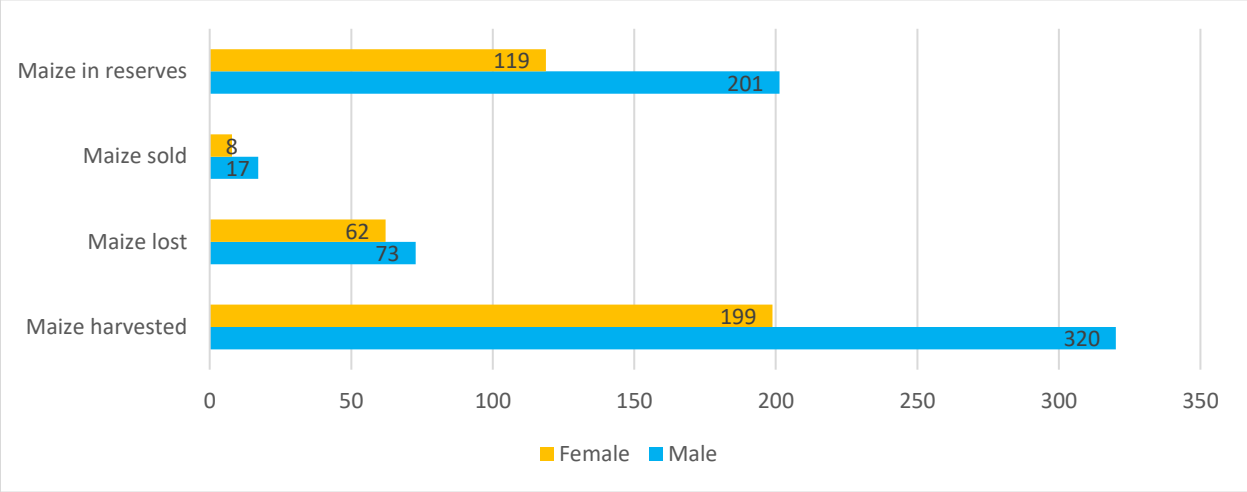
At the time of the survey (July/August 2018), households reported on average 422 kgs of maize in stock which was expected to last approximately four months. Seasonal patterns will likely again lead to higher prices in December when stocks will run low and farmers will be forced to procure from the market. If prices follow month-on-month growth rates of the five-year average (2008-2014), the average price of maize in December should remain below approximately 150 MKW/kg.

Figure 44: Average number of crops (cash and food crops) cultivated this season by food security status



There are several important differences between male and female headed households regarding the production and the gestions of the harvests of maize. Male headed households harvest one third more maize than female headed households (320 kgs vs. 198kg). Consequently, the amount of Maize sold and in reserves is more important amongst the male households than amongst the female households: 201kg of Maize have been saved and 17kg have been sold within the male headed households, whereas these figures are 119kg and 8kg in female headed households.

Figure 45: Maize harvest outcomes, by gender of the head of household



Households were asked if they owned a few types of animals: cattle, goats, poultry, and pigs. In total, 58% owned at least one of these types of animals. The most common type is poultry, which was owned by 48.5% of the population, followed by goats at 20%, pigs at 7.5%, and cattle at 5%. Animal possession is generally more common in the Northern region. In Chitipa 81% of households have at least one type of animal, as do 73.5% in Nkhata Bay, 75% in Karonga, 79% in Rumphi, and 75% in Mzimba. On average, 76% of the households in the Northern region own any livestock, whereas only half of the households own any livestock in in the Central and Southern regions.

Cattle ownership was most common in Chitipa district where 24% of households own cattle, followed by Karonga, where 20% own cattle. Among those who do own cattle, the average number of cattle owned nationally is three animals. Most ownership took place in the last six months (96% were purchased in the last six months). Though in Karonga and Chitipa, households were more likely to have owned their cattle for more than six months. The other district where the cattle ownership was important is Mzimba, with 13% of ownership.

Table 10: Percent of households that own animals by district

		any Livestock	Cattle	Goat	poultry	Pig
		%	%	%	%	%
Northern	Mzimba	74,6%	13,0%	24,0%	65,9%	19,7%
	Rumphi	79,1%	6,1%	22,8%	73,4%	17,1%
	Karonga	75,4%	20,9%	18,0%	65,2%	22,1%
	Chitipa	79,9%	24,2%	33,0%	74,4%	22,0%
	Nkhata Bay	73,5%	2,3%	13,5%	71,2%	5,8%
	Total	76,4%	13,3%	22,5%	69,8%	17,5%
Central	Ntcheu	56,5%	2,6%	25,8%	40,3%	15,4%
	Dedza	58,6%	3,4%	23,9%	49,0%	12,7%
	Lilongwe	46,0%	2,9%	18,2%	34,9%	10,0%
	Mchinji	53,6%	6,3%	19,0%	40,8%	11,3%
	Dowa	63,6%	1,2%	26,3%	52,1%	11,5%
	Ntchisi	59,2%	1,9%	27,7%	50,0%	10,4%

	Kasungu	53,4%	2,0%	13,1%	46,3%	11,9%
	Nkhotakota	53,8%	,4%	16,5%	50,0%	3,1%
	Salima	58,8%	2,7%	24,2%	47,7%	2,7%
	Total	55,5%	2,7%	21,4%	45,0%	10,3%
Southern	Nsanje	55,7%	2,7%	22,9%	48,9%	3,1%
	Balaka	64,1%	1,5%	28,1%	52,6%	2,2%
	Mangochi	43,1%	,3%	14,1%	37,7%	0,0%
	Chikwawa	63,7%	2,7%	24,3%	57,7%	4,3%
	Mwanza	56,2%	1,2%	21,5%	41,9%	11,9%
	Neno	62,6%	5,8%	31,9%	46,7%	4,3%
	Blantyre	51,0%	0,0%	20,1%	44,0%	4,2%
	Phalombe	57,9%	2,3%	18,8%	45,6%	6,5%
	Mulanje	50,1%	2,8%	16,8%	40,8%	2,5%
	Thyolo	44,5%	5,7%	13,2%	31,3%	6,0%
	Chiradzulu	53,1%	2,3%	17,3%	41,2%	6,2%
	Zomba	52,3%	,3%	18,9%	44,3%	1,7%
	Machinga	46,4%	,6%	9,5%	42,7%	,3%
	Total	53,2%	2,1%	19,2%	43,8%	3,9%

Goat ownership is common across Malawi with 21% of households owning goats nationally. On average, households who own goats have three of them. At district level, ownership of goats is generally widespread in all districts, as every district has an ownership rate between 15% and 30%. The highest prevalence is in Chitipa and Neno where 33% of households have at least one goat. The households have on average three goats. Amongst the households currently owning goats, 74% of them were already owning them 6 months ago.

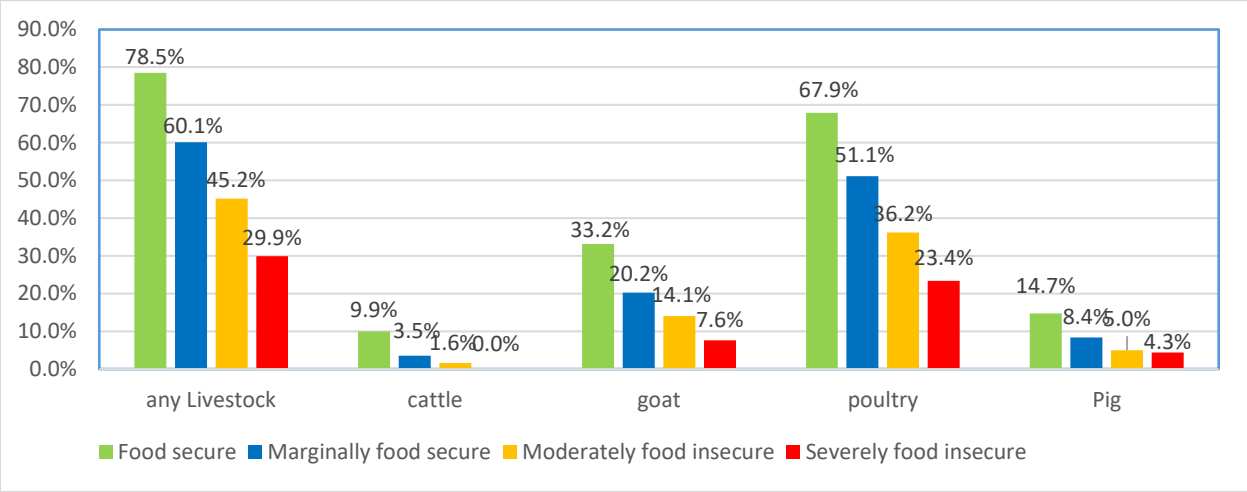
Poultry is the most commonly owned animal by half of rural households nationally. Households were more likely to continue to own poultry than other animals. On average, households owned seven poultry (likely chicken). Poultry ownership is nevertheless more likely in the Northern region, with 70% of the households owning at least one than is the other regions. This rate is 45% in the Central Region and 41% in the Southern region. The districts owning the most of chicken are the districts of Chitipa and Rumphi, with 74% of ownership rate. On average, the households own 6 or 7 chicken, and 75% of the households were already owning poultry six months ago.

Pig ownership is less common in the Southern region, due to cultural and religious traditions, but is more common than cattle ownership in the Central region (with the exception of Salima where few households own pigs). Consequently, the ownership rate of pigs in the Southern Region is of 3% whereas it is 10% in the Central region and 17% in the northern region. Nationally, about 8% of rural households own a pig with the highest ownership in Karonga and Chitipa at 22% followed by Mzimba at 19%. Those that own pigs on average have three of them. 60% of the households currently owning pigs were already owning pigs six months ago.

As expected, food insecure households were less likely to own animals than food secure households, for all types of animals. Poultry is the most commonly owned animal for all, but just 23% of severely food

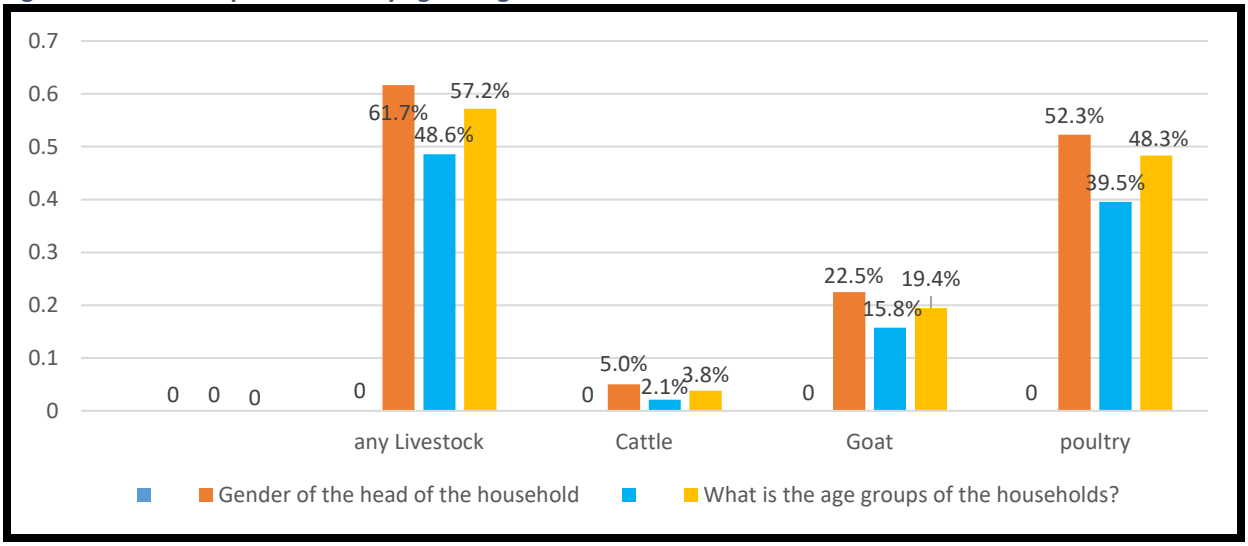
insecure households owned poultry at the time of the survey compared to 36% of moderately food insecure households, 51% of marginally food secure households and 67% of food secure households.

Figure 46: Ownership of animals by household food security status



There are several gender differences in the livestock ownership of the households, as only 49% of the female headed households were owning any livestock, whereas 62% of the male headed households were owning at least one livestock. This difference was particularly important in the ownership of goats (22% and 16%) and poultry (52 and 40%). More surprisingly, the elderly headed households have a greater ownership of livestock than adult headed household, with an important difference in the ownership of goats. There are marginal differences in the number of livestock that own female headed households and male headed households.

Figure 47: Ownership of animals by age and gender of the head of the households



10. Shocks and external assistance

In previous sections, emphasis has been placed on the ability of households to cope with reduced access to food. The concept of economic vulnerability specifically attempts to capture this food security factor. This is a theoretical measure in terms of vulnerability though and makes assumptions about what a household is likely able to do when they face a shock.

More concretely, direct exposure to shocks - events that may occur naturally or manmade – threaten household food insecurity. To best measure the impact of shocks on household food insecurity, panel data with measurements before and after the shock are required. This type of data is rare to find with extensive coverage. However, in this survey, households were asked about any shocks which affected their access to food in the previous six months. Each household mentioned up to three types of shocks which most affected them. The results from this module are analyzed in this section.

Nationally, a poor harvest was the most common shock with 68% of households reporting they were impacted in the past six months. Erratic rainfall (52%), pests and diseases 44% and high food prices (42%) were the next most common shocks faced.

The shocks manifest themselves differently in various districts and occasionally loss of employment as many people depend on farm work “ganyu” and that reduces their source of income.

Table 11: Percent of households experiencing various shocks in the past six months by district

		Loss employment/reduced salary	Sickness/health expenditure	Death of household member/funerals	High food prices	High fuel/transportation costs	Rent payment	Debt	Electricity/fuel wood/kerosene	Insecurity/theft	Poor harvest	Floods, heavy rains, landslides	Erratic rainfall/dry spells	Pests in cereal crops (maize, sorghum, rice	Other shock (specify)
Northern	Mzimba	.3%	12.7%	2.0%	20.8%	0.0%	0.0%	.3%	0.0%	.9%	37.9%	4.0%	46.8%	35.3%	42.5%
	Rumphi	0.0%	10.3%	1.9%	15.2%	.4%	0.0%	.4%	0.0%	2.3%	32.7%	2.3%	49.8%	30.4%	22.1%
	Karonga	1.2%	26.6%	2.0%	33.2%	1.6%	0.0%	4.1%	0.0%	1.2%	50.4%	29.1%	24.2%	13.1%	11.9%
	Chitipa	2.6%	19.4%	.4%	33.7%	6.6%	0.0%	4.0%	0.0%	2.2%	36.6%	8.4%	24.9%	20.5%	9.9%
	Nkhata Bay	.4%	21.9%	2.7%	41.5%	8.5%	0.0%	1.2%	.4%	1.2%	47.7%	32.7%	20.0%	11.2%	15.4%
Central	Ntcheu	2.3%	13.6%	1.2%	19.7%	.9%	.3%	.3%	0.0%	1.4%	58.8%	4.6%	64.3%	57.4%	9.0%
	Dedza	.3%	19.2%	0.0%	7.6%	0.0%	0.0%	.6%	0.0%	1.1%	58.3%	12.7%	48.7%	40.8%	8.7%
	Lilongwe	2.4%	15.3%	9.8%	36.9%	.9%	.2%	2.9%	.4%	3.1%	74.7%	4.2%	54.4%	27.6%	18.0%
	Mchinji	7.7%	16.4%	3.3%	39.0%	.9%	1.5%	5.4%	.9%	3.3%	63.7%	8.6%	31.5%	12.8%	12.8%
	Dowa	5.9%	16.6%	2.7%	42.6%	1.5%	.3%	3.3%	0.0%	1.5%	63.0%	1.2%	38.8%	17.2%	13.3%
	Ntchisi	2.3%	16.5%	1.2%	6.5%	.8%	.8%	4.6%	0.0%	2.3%	63.8%	3.1%	42.7%	41.2%	25.4%
	Kasungu	.9%	14.2%	3.7%	16.2%	.3%	.3%	.9%	0.0%	.6%	45.7%	2.0%	51.1%	35.8%	30.1%
	Nkhotakota	.8%	16.5%	2.3%	15.0%	.8%	0.0%	0.0%	.4%	0.0%	50.4%	45.8%	10.4%	33.5%	13.1%
	Salima	0.0%	13.5%	4.6%	34.2%	.8%	.4%	.4%	0.0%	1.9%	85.4%	14.2%	71.9%	64.2%	21.5%
Southern	Nsanje	1.5%	9.9%	.8%	27.9%	1.1%	.4%	1.1%	.4%	3.8%	55.3%	9.5%	61.5%	38.9%	16.0%
	Balaka	.4%	15.9%	1.5%	18.5%	.4%	0.0%	.4%	0.0%	1.1%	50.7%	4.1%	65.9%	67.4%	10.4%
	Mangochi	3.9%	7.6%	.8%	13.8%	.3%	.8%	.6%	0.0%	.8%	54.4%	7.9%	54.6%	56.1%	15.2%
	Chikwawa	1.7%	11.0%	1.7%	28.0%	.3%	0.0%	2.7%	.3%	3.0%	63.0%	3.7%	61.3%	43.3%	15.0%
	Mwanza	1.2%	13.1%	2.7%	20.0%	.8%	0.0%	1.2%	0.0%	1.9%	65.8%	2.7%	70.4%	58.8%	16.2%
	Neno	.8%	9.7%	1.2%	19.8%	.4%	.4%	.4%	0.0%	0.0%	50.2%	5.1%	68.9%	58.0%	27.6%
	Blantyre	.8%	8.1%	2.3%	19.7%	.4%	.4%	.4%	.4%	2.3%	52.9%	.8%	71.4%	49.4%	21.2%
	Phalombe	.8%	11.1%	1.1%	29.5%	0.0%	.8%	6.1%	1.1%	1.1%	76.2%	2.7%	82.8%	81.2%	11.5%
	Mulanje	2.5%	6.6%	1.1%	32.2%	3.6%	1.7%	7.7%	1.4%	4.1%	71.3%	4.4%	41.9%	57.6%	11.3%
	Thyolo	8.6%	13.5%	.9%	43.7%	3.7%	.9%	6.6%	.9%	7.8%	66.1%	5.2%	29.3%	44.3%	17.8%
	Chiradzulu	0.0%	8.8%	1.2%	13.1%	0.0%	0.0%	1.2%	0.0%	.4%	43.8%	5.0%	78.8%	66.2%	26.2%
	Zomba	2.0%	14.9%	3.1%	33.7%	.3%	0.0%	7.1%	.9%	3.4%	70.6%	6.6%	62.0%	61.1%	10.0%
	Machinga	1.1%	4.0%	.6%	7.7%	.6%	0.0%	0.0%	0.0%	.6%	68.8%	2.0%	64.8%	69.6%	14.0%
	Malawi	2%	13.6%	2.1%	24.8%	1.3%	0.3%	2.4%	0.3%	2.0%	57.7%	8.6%	51.6%	44.2%	17.3%

Household shocks are generally considered to fall into two categories:

- Covariate: these include many natural hazards such as droughts and floods, but also price changes, where most households or communities are exposed; covariate hazards affect groups of households, communities, regions, or nations

- Idiosyncratic: these hazards have a more random and individual distribution, such as accidents, injury, theft, or human lifecycle events such as (non-communicable) disease and death; they may occur for individual households but not whole communities

Covariate shocks therefore are expected to be reported equally among households in a given area / socioeconomic group. However idiosyncratic shocks are specific to individual households usually. An analysis of exposure to shocks by food security factors confirms this relationship. Each group experiences the shocks at different levels and depending on the season.

While high food prices are considered a covariate shock affecting all in an area, they disproportionately affect the poor. The moderately and severely food insecure reported high food prices more than others, this could be attributed to exposure to higher demands at household level resulting from larger families.

Table 12: Percent of households with exposure to shocks in the past six months by food security classification

Shock	Food secure	Marginally food secure	Moderately food insecure	Severely food insecure
Loss employment/reduced salary	6.4%	36.6%	51.2%	5.8%
Sickness/health expenditure	17.6%	31.8%	46.8%	3.9%
Death of household member/funerals	22.4%	26.8%	45.4%	5.5%
High food prices	20.3%	34.0%	42.1%	3.6%
High fuel/transportation costs	37.7%	33.0%	28.3%	.9%
Rent payment	34.5%	20.7%	41.4%	3.4%
Debt	11.4%	34.8%	48.3%	5.5%
Electricity/fuel wood/kerosene	20.8%	45.8%	25.0%	8.3%
Insecurity/theft	32.5%	36.7%	29.6%	1.2%
Poor harvest	20.0%	35.9%	41.3%	2.8%
Floods, heavy rains, landslides	30.3%	38.3%	30.7%	.8%
Erratic rainfall/dry spells	23.2%	37.2%	37.7%	1.9%
Pests in cereal crops (maize, sorghum, rice	22.3%	37.8%	38.2%	1.7%
Other shock (specify)	23.0%	35.7%	38.4%	3.0%

Households were also asked about any type of external assistance they have received in the past year. Assistance could be in the form of food, non-food goods, or cash. In this survey, government and NGO / UN agency assistance was considered. Across Malawi, 47% of households received some form of assistance in the past year compared to 70% the previous year. Agricultural assistance was the most common form of assistance, received by 35% of the households. Food assistance (both in-kind food donations and cash for food) and household items assistance were also common (13% and 9% respectively). A closer examination of agricultural assistance included fertilizers, planting materials, seeds chemicals for army worm prevention.

Table 13: Percent of households that received government or NGO assistance in the past year by district

Region	District	Any form of assistance	Agricultural assistance	Household items	Grants to generate income	Food assistance (cash or in-kind)
Northern	Mzimba	72.3%	64.5%	23.7%	2.0%	6.1%
	Rumphi	70.7%	63.1%	20.9%	.4%	3.8%
	Karonga	44.7%	28.3%	13.1%	0.0%	16.0%
	Chitipa	48.7%	37.0%	13.2%	1.5%	7.3%
	Nkhata Bay	34.2%	23.1%	11.2%	.4%	5.0%
Central	Ntcheu	46.4%	43.5%	3.2%	0.0%	3.5%
	Dedza	36.6%	27.6%	3.1%	0.0%	9.3%
	Lilongwe	42.2%	34.4%	8.0%	.7%	4.0%
	Mchinji	25.6%	15.5%	7.1%	.9%	5.7%
	Dowa	26.3%	19.5%	5.6%	.3%	4.7%
	Ntchisi	20.0%	16.5%	1.5%	0.0%	3.1%
	Kasungu	38.4%	34.1%	4.3%	.3%	9.9%
	Nkhotakota	22.7%	12.7%	5.0%	0.0%	11.5%
	Salima	48.8%	41.9%	9.2%	0.0%	6.2%
Southern	Nsanje	38.5%	15.6%	6.5%	.8%	23.7%
	Balaka	64.1%	43.7%	10.4%	1.1%	32.6%
	Mangochi	42.0%	21.1%	8.5%	.6%	22.3%
	Chikwawa	41.7%	11.3%	10.7%	.3%	31.7%
	Mwanza	57.3%	50.8%	8.1%	.8%	15.0%
	Neno	58.8%	46.3%	4.7%	3.1%	16.0%
	Blantyre	44.4%	27.8%	4.2%	0.0%	22.4%
	Phalombe	66.7%	51.7%	15.3%	0.0%	28.4%
	Mulanje	44.6%	35.8%	6.3%	1.7%	9.4%
	Thyolo	52.0%	39.7%	9.2%	1.1%	9.2%
	Chiradzulu	79.6%	72.7%	10.8%	4.6%	20.8%
	Zomba	57.4%	45.4%	17.1%	.6%	22.9%
	Machinga	42.1%	30.1%	5.7%	1.1%	13.8%
Malawi		46.9%	35.3%	9.1%	0.8%	13.5%

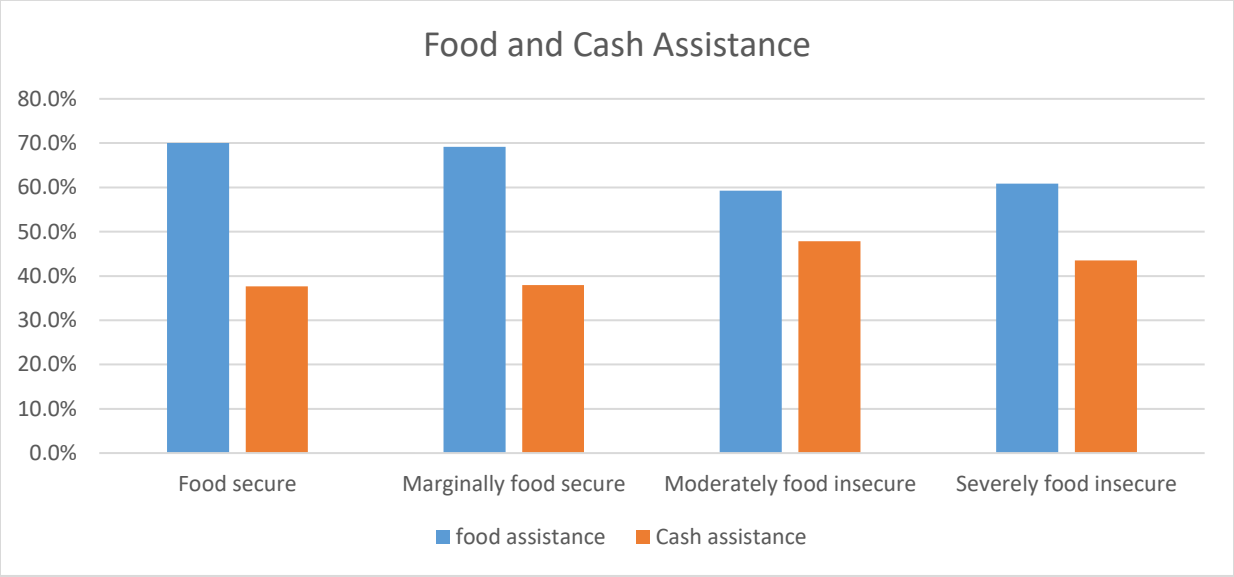
Food insecure households do not always benefit from external assistance. As shown in Table 14 the severely and moderately food insecure were less likely to received agricultural assistance and household items as assistance. Agricultural assistance most often came in the form of extension services, seed, and fertilizer distribution. Wage labourers (who often are food insecure) are not the crop farmers targeted for this type of assistance, and so less are likely to report receiving this assistance.

Table 14: Percent of households that received assistance in the past year by food security status

	Any form of assistance	Agricultural assistance	Household items	Grants to generate income	Food assistance (cash or in-kind)
Food secure	52.8%	42.1%	11.6%	1.2%	10.9%
Marginally food secure	49.2%	37.2%	10.2%	.7%	14.1%
Moderately food insecure	40.8%	29.7%	6.5%	.8%	13.4%
Severely food insecure	34.8%	22.3%	7.6%	0.0%	12.5%

Two types of food assistance were asked about in the survey – traditional food assistance and cash assistance for procuring food. A in depth analysis of these types of assistance by food security status revealed that an important percentage received in form of food compared to cash. However, for the moderately and severely food insecure received higher proportions of cash interventions.

Figure 48: Percent of households that received food assistance in the past year by food security status



Given a choice between receiving food, cash, vouchers, or a combination of these forms of assistance, 52% of respondents opted for food, followed by 29% preferring cash, 16% preferring a combination, and just 2% preferred to receive a voucher. When asked why households preferred food assistance, majority stated that this form of assistance satisfies their food shortage. Among households who would opt for cash found, they preferred cash so that they can purchase food and other items, while a small percentage said they preferred cash so that they can cover other household expenses.[7]

[7] Households could select multiple reasons as to why the prefer each of these modalities, thus the total percentage is greater than 100

Table 15: Household preference for food assistance modality by district

		Cash	Food	Voucher	Combination
Northern	Mzimba	33.8%	43.9%	4.6%	17.6%
	Rumphi	30.8%	54.8%	6.5%	8.0%
	Karonga	29.5%	53.7%	1.6%	15.2%
	Chitipa	42.1%	42.9%	3.7%	11.4%
	Nkhata Bay	38.1%	41.5%	1.2%	19.2%
Central	Ntcheu	39.7%	43.8%	.9%	15.7%
	Dedza	36.6%	52.1%	.8%	10.4%
	Lilongwe	22.0%	46.2%	3.1%	28.7%
	Mchinji	31.3%	34.2%	3.0%	31.5%
	Dowa	38.8%	34.3%	1.5%	25.4%
	Ntchisi	27.7%	50.8%	.4%	21.2%
	Kasungu	32.4%	46.9%	3.1%	17.6%
	Nkhotakota	33.8%	47.3%	1.2%	17.7%
	Salima	17.3%	50.4%	4.6%	27.7%
Southern	Nsanje	17.2%	69.8%	2.3%	10.7%
	Balaka	23.7%	63.7%	1.9%	10.7%
	Mangochi	38.3%	43.1%	2.3%	16.3%
	Chikwawa	21.0%	64.3%	1.7%	13.0%
	Mwanza	28.1%	54.2%	.4%	17.3%
	Neno	23.0%	63.4%	3.5%	10.1%
	Blantyre	19.3%	65.3%	1.9%	13.5%
	Phalombe	24.5%	54.0%	0.0%	21.5%
	Mulanje	29.5%	57.0%	3.9%	9.6%
	Thyolo	27.9%	58.6%	3.7%	9.8%
	Chiradzulu	19.2%	70.0%	1.5%	9.2%
	Zomba	28.6%	56.6%	0.0%	14.9%
	Machinga	27.2%	51.3%	3.4%	18.1%
	Malawi	**28.9%**	**52.4%**	**2.3%**	**16.4%**

11. Water, sanitation, and household structure

During the survey, respondents were asked a series of questions about household amenities including water, sanitation, source of cooking fuel, and construction materials. Following standard

classifications[8] for drinking water sources and sanitation facilities, each household's water and sanitation access was categorized as improved or unimproved. Table 16 below depicts the housing construction materials, sources of cooking fuel, water sources, and sanitation facilities available in Malawi and their classification as improved or unimproved.

Table 16: Classification of household facilities into unimproved and improved categories

Household Characteristic	Unimproved	Improved
Housing construction materials	Semi-permanent (mix of traditional and permanent) Traditional (mud, grass)	Permanent (bricks, iron sheet, cement)
Main source of cooking fuel	Firewood Animal dung Charcoal Briquettes Stalks	Electricity Gas Solar
Toilet type	Flush toilet or latrine not connected to septic tank or sewer system No facilities (river, bush, beach) Pit latrine without slab Bucket Hanging toilet or latrine Shared facility	Flush toilet Piped sewer system Septic tank Flush toilet or latrine connected to septic tank or pit Ventilated improved pit latrine Pit latrine with slab Composting toilet
Water source	Unprotected well Unprotected spring Cart with tank / drum Water tanker truck Stream, river, lake, etc.	Piped into dwelling Piped to yard / plot Public tap or stand tap Tubewell or borehole Protected dug well Protected spring Rain water collection Bottled water

Table 17 below reports the percent of households with improved facilities. According to the HIS IV, across rural Malawi, 19.7% of homes are built with permanent construction materials. Nearly no households (0.1%) utilize improved cooking fuel sources (electricity, solar, or gas). There are only marginal differences between male headed and female headed households.

Improved drinking water is well accessed by most of the households with 91% of households able to access a safe source. The most common drinking water source is from tubewells / boreholes - the main source for 77% of households-.

Table 17: Percent of households with improved facilities

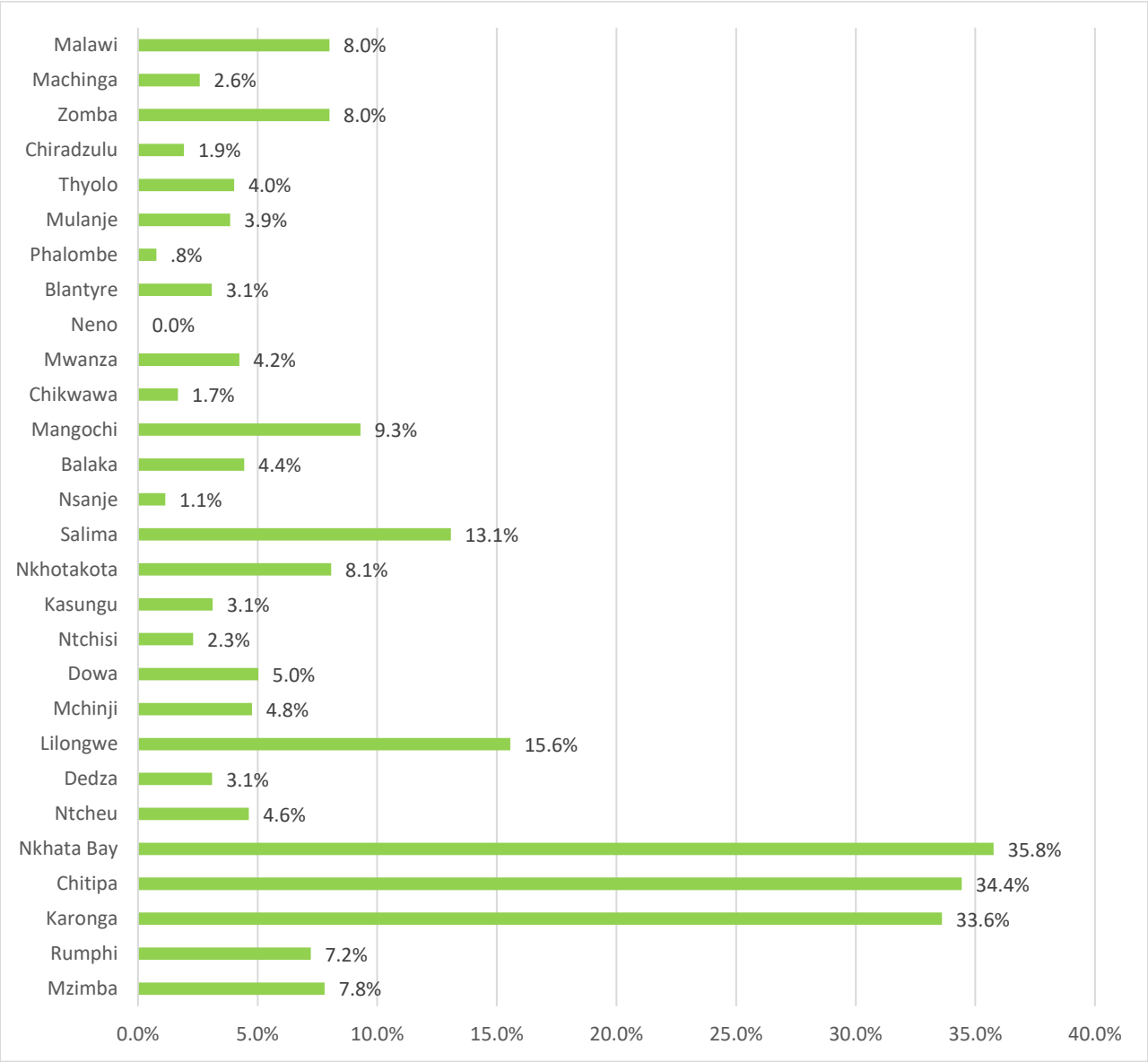
Household Characteristic	Percent of households with improved facility

[8] WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation - https://washdata.org/monitoring/methods/facility-types

Improved Housing Materials	17,8%
Improved source of cooking fuel	,0%
Improved source of drinking water	90,8%
Improved toilet facility	8%

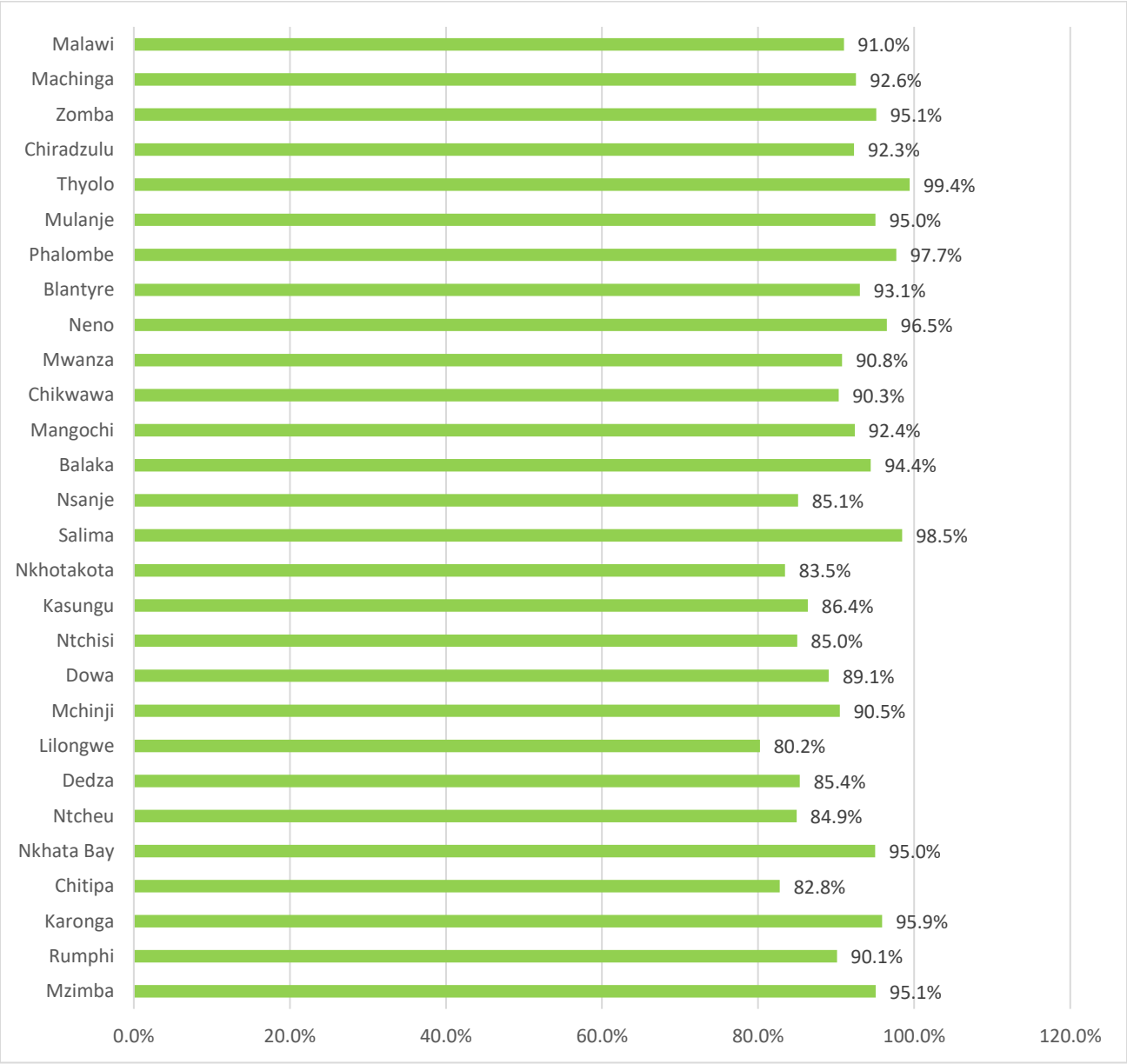
8% of rural households have access to improved sanitation facilities. As seen in **Figure 34** below, there is a large discrepancy in the Northern region where 25% or more have access to improved facilities, such as Nkhata Bay, Chitipa or Karonga with 45%, except for Mzimba district where 8% of households have access. Beyond the Northern region, in only two districts do 15% or more of households have access to improved sanitation facilities: Lilongwe, with 16%, and Salima with 13%. In multiple districts, 5% or less of households have access to improved sanitation facilities: Chiradzulu (2%), Thyolo (4%), Phalombe (1%), Blantyre (3%), Chikwawa (2%), Mchinji (2%), and Dedza (3%).

Figure 49: Access to improved sanitation facilities by district



Improved water access is significantly more common than sanitation. Overall, 91% of households have access to a safe drinking water source. In three districts, less than 85% of households have access to an improved drinking water source. These are Lilongwe, Nkotankota and Chitipa. 77% of rural households use tubewells and boreholes as their main water source.

Figure 50: Access to improved drinking water by district



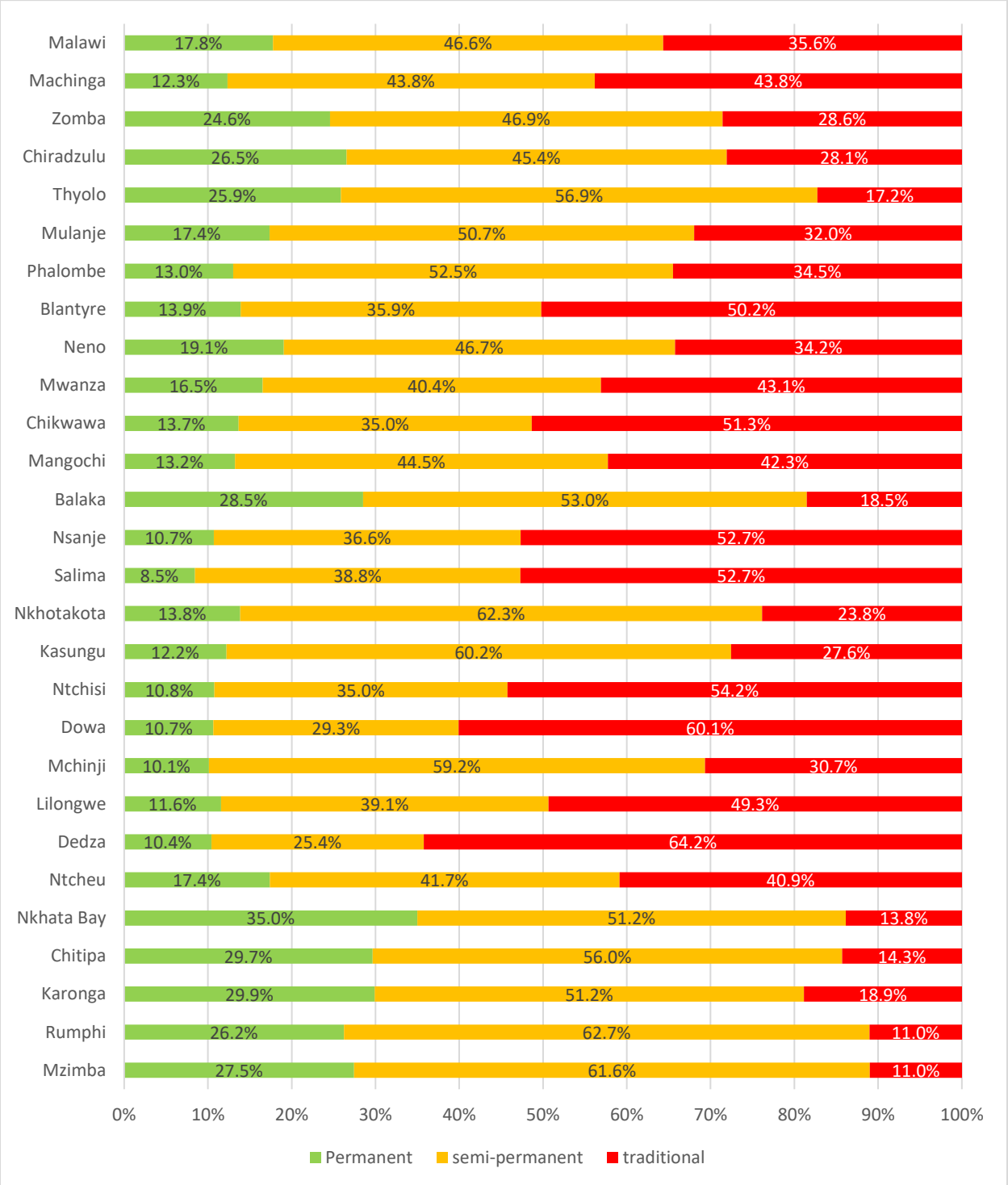
In addition to questions about the source of their drinking water, households were asked whether or not they treated their water before drinking it currently and six months ago. Nationally, 22% of households said that they did treat their drinking water, of which 70% used chlorine / water guard and the other part boiled their water. Of those who do treat their water, 90% also treated their water six months ago.

As noted earlier, just 17.8% of rural households' homes are constructed of permanent materials such as bricks, iron sheets, and cement. Another 46.6% of rural households' homes were built of a mix of permanent and traditional materials. The remaining 35.6% are constructed of traditional materials such as mud and grass.

As seen in 51below, the prevalence of traditional construction materials in housing is more common in some Southern and Central region districts than others, more specifically the North. Traditional materials

were in the majority of households in Blantyre (50%), Chikwawa (51%), Nsanje (53%), Salima (53%), Ntchinsi (54%), Dowa (60%) and Dedza(64%).

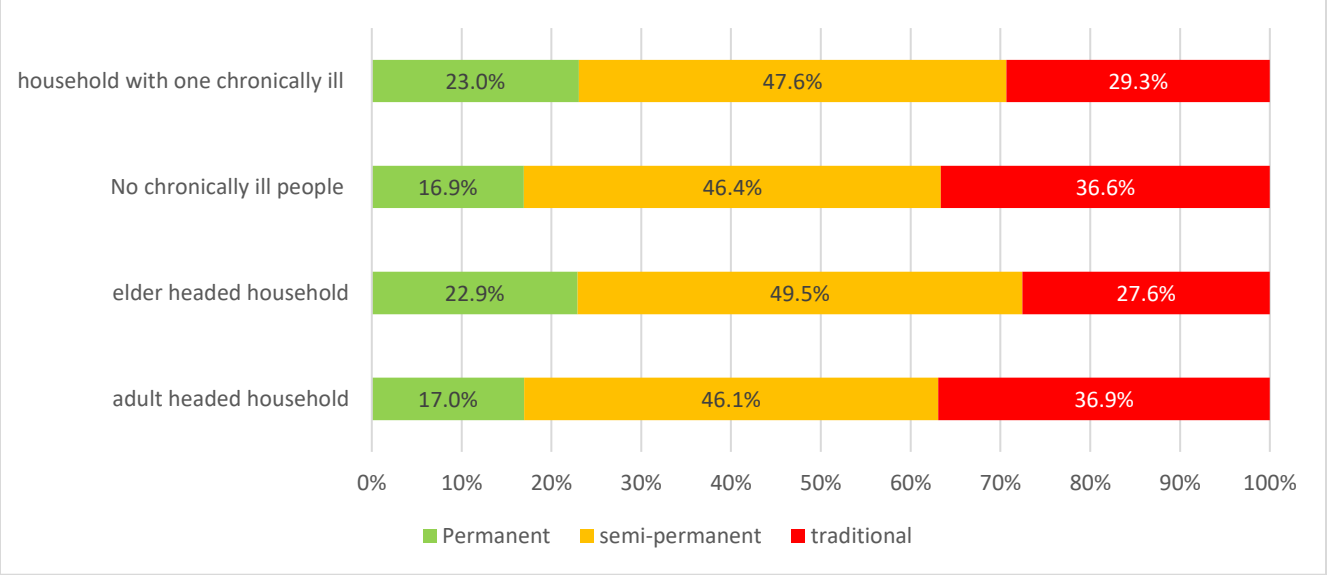
Figure 51: Housing construction materials by district



There are no relevant differences in the housing material for the male headed and the female headed households. Nevertheless, quite unexpectedly the elderly people tend to have better housing materials.

Indeed, 23% of the elderly headed households have permanent building materials, whereas this is the case for 17% of the adult headed households. Such differences may be due to the evolutions of the mindset of the local households according to the age, and to the rise of the prices of the housing materials. Moreover, such differences are also there for households having a chronically ill people, as the chronically ill households benefit from better housing materials: while 23% of these households have permanent housing materials, only 29.3% have traditional products.

Figure 52: Housing construction materials by age and chronic illness conditions of the household



Housing construction materials, drinking water sources, and access to improved sanitation were all considered as part of the asset count which has been used to describe the economic vulnerability of households. Each of these factors is a useful proxy measure of poverty. While some are often geographically determined, i.e. the ability access improved sources of drinking water, they reflect the household and the village in which they reside relative level of poverty well

12. Market accessibility and food availability

In this section there are two parts that have been addressed, the first dealing with access issues at the household level. The second part focuses on the markets aspects, their functionality and specific parameters considered

12. 1 Household access

Physical access to food markets is a key component of food access for purchasers and market opportunities and costs for producers. Many rural Malawians usually travel a substantial distance to reach a regular, daily market. Transportation options are often limited with many walking to the market when needed. During the survey, households were asked how much it took them to reach the market (in minutes), how they typically reach the market, and the average cost of going to the market.

Four out of five households (82.7%) primarily walked to the nearest market. The next most common mode of transport to the nearest market is to go by bicycle (12%) with a few households going by car or bus

(3.1%), and just 1.7% by motorcycle. Regardless of the mode of transport, the average amount of time spent to reach the market was one hour and few minutes nationally.

At district level, the greatest amount of time spent to reach the market on average is in Chitipa, where households spent nearly two hours (103 minutes) to reach the market, followed by Mwanza with an average of just under 85 minutes to reach the market. Bicycle use to the market was more than 15% in Chikwawa, Phalombe, Balaka, Salima, Mchinji, and Karonga. In Mwanza, Neno, Karonga and Chitipa had the highest amount of money spent to travel to markets. It should however be noted that households were asked to respond with their primary / usual mode of transport. They may have taken multiple modes to reach the market and they may use different modes depending on circumstances.

On average, households in Mangochi, Mulanje, Chiradzulu and Ntcheu spent the least amount of money to reach the nearest food market, averaging less than 87 MWK per market visit. The least amount of time to reach the market is in Nkhotakota at 44 minutes followed by Mulanje at 48 minutes.

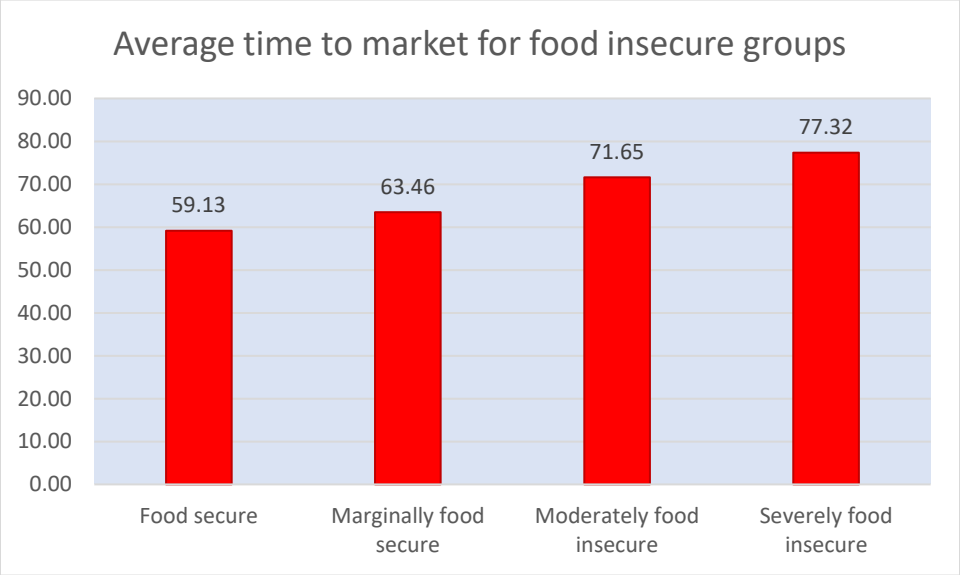
Table 18: Distances and transports to the market:

		Walk	Bicycle	Motor bike	Car/bus	Other	Time to market	Cost of transport
North	Mzimba	77.2%	11.6%	1.2%	10.1%	0.0%	72.47	162.14
	Rumphi	76.4%	19.4%	2.7%	1.5%	0.0%	63.96	193.23
	Karonga	76.2%	15.2%	3.3%	4.9%	.4%	67.29	418.44
	Chitipa	83.2%	8.4%	1.1%	5.9%	1.5%	103.36	489.23
	Nkhata Bay	83.5%	3.5%	0.0%	7.7%	5.4%	66.58	369.81
Central	Ntcheu	83.2%	8.1%	3.2%	5.2%	.3%	70.37	86.38
	Dedza	82.8%	9.3%	2.8%	5.1%	0.0%	72.37	162.28
	Lilongwe	90.0%	9.1%	0.0%	.7%	.2%	55.79	199.78
	Mchinji	79.5%	19.3%	1.2%	0.0%	0.0%	70.35	192.71
	Dowa	86.4%	10.4%	3.0%	.3%	0.0%	66.02	128.40
	Ntchisi	83.5%	9.6%	2.3%	4.6%	0.0%	54.65	194.42
	Kasungu	88.9%	9.1%	.3%	1.7%	0.0%	57.04	113.78
	Nkhotakota	84.6%	13.1%	0.0%	2.3%	0.0%	44.45	118.85
	Salima	83.5%	15.0%	1.2%	.4%	0.0%	50.44	224.42
South	Nsanje	89.3%	9.9%	0.0%	.8%	0.0%	78.40	229.20
	Balaka	67.4%	25.2%	.4%	7.0%	0.0%	58.82	166.11
	Mangochi	92.4%	7.3%	.3%	0.0%	0.0%	52.95	96.90
	Chikwawa	84.0%	15.0%	.3%	.7%	0.0%	66.09	128.33
	Mwanza	70.0%	12.7%	14.2%	2.3%	.8%	85.02	356.62
	Neno	78.2%	12.8%	3.5%	5.4%	0.0%	75.41	349.81
	Blantyre	85.7%	10.0%	.8%	3.5%	0.0%	83.56	112.93

	Phalombe	74.7%	23.8%	.4%	1.1%	0.0%	71.31	118.58
	Mulanje	86.2%	11.0%	.6%	1.9%	.3%	48.42	21.10
	Thyolo	92.2%	4.3%	1.1%	2.3%	0.0%	61.13	112.93
	Chiradzulu	88.8%	6.9%	1.2%	2.7%	.4%	54.54	80.58
	Zomba	82.3%	12.9%	1.7%	3.1%	0.0%	75.41	253.29
	Machinga	84.0%	14.3%	0.0%	1.7%	0.0%	65.36	125.72

Poorer, food insecure households tend to live in more remote areas and spend more time on average than wealthier, food secure households to reach the market. Severely food insecure households spent an average of 77 minutes to reach the market, 71 minutes for the moderately food insecure, 63 for the marginally food secure, and 59 minutes for food secure households.

Figure 53: Average travel time to nearest food market by household food security status



Food availability at the markets was generally good with 82.2% of households reporting that basic commodities are usually available at their nearest food market. This varies by district, with the lowest availability reported in Nkhotakota district where basic commodities were found at the market by 59% of households, followed by 69% in Mangochi.

Malawi's grain marketing body – ADMARC (Agriculture Development and Marketing Corporation), buys agricultural produce, including maize, from traders and smallholder farmers. This year, ADMARC was allocated any funds to purchase Maize. However, whatever they have in their stores the corporation plans to dispose off at a price of 150MWK.

ADMARC markets varied considerably in terms of the availability of maize. Nationally, just 24.3% of households reported that the nearest ADMARC market has maize at the time of the survey. In most of the districts, less than 20% of households reported that maize was available at the nearest ADMARC. In Ntcheu and Dedza 9.3% of the households reported maize availability at the nearest ADMARC market, 13.1% in Salima, 11.8% in Nsanje, 7.0% in Chikwawa and 12.9% in Machinga.

If a household stated that the nearest ADMARC did not have maize, they were then asked how long it had been since there was maize in stock. Most (86%) did not know while 13.2% said it had been more than two weeks.

13. Market Assessment

Introduction.

To understand how markets were going to behave and function during the 2018/19 consumption season, a light market survey was implemented alongside the Household Economy approach (HEA) and a Household Food Security Survey.

The main purpose of the market assessment was to determine maize market functionality during the 2018/2019 consumption year and make recommendations on appropriate food security response interventions for the design and implementation of any food security responses by the humanitarian actors. Specific objectives include:

- Determine accessibility of markets to affected populations
- Review maize price information on local markets and how the prices will most likely change as the consumption period progresses to the lean period
- Identify any potential inflationary risks associated with increased local demand arising from the use of cash transfers
- Assess current and potential availability of maize supplies for the Districts as the season progresses
- Determine the ability of the markets and traders to respond to increased demand
- Analyze the grains market systems, both for the postharvest and lean season and identify any possible market system intervention points that can support access to food for the poor and vulnerable households during the lean period
- Assess cross-border trading activities associated with supply of grains (maize and pulses) Assess the interconnectedness of markets from surplus to deficit areas/ districts
- Recommend the most appropriate response during the consumption period

Methodology

The assessment employed both secondary and primary information sources to meet the stated objectives. The secondary source information about the market profiles, market functionality and historical prices data was obtained from various sources, mostly Ministry of Agriculture irrigation and Water Development, FEWSNET, United Nations World Food Programme, National Statistical Office, Reserve Bank of Malawi, and MVAC. The primary data was collected from market actors (traders) and key informants. Information about markets and traders were collected through a structured survey questionnaire and data was collected through tablets.

A half-a day orientation was provided to data collectors with teams drawn from membership of MVAC. The selection of markets in the districts was done using secondary information, however district markets and key supply source markets were purposively sampled. The primary data was analyzed using SPSS software.

Limitation

Due to budgetary constraints the assessment was done alongside the HEA as such only key markets which were usually district headquarter markets as well as key supply or source markets were purposefully selected. Secondly, most markets tend to operate to full capacity only on fixed 'market days' as such it was not unavoidable that the assessment team visited some markets on non-market days.

14. Macro-economic factors

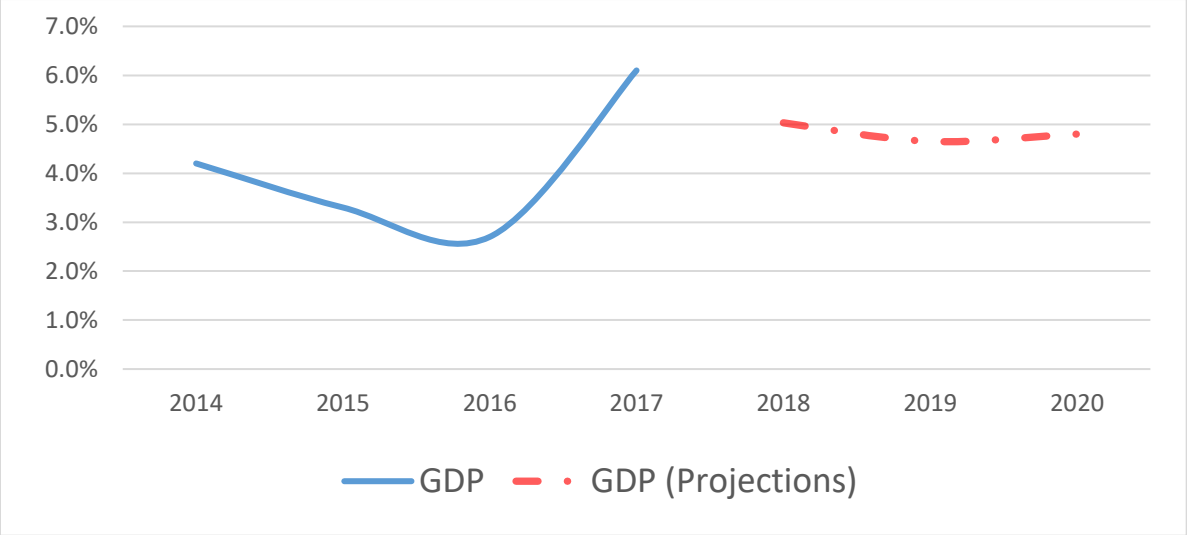
Gross domestic product

The agricultural sector is very significant to Malawi's economy and it accounts for approximately 30 percent of Gross Domestic Product (GDP). The agriculture sector also contributes to the country's foreign exchange earnings, making Malawi vulnerable both to weather conditions and external price shocks. The country's main exports are tobacco, tea and sugar. The real Gross Domestic Product in Malawi expanded by 5 percent in 2013 from the previous year as result of good performance in the agriculture and manufacturing sectors. The annual growth rate averaged 4.39 percent from 1994 until 2013, reaching an all-time high of 16.70 percent in 1995 and a record low of 10 percent in 1994.

Recently, the economy grew by 2.7 percent in 2016 from 3.3 percent in 2015 and the agricultural cumulative output reduced by 35% in 2016. The slow economic activity during this period was caused by the flooding in 2015 and the prolonged dry spells due to El Niño in 2016. According to the Budget Statement of 2017, the Malawi Government noted that signs of recovery started showing in the second

half of 2016 when the inflation started declining during the 2016-17 season. Growth in 2017 was projected to rebound to around 6 percent, on the back of favourable weather conditions and improving macroeconomic environment. Looking ahead, the economic growth outlook for 2018 has been weakened mainly due to the impact of dry spells, Fall Army Worm, and intermittent power supply. Furthermore, real GDP is projected to be around 4.03 % in 2018; 4.65 % in 2019; and 4.8 % in 2020.

Figure 54: GDP growth rate (IMF, EIU)



Inflation rate

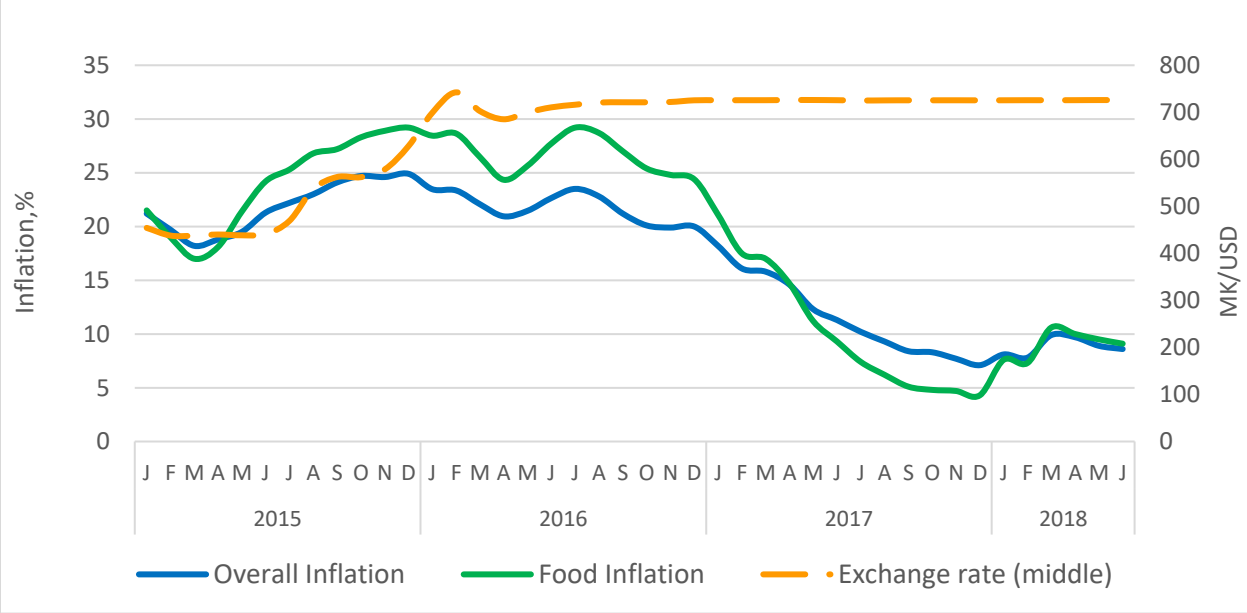
The Consumer Price Index measures a broad rise or fall in prices that consumers pay for standard basket of goods and services. Since May 2012, Malawi has experienced very high levels of inflation due to devaluation of the Kwacha against the dollar, policy shift in exchange rate regime, and the increase in prices of petroleum products in line with import costs, and adoption of an automatic adjustment mechanism of exchange rate.

Headline inflation remained stubbornly high, averaging 21.7 percent during 2016, compared to an annual average of 21.9 percent observed in 2015 and 23.8 percent in 2014. This was mainly attributed to the comparatively poor agricultural yield across the country in 2015/2016 agricultural season because of weather related shocks which pushed food prices up. Consequently, food inflation in 2016 accelerated to 26.6 percent from 23.9 percent in 2015 whereas non-food inflation eased to 17.1 percent from 20.0 percent in 2015.

However, since the last quarter of 2016 (as seen in Figure xxx below), inflation rate has been on a downward trajectory. It eased to a new record low of 7.1 percent in December last year on a back of stable and low food prices, beating the Central bank's projected rate by 1.5 percentage points.

Recently, the consumer headline inflation braked to 8.6 percent year-on-year in June 2018, from 8.9 percent in May 2018. While Food inflation also continued to soften in the month of June standing at 9.1 percent down from 9.5 percent in May. Currently, the central bank projects annual average inflation for 2018 at around 9.0 percent. Despite the recent reduction in inflation, the Central Bank notes that risks to inflation outlook persist which include rising global oil market prices. Furthermore, effective 17th July, the Government of Malawi adjusted upwards the fuel prices of petrol, diesel and paraffin by 7.68 percent ,9.21 percent and 10.88 percent because of increased landed costs of fuel. The increase in fuel prices is likely to have a significant impact on the pricing of goods and services in general, and the move is likely to push up food prices in the coming months.

Figure 55: Inflation and Exchange rates (NSO, RBM)



Exchange rate

According to RBM Annual Report (2016), the Malawi kwacha depreciated against currencies of its major trading partners in 2016 except for the British pound. However, volatility of the kwacha was relatively lower than in the preceding year due to tight liquidity conditions that resulted into suppressed demand for foreign exchange on the local market. The kwacha was relatively stable against the US dollar in 2016 as it registered a depreciation of 9.1 percent compared to 41.1 percent in the preceding year. The local currency traded at K734.22 per dollar at end 2016 from K664.37 per dollar in 2015. Similarly, the kwacha

lost ground by 5.1 percent against the euro and 12.6 percent against the yen to trade at K763.58 per euro and K6.20 per yen at end of the year in review. On the contrary, the kwacha firmed up against the British pound by 9.5 percent and traded at K890.39 per pound in 2016. The appreciation was explained by the weakening of the pound because investor uncertainty following Britain's exit from the European Union. Within the region, the kwacha depreciated against South African rand by 24.8 percent to trade at K53.28 per rand at end 2016, largely due to strengthening of the rand during the second half of the year.

At the end of December 2017, the local currency was officially trading at MWK 725.3978 (middle rate), which was about 4 percent lower than the parallel market. Based on recent developments in the domestic economy such as the recent disinflation, inflation outlook and the desire to consolidate the gains main in stabilizing the economy, the Monetary Policy Committee reduced the policy rate (rate that commercial banks borrow from the central bank) to 16 percent in December 2017 and has been maintained since the last monetary policy meeting in July.

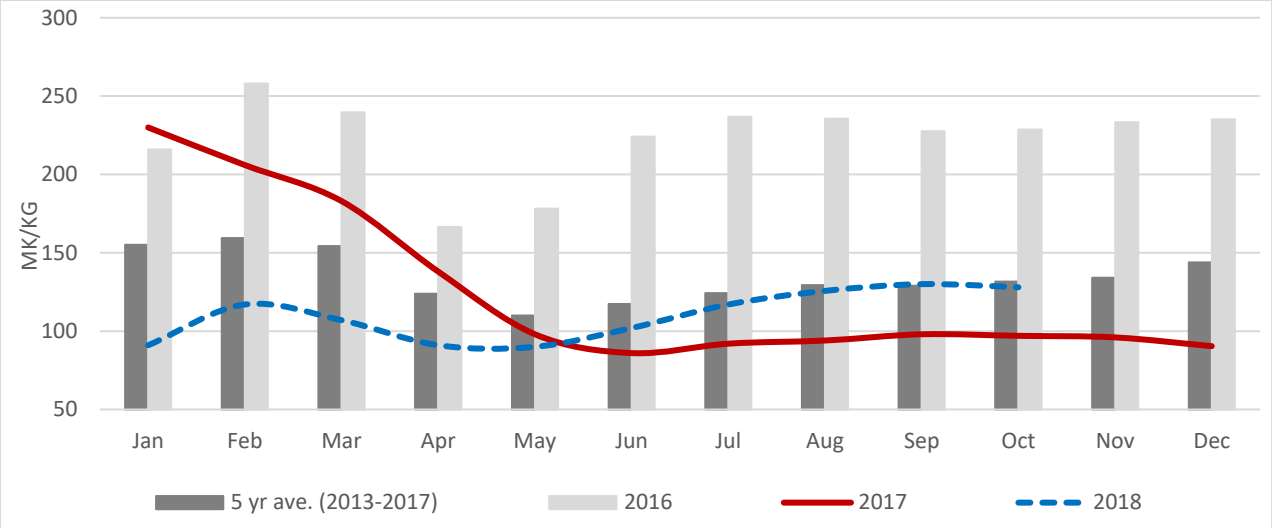
As of June 2018, the official exchange rate continued to be stable, trading at around K726 (middle rate) against the United States dollar, while the rate was around 4 percent higher on the parallel market.

15. Maize price trends

The price trends of maize grain normally follow seasonal pattern where during the harvest season prices tend to decrease then gradually increase during the post-harvest season and eventually reaching the highest during the peak of the lean season. In July 2018, the average nominal retail price of maize across markets was at Mk 117 per kilogram which was 27 % higher than the same time last year however remained 6 percent below the five-year average.

The average maize grain prices decreased by 23 percentage between February and May as majority of households were consuming from own production and there was minimal grain training on the local markets. However, since June there has been a gradual increase in prices following season trends as well as due to lower maize production estimated at 22 percent drop compared to last year at 2,697,959 metric tons.

Figure 56: Nominal maize price trends



16. Households' access to markets

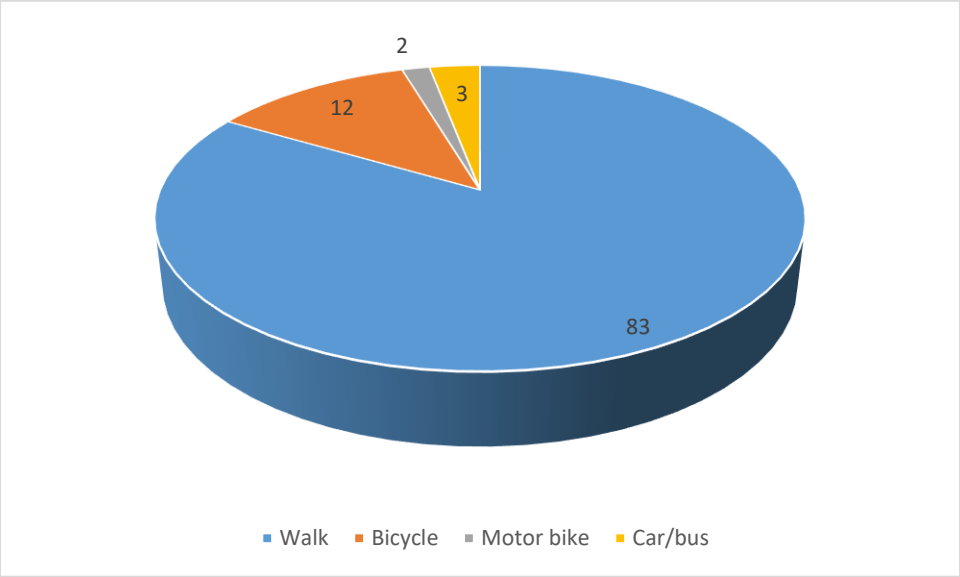
The issue of physical access to market is one of the crucial components in market-based response option analysis. Market access creates favorable condition for goods and services to move from source markets to destination markets and hence it heavily influences a commodity's price level. Based on the food security household survey results, about 70 percent of the households took less than one hour to reach the nearest food market. Only in Mwanza district that less than half of the households (45 percent) took less than one hour to reach the nearest food market. Most of the households walk (83 percent) to the food market, 12 percent use bicycle and only 3 percent use vehicles and 2 percent use a motor bike.

However, based on secondary data, there are few pocket areas that have physical access challenges during the rainy season. Traditional Authorities with access challenges during rainy months are TA Mkumbira in Zomba; TA Ndamera and TA Tengani in Nsanje; TA Dambe in Neno ; TA Kanduku in Mwanza and TA Kasakula in Ntchisi. Any programming of cash-based transfers should aim to target dry days.

Table 19: Households distance to markets by district:

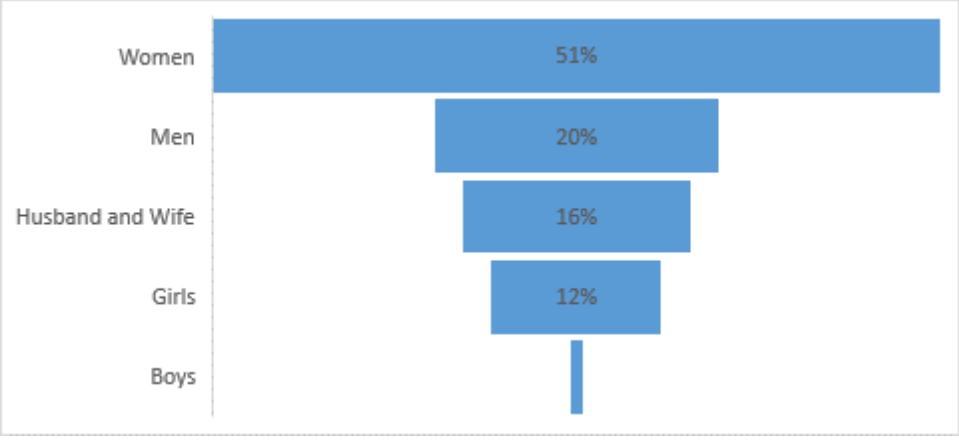
	Less than 30mins	30mins to 1 hour	1 hour to 2 hours	2 hours to 3 hours	More than 3 hours
Nsanje	34	33	16	9	7
Balaka	40	35	19	6	1
Mangochi	61	18	11	5	5
Ntcheu	33	33	22	9	2
Dedza	36	32	18	9	5
Lilongwe	41	32	22	5	
Mchinji	39	28	19	8	5
Dowa	42	28	19	8	3
Ntchisi	40	39	17	3	
Kasungu	41	35	20	3	1
Mzimba	29	34	30	5	2
Chikwawa	38	30	24	5	3
Rumphi	36	35	23	3	3
Karonga	45	25	20	7	3
Chitipa	25	21	27	19	8
Nkhata Bay	44	25	20	6	5
Nkhotakota	58	27	10	3	2
Salima	43	37	17	2	1
Mwanza	30	24	28	12	6
Neno	33	28	22	14	4
Blantyre	25	35	26	7	6
Phalombe	35	32	23	6	4
Mulanje	44	43	11	2	1
Thyolo	35	43	14	4	4
Chiradzulu	44	32	21	3	1
Zomba	26	37	29	5	3
Machinga	51	25	12	3	9
Total	**39**	**31**	**20**	**6**	**3**

Figure 57: Mode of transport to reach the nearest food market (%)



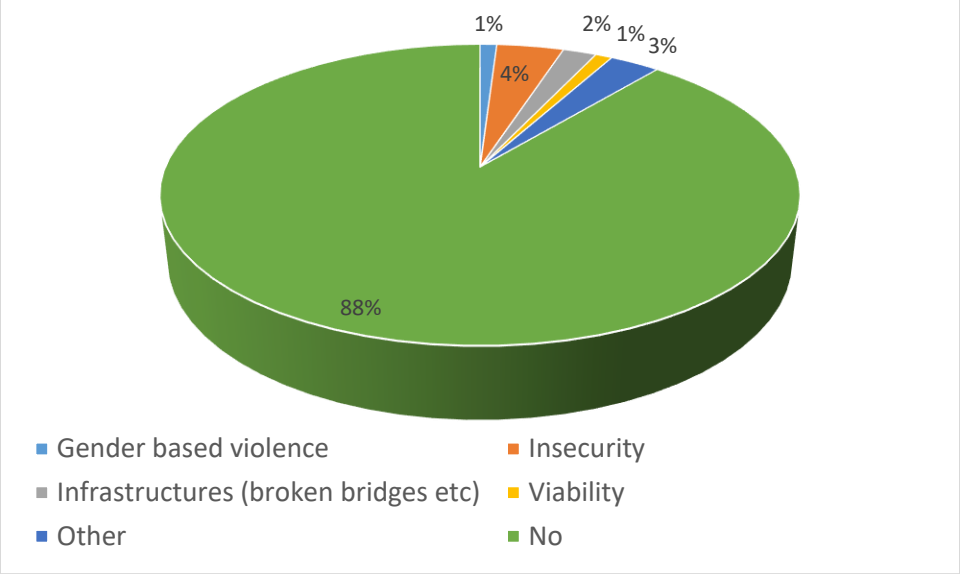
Based on the household food security survey, households were asked to indicate the person who usually goes to the food market. The results show that half of food market goers are women, one fifth are men and about one tenth are girls. As such any form of cash-based programming ought to identify women as key receipts since they are the ones that usually go to the food market.

Figure 588: Food Market goers



In addition, the household survey asked households if there were any safety concerns on the way to and from the food market. Almost nine in ten of the households didn't report any safety concerns, 4 percent reported insecurity concerns, 2 percent infrastructure concerns and 1 percent had concerns about gender based violence.

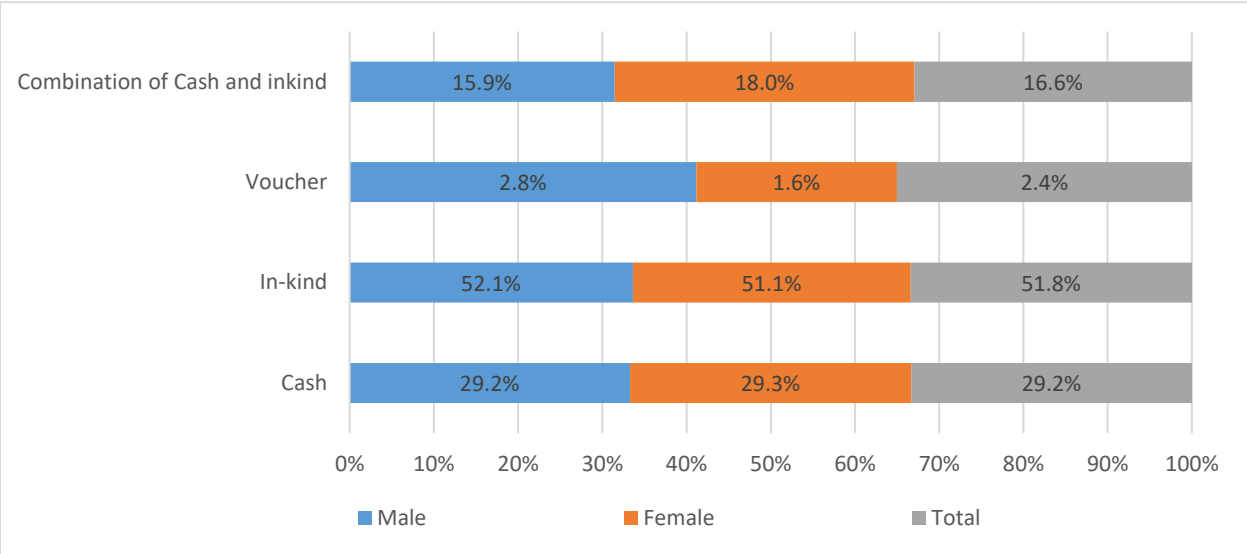
Figure 59: Safety concerns on the way and from the market



17. Transfer Preferences

The household food security assessment also sought views from the sampled population in terms of transfer preference of cash, voucher, in-kind or any combination. The results of the assessment showed that about 29.2 % of the respondents preferred cash, 51.8 percent in-kind food assistance, 2 percent voucher and 16.6 percent a combination of cash and in-kind. There was no significant difference in terms of preference between male and female headed households.

Figure 60: Transfer modality preference



Based on secondary data, preference for in-kind assistance is usually looked at to maintain food security in the homes, does not bring inflationary pressures in the local economy as compared to cash-based transfers. On the other hand, cash tends to be preferred since one can buy other nonfood essentials such as expenditure on health, education and to start up small businesses; avoidance of queues at distribution centers; ease and discrete manner of receiving cash; overcome sell of in-kind assistance at disadvantaged terms of trade.

Trader's characteristics

In terms of categorization of the traders, the analysis followed definitions used by the Agro-Economic Survey Unit of the Ministry of Agriculture Irrigation and Water Development.

a. Big vendors: purchase from producers and traders either at their store location or at farm gate and sell to processors, institutions or traders using the wholesale unit, bag. These big vendors never sell grain at retail unit, KG. They transport grain at the door step of processors or buyer of the grain. The financial capacity is strong as compared to the remaining two categories indicated below. Big vendors never sell to consumers. The number of big vendors at TA level markets are expected to be few.

b. Medium vendors: purchase from producers and traders either at their store or at farm gate and in most cases, sell to traders and/or consumers, using both retail and wholesale units. The distinction from big vendor is that this group sell in retail unit directly to consumers in the same market they purchase the commodity. They supply rarely to processors and institutions that float grain tender. The number of medium vendors are higher than big vendors in any given market.

c. Retailer: purchase from producers in and/or traders in the same market or far distance for sell to ultimate consumers using retail unit. This group never sell to processors or institutions. Their business capacity is low to meet the minimum requirements of processors and institutional purchase.

Grain traders

The proportion of grain traders interviewed for the assessment were 26% (30) big vendors, 55% (64) medium vendors and 19% (22) retailers. Since the study used purpose sampling the aim was mainly to target big and medium traders as they hold large stocks and are very knowledgeable of the grain market dynamics. The assessment mainly targeted maize traders and those involved trading in pulses. The number of grain traders by gender and type of activity engaged shows significant differences between male and female grain traders. Male grain traders comprise about four-fifths of the interviewed traders and more in the big and medium trader categories. The domination of male grain traders in the big and

medium categories of the grain business is most likely the reflection of male engagements in the business for long period of time and easier access to working capital and financial sources.

Figure 61: Distribution of grain traders

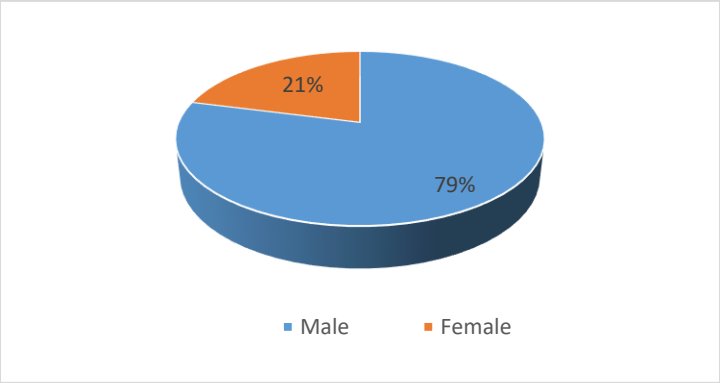


Table 20: Distribution of grain traders by gender and trader category

	Big	Medium	Retailer
Male	28%	60%	12%
Female	17%	38%	46%
Total	**26%**	**55%**	**19%**

Vegetable oil and Corn Soya-Blend (CSB)

The assessment team was also able to observe the availability of vegetable oil and corn-soya-blend. Vegetable oil which was readily available in the assessments markets, some locally produced while others were from neighboring countries. Through key informant interviews, it was observed that government had again removed VAT on vegetable oil for the second year in a row as such prices are not expected to increase as much in the coming months. A key concern on vegetable oil found on the local markets is whether it complies with the Malawi Bureau of Standards mandatory requirements for Vitamin A fortification and other minerals. With regards to CSB, the availability of the product at Traditional Authority level markets is very limited. The product is mostly found in shops located at the district headquarters and in supermarkets located in big towns and cities.

18. Flow and volume of traded commodities

The main staple food commodity, maize, is largely produced in the Central and Northern region of the country. The commodity flows from these two regions to the food deficit region (Southern region) and within the region where the demand for the commodity exists. The flow direction and volumes of grain varies during the postharvest and lean season. Post-harvest season is characterized by the aggregation of

grains in rural locations to move to main trading centers and towns. Basically, the flow of commodities is based on the demand for household consumption and as well for processors and institutional stocks. Processors and institutional warehouse facilities are in major urban centers mainly Lilongwe and Blantyre. In visited TA level markets, there are assemblers who buy grain directly from farmers for sell to mobile traders who come at a given trading center mostly during the 'weekly market days' to buy and transport the commodities to main towns and cities. On the other hand, grain traders from other urban centers (like Blantyre, Lilongwe, Balaka etc.) travel to major rural supply markets, rent available stores, buy and finally take out the commodities. Such a practice is predominantly employed in the Central and Northern regions of the country where production is available in sufficient amounts. Figure xxx shows the flow direction of maize within the country.

Figure 62: Markets trading routes in Malawi

19. Credit and stock strategy

This section focuses on access to credit, owning bank accounts, source markets and available storage facilities.

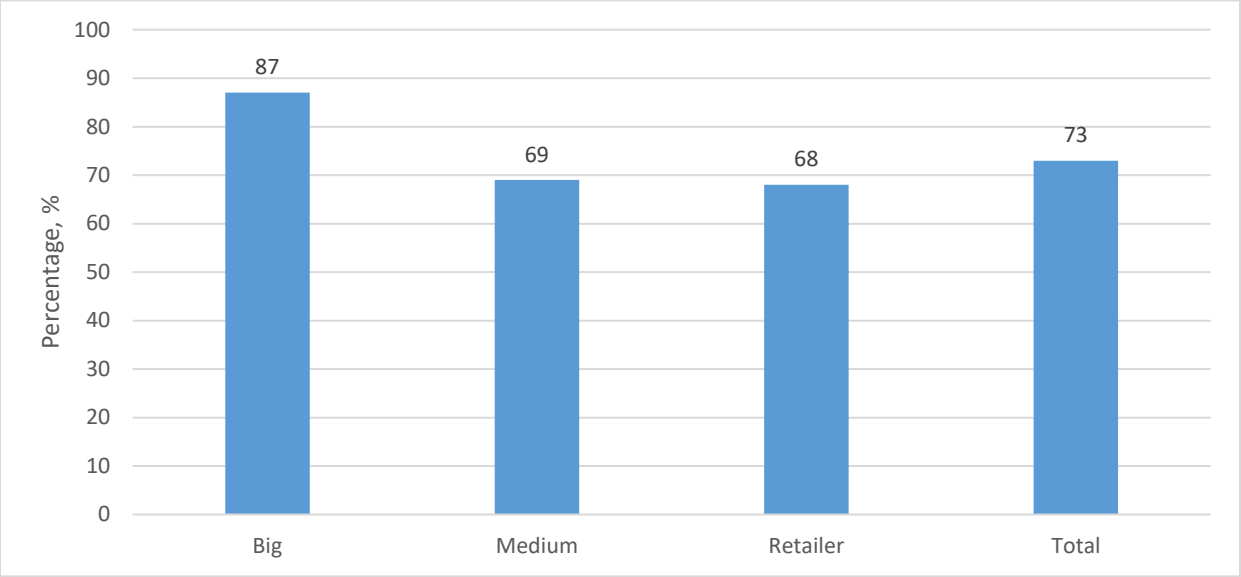
The traders were asked to indicate if they ever received credit in the last two years to run the grain business. In total, 33 percent of the grain traders indicated to have received credit in the last two years, with a higher percentage among the big traders at 34 percent seconded by the medium traders at 30 percent. This implies that large proportion of traders were dependent on their own capital to operate grain trade. In terms of retailers who didn't access credit, high interest rates (35 percent) and collateral requirements (27 percent) were noted to be an impediment to credit access.

Table 21: Response to request for credit and reasons for not getting a loan in the last two years (%)

		Reasons for not getting a loan in the two years					
	Received credit	No need for credit	Need credit but cant get	High interest rate	High collateral requirements	Less amount available versus the need	Other
Big	43	41	9	32	14	5	0
Medium	30	28	17	26	28	0	2
Retailer	27	27	12	35	27	0	0
Total	33	30	14	29	25	1	1

About 87% of big vendors, 69% of medium vendors and 68% of retailers do have a bank account. This implicates that most of the vendors do have information and experience in dealing with banks and have better opportunity to access credit from banks as compared to vendors without a bank account.

Figure 63: Ownership of bank accounts (%)



Storage facilities remain a key factor that not only affects quality but quantity of the grain as well as an indicator of the level of capacity for the trader. In general, the results show that only 26 percent of the traders had own warehouse as a storage facility for the grains while 18 percent used rented warehouse. About 21 percent used a shop and a 23 percent used the residential house. Big traders were more likely to use own warehouse than the medium traders and retailers. The lack of proper storage facility tends to result in grain losses due to factors like heat, pests and aeration.

Table 22: Percentage distribution of storage facility

	In my house	In my shop	In my warehouse	In rented warehouse	In open space	Other
Big	11	23	37	20	9	0
Medium	22	20	24	19	14	0
Retailer	39	22	13	13	9	4
Total	23	21	26	18	12	1

In addition, the availability of warehouses dedicated for grain trade with big and medium grain vendors is indicative of the existing storage facility to increase their sales volume. As per figure xxx below, there is a significant difference among traders' category in terms of their storage capacity and this directly reflects the scale of business operation. More than half of the big traders' have storage capacities of more than 40Mt while one quarter of the medium vendors and none of the retailers do have such level of storage capacity. About three quarters of the retailers do have the capacity to store less than 5mt of grains. The low level of storage capacity for retailers is likely to be associated with the frequency of restocking and

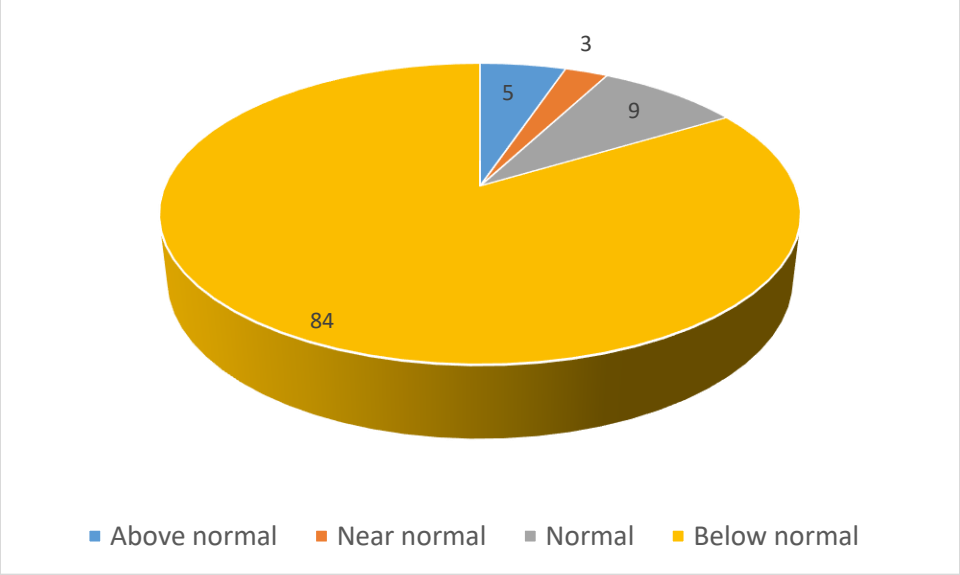
volume of purchase per restocking rounds. Compared to big and medium traders, retailers buy small quantities of grain with frequent restocking while the big and medium traders buy higher volume of grain at once and it takes relatively more time to deplete the stock.

Table 23: Percentage distribution of storage capacity

	less than 5mt	5.01mt-10mt	10.01mt-20mt	20.01mt-30mt	30.01mt- 40mt	40mt +
Big	7	7	10	13	3	60
Medium	22	11	22	13	8	25
Retailer	73	23	0	5	0	0
Total	**28**	**12**	**15**	**11**	**5**	**29**

As was shown in the food security chapter, the current year production is much lower compared to the previous year both within the country and in the neighboring countries. This decreased production is likely to translate into supply challenges for the staple grains to the markets and hence may result in availability challenges. The study asked grain traders to rate the supply of staple grains to the market as compared to a year ago. The results show that about 84 percent of the grain traders rate the current supply as below normal, 9 percent as normal and only 5 percent as above normal.

Figure 64: Traders' ratings of markets supply (%)



20. Traders Response capacity and constraints

In terms of response capacity to induced demand, the survey result shows that 99%, 90% and 54% of interviewed traders have the capacity to respond to respectively 25%, 50% and 100% additional demand. The response capacity of traders indicate declining trends as the demand increases from 25% to 100%.

In line with the response capacity of traders, about 78 percent of traders expect prices to increase and to remain higher for the period of demand increases. Furthermore, big traders are the ones who supply grains during the lean season and 80 percent of them expect increase in price that will sustain for period the demand increases. In addition, one fifth of the interviewed traders indicated that a price change would be temporary till the markets would respond to the changes in demand and only 2 percent thought prices would decrease.

Figure 65: Response capacity to demand increases

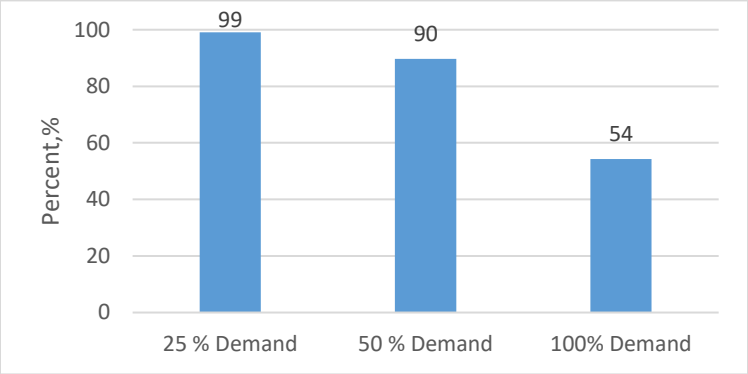


Table 24: Response of traders on price changes duration for 25% demand increases

	No change	Decease	Increase
Big	20 %	0 %	80 %
Medium	20 %	3 %	77 %
Retailer	23 %	0 %	77 %
Total	**21 %**	**2 %**	**78 %**

It is known that supply response to meet the additional demand takes time since grain must be transported from supply sources. About 66% of grain traders indicated that it takes about one week to respond to 50% of additional demand. In addition, the lead time to respond to 50% additional demand shows that 17 % of traders will respond within two weeks, 5 % within one month and 2 % for more than one month. Furthermore, 94 % of big vendors and 81 % of medium vendors need the maximum of two weeks to respond to 50% additional demand. The frequency of response to the affected population is on

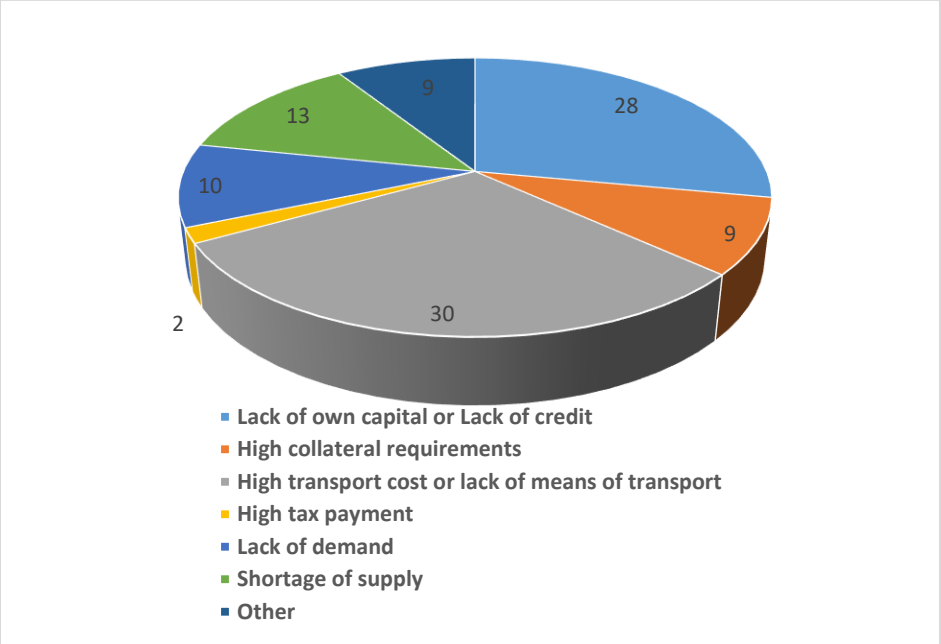
a monthly basis and hence the lead time to respond to induced demand by big and medium vendors is likely to increase the trade volume.

Table 25: Lead time to respond to 50% additional demand (%)

	No, I can't promise	One week	Two weeks	One month	More than one month
Big	0	67	27	7	0
Medium	13	67	14	5	2
Retailer	18	59	14	5	5
Total	10	66	17	5	2

The main constraints identified by the interviewed traders to double the current business were high transport costs or lack of transport (30%), lack of capital or lack of credit (38 %), shortage of supply (13 %), land of demand (10 %). Based on informal discussions with traders, policy changes in relation to export bans for maize and related products remains a challenge in the grain market in terms of implementation period.

Figure 66: Constraints to double business



21. Recommendations

Based on the physical access of the markets in most areas; market prices still being relatively low; significant carry overstocks by both National Food Reserve Agency and ADMARC coupled with government ban on maize exports, its recommended that cash-based transfers would be the ideal modality for the food insecure population. However, based on secondary data, there are few pocket areas that have physical access challenges during the rainy season. Traditional Authorities with access challenges during rainy months are TA Mkumbira in Zomba; TA Ndamera and TA Tengani in Nsanje; TA Dambe in Neno; TA Kanduku in Mwanza and TA Kasakula in Ntchisi. Any programming of cash-based transfers should aim to target dry days.

ANNEX

Computation of indicators

Food consumption score

The food consumption score (FCS) is a composite score based on the dietary diversity, food frequency, and relative nutritional importance of various food groups consumed by a household.

Households were asked how many days in the week preceding the survey they had eaten a food item from a list of various food items eaten commonly in Indonesia. Those items are divided into eight standard food groups: main staples (such as rice, maize, and cassava); pulses (including beans and nuts); meat, fish, poultry and eggs; vegetables (including green leafy vegetables); fruits; oils and fats; milk and other dairy products; and sugar.

Once the items are categorized into the appropriate food groups, the relative nutritional value of each group and the frequency of consumption (with a maximum of seven days per group) are used to calculate the FCS. This is done by multiplying each food group frequency by each food group weight, and then summing these scores into one composite score.

$FCS = \sum x_i * a_i$

FCS = Food consumption score
x_i = Frequencies of food consumption (number of days each food group was consumed during the past 7 days)
a_i = Weight of each food group (see table below)

Table 26: Food groups and weights used to calculate the food consumption score

Food item	Food group	Weight
Rice, maize, cassava, bread, roots and tubers, plantain	Cereals, tubers and crops	2
Pulses, beans and nuts	Pulses	3
Vegetables	Vegetables	1
Fruits	Fruits	1
Fish, seafood, poultry, and meat	Meat and fish	4
Milk and milk products	Milk	4
Sugar, honey and sweets	Sugar	0.5
Oil and butter	Oil	0.5

The FCS is a continuous variable with a range from 0 to 112. To provide more meaningful descriptive analysis of food consumption than reporting average scores, households are categorized into food consumption groups based on their FCS. The standard food consumption groups are poor, borderline, and acceptable food consumption. A score below 21 is considered poor food consumption and a score below 35 is defined as borderline food consumption (Table 27 below)

A score of 21 is a bare minimum. Scoring below 21 means that a household does NOT eat at least a staple and vegetables on a daily basis and therefore is considered to have a very poor diet. The value 21 is derived from:

- (daily frequency * weight of vegetables) + (daily frequency * weight of staples)
- (7 * 1) + (7 * 2) = 21

Households with a FCS between 21 and 35 are considered to have borderline food consumption. The value 35 comes from an expected daily consumption of staple and vegetables complemented by a frequent (4 day / week) consumption of oil and pulses.

- (daily frequency * weight of vegetables) + (daily frequency * weight of staples) + (4 * weight of oil) + (4 * weight of pulses)
- (7 * 1) + (7 * 2) + (4 * 0.5) + (4 * 3) = 35

In many Asian and Latin American countries, the standard FCS threshold has been adjusted to account for high consumption of oil and sugar. In these contexts, poor households often consume oil and sugar on a nearly daily basis (6-7 days per week). The effect is that a household with a score of 28 may in fact consume just oil, sugar, staples, and vegetables - a very poor diet. Therefore, a higher threshold better captures what constitutes a poor or borderline diet. The thresholds are raised by a score of seven to account for daily consumption of oil (weight of 0.5) and daily consumption of sugar (weight of 0.5). The raised threshold was applied in the analysis in this survey as noted below.

Table 27: Thresholds for food consumption groups

Food consumption group	Standard thresholds	Raised thresholds
Poor	0 - 21	0 - 28
Borderline	21.5 - 35	28.5 - 42
Acceptable	> 35	> 42

Micronutrient intake

In most food security assessments carried out by WFP, the FCS is an important indicator for identifying the most food insecure households. However, the FCS is a household level indicator and does not make the link between household access to food, individual dietary intake and nutritional outcomes - stunting, wasting and micronutrient deficiencies. In 2015, WFP developed an analytical method to exploit data captured in the standard food consumption module used to calculate the FCS to provide information on specific nutrients. While it does not allow for calculation of individual nutrient intake, this new method fills a micronutrient analysis gap at the household level and attempts to improve the link between household food access/consumption and nutritional outcomes[9].

Studies from 5 different countries (Uganda, Nepal, Guatemala, El Salvador and Honduras,) showed a positive significant correlation between the number of times nutrient rich food groups are consumed in a one week period and how adequate the intake of that nutrient is for the household. This correlation between number of times and adequacy in intake held for all nutrients and all countries analyzed. A distinction between never (0 times) sometimes (1-6 times) and at least daily (7 times or more) consumption in a week, seems to be useful to assess the likelihood of adequacy. The analysis shows that is it important to discriminate foods that were eaten in a small quantity (less than 15g per capita per day).

To implement this approach, sub-groups of micronutrient rich foods were added to the food consumption module of the household survey. Then, each food group and sub-group was classified into the nutrient group which it provides, some providing multiple nutrients. Then, the frequency of consumption from

[9] Full documentation on this approach is available here: https://resources.vam.wfp.org/node/87

each nutrient group was categorized into three groups: never consumed (0); some consumption (1 to 6 days a week); and frequent consumption (7 days a week).

Table 28: Nutrient rich food groups and related food items from the household questionnaire

Vitamin-A rich foods	Protein rich foods	Iron rich foods
Milk, yogurt, cheese, and other dairy products	Beans, cowpeas, peanuts, lentils, nuts, soy, pigeon peas, and other nuts	Meat including beef, pork, lamb, goat, rabbit, chicken, duck, other birds, insects
Liver, kidney, heart, and other organ meats	Milk, yogurt, cheese, and other dairy products	Liver, kidney, heart, and other organ meats
Eggs	Meat including beef, pork, lamb, goat, rabbit, chicken, duck, other birds, and insects	Fish / shellfish, including canned fish, and other seafood
Orange vegetables (vegetables rich in Vitamin A): carrot, red pepper, pumpkin, orange sweet potatoes	Fish / shellfish, including canned fish, and other seafood	
Dark green leafy vegetables: spinach, broccoli, cassava leaves, and other dark green leaves	Eggs	
Orange fruits (Fruits rich in Vitamin A): mango, papaya		

Livelihood and asset-based coping strategies

The Livelihood Coping Strategies indicator is derived from a series of questions regarding the household's experience with livelihood stress and asset depletion during the 30 days prior to survey. Responses were used to understand the stress and insecurity faced by households and describes their capacity to regarding future productivity.

All strategies were classified into three broad groups, including stress, crisis and emergency strategies:

- Stress strategies, such as borrowing money or spending savings, are those which indicate a reduced ability to deal with future shocks due to a current reduction in resources or increase in debts.
- Crisis strategies, such as selling productive assets, directly reduce future productivity, including human capital formation.
- Emergency strategies, such as selling one's land, affect future productivity, but are more difficult to reverse or more dramatic in nature.

Households engaging in routine economic activities that did not involve any of these strategies were considered equivalent to food secure on this indicator. Each household was assigned a value from 1-4 to describe the most severe strategy they employed. The following questions and severity were applied during the analysis:

Table 29: Categorization of severity of livelihood / asset depletion coping strategies

Category	Coping strategy
Stress	Sold more animals (non-productive) than usual
Stress	Sold household assets/goods (radio, furniture, refrigerator, television, jewelry etc.)
Stress	Spent savings
Stress	Borrowed money or food from a formal lender

Crisis	Sold productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, etc.)
Crisis	Reduced essential non-food expenses on health (including drugs) and education
Crisis	Withdrew children from school
Emergency	Sold house or land
Emergency	Engaged in illegal activities (theft, prostitution, etc.)

Each household was assigned a coping score from one to four. A value of one means that the household did not engage in any of these behaviors; two means that the household's most severe coping strategy is a stress-level strategy; three means that the most severe strategy is a crisis-level strategy; and four means that the household engaged in one or more emergency-level strategies.

Coping strategies index

In addition to the livelihood coping module described above, a standard module for capturing the Coping Strategies Index was included in the survey. The Coping Strategies Index (CSI) is a simple indicator of household stress due to a lack of food or money to buy food and their capacity (or lack thereof) to respond.

The CSI is based on a series of responses (strategies) to a single question: "What do you do when you don't have adequate food, and don't have the money to buy food?" It combines the frequency of each strategy (how many days in the past week was each strategy adopted?) and the severity of each strategy. The severity weights are described below.

Table 30: Food coping strategies and their severity

Strategy	Severity weight
Eating less preferred foods	1
Borrowing food or relying on help from friends and relatives	2
Limiting portion size at mealtime	1
Limiting adult intake in order for small children to eat	3
Reducing the number of meals per day	1

The CSI is calculated by multiplying the frequency of each strategy (days per week) by the weight and summing the total. The resulting score is on a scale of 0 to 56.

Food security index

A relatively new approach used by WFP to classify household food security includes consolidation of multiple indicators into a single index. This new approach, referred to as the Consolidated Approach to Reporting Indicators of Food Security (CARI)[10].

The CARI approach is a classification of households into four descriptive groups: food secure, marginally food secure, moderately food insecure, and severely food insecure. The classification provides a representative estimate of food insecurity within the districts surveyed.

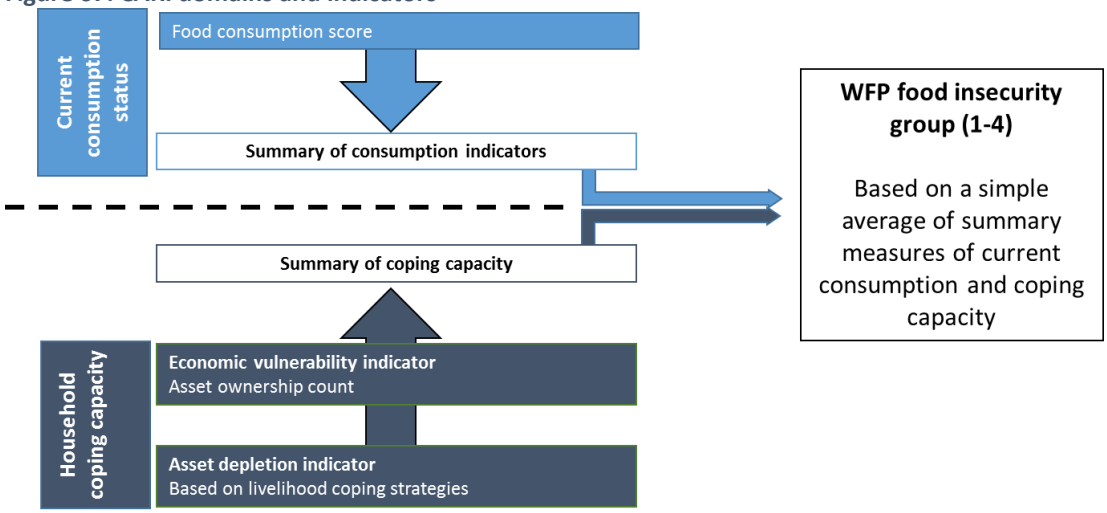
The final CARI output is constructed from three variables across two key dimensions of food insecurity. The current status domain employs food security indicators which measure the adequacy of households'

[10] For full documentation on the CARI approach, please visit: https://www.wfp.org/content/consolidated-approach-reporting-indicators-food-security-cari-guidelines

current food consumption, based on the FCS in this survey. The coping capacity domain employs indicators which measure households' economic vulnerability and asset depletion. Specifically, in this survey, this domain is based upon a combination of the livelihood coping strategy indicator as a measure of coping capacity and asset ownership as a measure of economic vulnerability.

Each of three underlying variables is converted to a 4 point scale. At the household level, a value is assigned from 1 to 4 for the three variables. For the FCS, an acceptable food consumption is given a value of 1, borderline a value of 3 and poor a value of 4. For the coping indicator, households with no coping are given a value of 1, those with stress a value of 2, crisis a value of 3 and emergency a value of 4.

Figure 67: CARI domains and indicators



The CARI was designed to use one of two indicators for economic vulnerability: poverty status or share of expenditure on food. Both of these indicators require an extensive module on household consumption and expenditure. However, forthcoming research from WFP has further investigated the use of a more simple count of assets as a means of measuring economic vulnerability.

In the case of this survey, a number of household assets and housing conditions were inquired about either through direct questions or observation of housing conditions. Housing conditions were categorized into improved or unimproved (see Table 33 below for details). Following categorization of these conditions, where 1 = improved, a sum was calculated for positive housing conditions and the number of assets owned. The assets and housing conditions used in the asset count are listed in the table below.

Table 31: Assets and housing conditions utilized in asset count calculation

Assets		Housing conditions
Refrigerator	Oxcart	Housing construction materials
Oven	Farm machinery (plough, tractor, other)	Source of cooking fuel
Television	Agricultural tools (machete, hoe, etc.)	Drinking water source
Satellite dish	Bicycle	Sanitation facility
Radio	Motorcycle	
Mobile phone	Cash savings, jewelry	
Sewing machine	Furniture (table, chairs)	

Once a sum of assets and presence of housing conditions was calculated, thresholds were determined to classify households into one of four groups. The lowest threshold of owning less than three assets was determined based on a correlation with the percent of households living in extreme poverty. Nationally, 31% of rural households in Malawi owned less than three assets. Similarly, 28% or rural Malawians were classified as ultra-poor in the IHS3. The next threshold of owning three assets corresponds to the percent of households that were considered poor in the IHS3. Per the IHS3, 57% of rural Malawians are poor. In this survey, 52% of rural Malawians own three or less assets.

After assigning households a value of 1-4 on the ownership of assets as a measure of economic vulnerability, the unrounded average of the two coping capacity indicators is calculated for each household. Then, a second average is calculated from the average of the coping domain and the current consumption domain. The final score is then rounded up to provide the overall household food security classification. The table below describes the four groups.

Table 32: Description of food security index groups

Food security group	Description
1 = Food secure	Able to meet essential food and non-food needs without engaging in atypical coping strategies
2 = Mildly food insecure	Has minimally adequate food consumption without engaging in irreversible coping strategies; unable to afford some essential non-food expenditures
3 = Moderately food insecure	Has significant food consumption gaps, OR marginally able to meet minimum food needs only with irreversible coping strategies
4 = Severely food insecure	Has extreme food consumption gaps, OR has extreme loss of livelihood assets will lead to food consumption gaps, or worse

Housing conditions

The table below denotes the categorization of various housing attributes as improved or unimproved. Classification of drinking water and sanitation facilities follow standard approaches developed by the WHO and UNICEF for the Joint-Monitoring Program: https://washdata.org/monitoring.

Table 33: Categorization of household characteristics and percent of households per response

Household characteristic	Category	Response options	Percent of households
Housing construction materials	**Unimproved**	Semi-permanent (mix of traditional and permanent)	46,6%
		Traditional (mud, grass)	35,6%
		Total	**82.2%**
	Improved	Permanent (bricks, iron sheet, cement)	**17.8%**
Cooking fuel sources	**Unimproved**	Fuel wood	91.1%
		Animal dung	.0%
		Coal / charcoal	2.5%
		Briquettes	.2%
		Stalks	6.0%

		Other	.2%
		Total	**99.9%**
	Improved	Electricity	.1%
		Gas	.0%
		Solar cooker	.0%
		Total	**.1%**
Drinking water sources	**Unimproved**	Unprotected spring	1.4%
		Unprotected dug well	5.1%
		Cart with tank/drum	.0%
		Tanker-truck	.0%
		Surface water	2.7%
		Total	**9.2%**
	Improved	Piped into dwelling, yard or plot	.2%
		Piped water to yard/plot	2.3%
		Public tap or stand tap	5.7%
		Tubewell or borehole	78.7%
		Protected dug well	3.4%
		Protected spring	1.4%
		Rain water	.0%
		Bottled water	.0%
		Total	**90.8%**
Sanitation facilities	**Unimproved**	Flush/pour flush to else where	.0%
		None (bush or field)	0.8%
		Pit latrine without slab	82.1%
		Bucket	.0%
		Hanging toilet or hanging latrine	.2%
		Shared sanitation	8.9%
		Total	**92.0%**
	Improved	Flush toilet	.2%
		Piped sewer system	.0%
		Septic tank	0.0%
		Flush/pour flush to pit latrine toilet	.0%
		Ventilated Improved pit latrine (VIP)	.3%
		Pit latrine with slab	7.5%
		Composting toilet	.4%
		Total	**8.0%**