Fighting Hunger Worldwide

WFP/Rein Skullerud

Guinea, Liberia and Sierra Leone

November 2015: Coping improves in Guinea and Sierra Leone.

Tracking food security during the Ebola Virus Disease (EVD) outbreak

Highlights

- **In November, overall coping improved in Guinea and Sierra Leone catching up to improvements seen in Liberia last month in October.**

- **A few commodity price changes were detected this month, including increases in palm oil prices.**

National coping levels

The Reduced Coping Strategies Index (rCSI) measures the frequency and severity of the mechanisms households employ when faced with food shortages such as skipping meals or reducing the size of portions. A higher score indicates households are resorting to more frequent and/or severe negative coping strategies. Detailed information on the rCSI can be found here.
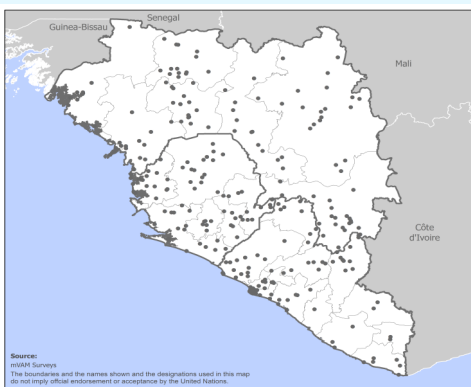
In November, the rCSI improved among repeat -respondents (those who reported in the current and previous survey round) in Sierra Leone (n=574) and Guinea (n=544). In Guinea, the rCSI improved on average -1.7** points per household and -1.6*** [1] points on average in Sierra Leone. While the rCSI improved in October, in November, changes in coping were not statistically significant in Liberia.

Figure 1: Average rCSI levels, November 2015

Methodology

November 2015 marked the 14th round of remote data collection for the 3 countries. In Liberia, 1,150 surveys were completed on the 21st to the 23rd ; in Sierra Leone, 1,020 surveys were completed from the 21st to the 23rd and in Guinea, 945 surveys were completed from the 21st to the 25th of November. The adjacent map shows the cell phone towers from which responses were received.

Since September 2014, WFP has been using text messaging (SMS) to poll a sample of respondents in the Ebola affected countries of Guinea, Liberia and Sierra Leone. Participants are randomly selected from a database of mobile subscribers and are asked socio -demographic questions, coping behavior questions, the prices of 3 commodities and manual labour wages as well as an open-ended question on food security. An airtime credit incentive of 50 cents is provided to respondents who successfully complete the survey to increase completion rates and encourage repeat participation (maintaining a panel). When interpreting results, readers are cautioned to note that SMS surveys contain an inherent response bias as well as biases towards better-off and literate households. Additional information on methodology is available online.

In Guinea, improvements among several wealth groups indicated positive improvements in October. In November, a general improvement in the rCSI among repeat respondents (n=544) was observed and the national rCSI decreased on average -1.7 points per respondent.*** [1] Reductions in the overall rCSI in November were driven by statistically significant reductions in the average duration of three negative coping strategies. Among repeat respondents, the average number of days households used less expensive food decreased -0.5 days***; the average number of days households borrowed food or money decreased -0.7 days* and the number of days households restricted consumption lessened -0.8** [1] days.   Looking at rCSI by the sex of the head of household, the rCSI improved on average -2.3** [1] for male-headed households who reported in the current and previous survey rounds (n=245) between October and November. In November, the difference in average rCSI between male and female -headed households was not statistically significant.

Last month in Liberia there were solid improvements observed for repeat respondents in the average national rCSI and among several wealth groups. In November, changes in the rCSI and the duration of specific coping strategies are not statistically significant from the previous month. On a regional level, one improvement is observed — the rCSI improved on average -1.7 points for repeat respondents (n=107) in Nimba.** [1] Changes in the rCSI by wealth group and by sex of the head of the household were also not statistically significant from the previous month. In November, the average amount of coping, measured by the rCSI, was higher for female-headed households (15.1) than male-headed households (13.8).* [2]

In Sierra Leone, the rCSI usually varies less month to month than Guinea and Liberia. In November, however, there were improvements in the rCSI at national and sub-national levels. Among repeat respondents (n=574) nationally, there was an average decrease of -1.6 points per respondent in the rCSI.*** [1]   Reductions in the rCSI werre also observed in the sample domains of Bo (-2.7, n= 62)**, Kailahun-Kono (-1.4, n=81)** and Kambia-Port Loko (-1.8, n=81).*** [1] Looking at rCSI scores by wealth group, changes in the rCSI for the two poorer groups were statistically significant. The average rCSI decreased -2.2** points for repeat respondents using bush or pit latrine (n=32) and decreased -1.8*** [1] points for repeat respondents with access to a cement pit latrine (n=269). Looking at rCSI by the sex of the head of household, the rCSI decreased on average −1.3*** [1] between October and November among repeat-respondents (n=416) in male-headed households.   In November, the average rCSI was higher for female-headed households (15) than male -headed households (12.4).*** [2]
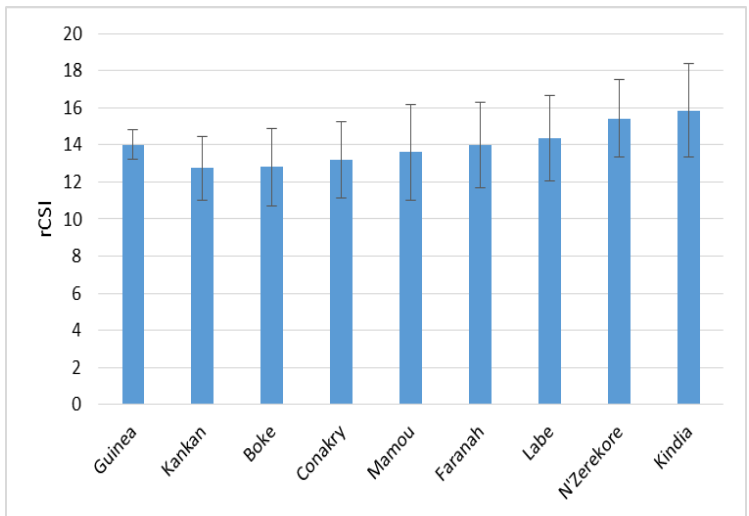
Figure 2: Average rCSI: Guinea, November 2015

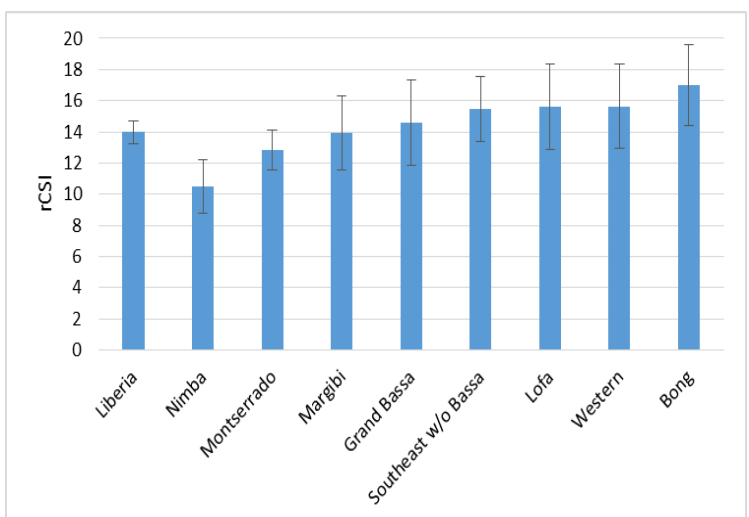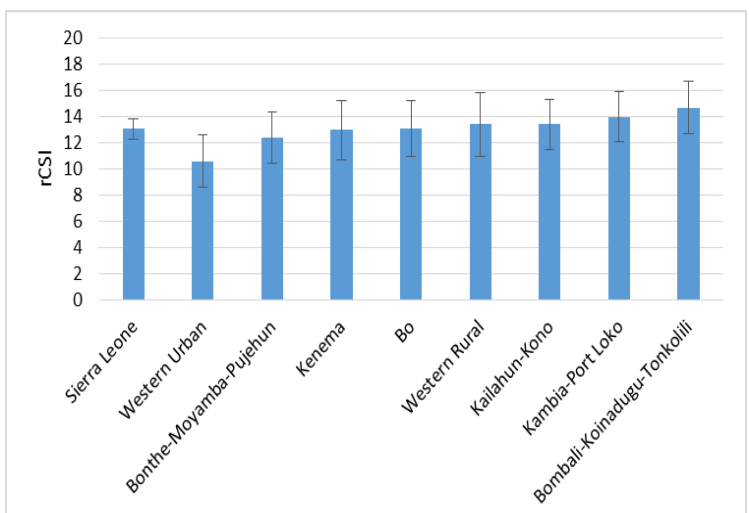**Figure 3: Average rCSI: Liberia, November 2015**

Figure 4: Average rCSI: Sierra Leone, November 2015

(error bars for all three graphs indicate 95% confidence intervals)

Slight changes in palm-oil prices

Looking at the seasonal calendar, November usually is situated in the middle of the harvest season and peak labour demand in Guinea, in the middle of the rice harvest in Liberia as well as the beginning of cash crop marketing in Sierra Leone. Looking at changes in national prices between October and November, with the exception of a rise of +3%* [3] in the prices of palm oil in Liberia, we observe no other statistically significant changes in aggregate national prices. Price changes can often be too slight to detect on a month to month examination, so to examine the broader movement of prices, we compared November commodity prices against prices from the beginning of the year, January 2015 for Liberia and Sierra Leone and June 2015 for Guinea.   Comparing time periods mentioned above, the price of palm oil has increased +4%** [3] in Liberia and increased +3%*** [3] in Guinea.

Some changes in commodity prices at sub-national levels were detected this month and are in line with information from respondents that local rice is more plentiful but other commodities are still more expensive. In Faranah, Guinea, the prices of local rice decreased -5%.*** [3] The price of palm oil also decreased –10% in Faranah.** [3]

Table 1: Prices in Guinea, Liberia and Sierra Leone, November 2015

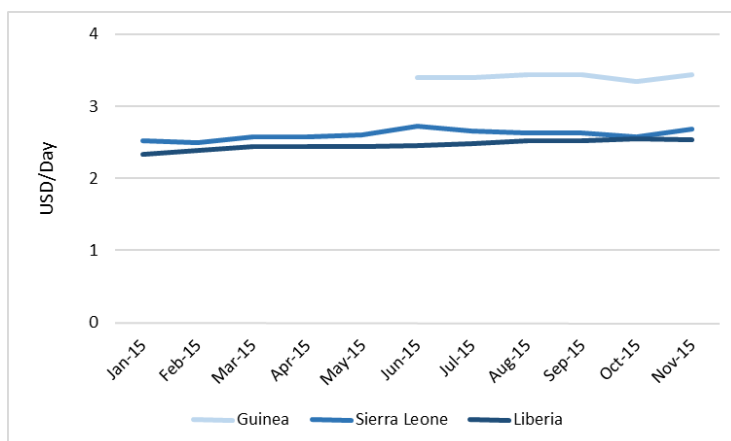| Country	November Prices (in local units and currency)			
	Imported rice	Local rice	Palm oil	Manual Labour Daily Wage Rate
Guinea	4316 (GNF/kg)	5115 (GNF/kg)	4681 (GNF/half-litre)	23724 (GNF/day)
Liberia	26.8 (LRD/cup)	27 (LRD/cup)	27.4 (LRD/pint)	231 (LRD/day)
Sierra Leone	1046 (SLL/cup)	979 (SLL/cup)	1792 (SLL/pint)	11225 (SLL/day)

Wages improve in Sierra Leone

Labour wages are important measures of food security as they contribute to understanding economic activity and purchasing power. Examining daily wage rates for November there was a statistically significant increase in Sierra Leone of 4%.* [3]   There was also a sizeable increase of 18% ** [3] in reported wage rates in Maribi, Liberia. Comparing wage rates to beginning of the year for Liberia and Sierra Leone (June 2015 for Guinea) to November, wages have increased 9%*** [3] in Liberia. In Guinea and Sierra Leone, the changes in manual labour wages over this period are not statistically significant.

Terms of trade (ToT) determine purchasing power and illustrate the quantity of a certain food commodity that individuals can barter for a day's worth of manual labour. In Guinea, ToT for labour to local rice declined slightly (4.8 to 4.6)** as well as ToT for labour to palmoil (6.4 to 5.1).** [3] In Liberia, correlated with the spike in wages, ToT in Margibi increased for all commodities: imported rice (8.6 to 10.2)** , local rice (8.3 to 10.1)*** and palm oil (9.7 to 12.1).*** [3] In Sierra Leone, national ToT for wages to imported rice improved from 10.8 to 11.2* as did ToT for labour to local rice (11.4 to 12.3).** [3] In the sample domain of Bombali-Koinadugu-Tonkolili, ToT for labour to palm oil decreased from 6.5 to 5.9.** [3]

Perceptions of food security in November

At the end of the questionnaire, participants are asked an open-ended question, "Tell us about the food situation in your community." To analyse these responses and gauge perceptions of food security, we use the sentiment analysis tool Repustate which calculates the "polarity" of each response — a measure of how positive/negative the statement is on a scale of -1.0 to +1.0.

Figure 5: Manual labour wages, January — November 2015

Figure 6: Average sentiment scores, November 2015

Perception of food security in the community

Negative
Neutral
Positive

Source:
mVAM Surveys
The boundaries and the names shown and the designations used in this map do not imply official endorsement or acceptance by the United Nations.
Spheroid : WGS 1984
Grid :Lat/Long 1 Degree interval

In November, the mean sentiment score in Guinea was very slightly positive (0.005) while mean sentiment scores for Liberia (-0.008) and Sierra Leone (-0.03) were very slightly negative.

In Guinea, the change in mean sentiment score this month was not statistically significant at the national level. In Kindia, however, there was a relatively large improvement of +0.1 points on average among repeat respondents (n=69).** [1] Textual responses in Guinea are often less detailed than responses from Liberia and Sierra Leone and out of the 945 responses in November, a few responses mentioned harvests, unemployment, and Ebola as factors of food security. This month, nine responses mentioned improvements due to the harvest while one respondent mentioned that returns from harvests were less than expected this year. Seven respondents cited unemployment as a driver of food insecurity and one respondent negatively mentioned poor transport and road conditions. In November, two respondents cited the negative effects of Ebola on food security.

In Liberia, among repeat respondents, the change in mean sentiment score this month was not statistically significant at either national or sub-national levels. Out of 1,150 responses, the single most cited factor relating to food security this month was poor road conditions and transportation networks. A total of 40 responses mentioned transportation conditions, of which 39 mentioned that poor transportation increased the price and ability to purchase and sell foods. One response stated that transportation had improved since October. This month, virtually the same amount (32 and 33) of participants mentioned food insecurity relating to unemployment as did in October. This month, 23 participants mentioned positive improvements due to the harvest, while four respondents negatively reported crop damage and less than expected returns. Finally, three respondents mentioned Ebola this month. Two responses cited the continued detrimental effect of Ebola on food security. One response indicated that food security was improving and approaching pre-outbreak levels.

In Sierra Leone, among (n=90) repeat respondents in the urban area of the capital city, the average sentiment grew slightly more positive, with an average improvement of +0.05 points per respondent.** [1] Out of 1,020 responses, positive improvements attributed to the harvest are the largest factor related to food security mentioned by participants this month. Thirty-nine respondents reported positive effects of the harvest while one respondent delayed and less than expected yields. This month, a total of eight participants mentioned difficulties due to transportation and roads compared to 12 the month previous. Despite cessation of transmission, Ebola still has perceived consequences. This month, 16 respondents (compared to 22 in October), mentioned that negative effects of Ebola on food security are still being experienced while six respondents mentioned that that food security levels were equal to or approaching pre-outbreak levels.

Figure 7: Word cloud for Guinea, November 2015

Figure 8: Word cloud for Liberia, November 2015

Figure 9: Word cloud for Sierra Leone, November 2015

Conclusions and Outlook

In October, there were national improvements in coping in Liberia and within certain groups in Sierra Leone and Guinea. In November, coping improved broadly in Sierra Leone and Guinea. This month, national prices changed little despite greater availability of locally harvested rice as indicated by respondents. Daily wage rates for manual labour and terms of trades increased in Sierra Leone. Further improvements in food security are forecasted as harvest activities and economic activity should continue into December.

Appendix

References

1. The Coping Strategies Index:
http://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp211058.pdf

2. Disclaimer and Methodological Notes for mVAM ebola-affected regional bulletins
http://vam.wfp.org/sites/mvam_monitoring/Read_Me.pdf

3. WHO Ebola Situation Report, 25 November 2015
http://apps.who.int/ebola/current-situation/ebola-situation-report-25-november-2015

4. FEWS NET's seasonal calendars for Guinea, Sierra Leone and Liberia:
http://www.fews.net/sites/default/files/styles/large/public/Guinea%20Oct_0.png
http://www.fews.net/sites/default/files/styles/large/public/Liberia%20Apr_0.png
http://www.fews.net/sites/default/files/styles/large/public/Sierra%20Leone%20Apr_0.png

5. Repustate Sentiment Analysis Platform:
https://www.repustate.com/text-analytics-api/

Reporting statistical tests and significance level

Except where explicitly indicated, only statistically significant results are reported (for a good primer on statistical significance, consult http://www.measuringu.com/blog/statistically-significant.php). To report the level of statistical significance, the following reference is used:

p-value	reported symbol
< 0.10 to 0.05	*
< 0.05 to 0.01	**
< 0.01	***

Similarly, the type of statistical test is also reported in superscript after the level of statistical significance. The following reference indicates the type of test referenced in the text:

1. Wilcoxon Test
2. Manny Whitney Test
3. Welch's t-test

Currency conversions

For comparability, prices and wages in national currency are converted into US Dollars using exchange rates to the US dollar at December 31, 2014 (http://www.oanda.com/currency/historical-rates/).

For more information, please contact the VAM Food Security Analysis Unit:

Arif Husain
arif.husain@wfp.org

Jean-Martin Bauer
jean-martin.bauer@wfp.org

Regional Bureau Dakar, VAM unit
rbd.rb.vam@wfp.org

To download mVAM data on the Ebola-affected countries, please visit: http://vam.wfp.org/sites/mvam_monitoring/Ebola.html