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| **HEA Outcome Analysis Technical Report** | | **COUNTRY :** | **Nigeria** |

**Date of the analysis:** April 2014
**Period covered by the analysis :** September 2013 – August 2014

## SUMMARY

This report presents the results of an HEA Outcome Analysis carried out by the Nigeria HEA Working Group in April 2014 in Abuja for three rural livelihood zones of Northern Nigeria. The workshop is including participants from Government (National Planning Commission, Ministry of Planning & Budget, Agricultural Development Projects, National Bureau of Statistics), International NGOs (Save the Children & ACF) and other agencies (Civil Society Organization, FEWSNET & WFP) under the technical lead of Save the Children. This April analysis is an update of the November one held in Abuja and led by the Food Economy Group (FEG Consulting).

The exercise used HEA (Household Economy Analysis) baselines carried out by Save the Children and its partners in three rural livelihood zones of Northern Nigeria in November 2010 (MAS) and November-December 2012 (CGC & HVM). The baselines and the scenarios analysed cover the following livelihood zones (LZ):

- NG04: NW Millet & Sesame zone (MAS, Katsina State)
- NG08: NW Cotton, Groundnuts & mixed Cereals zone (CGC, Zamfara)
- NG11: Hadejia Valley Mixed Economy zone (HVM, Jigawa State)

The period or consumption year covered by the current analysis is **September 2013 –August 2014** for the three livelihood zones. Official monitoring data on crop production and prices was used for the definition of the current year problem. Where official information was not available, assumptions have been made based on a consensus amongst the workshop participants and their field experience.
*The analysis shows that no wealth group will likely face any deficit in the three livelihood zones as outlined in the table below meaning that households in the three zones will be able to secure sufficient food and income to live above the basic survival and livelihood protection thresholds.*

| Summary of Outcome Analysis Results: Wealth Groups/Livelihood Zones Facing Deficits | | | |
|---|---|---|---|
| | **MAS** | **CGC** | **HVM** |
| **Very Poor** | No deficits | No deficits | No deficits |
| **Poor** | No deficits | No deficits | No deficits |
| **Middle** | No deficits | No deficits | No deficits |
| **Better Off** | No deficits | No deficits | No deficits |

## I. LIVELIHOOD ZONES DESCRIPTION

The three livelihood zones are primarily agricultural supporting a wide variety of rain-fed crops suited to dryland areas including millet, sorghum, maize, cowpeas, groundnuts, sesame, cotton as well as (increasingly) soybeans.[1] Rain-fed agriculture is carried out during the single rainy season which runs from April/May to October. The peak months of rainfall are June to August. In the dry season, rice, wheat and market vegetables are grown on low lying river flood plains (i.e., *fadama*) either through irrigation or flood retreat agriculture. *Fadama* agriculture is limited in the Zamfara Cotton, Groundnut & mixed Cereals (**CGC**) Zone and the Katsina Millet & Sesame (**MAS**) Zone but is extensive in the Hadejia Valley Mixed Economy (Jigawa) (**HVM**) zone. The main period of harvest is from September to November. The dry-season harvest is March. In all three zones, livestock production supplements agriculture. It should be noted that the reference year was different for each of the three livelihood zones as seen in the table below:

|  | Reference Year (RY) | |
|---|---|---|
| Katsina MAS Zone | Sept 2009 - | Aug 2010 |
| Jigawa HVM Zone | Sept 2010 - | Aug 2011 |
| Zamfara CGC Zone | Sept 2011 - | Aug 2012 |

## Livelihood Zone Map of Northern Nigeria



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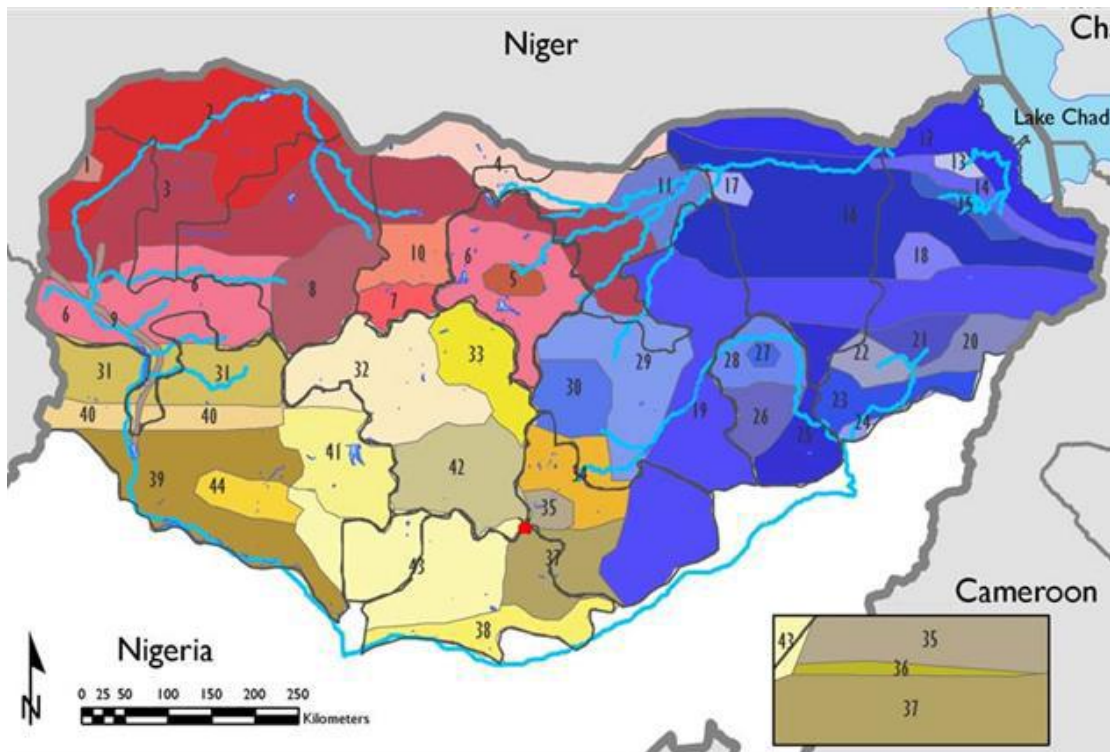
[1] The region falls in the sudan-savannah agro-ecological belt. Cumulative total annual rainfall varies by year and by zone but is typically between 400-800mm per annum.

## NG11: Hadejia Valley Mixed Economy Zone- Reference Year. September 2010 - August 2011

| | | **Overview of the Livelihood Zone** |
|---|---|---|
| **Main products consumed** | *Rain-fed*: maize, millet, sorghum, rice, cowpeas *Dry-season*: wheat, rice, maize, market vegetables | The Hadejia Valley Mixed Economy Zone is located in Jigawa State of north-western Nigeria. The northern edge of the state shares an international border with Niger. There is a Free Trade Zone established at the border town of Maigatari to facilitate cross-border trade between the countries. The agro-ecology of the zone is strongly shaped by the Hadejia-Nguru wetlands. Two key rivers – the Hadejia and the Jama'are - as well as their various tributaries feed the fertile floodplains (*fadama*) used for irrigation or flood recession farming. |
| **Main Incomes sources** | Livestock sales, milk sales, crop sales, agricultural labour, construction labour | |
| **Main types of livestock** | Cattle, goats, sheep, poultry | The rivers flow from west to east toward Chad. Near the eastern border of Jigawa State the two rivers converge to form the Komadugu Yobe River; which then empties into the Lake Chad basin. Dry season irrigation and flood retreat agriculture is combined with wet season upland farming in semi-arid conditions. Hence, much of the farm land is part of the vast sudan-savannah agro-ecological belt. Within this agro-ecological belt, there is just one rainy season during the year. |
| **Main hazards/risks** | Flooding, pest and diseases of crops and livestock and minimal drought | The wet season runs from May to October with rains peaking in July, August and September. September. Cumulative total annual rainfall has varied in the last 5 years but the long term annual average is an estimated 600-650 mm. |

## NG08: NW Cotton, Groundnuts and Mixed Cereals - Reference Year. September 2011- August 2012

| | | **Overview of the Livelihood Zone** |
|---|---|---|
| **Main products consumed** | *Rain-fed*: sorghum, millet, maize, groundnuts, soybeans, cowpeash | The Cotton, Groundnut and Mixed Cereals Zone (herein called the **Zamfara Mixed Crops Zone**) is located east of the main rice-producing area in the state (which lies along the Sokoto-Rima River Basin complex). |
| **Main Incomes sources** | Cotton sales, Livestock sales,other crop sales, casual labour, firewood sales, petty trade, milk sales | The Zamfara Mixed Crops Zone belongs to the Sudan-savannah agro ecological belt. Rain-fed agriculture is carried out during the single rainy season which runs from April/May to October. The peak months are June |

| | | to August. Cumulative total annual rainfall has varied in the last 5 years from about 1,300 mm in 2008 to 875 mm in 2011 (ADP Zamfara State). |
|---|---|---|
| Main types of livestock | Cattle, goats, sheep, poultry | The rain-fed growing season is from June to October. Those with access to flood plain land along the Rivers Kaduna, Zamfara and Sokoto have an extended growing season during the dry season for *fadama* agriculture. |
| Main hazards/risks | Diseases crop pest and flood, High prices of input and conflict are the major risks. | |

## NG04: NW Millet and Sesame Zone- Reference Year September 2009-August 2010

| | | **Overview of the Livelihood Zone** |
|---|---|---|
| Main products consumed | Millet, sorghum, cowpeas and sesame for cash crop | Daura LGA is located on the border with Niger in north-west Nigeria. The zone is part of the Sahel, a vast dry land belt south of the Sahara and characterised by low and variable rainfall. |
| Main Incomes sources | Livestock sales, milk sales, crops sales, agricultural labour, construction labour, petty trade, firewood sales | Rainfall data is not collected in Daura LGA but it is commonly known that the area receives about 500 mm of rainfall or less per year. There is only one rainy season and hence one rain-fed growing season (June to September). |
| Main types of livestock | Cattle, goats, sheep, poultry | Those with access to (irrigated) *fadama* land have an extended growing season until December. Drought events tend to be associated with certain decades. The 1940s witnessed major droughts, as did the 1970s and 1980s. This last period was particularly severe. Drought affected more than 70% of northern Nigeria and occurred almost every year from 1982-1987. Also in 2007 with pest and diseases which affected livestock. |
| Main hazards/risks | Drought, pest and diseases of crops and livestock, wind disruption and high prices of commodities. | The drought probability rate for the 1980s was 83%. The 1970s were almost as dire with a 50% drought probability rate and extreme dryness occurring almost every other year (affecting 50-70% of the north). It is rare that the region sees an 83% drought probability rate as it did in the 1980s. More typically, extreme weather events are localized and do not continue over many consecutive months. Over the last 5 years, there has been one crisis year (2007) but there have also been two good years. Not unexpectedly, variability is the main characteristic of the region. |

## II- SCENARIO DEVELOPMENT/ PROBLEM SPECIFICATION

A problem specification is the translation of a shock or other change into economic consequences at household level. It allows one to mathematically link the change (positive or negative) to each relevant livelihood strategy. The process of developing problem specifications is one of critically examining the effects of each type of change on each source of food, income and expenditure. There can be quite a large number of these sources, not all of which are equally important, and it is therefore useful to identify the key sources for each wealth group and each livelihood zone. A key source (or key parameter) is here defined as one that contributes significantly to total food

or cash income[2], so that a reduction in access to that one source may have a significant effect on total access. The following table lists all the food and income sources that are found in the three different livelihood zones. Those that are key parameters for a particular zone are shaded grey and marked with an `x`.

The scenario uses official monitoring data on crop production and prices for the definition of the current year problem specification. Where official data was not available, assumptions have been made based on a consensus amongst the workshop participants and their field experience. As part of the scenario in the three livelihood zones, it has been assumed that the 2014 rainy season will be normal and that agricultural labor opportunities for land preparation and weeding will be normal in the coming months. All coping strategies are excluded from the scenario. Each element of the scenario analyzed can be monitored and revised in future as additional information becomes available. In addition, other scenarios can be analyzed if decision makers would like to understand vulnerability to different types of shock.

## Key Parameters by Livelihood Zone

| Food and Income Source | CGC yield | CGC price | HVM yield | HVM price | MAS yield | MAS price |
|---|---|---|---|---|---|---|
| milk | x | | x | x | x | x |
| cattle sales | x | x | x | x | x | x |
| goat sales | x | x | x | x | x | x |
| sheep sales | x | x | x | x | x | x |
| sorghum | x | x | x | x | x | x |
| millet | x | x | x | x | x | x |
| rain-fed maize | x | x | x | x | | |
| dry season maize | | | x | x | | |
| rain-fed rice | | | x | x | | |
| dry season rice | x | x | x | x | | |
| cowpeas | x | x | x | x | x | x |
| soybeans | x | x | | | | |
| groundnuts | x | x | | | | |
| sesame | | | | | x | x |
| tomatoes, fresh | | | x | x | | |
| peppers, dry | | | x | x | | |
| onions | | | x | x | | |
| cotton | x | x | | | | |
| fishing | | | | x | | |
| ag labour paid in food | | x | | | | x |
| labour-agricultural | | x | | x | | x |
| labour-construction | | x | | x | | x |
| fetching water | | x | | | | x |
| firewood sales | | x | | | | x |
| petty trade | | x | | x | | x |
| purchase | | | | | | |
| staple grain | | x | | x | | x |
| survival non-food | | x | | x | | x |
| livelihood prot | | x | | x | | x |
| a cell left blank mean that the source is not a key parameter | | | | | | |

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[2] A key parameter is here defined as a source of food or income that contributes at least 10% of one wealth group's total food or income or at least 5% for each of two wealth groups' total food or income.

## III- PROJECTED FOOD SECURITY PROSPECTS

### 3.1- Period covered by the analysis

The period covered during the analysis is the current consumption year which is **September 2013 – August 2014** for all the three livelihood zones. For agricultural areas, the consumption year runs for the beginning of one harvest until the start of the following year's harvest.

### 3.2 Projected Outcomes by Livelihood Zone and by District

The results of the outcome analysis are presented in this section. These illustrate how scenario development and problem specification are expected to impact upon total income for households in different wealth groups in the three livelihoods zones. The following figures present the results of the scenario development/problem specifications for very poor and poor households for one district within each livelihood zone, the districts where key parameters were mainly monitored.

## NG08: NW Cotton, Groundnuts and Mixed Cereals Livelihood Zone

**The results for the current year scenario analysis show that there will be no emergency food or livelihood protection deficits.** In theory, households could see improved food and income access this year. The selling price for many crops (soya beans, cowpeas, cotton,) and for all livestock types (cattle, goats, sheeps) has increased more than the purchasing price of the staple food, sorghum, and the inflation rate. Production, moreover, was stable for all the principal crops (maize, millet, groundnuts, sorghum). Significant increases were noted for rice and cotton. In addition, wage rates (agricultural labor and construction mainly) also increased in the current year. The net effect could be higher total incomes.
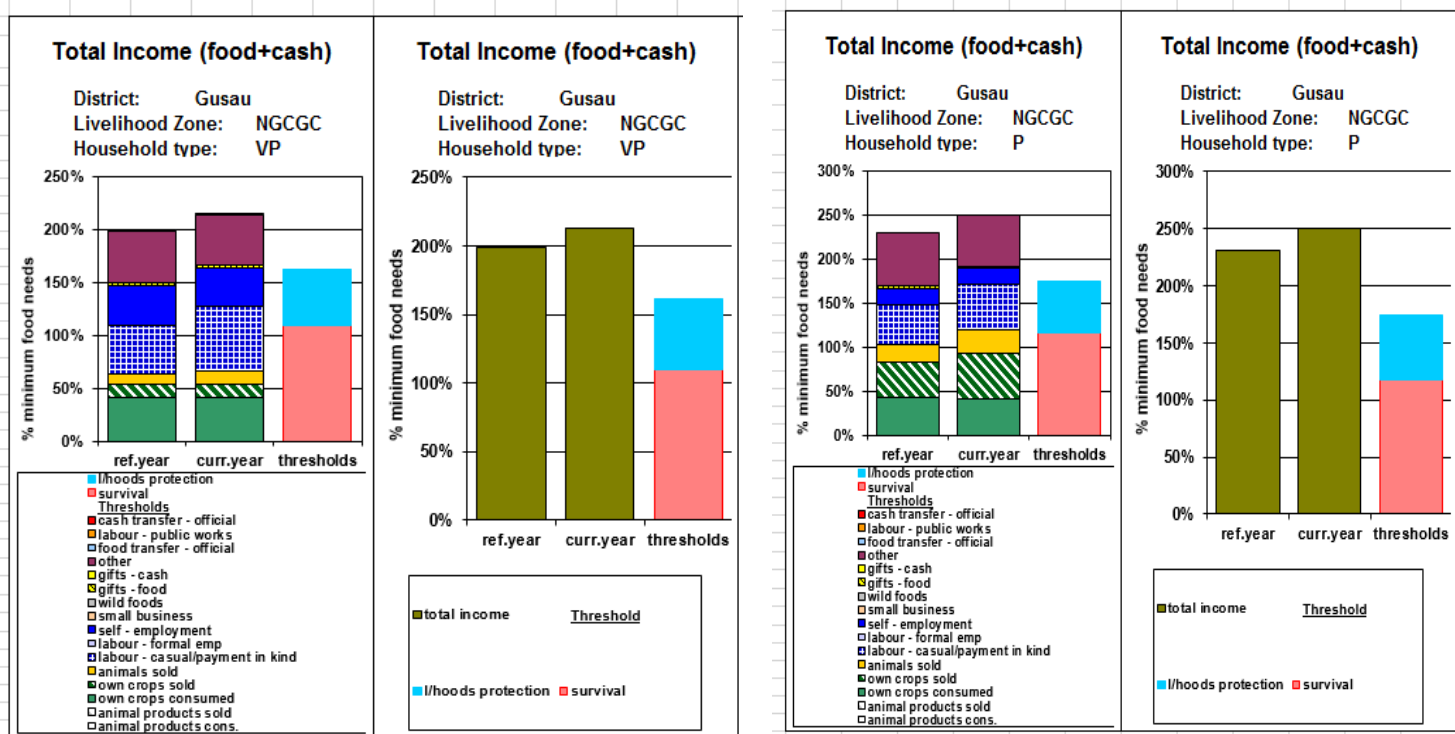
# NG04: NW Millet & Sesame Livelihood Zone

**The results for the current year scenario analysis show that households – even the very poor households – will not require emergency aid this year.** Crop production and selling prices have increased more than the staple food price, millet, compared with the reference year leading to an improvement of food access. Agricultural labor price increased more than the inflation rate. The prices of other sources of income (self-employment, firewood sales, and construction) and livestock remain stable. The net effect could be higher total incomes as shown in the graphs below.
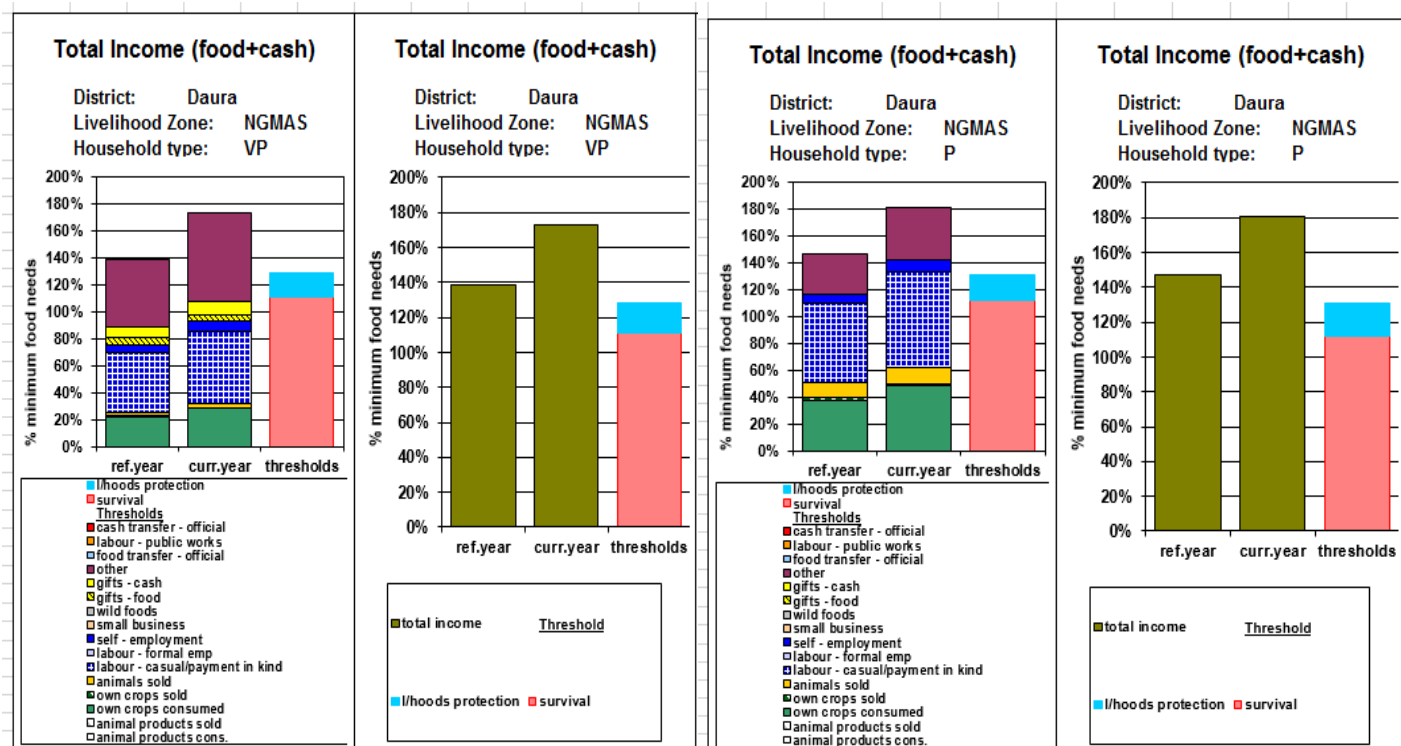


# NG11: Hadejia Valley Mixed Economy Livelihood Zone

The main source of income for very poor households in the reference year was livestock sales, crops sales and agricultural labor. With decreased prices in goats sales and agricultural labor and high increase of the staple food (maize) in the current year, projected total income for 2013-2014 is expected to be less to that in the reference year (in terms of its food equivalent) but above the survival and the livelihood protection thresholds. For all other wealth groups, increase in crop production and prices in general combined with increased livestock prices ( sheeps and cattle) will lead to an improvement of households' food and income access compared to the reference year.
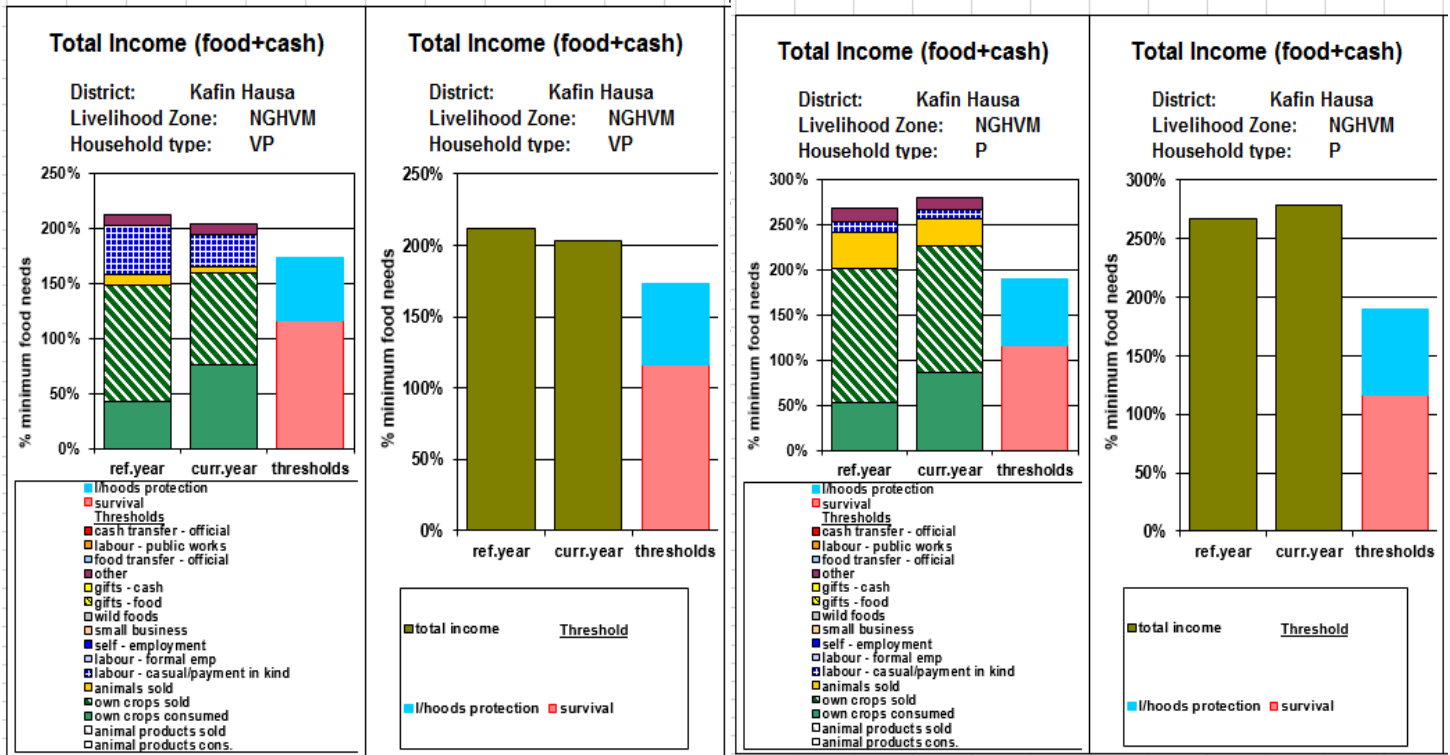
## IV- SUMMARY OF THE RESULTS COMPARED WITH THE TWO THRESHOLDS

The analysis shows that no wealth group will likely face any deficit in the three livelihood zones as outlined in the table below meaning that households in the three livelihood zones will be able to secure sufficient food and income to live above the basic survival and livelihood protection thresholds.

| Summary of Outcome Analysis Results: Wealth Groups/Livelihood Zones Facing Deficits | | | |
|---|---|---|---|
| | **MAS** | **CGC** | **HVM** |
| **Very Poor** | No deficits | No deficits | No deficits |
| **Poor** | No deficits | No deficits | No deficits |
| **Middle** | No deficits | No deficits | No deficits |
| **Better Off** | No deficits | No deficits | No deficits |

## V- TIMING OF DEFICITS

By combining information on total income with seasonal calendar data showing when different sources of food and cash become available, it is possible to generate projected pattern of consumption/ expenditure, by month, from **September 2013 to August 2014**. The period when households are unlikely to be able to cover their livelihood protection needs is usually shown in red. According to the results of the Outcome Analysis described in the previous sections, there will be any deficit during the current consumption year.

## VI- RESPONSE OPTIONS AND RECOMMENDATIONS

Since there is any deficit, any response option was discussed among workshop participants.

In order to improve future Outcome Analysis, the following recommendations were agreed upon by the Nigeria HEA Working Group:

- Monitor all key parameters. This should be kept simple such as setting up linkages with government or non-government agencies who regularly collect production and price data. In circumstances where these data are not regularly available, then there may be need to collect them on the field.

- The unit of measurement (tier, sack, daily rate, bundle and so on) for each key parameter and the particular market (s) to monitor for each livelihood zone must be clearly specified prior any future data collection.

- In order to keep the analysis at LGA levels instead of State level, key parameters should be collected at LGA level at least for crops and livestock prices. In addition, crops and livestock prices must be monitored on a monthly basis to allow for more accurate projections and estimations.

- For the Hadejia Valley Mixed Economy Livelihood Zone (Jigawa), dry season production figures must be collected and production estimates - for all crops and for all seasons- should be released in MT instead of Yield.

## CONCLUSION

The analysis shows that any wealth group does likely face any deficit in any of the three livelihood zones. This means that **no emergency aid will be required this year**. However, in order to promote development and livelihoods in the longer term, development efforts should continue to focus on assisting the very poor and the poor to secure more stable sources of income to complement crop and livestock farming.

**7.1- Table summarizing key parameters figures (problem specification)**

# NG08: NW Cotton, Groundnuts and Mixed Cereals Livelihood Zone

| Problem Specification for NW Cotton, Groundnuts and Mixed Cereals Livelihood Zone | | |
|---|---|---|
| **Key parameter** | **Production Problem** | **Price Problem** |
| Cattle | 100% | 163% |
| Goats | 100% | 163% |
| Sheeps | 100% | 165% |
| Cow's Milk | 100% | ----- |
| Maize | 99% | 127% |
| Millet | 92% | 123% |
| Rice | 148% | 122% |
| Cowpeas | 101% | 150% |
| Soya beans | 102% | 204% |
| Sorghum | 100% | 129% |
| Groundnuts | 90% | 97% |
| Cotton | 179% | 141% |
| Agricultural labor | 100% | 133% |
| Construction | 100% | 197% |
| Fetching water | 100% | 100% |
| Firewood sales | 100% | 100% |
| Credit | 100% | 100% |
| Self-employment | 100% | 100% |
| Fertilizer | 100% | 100% |
| **Staple food (Sorghum)** | | 127% |
| **Inflation** | | 121% |

## NG04: NW Millet & Sesame Livelihood Zone

| Problem Specification for NW Millet & Sesame Livelihood Zone | | |
|---|---|---|
| Key parameter | Production Problem | Price Problem |
| Cattle | 100% | 93% |
| Goats | 100% | 97% |
| Sheeps | 100% | 140% |
| Cow's Milk | 100% | 138% |
| Millet | 129% | ----- |
| Cowpeas | 149% | ----- |
| Sorghum | 122% | ----- |
| Sesame | 112% | 114% |
| Agricultural labor | 100% | 150% |
| Construction | 100% | 100% |
| Firewood sales | 100% | 100% |
| Self-employment | 100% | 100% |
| **Staple food (Millet)** | | **113%** |
| **Inflation** | | **146%** |

## NG11: Hadejia Valley Mixed Economy Livelihood Zone

| Problem Specification for Hadejia Valley Mixed Economy Livelihood Zone | | |
|---|---|---|
| Key parameter | Production Problem | Price Problem |
| Cattle | 100% | 122% |
| Goats | 100% | 53% |
| Sheeps | 100% | 125% |
| Cow's Milk | 100% | 123% |
| Maize | 86% | 144% |
| Millet | 109% | 100% |
| Rice | 116% | 79% |
| Wheat | 88% | 129% |
| Cowpeas | 256% | 100% |
| Sorghum | 643% | 100% |
| Rice irrigated | 100% | 159% |
| Pepper | 100% | 100% |
| Onions | 229% | 100% |
| Tomatoes | 152% | 100% |
| Agricultural labor | 100% | 94% |
| Construction | 100% | 100% |
| Fish sales | 100% | 100% |
| Self-employment | 100% | 100% |
| Fertilizer | 100% | 100% |
| **Staple food (Maize)** | | **159%** |
| **Inflation** | | **133%** |

## 7.2 Table summarizing the Outcome Analysis results

| Country | LZ Code | LZ Description | Wealth Group | % Population | Timing of Deficit | Survival Deficit | Livelihood Protection Deficit (%Kcal) |
|---|---|---|---|---|---|---|---|
| **Nigeria (Northern)** | HVM | NG11: Hadejia Valley Mixed Economy zone (Jigawa) | V. Poor | 38% | ---- | ---- | ---- |
| | | | Poor | 20% | ---- | ---- | ---- |
| | | | Middle | 23% | ---- | ---- | ---- |
| | | | B/Off | 19% | ---- | ---- | ---- |
| | CGC | NG08: NW Cotton, Groundnuts & mixed Cereals zone (Zamfara) | V. Poor | 26% | ---- | ---- | ---- |
| | | | Poor | 26% | ---- | ---- | ---- |
| | | | Middle | 26% | ---- | ---- | ---- |
| | | | B/Off | 22% | | ---- | ---- |
| | MAS | NG04: NW Millet & Sesame zone (Katsina) | V.Poor | 34% | ---- | ---- | ---- |
| | | | Poor | 32% | ---- | ---- | ---- |
| | | | Middle | 19% | ---- | ---- | ---- |
| | | | B/Off | 16% | ---- | ---- | ---- |

**Legend** : ---- means that there is no deficit

## 7.3 List of participants

| S/N | First Name | Surname | State | Organization |
|---|---|---|---|---|
| 1 | Auwalu. M | Bello | Jigawa | Ministry of Planning & Budget |
| 2 | Ibrahim | Turaki | Jigawa | Ministry of Planning & Budget |
| 3 | Anthony | Chinedu | Katsina | SCI |
| 4 | Shehu | Abubakar | Zamfara | Agric Development Project |
| 5 | Francois | Mouonga | Abuja | WFP |
| 6 | Mallam | Aminu | Katsina | Agric Development Project |
| 7 | Aliyu | Garki | Jigawa | Agric Development Project |
| 8 | Benjamin | Morris | Kaduna | CSO |
| 9 | Christy | Yunana | Abuja | National Planning Commission |
| 10 | Nnenna | Okolie | Abuja | National Planning Commission |
| 11 | Patrick Aso | Vakporaye | Abuja | National Planning Commission |
| 12 | Atiku | Yola | Jigawa | ACF |
| 13 | Nafisa | Gulla | Jigawa | NBS |
| 14 | Jimena | Maria | Abuja | ACF |
| 15 | Ismail | Mohammad | Abuja | FEWSNET |
| 16 | Nelson | Barde | Abuja | SCI |