

The Food Security Situation in the context of Ebola Outbreak in Sierra Leone

A Rapid Assessment Report



The Ministry of Agriculture, Forestry and Food Security (MAFFS)



**United Nations Food and Agriculture Organization (FAO)
and members of the Food Security Cluster
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List of acronyms

ABC	Agricultural Business Centres
ACF	Action Contre La Faim/ Action Against Hunger
BRAC	Building Resources Across Communities (formerly known as the Bangladesh Rural Advancement Committee)
EFSA	Emergency food security assessment
EOC	Emergency Operating Centres
EVD	Ebola Virus Disease
FAO	Food and Agriculture Organisation of the United Nations
FBO	Farmer Based Organizations
GGEM	Grassroots Gender Empowerment Movement
Kg	Kilogramme
LAPO	Lift Above Poverty Organization
MAFFS	Ministry of Agriculture, Forestry and Food Security
MIRA	Multi-cluster/sector initial rapid assessment
MoSH	Ministry of Health and Sanitation
Mt	Metric ton
NGO	Non-Governmental Organisation
SMT	Salone Microfinance Trust
UN	United Nations
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
WFP	World Food Programme
WHH	Welthungerhilfe
RPSDP	Rural and Private Sector Development Project
WBG	World Bank Group

Executive Summary

Ebola virus disease emerged in West Africa in March 2014 when the first few cases of the disease were diagnosed in Gueckedou in the forest zone of Guinea. The disease reached Liberia in April and was confirmed to have arrived in Sierra Leone in May. To date, Ebola virus disease has spread through villages, towns and cities. Some distinct characteristics of Ebola make the disease a concern for agriculture and food security particularly in the rural areas. First, it mostly affects people in the 15-44 age brackets. These are prime age adults mostly involved in agricultural production. Second, the sheer novelty of the disease and its high case fatality rate can potentially disrupt farming activities as well as marketing activities. This study was carried out to assess the extent to which EVD affected the food security situation in the country and in particular to answer the following research questions.

1. Is the outbreak of Ebola having adverse effect on agriculture and food security?
2. If so, in what ways is the effect manifesting itself across various levels of agriculture value chains?

In September 2014, the Ministry of Agriculture, Forestry and Food Security (MAFFS), FAO (Sierra Leone) and key partners in the food security and livelihoods sector conducted a food security rapid assessment to have a better understanding on the extent to which EVD has affected agricultural production, functioning of the markets and the general food security in the country for both the rural and urban communities. This report presents the findings of the rapid assessment.

The assessment is significant because it is the first national food security assessment to be undertaken since the outbreak of the Ebola Virus Disease (EVD) in the country. The findings indicate that Ebola virus disease (EVD) is adversely affecting agriculture and food security in Sierra Leone.

Evidence indicates that:

1. In communities affected by Ebola, labour shortages are being experienced. The reason for this includes the unwillingness of people to work in groups as they used to do. Thus farmers cannot mobilize enough labour for activities such as weeding, crop protection, and even harvesting. About 47% of the respondents claimed that Ebola is having considerable adverse effects on farming activities. There were reports that a few families have abandoned their farms and moved to areas perceived as 'safe' from EVD.
2. Quarantine measures and restrictions have disrupted marketing of goods including agricultural produce. Travel restrictions and suspension of operations of periodic markets (popularly known as 'Lumas') have disrupted trade flows of food commodities and other necessities.
3. Due to the disruption of markets, there have been shortages of goods on the market and this has led to an increase in prices of key commodities. The study shows that the range of price increase is between 13% for imported rice to over 40% for fish. Other commodities affected include cassava, ground nuts and palm oil.
4. However, there are agricultural commodities whose prices have fallen drastically. For example, price of various assortment of vegetables produced in Koinadugu has fallen to a point where a large part of the harvest is left to rot and the rest is sold at a throw away price.
5. In general, respondents reported that they expect a reduction of yields and are already experiencing loss of income. Some 72% of the respondents reported having one meal per day.

INTRODUCTION

The relationship between human disease, agricultural production, livelihoods and food security in rural agrarian societies is often complex with direct and indirect manifestations. Because they lead to ill-health and/or death, the primary effect of a human disease on agriculture is on labour. As people in the prime productive age fall ill and die, farming activities and other sources of livelihoods may significantly be disrupted because of labour shortages. But beyond labour availability, epidemics particularly those characterized by quick onset of debilitating symptoms and high case fatality rates instill fear which in turn may contribute to disruption of livelihoods.

Ebola virus disease (EVD) which in the last nine months has emerged and become a huge health, social, economic, and governance problem, has the potential to impact livelihoods and food security. First, the disease mostly affects people in the prime productive age (15-44 years of age). Second, EVD is characterized by high case fatality rate (70%).

Even though EVD has reached urban areas of Sierra Leone, it is also a rural problem. Rural population in Sierra Leone depends on agriculture for livelihoods thus making it imperative to analyze the effects of EVD on the livelihoods of rural populations.

In Sierra Leone, the outbreak erupted at a crucial period in the agricultural season for rice and other important food crops. Many farmers were unable to complete key, time-critical agricultural activities. This may have dire consequence for individuals, households, villages, districts and, consequently, the nation as a whole. The government's response to contain the EVD epidemic has led to price fluctuations of food commodities largely due to closure of markets, roads and banks. The assessment was necessary to determine the extent to which these factors have affected the local population.

The assessment applied a national participatory multi-sectoral approach with participation of key actors including the UN, Government, private and public partners. The current partners include the following: FAO, WFP, UN Women, MAFFS, WHH, ACF, and Concern. This joint partnership will enable a common comprehension of the situation as well as a common message to contribute to mobilize the required resources to support the population in need. The rapid food security assessment assisted in establishing the changes in livelihoods, household food security situation, existing coping mechanisms, and food security outlook of the population in Sierra Leone.

The objective of the rapid assessment

The primary objective of this assessment is to establish the national food security status of both the rural and urban the population in the country. The specific objectives are;

1. Is the outbreak of Ebola having adverse effects on agriculture?
2. If so, in what ways is the effect manifesting itself at various levels of agriculture value chains?

The results of the assessment will:

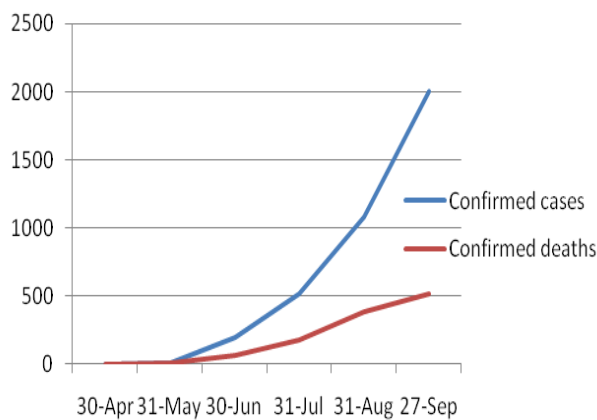
- i. Inform government and key stakeholders in the food security sector on the current nature and scale of the food security situation in the country and particularly those communities directly affected by the EVD outbreak

- ii. Provide a basis for recommendations to meet the food and livelihood needs of the population
- iii. Assist decision making and planning using available evidence in developing appropriate emergency and recovery interventions.

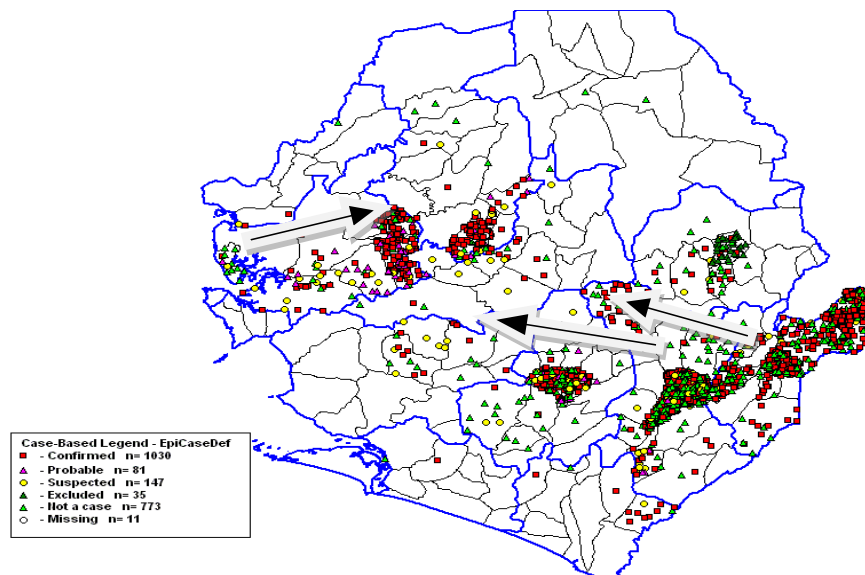
Epidemiological status:

To date the Ministry of Health and Sanitation (MoSH) has registered a total of 4,611 confirmed cases of Ebola in Sierra Leone. While 1,055 victims have died, 836 patients have survived and fully recovered from the disease. Currently the disease is spreading exponentially, posing a great risk to the livelihoods of millions of people (Ministry of Health and Sanitation - MoHS: 31.10.2014).

EVD Epidemiological Curve for Sierra Leone



**NATIONAL DISTRIBUTION OF CONFIRMED EBOLA CASES BY DISTRICT
(As of the 24th October)**



Methodology

Methods:

This rapid food security assessment was conducted in all the 13 districts of the country by trained staff from FAO, Ministry of Agriculture Statistics division and partner NGOs namely; Welthungerhilfe (WHH), Action Contre la Faim (ACF), and Concern Worldwide. From each of the districts, three chiefdoms were selected purposively based on the statistics on severity and disease prevalence of Ebola outbreak. Three villages were randomly selected from each chiefdom using the list of villages where the farming communities formed agricultural Farmer Based Organizations (FBOs). These Farmer Based Organizations are part of the national structures of Agricultural Business Centres (ABCs) scattered all over the country providing a range of services to the farmers. From each village 6 households were randomly selected to participate in the assessment.

The method combines elements of the methodology of the multi-cluster/sector initial rapid assessment (MIRA), the FAO livelihood assessment toolkit, the EFSA surveys (emergency food security assessment) while respecting the Sphere humanitarian standards.

Data collection tools:

1. The first tool was a detailed household semi-structured questionnaire that was administered to each head of household. A total of 54 households were selected in each of the 13 districts, making a total of 702 household interviews at the national level.
2. The second tool was the key informant semi structures questionnaire that was administered to three selected village leaders who included the village chief, the village women leader (not a spouse of the chief) and a youth leader. A total of 27 key informants per district were interviewed on village level issues pertaining to food security, making a total of 351 community leader interviews at the national level.
3. The third tool was a market assessment questionnaire that was administered in a total of 5 markets per district. One market was chosen from each of the 3 chiefdoms that were selected, and 2 district markets were chosen from the district headquarter town. A total of 65 markets were surveyed countrywide. Within each market seven respondents were interviewed. These included the market leader commonly known as the 'Mammy Queen', one consumer, four traders and one meat seller at the local butcher.
4. The fourth instrument administered was the commodity value chain checklist. The value chain of 6 agricultural commodities was studied to assess the current market distortion of these commodity value chains that may be directly or indirectly linked to the Ebola outbreak. The value chains included cocoa, rice, livestock, palm oil, and cassava and vegetables.

Table 1. Summary table on instruments administered and number of respondents

Type of instrument	Village	Chiefdom	District	National
Household	6	18	54	702
Community leader Key Informant	3	9	27	351
Number of Markets	-	3	2	65
Market Respondents	-	21	14	455
Value Chain	-	-	-	6

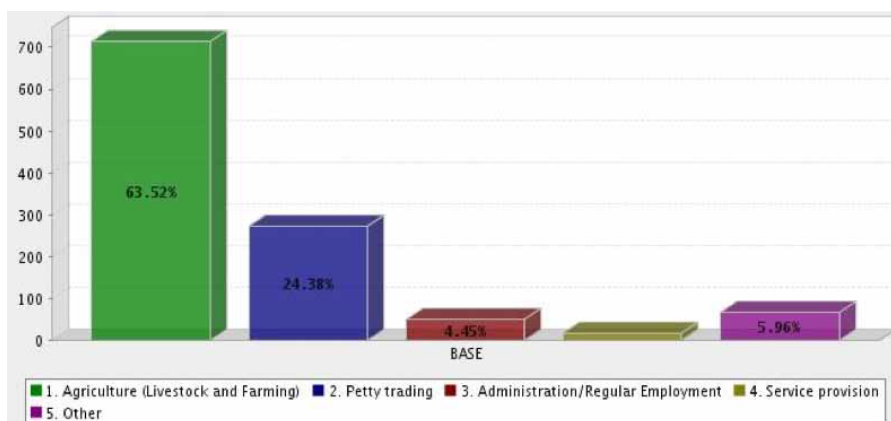
FINDINGS

Chapter 1

Effects of Ebola on household food security

Agriculture remains the main source of livelihoods for the majority of rural households but a large number depends on markets to access food. The study reveals the interdependency between farmers' own production and market as major sources of food. The assessment indicates that 87% of the households interviewed depend on agriculture and petty trade for their livelihood (Graph 2).

Graph 2: Food and income sources at household level

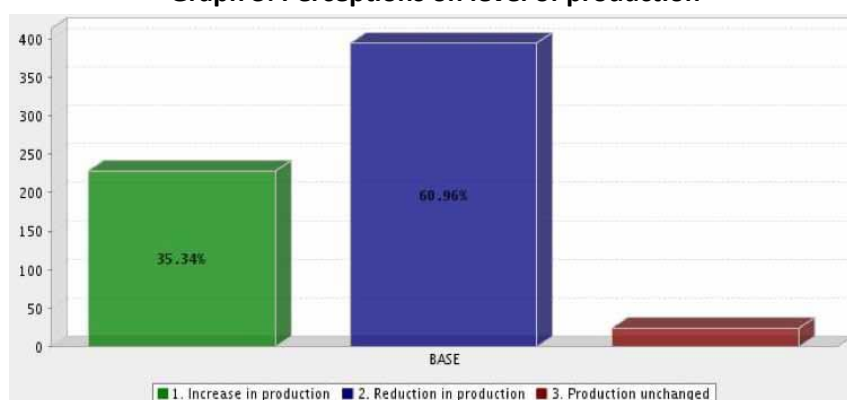


Any disruptions that affect the farming and markets directly destabilize the entire household economy. The current state of emergency and other by-laws put in place to contain the spread of Ebola has greatly contributed to the changes in their capacity to meaningfully participate in the farming and business activities. The main components of Ebola as mentioned by the respondents are:

- a) Fear and panic
- b) Real cases of illness and death (only in affected communities)
- c) Quarantine and other restrictive measures

All these three have combined in different ways to disrupt agricultural production at household level. With the current EVD crisis many farmers are sceptical about the farming prospects of this season.

Graph 3: Perceptions on level of production



Source: primary Data from Rapid Assessment-PEMSD/FAO 2014

The assessment findings reveal that over 60% of the respondents interviewed expect a reduction in production levels compared to 2013 main agricultural season.

Table 1: Crop production figures for 2000 to 2012 and the projected for 2013 and the compared variations

Year	Rice	Cassava	Sweet Potato	Maize	Groundnut
2008/09	680,097	1,988,561	113,478	23,533	59,172
2009/10	8,88,417	2,814,576	176,969	44,460	70,049
2010/11	1,026,671	3,250,044	206,189	51,388	81,457
2011/12	1,129,338	3,460,357	210,313	52,416	83,086
2012/13	1,141,417	3,585,172	220,829	39,237	84,748
2013/14	1,255,559	3,810,418	225,246	40,022	86,443
2013 vs. 2012 variances	10.0%	6.3%	2.0%	2.0%	2.0%
2013 vs. average 2008-2012 variances	29.0%	26.2%	21.4%	-5.2%	14.2%

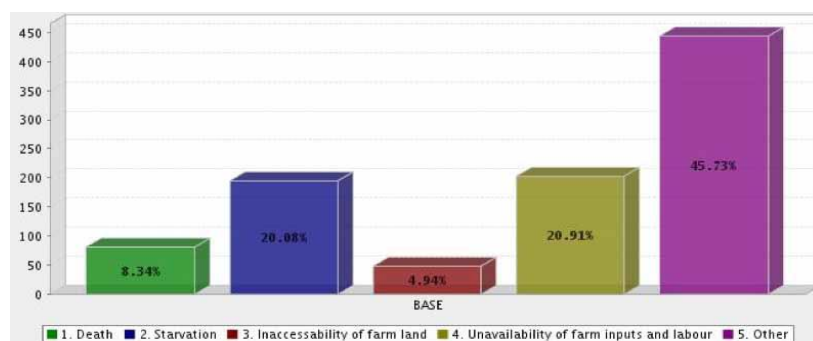
Source: PEMSD/MAFFS, 2013/2014

Sweet potato production is estimated at 225 246 Mt. The production is 2 % above 2012 production and 21.4 % above the 5 years average. Production of maize is estimated at 40 022 Mt showing an annual decrease of 2 %. As compared to the 5 years average this production is -5.2 % lower. For groundnut, the 2013/14 production is estimated at 86 443 Mt. This represents an increase of 2 % in comparison to the past cropping season and 14.2 % above the average of the five past years.

Comparative figures for Rice Imports for the period January, 2013 to September, 2014

	2013	2013	2014	2014
MONTH	TOTAL VALUE ('000 Le)	TOTAL VOLUME ('000 MT)	TOTAL VALUE ('000 L	TOTAL VOLUME ('000 MT)
JANUARY	-	-	9,000.58	3,845.82
FEBRUARY	1,972.95	832.85	9,123.87	3,631.39
MARCH	19,134.25	7,084.45	21,574.07	9,654.88
APRIL	58,150.73	29,555.05	564.45	211.33
MAY	12,938.20	4,179.99	10,560.01	5,041.20
JUNE	11,233.89	4,072.04	9,192.82	3,581.15
JULY	9,538.42	2,848.57	6,757.65	1,955.70
AUGUST	9,315.96	756	5,158.89	1,986.70
SEPTEMBER	9,495.47	2,076.89	2,995.89	1,065.38
OCTOBER	13,052.31	3,751.04	-	-
NOVEMBER	-	-	-	-
DECEMBER	10,220.43	3,540.09	-	-
TOTAL	155,052.61	58,696.97	74,928.24	30,973.57

Graph 4: Causes of Changes in livelihoods



Source: Rapid Assessment-PEMSD/MAFFS, 2014

The assessment indicates that about 45.73% of the respondents perceive Ebola to have considerably disrupted their farming activities (land preparation, planting, weeding, harvesting, and marketing). Other reasons include lack of agricultural inputs and labour and access to farm land. This total percentage is attributed to Ebola because at the design of the questionnaire all other options had been provided for and these others constituted three key answers which were: seasonality, restricted movement and EVD itself.

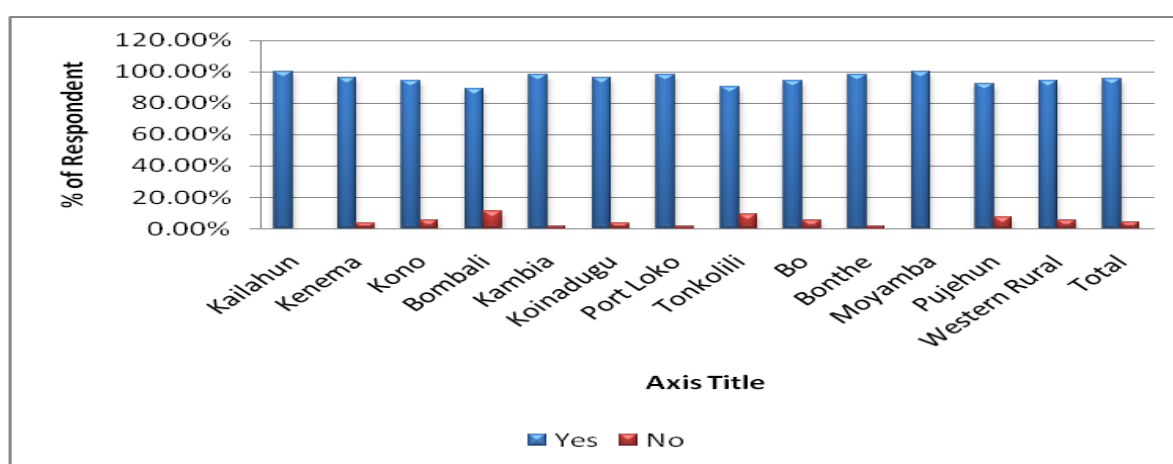
Based on the above decreases and increments and the respective production trends, over the past five years, and with the current EVD crisis and its effects on the farming households and communities, the projections for 2014/15 will be much lower than those that had been projected for 2013/2014. This is also supported by the rapid assessment results where 65.45% of the total respondents perceive that total agriculture production will be reduced; this means that in the projections for rice less than 10%

production increase is anticipated, less than 2% increase for maize, sweet-potatoes and groundnuts. This is also supported by the results from the comparative figures of imported rice in the table below, which shows that importation of rice has been increased compared to 2013 same time especially in February, 2014 to May, 2014. A factor that imported rice is much higher this period than it was last year same period, and households are relying heavily on this imported rice than before January, 2013.

Graph 5: Level of changes due to the outbreak at district level.

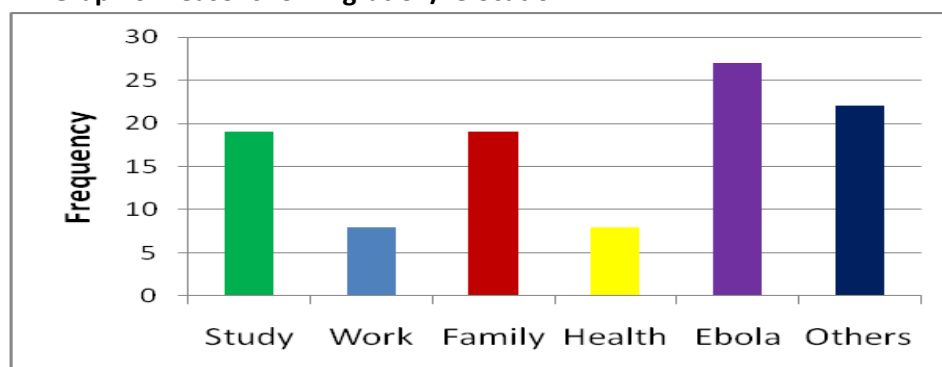
Extent of EVD on the current production Season:

Agriculture in Sierra Leone is heavily dependent on subsistence methods of production. Agriculture mechanization is almost non-existent and only limited to few large scale farms. Many farmers (small, medium and large scale) depend on gang labour for weeding and harvesting of rice fields. This labour is either communal or hired. The rapid assessment indicates that the activities mainly weeding, bird



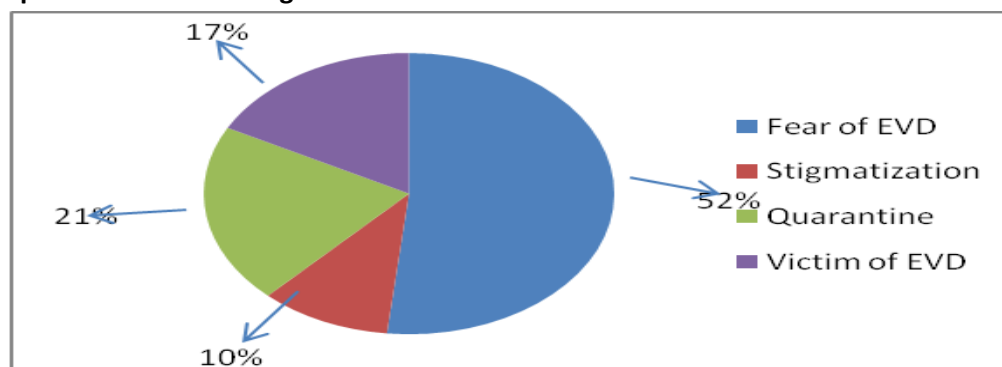
scaring in the case of rice, harvesting and processing currently underway will be affected because communities are living in perpetual fear of the EVD. Many communities are quarantined under the state of emergency with limited or full restrictions on movements of people. Working in groups or gangs is not possible anymore as it is seen as one of the possible ways of EVD transmission.

Graph 6: Reasons for migration/relocation

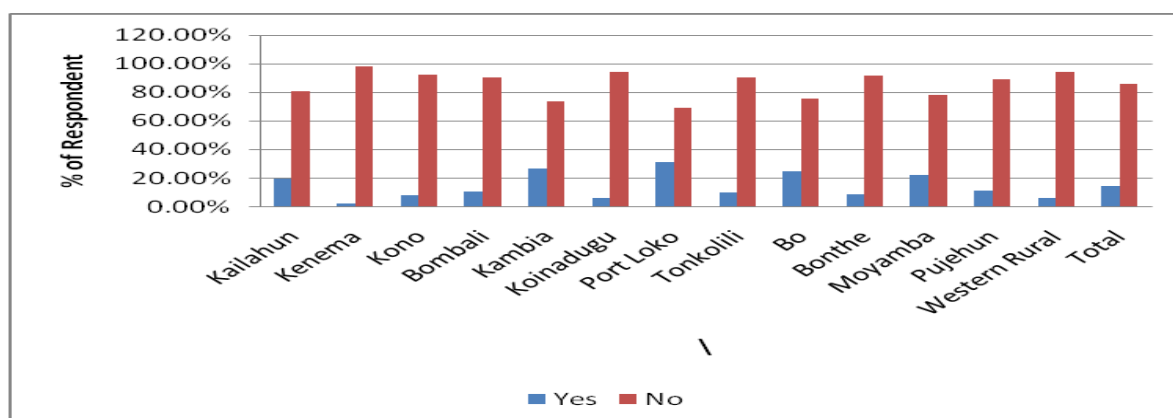


14% of the surveyed households indicate that members of their family have migrated to other communities between May and August 2014. 26% of these cases attribute their migration specifically to Ebola. Specific reasons for migration are indicated in the pie chart below.

Graph 7: Specific reasons for migration due to Ebola



Graph 8: migration pattern at district level.



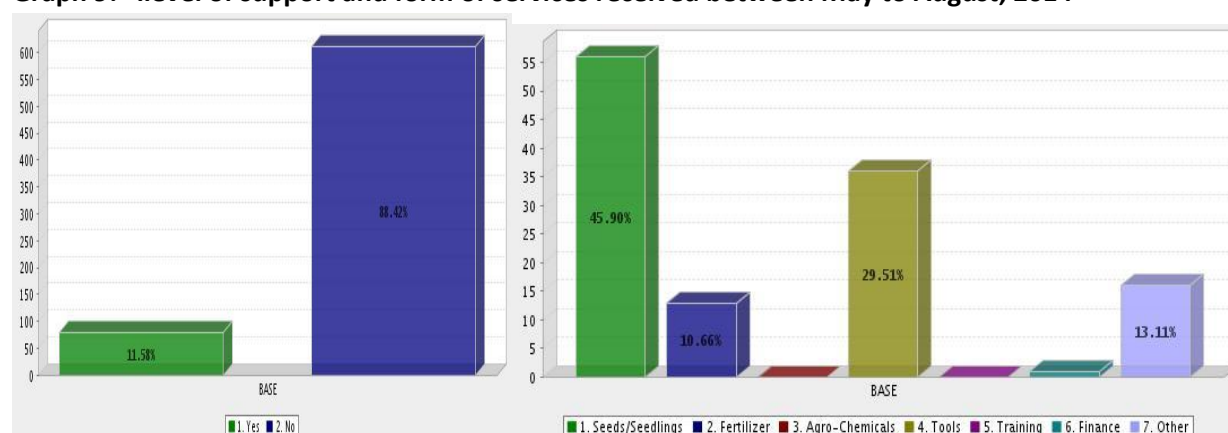
Pre and Post-Harvest losses:

Pre harvest losses are mainly attributed to the extent to which farmers are able to protect their rice from birds and rodents. It is estimated that farmers may lose up to more than 50% of their yields if these crop protection measures are not put in place. With clear restrictions to stop hunting and eating bush meat, the rodents and other wild animals are likely to cause heavy damage to most crops this season. In addition the scarcity of group and hired labour means those farmers especially in the quarantined areas will not be able to protect their farms from birds and rodents.

Limited support provided to farmers:

The assessment found out that most of the agricultural operations are supported by farmers themselves. A total of 88% did not receive any support from government and partners. The remaining 12% received some support in form of seeds, fertilizer and tools. Given that most farmers are financing their operations, the impact of EVD will greatly hamper their ability to engage in the next years' production if no support is provided to them.

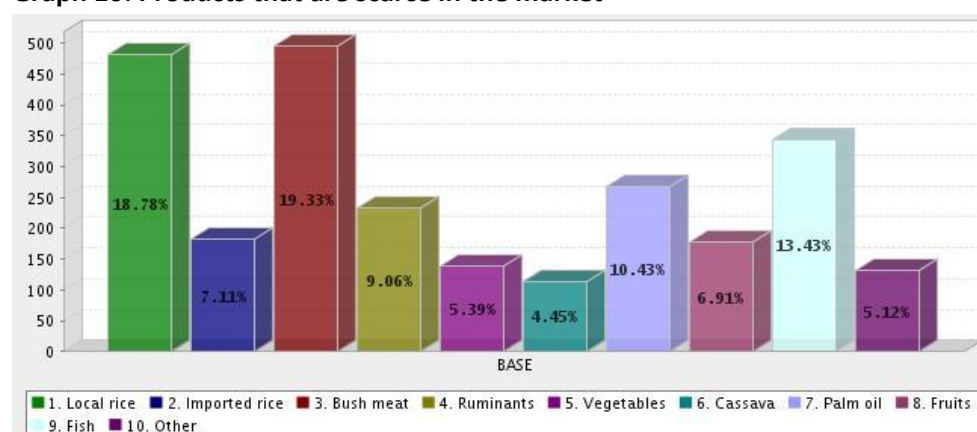
Graph 9: Level of support and form of services received between May to August, 2014



Essential commodities scarce in the market:

The ongoing Ebola crisis has hindered access to and availability of commodities from the local markets. This is fuelling widespread food scarcity in the affected communities. The fear and panic of Ebola virus disease has engulfed majority of the population, with restricted movements and limited commercial access. These compounding factors are stressing their livelihoods and contributing towards food insecurity.

Graph 10: Products that are scarce in the market



The main causes are due to reduced business volume of commodities and services in the last four months and believe the trading pattern is getting worse than it had been before the Ebola crisis. This is having a trickledown effect to the livelihoods of their suppliers, producers, and agents/customers and thus reducing their morale and motivation to profitable business.

Bush meat is a major source of animal protein now restricted:

Sierra Leone livestock subsector is still young and growing. Farmers mainly rear poultry, Small ruminants and cattle. The study indicates that 92% of the farming households are engaged in livestock activities (mainly poultry and ruminants) for both home consumption and commercial purposes. The table below shows the production trend for the last 3 years.

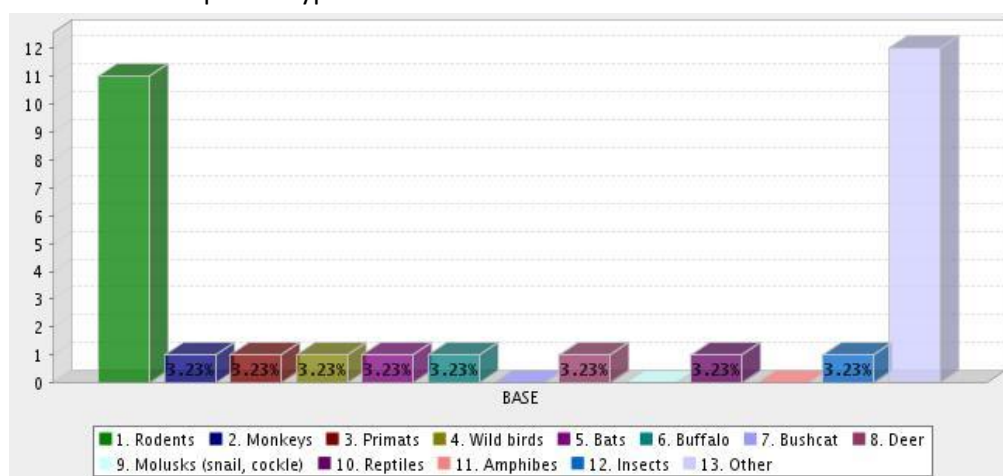
Table 7: Domestic Livestock Figures

Year	LIVESTOCK TYPE AND NUMBER OF HEADS						
	Cattle	Sheep	Goats	Chicken	Ducks	Rabbit	Pigs
2011	568,700	750,200	883,300	10,406,000	882,768	13,416	52,100
2012	625,570	825,220	971,630	11,446,800	971,044	14,757	57,310
2013	688,127	907,742	1,068,793	12,591,260	1,068,147	16,233	63,041

Source: Ministry of Agriculture, Forestry and Food Security

Many farmers also depend on wild animals as a source of animal protein and for sale to generate income. The most widely hunted and consumed animals include rodents, monkeys, primates and other animals as shown in the table below. In the advent of the EVD outbreak the assessment reveals that over 94% of the respondents reported that they are no longer hunting due to the by-laws and restrictions to curb EVD. This has greatly impacted on the amount of animal protein consumed at household level as well as their income.

Graph 11: Types of bush meat consumed in Sierra Leone



Chapter 2

Effects of Ebola on agricultural markets

Sierra Leone has over 40% of its population living in urban areas. This population depends on the markets for supply of their food requirements and as a source of their livelihood. These include daily, periodic (lumar) and specialized markets for specific commodities like livestock. The interior is also supported by the cross border markets to and from boarder post on Guinea and Liberia border. The marketing infrastructure is supported and facilitated by services providers. These include transporters, processors, micro-financial institutions, agro-input dealers, storage service.

The other important subsector is the cash crop subsector. Sierra Leone produces and exports cocoa, coffee, palm oil, cassava-Gari, Livestock and fisheries' products (table 9). Given the subsistence nature of agriculture, most of these commodities are produced on a small scale by smallholder farmers, majority of who are women.

Table 9: Export Volume (Mt) and Value (Million Leones) of Cash Crops and Fishery Products

Year	Coffee		Cacao		Fish Products		Total	
	Volume (Mt)	Value (Million Leones)	Volume (Mt)	Value (Million Leones)	Volume (Mt)	Value (Million Leones)	Volume (Mt)	Value (Million Leones)
2011	3,787.9	8,695.10	17,999.9	190,188.0	2,121.8	3,269.20	23,909.60	202,152.30
2012	3,254.5	16,709.00	11,387.20	111,141.1	7,727.00	2,035.20	22,368.70	129,885.30
2013	2,541.0	12,183.67	4,196.71	38,897.29	7,350.80	1,369.37	14,088.51	52,450.33

Source: Statistics Sierra Leone

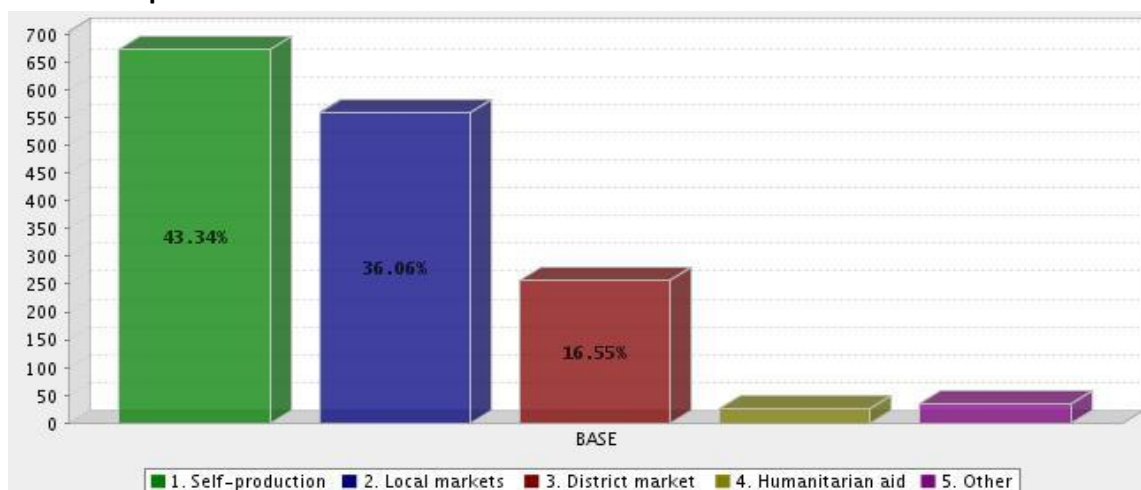
The survey results indicate that 53% of the population depends on markets for their livelihoods. It is clear that disruption at any stage of the agricultural production and marketing processes would have a direct effect on both the incomes and livelihoods of the affected population. The EVD has manifested itself and affected the functionality and access to markets in different ways. All periodic markets have been banned by government but daily markets are operating except that the volume of transaction and number of sellers (at daily markets has) reduced. **The main reasons include:**

i) Movement restrictions

Transportation of commodities within and between districts has been greatly disrupted. The quarantine measures by government and bye-laws imposed by the paramount chiefs have restricted the number of trucks (and people) moving in and out of the districts. The stress and hardships of getting travel passes through the district task force has been a limiting factor. Since June, commodity flow between chiefdoms and districts has been low. People mostly depend on motorbike taxis commonly known as

‘Okada’ to transport goods. This option is both cumbersome, expensive and limits the volume of produce that is transported. In addition there have been time curfew restrictions for both people and vehicles. This in turn affects the number of hours the markets remain open.

Graph 12: Common Sources of Food Commodities



Source: Primary data

ii) High transportation cost

Due to the difficulties and challenges involved in movements, the study indicates that the cost of transportation for both goods and passengers has gone up by an average of 30-40%. The volume of produce has reduced drastically. The number of passengers to be transported in each vehicle has been reduced. The duration to ply key routes to and from the district capitals has been increased by delays at the checkpoints along the main high ways and within the district road networks. The vehicle owners have decided to park their cars since they cannot meet the operational costs and make profit from the transport business. This has led to a scramble for the few vehicles that are now available to provide the transport services.

iii) Road blocks and check points a deterrent factor to normal trade

The introduction of road blocks along main highways has been received with mixed feelings. As a measure to curb the free movement of persons to and from infected areas, the government manned road blocks and check points along the main highways and between district cross borders. Passengers are required to disembark from all vehicles and be thoroughly checked for any symptoms and signs of EVD before they can be allowed to proceed. It is reported that there over 20 check points between Kenema and Freetown. Similar number of checkpoints exists along other major roads. These delays also reduce the number of trips traders can make and the number of passengers they can carry.

iv) The fear of travel

Other factors that have contributed to trade disruptions include fear of travelling especially by women. Focus group interviews with women vegetable traders in Koinadugu indicated that they fear to travel to avoid getting infected. They also argue that some of the restrictions and refusal to transport their goods to district markets is unjustified. They have reported losing millions of Leones because they deal in perishable commodities. This has in turn led to loss of income and employment.

v) The closure of periodical markets

Isolation of districts has led to deterioration in the level of agribusiness activities across the country. In the wake of the continuing spread of Ebola, the closure of periodical markets, coupled with limitations in the number of working hours are directly affecting most of the agribusiness operations. Business activities are nearly coming to a standstill. Most agro-business dealers reported that the prices are increasing, quality of their products especially cocoa and coffee is falling. Most products are getting scarce. It is becoming difficult to reach producers and the cost of doing business is increasing daily. Besides the bad terrains during the rains that reduce the movement of vehicles, restriction of movement has led to a reduced commodity flow between chiefdoms and between districts disrupting also the regional trade between the Mano River Union countries. This in consequence has also had an effect on the demand of crops and livestock.

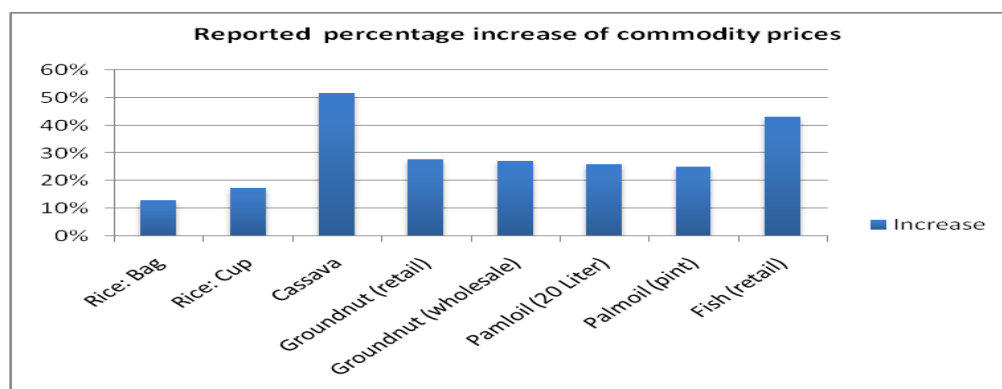
Market Price fluctuations:

The current travel restrictions and related factors have affected the prices both at farm gate and market place. The scarcity of goods and services, where demand is high, especially in urban centres, has seen the prices of most food crops go up. While the prices at farm gate, where food commodities cannot easily be transported to the final market destinations, have experienced a dramatic fall in prices.

Prices are increasing in most urban markets

The rapid assessment results indicate that the prices of most commodities have increased (Graph 13). Cassava has registered the highest price increase of 52% while fish has gone up by over 43%. Other commodities that have registered increases in prices include rice, groundnuts, palm oil among others.

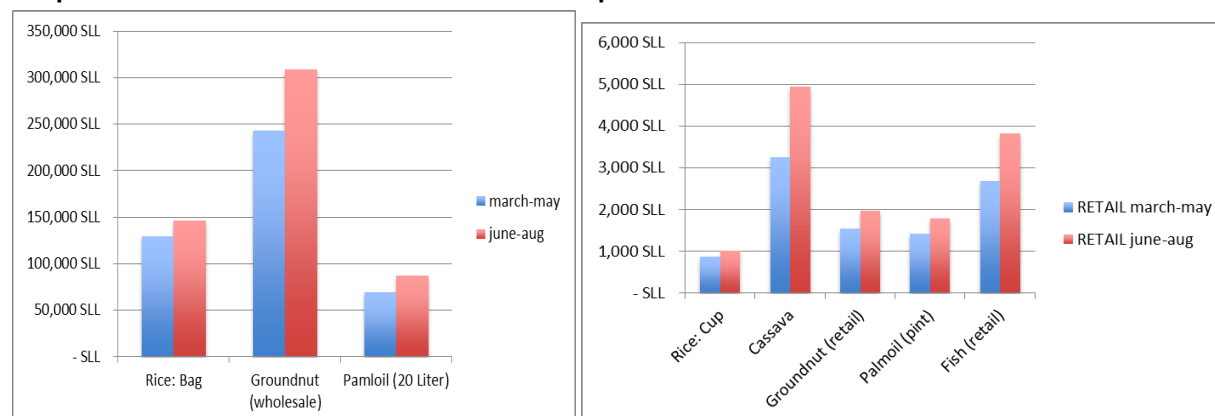
Graph 13: Percentage increase of commodity prices



The assessment compares the wholesale and retail prices for the two periods of March-May and June – August 2014 from district headquarter markets across the country. The tables below indicate that all commodities registered an increase in prices. This is a reflection of the problems already highlighted that are mainly due to EVD disruptions. With high levels of unemployment and general increase in cost of living, it is important to design and implement interventions that will quickly avert this trend.

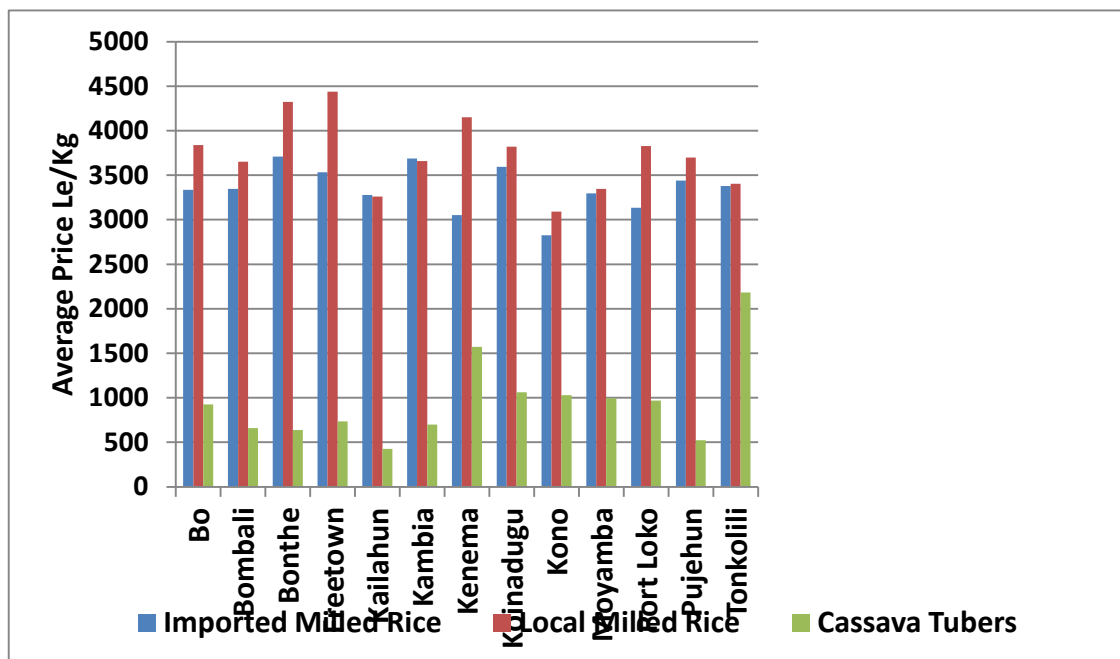
The graph below (14) shows the trend of average prices of staple food commodities in the thirteen districts from January to September 2014.

Graph 14: National retail and wholesale market prices of selected commodities



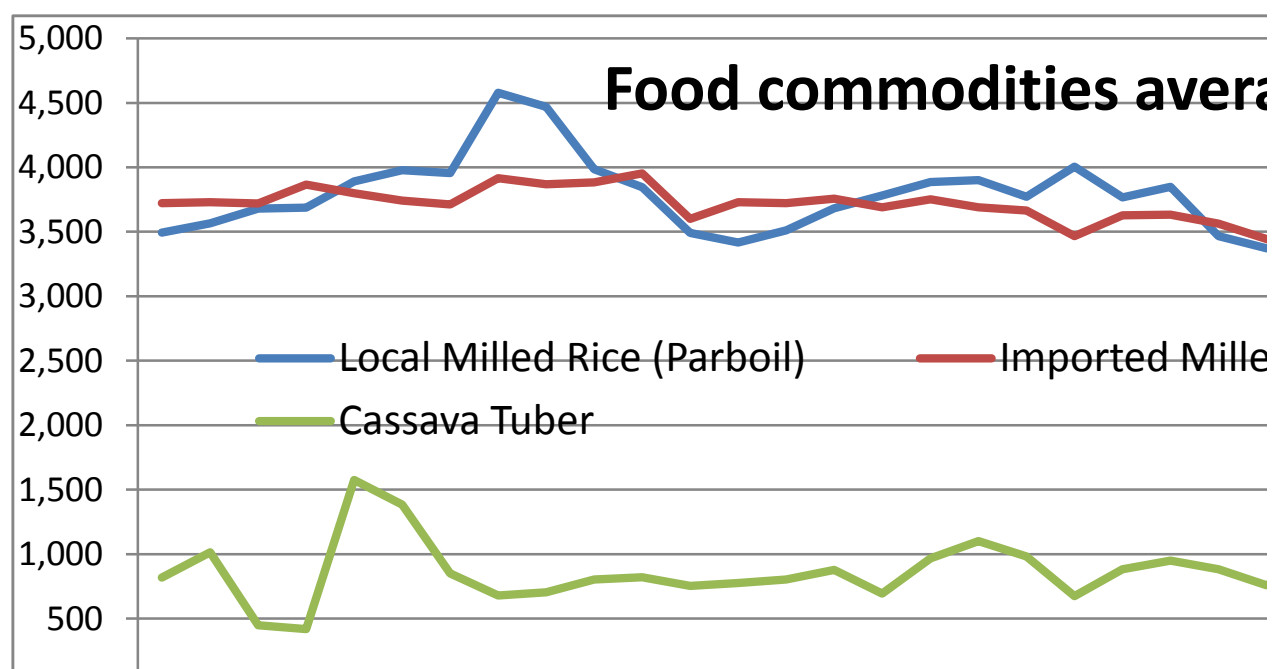
Source : Primary data from Rapid Market Assessment -PEMSD/FAO August 2014.

Graph 15: Average Retail Prices of Cassava, Local Milled Rice and Imported Milled Rice Le/Kg



Source: PEMSD/MAFFS/FAO 2014

Graphic 16: Staple food average price trends Jan 2011- Sep 2013



Prices are falling at farm gate level:

Although Koinadugu has had no Ebola case until October 2014, the findings show that the district is equally experiencing the effects of the Ebola disease with most farmers recording low incomes from the sale of their produce. The assessment team met and discussed with the representatives of the Kabala Women Vegetable Cooperatives Society on their plight in the face of Ebola.

Vegetables are usually marketed in Freetown, while rice and the other cereals are sold locally in Kabala and Gbindi luma. However, things have changed in the last four months, the Freetown market is no longer accessible, and this has led to a big gap in income; farmers have complained of reduced sales with a 40 percent reduction in profitability (table 13). For the rice and tubers sold at Kabala town, a low demand for these goods has been experienced in the last four months; farmers have complained that there is a glut in the market. For other crops such as sesame and couscous, the Gbindi luma market was an outlet, however since public gatherings have been prohibited, and the lumas are no longer functional, that source of income has also been cut off. The women further noted that they have experienced a big loss since April. Quoting one of the women, 'all the harvested vegetables have been sold at the local market in Kabala town next to nothing.'

Table 13: Change of vegetable prices in Kabala, March-September 2014

Item	Unit	Price range /unit before March in Leones	Price range /unit after March in Leones
Cabbage	50kg bag	90, 000 -200,000	30,000-40,000
Pepper	50kg bag	250, 000-300,000	110,000
Lettuce	10 dozen	180,000 -200,000	10,000-20,000
Tomatoes	carton	120,000 -130,000	50,000
Spring onions	bundle	10,000 -20,000	1,000
Cucumber	1 dozen	10,000	7,000 -8,000
Egg plant	50kg bag	80,000 -100,000	60,000 -80,000
Carrot	50kg bag	150,000 -170,000	80,000 -100,000

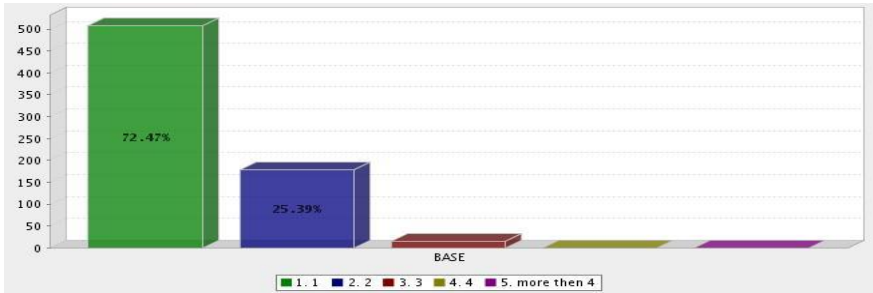
Changes brought by Ebola and quarantine measures have not only affected the farmers in Koinadugu districts but also in other parts of the country as well.

Food accessibility has been reduced:

Food access is presently threatened mainly due to insufficient income by the farmers. Farmers reported that their source of income which comes primarily from the sales of crops and livestock has been affected in the last couple of months due to the same reasons caused by EVD. Results show that 85% of

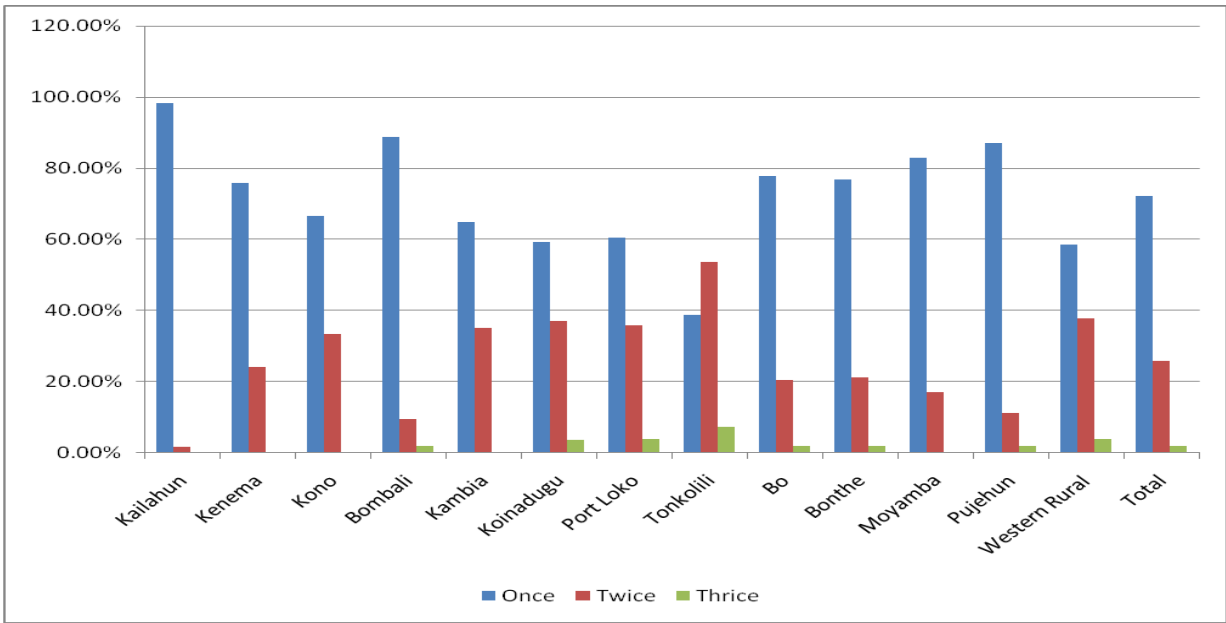
respondents mentioned facing difficulties in accessing food in the last four months. This has caused a change in the frequency in the number and quality of meals consumed in a day. 72% of surveyed households now eat one meal a day. In order to cope, households limit the portion of meals (53%), use substitute foods (28%), and reduce adult intake (12%).

Graph 17: Number of Meals consumed per day



These deficiency gaps identified require attention in form of balanced diet. There is a need to focus on interventions to ensure that sufficient food is produced in the short term and food like fish, meat, beans, soya, milk and others are given priority and importance by the food security and agriculture sector.

Graph 18: Frequency of meals consumed per day according to District



Effects of Ebola on private agri-businesses

Over the past five years Sierra Leone has been transforming its agricultural sector from subsistence to commercial economy. The country adopted a twin strategy of transforming the smallholder farmers to operate viable agribusiness enterprises while at the same time supporting the medium and large scale producers. There is high level of interdependency between the production, processing, distribution and agricultural input supply. Disruptions in the activities of any of these operations will affect the entire value chain process. Value chain process is set of new activities that add value to an agricultural product, conveying the same value to the end user.

In the context of EVD in Sierra Leone, the agribusiness sector has not been spared from the disruptions and effects that are faced by many farming communities. To establish the extent at which these agribusiness operators have been affected; case studies were conducted targeting key agribusinesses operators involved in both agro- primary and support activities. The types of agribusinesses studied were mainly those dealing in specific commodities including cocoa, coffee, palm oil, cassava, vegetables, rice and livestock.

The agribusiness sector in Sierra Leone covers a wide range of actors including the small-scale producers, commodity processors and medium and large scale traders, dealers in agricultural export and imports, farmer based organisations and cooperatives among others. There are also actors that offer primary and support services for agribusiness activities like the input suppliers, middlemen, transporters and microcredit services providers.

Institutions that support these agribusinesses were also covered by the assessment. These included microcredit and support service providers like transporters, middlemen, and labour markets. Interviews were conducted with six traders, operating in Kenema (TASS, Capitol & Ali Baz), Kailahun (Balmed Holdings, Randlyn Holdings & Bio United) and Kono. Other case studies covered Koinadugu, Pujehun, Kambia and Rural Western districts.

Transportation difficulties

The closure of periodical markets and isolation of districts is leading to the deterioration of the agribusiness not to access the local markets for the produce and marketing and or export. In the wake of the continuing spread of Ebola and implementation of restrictive movements, chiefdom bylaws and closure of periodical markets, limitation of hours of work for the banks and bike riders, curfews have started biting hard on most operations of the agribusiness operators whose businesses and activities are nearly coming to a standstill. They report that the prices are increasing, quality of their products falling and products getting scarce and hard to reach their clients and suppliers thus increasing the cost of doing business.

Effects on the supply chain:

Many producers had contractual obligations to produce and supply good quality products to their customers. Examples include the cocoa farmers in Eastern districts of Kenema, Kailahun and Kono; the vegetable growers in Koinadugu and rice producers in Kambia and Port Loko districts who supply Guinea and Freetown. Due to restrictions and isolation measures in place, coupled with closure of markets

farmers, these producers and traders have a physical limitation of reaching the markets or their products. This is likely to continue until such a time when the movement restrictions are relaxed to allow free movement. These challenges have resulted in breach and possibility of loss of contracts on the part of producers, as well as loss of income and reduced business activity in most agribusinesses. In August alone, the traders in Kabala Women Cooperatives Society estimated that they lost revenue of approximately Le 200 million. They could not be allowed to transport their produce out of the district.



Photos of Kabala Cooperative farmers stranded with their produce

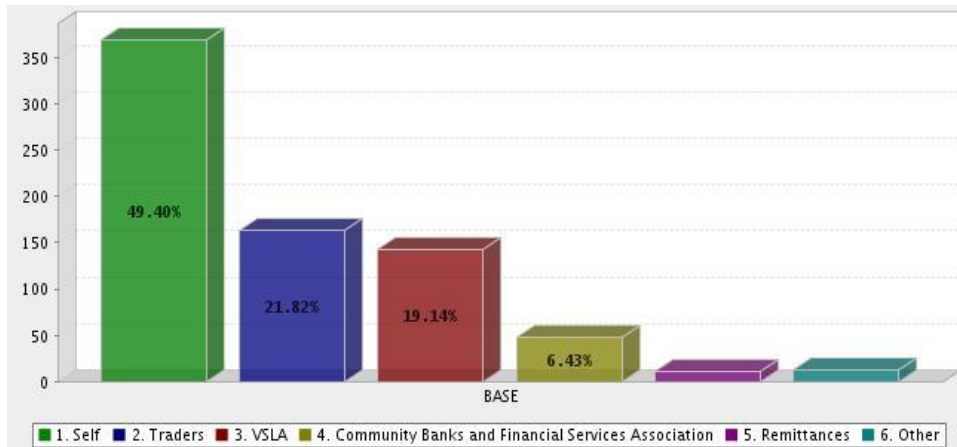
Reduction in work force

Labour both skilled and unskilled is a key factor for smooth operations of the agribusinesses. In the current context, sourcing for labour for agribusiness activities is increasingly becoming difficult. Several other agribusiness companies interviewed in the assessment indicated that they have shut down business activities, evacuated their international staff, and most of their national staff laid off, keeping a few of them to take care of their offices or processing centres. Most of the agribusinesses operators especially those trading in vegetable, rice, or are in cassava processing (Gari), rice are operating below capacity. There is a direct total loss or reduction of income to those who have been laid off. This has direct effects on the family members and other dependants. The reduction in workforce and businesses has also affected the revenue for government in form of taxes.

Problems accessing financial services:

The public private sector partnership interventions have been disrupted by the outbreak. The study results show that the financing of the agribusiness operations are mainly supported by the farmers and traders (themselves); village savings and loans (Osusu); community banks and finance from input dealers in form of batter and cash system.

Graph 19: Main Sources of financing the agri-business activities



Microfinance institutions and NGO's like Lift Above Poverty Organisation (LAPO)-Sierra Leone, Salone Microfinance Trust (SMT) in Bombali, Grassroots Gender Empowerment Movement (GGEM) Microfinance Sierra Leone in Kambia, Building Resources Across Communities (BRAC), community and commercial banks have been supporting agribusiness in the country. However during the last four months (May –September 2014), many of these institutions have closed down or down sized their operations. The main challenge now lies mainly with those farmers whose operations had been pre-financed. They will be required to pay back these loans with interest. It is not known yet what will happen of the loan holders, the interest rates charged on the loan in most cases are cumulative. The level of savings has also been very low given the downward trend in income levels. It is likely that the percentage of self financing and from traders will continue to dwindle aggravating the situation (graph13).

The agribusiness traders complained of losing a lot of money in terms of quality, when the produce stays longer with farmers before it is delivered to the main stores a factor that has been greatly attributed to the Ebola crisis.

Conclusions:

Ebola has caused diverse range of adverse effects on livelihoods. Three important drivers include:

- The real epidemic
 - Fear and panic (novelty of Ebola, uncertainty)
 - Quarantine and attendant restrictions
- 1) In communities affected by Ebola, farmers find it difficult to mobilize enough labour for activities such as weeding, harvesting, crop protection, and even harvesting. About 47% of the respondents claimed that Ebola is having considerable adverse effects on farming activities. There were reports that a few families have abandoned their farms and moved to areas perceived as 'safe' from EVD.
 - 2) Quarantine measures and restrictions have disrupted marketing of goods including agricultural produce. Travel restrictions and suspension of operations of periodic markets (popularly known as Lumas) have disrupted trade flows of food commodities and other necessities.
 - 3) The assessment results mention 61% of the respondents indicating that the production levels for this season are likely to drop compared to last year. This drop in production was to a greater extent attributed to Ebola related impacts. This information that is disaggregated at district level is currently being complemented with the secondary data on production to be able to estimate the reduction in total output, particularly for key staple crops (rice and cassava) at the national (and district) level.
 - 4) Although the assessment was not able to estimate the number of agricultural households that will be made food insecure due to Ebola related effects at the national (and district) level, the perceptions provided by respondents indicate that there is likely to be a food security problem in the country in the coming months. As the disease progresses, the food security situation will become more complex. Farmers will not be able to effectively carry out the required agronomic practices that will ensure adequate production and protection against post harvest losses. A detailed comprehensive food security assessment is planned by December 2014 to provide actual numbers on households that will be made food insecure.
 - 5) The study shows that 87% of the households interviewed depend on agriculture and petty trade for their livelihood. The net effect on agricultural commodity prices varies from district to district. In districts where production is high and quarantine measures (especially closure of markets) are in place, the prices have dropped because traders are not able reach to the daily farm-gate markets where farmers bring their produce. On the other hand in district towns and other urban areas where the demand for food commodities is high the prices have risen due to the shortage of commodities. Relaxing the quarantine measures to allow food commodities to flow may be one option to this challenge.
 - 6) The assessment shows that there is a negative net effect on trade flows, particularly for staple commodities that flow in and out through informal trade routes. Movement restrictions of both trucks and people will reduce on the volume of tradable goods between districts and countries. Further analysis is required on specific commodities to determine extent of income loss and its related consequences.

- 7) Due to the disruption of markets, there have been shortages of goods on the market and this has led to an increase in prices of commodities. The study shows that the range of price increase is between 13% for imported rice to over 40% for fish. Other commodities affected include cassava, ground nuts and palm oil.
- 8) There are agricultural commodities whose prices have fallen drastically. Price of various assortment of vegetables produced in Koinadugu has fallen to a point where a large part of the harvest is left to rot and the rest is sold at a throw away price. Prices of vegetables fell between 20-100% during May-September 2014.
- 9) Prices of food commodities are slowly but gradually increasing compared to prices last year for the same period. In normal times, farmers would have started green or early harvesting which helps to reduce the price of imported rice in the market. Given the EVD crisis and scarcity of labour coupled with the people's restrictions in movement and quarantines it will be difficult to carry out proper harvesting and crop protection measures against bird and rodents.
- 10) The high prices for the country's staple (rice) coupled with the low wages, shutting down of operations and loss of jobs coupled with the current low prices for food crops (cassava, groundnut, paper) have ultimately reduced the purchasing power of daily wage workers most of whom largely depend on the markets to buy food.
- 11) It was clear from the assessment that most of the services providers like microcredit institutions and traders have either suspended disbursement of loans or closed their operations all together, for fear of having high loan losses(default rates) in case the loan holders are infected or at worst dies.

Proposed Recommendations:

Urgent measures are needed to address the current food security gaps and rehabilitate key agricultural market infrastructure to ensure quick recovery of the Agricultural sector in Sierra Leone. This will include:

1. Provision of immediate food assistance to communities currently under quarantine and in holding centre. This support may also be extended to families of survivors.
2. Provide market corridors that will allow movement of food commodities from the production areas to urban markets where the demand is high. Urgent discussions with the district Emergency Operating centres (EOC) should be held to devise flexible arrangements for transportation of agricultural commodities including livestock while ensuring restricted movement of people.
3. Improve farmers' purchasing power by capitalizing the current Agricultural Business Centres (ABCs) to be able to buy part of the current rice and cassava harvest from the farmers. This will provide the required resources at community level to meet other household needs. The ABCs will in turn process and sell the rice to institutions that are supporting the EVD feeding programmes. It is expected that the proceeds from these sales will be used to purchase some of the inputs for the coming season.
4. Provide immediate agricultural production support to agricultural households in districts where the EVD has disrupted the current agricultural cycle for 2014. Interventions will include procurement and programming (through proper targeting) of essential agricultural and livestock inputs for the production

of short term high yielding varieties of rice, ground nuts and vegetables, including fertilizer and farm tools.

5. Develop and implement an Agricultural recovery programme covering 3-5 years that will focus on rebuilding the key production, and market infrastructure while at the same time investing in human resources capacity for the country (institutional support and development).
6. Conduct comprehensive Food Security and Nutrition Assessments that will provide an in-depth analysis on the food, livelihoods and nutrition security in the country and among affected communities. This will also strengthen national agricultural survey in the future to better inform decisions and policy making.
7. In Sierra Leone, the situation of acute malnutrition remains alarming, despite the downward trend of cases registered in health centers between 2012 and 2013. With effects of EVD on the families where the number of orphans is increasing resulting from the loss of parents to the EVD crisis, scarcity of nutritious foods and lack of purchasing power. It is recommended that stakeholders in food and nutrition security including FAO continue monitoring, advocating and sensitizing the communities and partners to improve the nutritional status of the population especially children.