Malawi
December 2015: Concerns for Food Security in the South

**Highlights**

- National average maize prices have doubled year-on-year, driving down people’s ability to purchase food. High prices are hampering food access in Southern Malawi.

- Poorer households and female-headed households employ more negative coping strategies than wealthier households and male-headed households. Households in rural areas appear to be more food insecure than those in districts with urban centers (Blantyre, Lilongwe, Mzimba/Mzuzu).

- Households in Southern Malawi have more negative perceptions of food security than in other parts of the country. Countrywide, respondents describe relying on purchases of maize at high prices because of poor harvests.

**Methodology: SMS Surveys**

The methodology has been informed by WFP’s mobile Vulnerability Analysis and Mapping (mVAM) initiative, which involved using mobile surveys for food security monitoring. The project was initiated in 2013 and is now active in 15 countries. December 2015 marked the first round of remote data collection for Malawi. The survey was conducted using text messaging (SMS) on 1 December 2015, on a sample of 1000 households. Participants were randomly selected from a national database of mobile subscribers. Respondents opted-in to the SMS survey and were asked socio-demographic questions, coping behavior questions, and manual labor wages as well as an open-ended question on food security. Because of the limitations of SMS surveys, the questionnaire did not include the food consumption score, an indicator that does not perform well by text message. An airtime credit incentive of US 50 cents (or MWK 300) was provided to respondents who successfully completed the survey to increase completion rates.

It is acknowledged that SMS surveys contain an inherent response bias as well as biases towards better-off and literate households. As of 2013, 54% of households in Malawi had at least one mobile phone (Gallup 2013). Due to biases in our data, an attempt is made not to give precise estimates of food insecurity. Rather, SMS polls are used to capture patterns and trends. This first round of data collection provides the basis of a monitoring system that will track month-to-month changes.

The survey response rate was 27%, which is above the industry standard for SMS surveys. Respondents were reached in 27 out of 28 districts. 44% of respondents came from districts with urban centers (Lilongwe, Blantyre, Mzimba) and 56% came from rural districts. A higher portion of respondents were men (66% men vs. 34% women). Due to small sample sizes in rural areas, neighboring districts with similar characteristics were aggregated (Table 2). Where distributions are highly skewed, medians are reported. Additional information on methodology is available online.
Introduction
This is the first report on mobile Vulnerability Analysis and Mapping (mVAM) monitoring in Malawi. Being the first report it is typically light on analysis which will improve as more data becomes available in the subsequent round. As the system is improved, more data on nutrition as well as food security indicators such food consumption and food prices. Maize retail prices will be captured through live calls with selected traders and household food security SMS survey. The country faces challenges in network connectivity and power which could affect the coverage and response rate. The report and data will be posted on http://vam.wfp.org/sites/mvam_monitoring/Malawi.html.

The ongoing El Niño may affect rainfall and harvests
Malawi already had a poor 2014/15 maize harvest due to concurrent floods and droughts. Currently, 2.8 million people are estimated to be food insecure throughout the country (25 of 28 districts) (Malawi Vulnerability Assessment Committee Bulletin No. 11/15 Volume 2). As of 9 November, Agricultural Development and Marketing Corporation (ADMARC) had sold-off 14,545 MT of the 52,000 MT that it acquired leaving a balance of 37,455 MT. Food prices are high across Malawi and continue to increase: as of October, they had doubled in nominal terms compared to the previous year. Prospects for the ongoing rainy season are uncertain due to the ongoing El Niño phenomenon. Malawi sits geographically between two opposing El Niño spheres of influence, as the phenomenon is expected to lead to wetter than average conditions in the north and drier than average conditions in the south (WFP Seasonal Monitor).

Rural districts are the most food insecure
The reduced coping strategy index (rCSI) is a proxy indicator for household food security. A high rCSI means that households are using more severe coping strategies more frequently to cope with shortages of food. The negative coping strategies measured are borrowing food; limiting portion sizes; reducing the number of meals; restricting adult consumption so children can eat; and switching to less expensive food.
Nationally, the median rCSI was 13 on 1 December 2015. As of round 1, regional differences (Northern, Central, Southern) were not significant (Figure 1). The rCSI did suggest that urban centers are less food insecure than rural areas. The aggregated districts with the lowest rCSI scores have Malawi’s three largest cities: Blantyre, Lilongwe, and Mzimba. The Lilongwe district coped significantly less (rCSI = 7) than the surrounding rural aggregated district of Dowa-Ntchisi-Kasungu-Mchinji (rCSI = 17). The Blantyre aggregated district (Blantyre-Mwanza-Neno-Balaka) in the Southern Region also coped significantly less (rCSI = 8) than surrounding rural aggregated districts of Machinga-Mangochi and of Chiradzulu-Mulanje-Thyolo-Zomba-Phalombe (rCSI = 15.5 and rCSI = 14 respectively). The differences were significant at the p < .05 level.
The rCSI results for the aggregations that include urban centers, i.e. Blantyre, Lilongwe and Mzimba (Mzuzu) are heavily influenced by comparatively low levels of coping in urban centers, where most respondents were reached this month. Our sample outside the city centers is low. The sample size will be increased and the survey methodology will be refined in order to ensure better coverage of these peri-urban and rural areas in future rounds. Observations from the aggregated districts of Chikwawa-Nsanje and of Nkhata Bay-Chitipa-Likoma were not presented due to low sample sizes.

Female headed households and poorer households use more negative coping strategies
In Malawi, we use wall type as a proxy for household wealth; wall type is based on the 2008 Census housing types. Households living in houses with cement walls are assumed to be the wealthiest, followed by baked brick walls, unbaked brick walls and finally those living in houses with mud walls.
Respondents living in houses with mud walls (median rCSI=23.1) and unbaked brick walls (median rCSI=21.0) report using many more negative coping strategies for food shortages than ones living in houses with cement (median rCSI=6) and baked brick walls (median rCSI=9.0) (Figure 2). The difference is significant at the p < .05 level. This indicates that the respondents who are better off are less vulnerable to food insecurity than people who are worse off.

Female headed households (24% of sample, median rCSI=16.5) employ significantly more negative coping strategies compared to male headed households (76% of sample, median rCSI=12) at the p < .05. The results suggest that female headed households are more vulnerable to food insecurity than male headed households (Figure 3). Female headed households also have significantly lower median daily wage rates (464 MWK) than male headed households (550 MWK) at the p < .05 level.
In Table 1, the prevalence of each coping strategy is displayed by gender of household head and wall type. The data shows that regardless of gender of head of household, a higher portion of poorer households (i.e. households living in houses with mud walls and unbaked brick walls) use negative coping strategies than better off households (i.e. those living in houses with backed brick or cement walls). The most common coping strategies were buying less expensive food and reducing the number of meals.

<table>
<thead>
<tr>
<th>Gender of household head</th>
<th>Wall type</th>
<th>Borrow food</th>
<th>Less expensive food</th>
<th>Limit portion size</th>
<th>Reduce number of meals</th>
<th>Restrict consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Mud</td>
<td>81%</td>
<td>98%</td>
<td>89%</td>
<td>89%</td>
<td>68%</td>
</tr>
<tr>
<td>Female</td>
<td>Unbaked Brick</td>
<td>86%</td>
<td>94%</td>
<td>87%</td>
<td>89%</td>
<td>63%</td>
</tr>
<tr>
<td>Female</td>
<td>Baked Brick</td>
<td>52%</td>
<td>76%</td>
<td>62%</td>
<td>61%</td>
<td>39%</td>
</tr>
<tr>
<td>Female</td>
<td>Cement</td>
<td>60%</td>
<td>76%</td>
<td>52%</td>
<td>62%</td>
<td>46%</td>
</tr>
<tr>
<td>Male</td>
<td>Mud</td>
<td>84%</td>
<td>92%</td>
<td>83%</td>
<td>87%</td>
<td>80%</td>
</tr>
<tr>
<td>Male</td>
<td>Unbaked Brick</td>
<td>80%</td>
<td>92%</td>
<td>83%</td>
<td>84%</td>
<td>66%</td>
</tr>
<tr>
<td>Male</td>
<td>Baked Brick</td>
<td>50%</td>
<td>81%</td>
<td>59%</td>
<td>57%</td>
<td>40%</td>
</tr>
<tr>
<td>Male</td>
<td>Cement</td>
<td>38%</td>
<td>52%</td>
<td>43%</td>
<td>48%</td>
<td>30%</td>
</tr>
</tbody>
</table>

High prices affect purchasing power, especially in the South

According to the Agriculture Market Information System (AMIS), from November, a kg of maize cost MWK 157.5 in Lilongwe, MWK 149.19 in Lizulu (Ntcheu district), MWK 139.25 in Mzuzu (Mzimba), and MWK 155.4 in Nsanje. The national average price doubled between October 2014 and 2015. As the lean season continues, the price of maize is expected to increase in the short term.

Figure 4 shows the daily labor wage in Malawi. The national median daily wage rate is MWK 500. Aggregated districts of Blantyre-Mwanza-Neno-Balaka and Mzimba-Karonga-Rumphi has slightly higher daily wage rate of MWK 550 and MWK 525 respectively.

Figure 5 shows the wage-to-maize terms of trade. Respondents in Mzuzu had the highest household purchasing power, being able to buy 3.77 kg of maize with their daily wage. Nsanje and Lilongwe could only purchase around 3.2 kg of maize. Higher maize prices are expected in a city like Lilongwe, where demand is high. Low purchasing power due to high maize prices in Nsanje (located in the South) could reflect poor harvests driving up the price of maize.

Source: WFP mVAM, December 2015
Perceptions of food security

At the end of SMS survey, every respondent was given the opportunity to share a comment with WFP through an open-ended question that read, please tell us about the food situation in your community. 67% (n=669) of respondents provided feedback which is captured in two word clouds: a word cloud of responses relating to agriculture and a general word cloud of all responses. Word clouds illustrate the terms most commonly found in responses, and the size of the words represents their frequency.

Of the responses related to agriculture (n=83), respondents mentioned “rain” most frequently, followed by “shortage” and “harvest.” Respondents who mentioned “rain” generally convey three reasons for the insufficient food situation in their communities: flooding during the last year’s rainy season, shortage of rain during last year’s harvest season, and current erratic rains. Respondents report that due to poor harvests, people rely on food purchases. They also mention the lack of maize and the long queues at ADMARC depots (Figure 6).

![Figure 6: Agriculture Word Cloud](source)

Figure 7 portrays the word frequency of all responses. According to the responses, people have to rely on buying food in the market due to poor harvests. They explain that with low production and high market demand, food items such as maize are very expensive. 33 respondents say that they resort to eating mangoes due to the high price and shortage of maize.

![Figure 7: General Word Cloud](source)

In the words of the respondents

- “In my area there is lack of food because last year we didn't harvest much so many are just sleeping without something in the stomach.” – female respondent from Blantyre
- “Food is scarce here since people didn’t harvest enough due to the rainfall problem and the flood which made the crops washed away.” – male respondent from Zomba
- “Half of the people have food and half don’t have because of the drought that hit the area.” – male respondent from Rumphi
- “The food situation is bad mainly in rural areas people go to bed without food.” – female respondent from Salima
Negative perceptions of food security in the South

To gauge perceptions of food security, we used the Pattern sentiment analysis algorithm developed by the Computational Linguistics & Psycholinguistics Centre at University of Antwerp. For a given sentence, the algorithm returns its ‘polarity’: a measure of how positive/negative the statement is on a scale of -1.0 to +1.0.

Respondents with mud walls had the lowest mean sentiment score of -0.12, followed by those with unbaked brick walls (-0.12), baked brick walls (-0.09) and cement walls (-0.04). These results suggest that people who are relatively better off tend to view the food situation less negatively. This observation is in line with findings that households who are relatively better off use fewer negative coping strategies.

**Figure 8** shows the sentiment score by aggregated district. It appears that the respondents in the Southern Region have more negative views on their communities’ food security situations than the Central and Northern Regions.

<table>
<thead>
<tr>
<th>Aggregated Districts</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chikwawa-Nsanje</td>
<td>26</td>
</tr>
<tr>
<td>Chiradzulu-Mulanje-Thyolo-Zomba-Phalombe</td>
<td>174</td>
</tr>
<tr>
<td>Machinga-Mangochi</td>
<td>42</td>
</tr>
<tr>
<td>Blantyre-Mwanza-Neno-Balaka</td>
<td>150</td>
</tr>
<tr>
<td>Dedza-Ntcheu</td>
<td>52</td>
</tr>
<tr>
<td>Dowa-Ntchisi-Kasungu-Mchinji</td>
<td>109</td>
</tr>
<tr>
<td>Lilongwe</td>
<td>184</td>
</tr>
<tr>
<td>Nkhotakota-Salima</td>
<td>53</td>
</tr>
<tr>
<td>Mzimba-Karonga-Rumphi</td>
<td>184</td>
</tr>
<tr>
<td>Nkhata Bay-Chitipa-Likoma</td>
<td>26</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1000</strong></td>
</tr>
</tbody>
</table>

**Conclusion**

In the middle of Malawi’s lean season, the first round of SMS food security monitoring suggests that different groups are more likely to be food insecure: poorer households, female-headed households, households in rural areas. A poor 2014/15 harvest are contributing to high food prices, low wages and purchasing power. This trend will likely continue until the next harvest season and could be further worsened by El Niño climatic patterns.

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**Figure 8: Sentiment score by aggregated district**

Source: WFP mVAM, December 2015