



Guinea, Liberia and Sierra Leone

September 2015: No improvement in national coping levels this month

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

Highlights

- This month, household coping did not improve in all three countries as above average rainfall levels may have delayed improvements normally seen in September.
- As in recent months, prices, manual labour rates and corresponding terms-of-trade remain generally stable.

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](#).

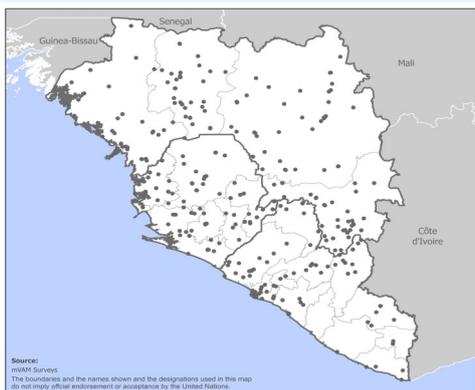
In September, contrary to the general trend of improvement seen in the past two months, national rCSI levels did not improve in all three countries. In Guinea and Sierra Leone, changes in the rCSI, comparing August to September, were not statistically significant. In Liberia, the average rCSI increased very slightly, worsening by +0.4 points per household.**¹

Figure 1: Average rCSI levels, September 2015



Methodology

September 2015 marked the 12th round of remote data collection for the 3 countries. In Liberia, 1,150 surveys were completed from the 19th to the 21st; in Sierra Leone, 1,020 surveys were completed from the 19th to the 21st and in Guinea, 1,162 surveys were completed from the 19th of September to the 1st of October. 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](#).

Ebola Update: Case incidence continues to decrease

In September, incidence of Ebola continued to decline and by the end of the month, as the WHO states, “the virus has been geographically confined to several small areas in western Guinea and Sierra Leone, marking a transition to a distinct, third phase of the epidemic”. This month, 7 new cases of Ebola virus disease (EVD) were detected in Guinea, with 4 confirmed cases detected in the last epidemiological week of the month. In Sierra Leone, a total of 7 new cases were confirmed in the month with no new cases detected after the confirmation of 5 cases on 13 September. As of the end of the September, Liberia has gone 84 days without a new case and remains officially Ebola transmission free.

[WHO Ebola Situation Report, 30 September 2015](#)

Coping levels by country

In Guinea, since polling with SMS commenced in June, we observed substantial improvements in the rCSI in July and August. Gains have halted, however, in September as there was no statistically significant change in the rCSI. In Conakry, among repeat respondents (those who respond in the current and previous survey rounds, n=368), the rCSI increased on average +2.8 points.^{** 1} This increase was in part driven by an increase (+0.7 days) in the number of days households restricted consumption.^{*** 1} Examining rCSI scores by wealth group, (using the type of sanitation accessed as a proxy measure for wealth) there was no statistically significant change in the rCSI. Looking at the rCSI in September by sample domain, we note that Nzerekore and the Lower region (Boke-Kindia) have higher average rCSI levels than the capital, Conakry and the Middle region (Mamou-Labe).

In Liberia, the improvement seen in July and August has stalled and a very slight increase in the rCSI was observed in September. Among the 600 repeat respondents, the rCSI increased on average +0.4 points per household.^{** 1} In the Western region (Bomi, Gbarpolu, Grand Cape Mount) the rCSI increased among repeat respondents (n=57) an average of +2 points.^{** 1} Looking at rCSI scores by wealth group, we see that coping improved for the poorest while worsened for wealthier participants. The rCSI improved for the poorest group, those using a bush or pit latrine (n=41), falling -3.1 points on average.^{** 1} In the wealthier group, those with their own flush toilet (n=269), the rCSI increased +1.2 points on average.^{*** 1} Observing the average rCSI by sample domain for September, we note that Monrovia and Margibi have the lowest rCSI levels while coping is highest in Western and Grand Bassa.

In Sierra Leone, the trend in the rCSI has been much flatter and compared to Guinea and Liberia has seen less variation. After no change in June and July, the rCSI began to improvement in August. Unfortunately, in September the trend was not sustained and the mean change in the rCSI was not statistically significant. At a regional level, among repeat respondents (n=109) in Kailahun-Kono, the rCSI improved on average -1.2 points per respondent.^{** 1} Looking at rCSI scores by wealth group, there were no statistically significant changes in the rCSI in any group. Observing the average rCSI by sample domain for September, we note that Bonthe-Moyamba-Pujehun and the capital city area have the lowest rCSI levels while coping is highest in Kailahun-Kono and Kambia-Port Loko.

Figure 2: Average rCSI: Guinea, September 2015

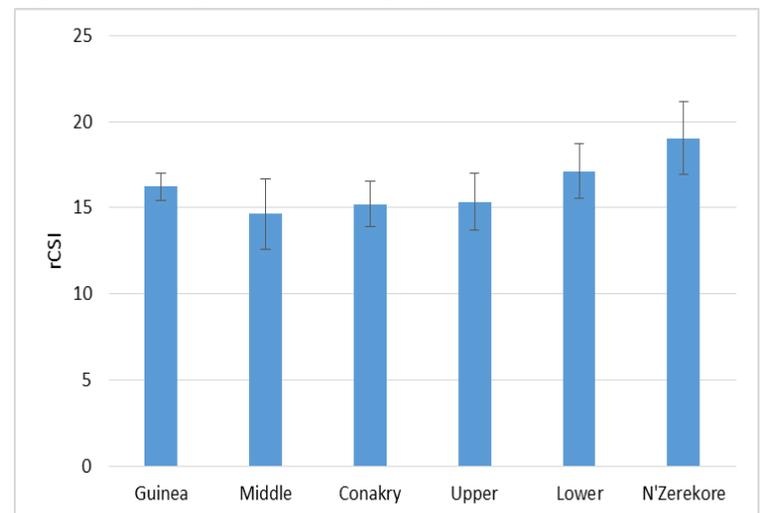


Figure 3: Average rCSI: Liberia, September 2015

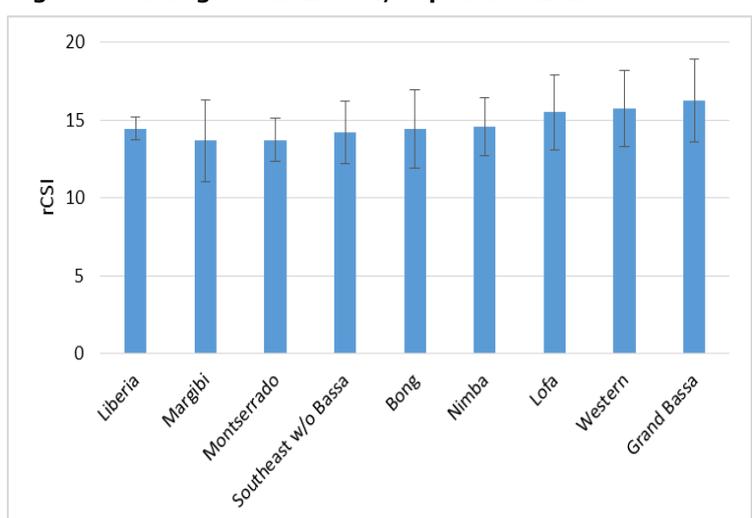
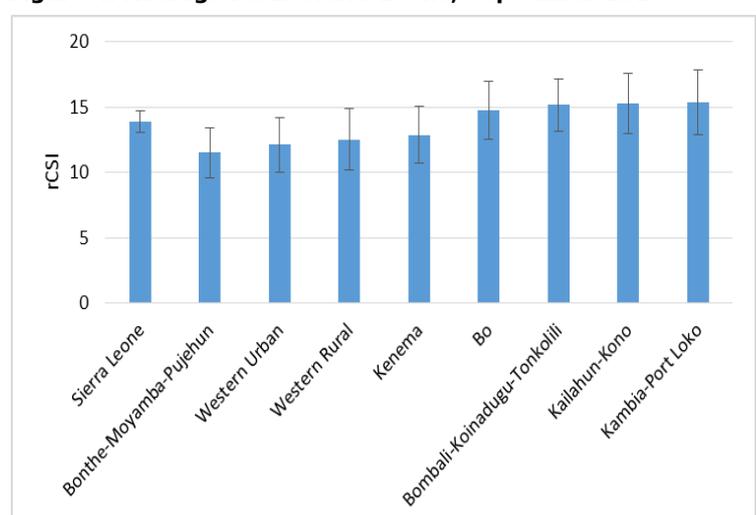


Figure 4: Average rCSI: Sierra Leone, September 2015



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

Looking at the seasonal calendar for [Guinea](#), [Liberia](#) and [Sierra Leone](#), the lean season normally ends in August and in September harvesting and agricultural activities traditionally commence, providing income and increased food availability. This year, according to [NOAA's analysis](#) of rainfall from May to September, all three countries have received above average rainfall levels. While this bodes well for crop yields later in the year, in the short term, the abundance of rainfall might have had detrimental effects on household food security such as delays in harvesting activity and increasing difficulty in transporting food. In Sierra Leone, there was intense flooding in Bo and Pujehun which caused crop damages and temporary relocation of households. ([ACAPS](#))

Prices remain stable

From August to September, no statistically significant changes in average national prices are noted in the three countries. In order to look at longer term price changes, we compared September prices against prices in the beginning of the year, January 2015 for Liberia and Sierra Leone. As SMS polling started in June 2015 for Guinea, we compared September prices against prices in June 2015. In Liberia, the price of imported rice has decreased -3%.***² In Sierra Leone, the price of imported rice has increased +2%** as has local rice (+5%).***² In Guinea, the price of local rice increased by +5%*** and the price of palm oil by +3% .**²

National prices often hide regional fluctuations, but in this reporting round, we observe little variation in commodity prices at sub-national levels. In Conakry, the price of a kilogram of local rice increased +5%.***² In Sierra Leone, the price of a cup of local rice increased +4% in Bombali-Koinadugu-Tonkolili.**²

Table 1: Prices in Guinea, Liberia and Sierra Leone

Country	September Prices (in local units and currency)			
	Imported rice	Local rice	Palm oil	Manual Labour Daily Wage Rate
Guinea	4307 (GNF/kg)	5252 (GNF/kg)	4659 (GNF/half-litre)	23685 (GNF/day)
Liberia	26.8 (LRD/cup)	27.6 (LRD/cup)	26.1 (LRD/pint)	229 (LRD/day)
Sierra Leone	1054 (SLL/cup)	1022 (SLL/cup)	1776 (SLL/pint)	11013 (SLL/day)

Minimal change in wages and terms of trade

This month no statistically significant changes in manual labour daily wages are observed at either national or regional levels in Guinea, Liberia or Sierra Leone. Comparing the beginning of the year to September, wages have grown +8% in Liberia.***² In Guinea and Sierra Leone, the changes in manual labour wage over the longer-term 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 September, no changes in terms of trade were observed at national levels. In Montserrado, the terms of trade for wages to local rice decreased slightly from 9.8 to 9.1.**² Corresponding with an increase in price of local rice, in Conakry, the terms of trade for daily wage to local rice decreased from 5.8 to 5.3 in Guinea.**²

Perceptions of food security in September

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 [Reputate](#) 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.

As observed in previous months, the mean sentiment scores for the three countries, Guinea (-0.003), Liberia (-0.007) and Sierra Leone (-0.07) are all slightly negative.

Figure 5: Manual labour wages, January – September 2015

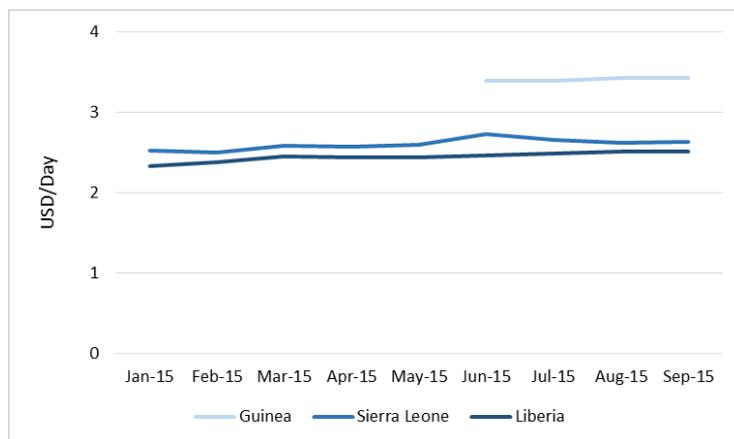


Figure 5: Average sentiment scores, September 2015



In Guinea, among repeat respondents (n=196), the average sentiment grew slightly more positive, with an average improvement per respondent at +0.08 points.* ¹ While concerns about food prices and food accessibility were mentioned frequently this month, few responses offered specific explanations. Five respondents mentioned lack of employment opportunities. A few respondents mentioned rains and flooding when describing their food security. One respondent mentioned rains as a general source of difficulty while another respondent in Kankan mentioned difficulty due to flooding. In contrast, two participants noted that as a result of the rains, there was greater food availability. Four respondents in Nzerekore, Boke and Mamou mentioned that due to the commencement of harvesting, the food security situation in their community was improving. Indicating that harvest activities vary by community, two other participants in Nzerekore stated that this year's harvest has been delayed. Finally, one respondent in Kindia mentioned that due to Ebola, all activities were brought to a halt.

In Liberia, the change in mean sentiment score this month was not statistically significant at either national or regional levels. In September, 34 respondents mentioned poor road conditions and transportation networks and 16 respondents cited detrimental effects of the rainy season as drivers of food insecurity. As are usually mentioned, 18 respondents mentioned the lack of employment opportunities causing food insecurity. Ebola was mentioned by six respondents, half of whom mentioned that Ebola still negatively affects their food security situation while the other half mentioned that conditions are recovering to pre-Ebola levels of food security. This month, nine respondents in Bomi, Gbarpolu, Grand Gedeh, Lofa, Margibi and Sinoe mentioned that due to the commencement of harvesting, the food security situation in their community was improving. One respondent in Bong stated that normal harvesting activities were not yet underway.

In Sierra Leone, among repeat respondents (n=286), the average sentiment grew slightly more positive, with an average improvement of +0.01 points per respondent.** ¹ In the responses this month, four respondents explicitly mentioned floods in the areas of Bombali, Bo, Kenema and Freetown. Ebola was mentioned by 24 participants, 21 of whom mentioned that Ebola still contributes to food insecurity, while three respondents stated that food security conditions are recovering to levels seen prior to the outbreak. Respondents also mentioned difficulties due to rain (19), road/transportation networks (14) and lack of employment opportunities/jobs (10) as sources of food security problems. This month, 10 respondents, in Bo Moyamba, Kono, Tonkolili, Kailahan and Koinadugu stated that due to commencement of harvesting, the food security situation in their community was improving. One respondent in Kenema stated that normal harvesting activities were not yet underway.

Figure 7: Word cloud for Guinea, September 2015



Figure 8: Word cloud for Liberia, September 2015



Figure 9: Word cloud for Sierra Leone, September 2015



Conclusions and Outlook

In September, contrary to expectations, coping levels did not improve in all three countries. As many respondents reported that rains and road conditions negatively affected food security, it is possible that these conditions offset or delayed the improvements typically seen in September in a normal year. Prices, wages and terms of trade remain generally stable and little statistically significant variation was seen this month even at sub-national levels. Looking at the upcoming months, should the rains relent, we should expect to see improvements in coping, food availability and economic activity.

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. 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
4. United States National Oceanic and Atmospheric Administration (NOAA): ARC2 May-September Percent of Normal Rainfall:
http://www.cpc.ncep.noaa.gov/products/african_desk/cpc_intl/cf_test2/africa_arc/africa_arc_May-Sep_wa_pnorm.gif
5. ACAPS Briefing Note: Sierra Leone — Flooding in Bo and Pujehun
<http://www.acaps.org/img/documents/b-acaps-start-bn-sierra-leone-floods-23-sep-2015.pdf>
6. 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. 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/>).



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