Chad Scenario Analysis 2011-12
Three Livelihood Zones

FINAL

Assessed Using the Household Economy Approach (HEA)
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1 SUMMARY

This report presents the results of a scenario analysis workshop carried out in N'Djamena in the period 27 February – 2 March for three livelihood zones in Chad. Oxfam Intermon and Oxfam GB organised the workshop, which included participants from Oxfam Intermon, Oxfam GB and the government early warning department (SAP), and which was funded by ECHO.

The scenario analysis used HEA (household economy analysis) baselines carried out by Oxfam in three livelihood zones in Chad in December 2011 – February 2012. In relation to the FEWS NET livelihood zone map, the baselines and the scenarios analysed cover parts of the following zones (LZ):

- Mangalme Agropastoral (part of the Western Agropastoral Livelihood Zone)
- Salal Pastoral (part of Northern Transhumant Herding Livelihood Zone)
- Moundjoura Agropastoral (in the transition area between the Western Agropastoral and the Northern Transhumane Herding Livelihood Zone)

The period or consumption year covered by the current analysis is October 2011 – September 2012 for the Mangalme agropastoral zone and July 2011 – June 2012 for the Salal pastoral zone and the Moundjoura agropastoral zone (where the pastoral component is more important than the agricultural component of livelihoods). The analysis is for one departement (district) per livelihood zone, the district where the original HEA baseline was carried out.

Two scenarios have been developed for each livelihood zone. For Scenario 1, as much as possible, official monitoring data on crop production and prices was used for the definition of the current year problem. This data is only available at regional level (not at district level). Where official information was not available (for example for livestock herd sizes and production), assumptions have been made based on a consensus amongst the workshop participants and their field experience.

For Scenario 2, the workshop participants developed assumptions about the crop production situation at district level and a worst case scenario for the development of prices. In this scenario, the capacity of coping strategies related to self-employment and migration to expand is also more conservative. In sum, Scenario 2 is a worse case than Scenario 1.

Each element of the scenarios analysed is clearly outlined in the report below and can be monitored and revised in future as additional information becomes available. In addition, other scenarios can be analysed if decision makers would like to examine vulnerability to different types of shock.

The performance of last year's agricultural season was very poor. Staple food prices are high in relation to the reference years for which baseline information was gathered

The following table summarises the results of the 2011-12 scenario analysis. Under Scenario 2, the zones where very poor and poor households are likely to face the worst problems

(both survival and livelihood protection deficits) are the Mangalme and Moundjoura agropastoral livelihood zones. In Mangalme, middle households also face a livelihood protection deficit under Scenario 2. The situation is slightly less severe in the Salal pastoral livelihood zone, where very poor households face survival and livelihood protection deficits under Scenario 2 and poor households face a livelihood protection deficit.

Summary of Outcome Analysis Results: Wealth Groups/Livelihood Zones Facing Deficits						
	Mangalme Scenario 1	**Mangalme Scenario 2**	**Salal Scenario 1**	**Salal Scenario 2**	**Moundjoura Scenario 1**	**Moundjoura Scenario 2**
Very poor	No deficits	Survival and livelihood protection deficits	Livelihood protection deficit (very small)	Survival and livelihood protection deficits	No deficits	Survival and livelihood protection deficits
Poor	No deficits	Survival and livelihood protection deficits	No deficits	Livelihood protection deficit	No deficits	Survival and livelihood protection deficits
Middle	No deficits	Livelihood protection deficit	No deficits	No deficits	No deficits	No deficits
Better off	No deficits	No deficits	No deficits	No deficits	No deficits	No deficits

In this analysis, a livelihood protection deficit represents an emergency situation whereby households cannot afford many basic things that they spent money on in the reference year, including education, health, inputs for agricultural and livestock production, and small quantities of clothes and non-staple foods. Faced with this situation, they may make a choice to purchase items in the livelihood protection basket in preference to staple food, thereby going hungry. A survival deficit indicates that, in addition to not being able to afford items in the livelihood protection basket, households cannot obtain adequate kilocalories.

2 INTRODUCTION

This report presents the results of a scenario analysis workshop carried out in N'Djamena in the period 27 February – 2 March for three livelihood zones in Chad. Oxfam Intermon and Oxfam GB organised the workshop, which included participants from Oxfam Intermon, Oxfam GB and the government early warning department (SAP), and which was funded by ECHO.

3 THE HEA METHODOLOGY AND THE CHAD LIVELIHOODS BASELINES

The method used to determine which areas will face deficits in the coming months and the magnitude and timing of these deficits is known as Household Economy Analysis (HEA). This is described briefly in this section, and in more detail in Section 8.

An HEA-based current year assessment involves putting together two types of information:				
Livelihoods Baseline Data *(the context)*	+	Monitoring/Seasonal Assessment Data *(the changes)*	→	Analysis of Projected Situation and Intervention Needs *(the outcome)*

3.1 THE LIVELIHOODS BASELINES (THE CONTEXT)

There are three steps to preparing an HEA livelihoods baseline. The first is the preparation of a livelihood zone map. In 2003, FEWS NET conducted a livelihood zoning in Chad, which produced nine rural livelihood zones (see map below). Oxfam, with funding from ECHO, completed three livelihoods baselines for parts of two livelihood zones (Zones 5 and 8) in collaboration with the government's early warning department (SAP) in December 2011 – February 2012. These baselines form a key input into this analysis, providing the context against which to evaluate the effects of changes. In relation to the FEWS NET livelihood zone map, the baselines and the scenarios analysed cover parts of the following zones (LZ):

- Mangalme Agropastoral (part of the Western Agropastoral Livelihood Zone)
- Salal Pastoral (part of Northern Transhumant Herding Livelihood Zone)
- Moundjoura Agropastoral (in the transition area between the Western Agropastoral and the Northern Transhumane Herding Livelihood Zone)

Livelihood Zones of Chad

1. Southern Cotton & Groundnuts
2. Southern Rice Cash Crop
3. Southeast Flood-retreat Cultivation
4. Eastern Rain-fed Cereals
5. Western Agro-pastoral
6. Central Agro-pastoral & fishing
7. Central Flood-retreat Cultivation & Fishing
8. Northern Transhumant Herding
9. Northern Camel, Dates & Salt (no data currently available)

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The second step in an HEA baseline assessment is the preparation of a wealth breakdown, by livelihood zone. The wealth breakdowns for the five livelihood zones all fall into the following ranges (percent of households)[1]: 25-30% very poor, 25-35% poor, 20-30% middle, 15-20% better off.

The third step is the quantification of all sources of food, income and expenditure – for each wealth group in each livelihood zone – for a defined 'reference' year. The reference year differs by livelihood zone.

Table 2: Reference years

Salal pastoral	July 2008 – June 2009
Moundjoura agro-pastoral	July 2010 – June 2011
Mangalme agro-pastoral	October 2008 – September 2009

3.2 Developing Problem Specifications from Monitoring Data (the Changes)

A problem specification is the translation of a shock or other change into economic consequences at household level. They allow you to mathematically link the change (positive or negative) to each relevant livelihood strategy. The process of developing

[1] The corresponding percentages of population are: 15-25% very poor, 20-30% poor, 20-30% middle and 25-30% better off. The percentage of households and percentage of population are different because of differing average household sizes by wealth group.

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. Table 3 below summarises the key parameters for the three livelihood zones in Chad, based on their food and income sources in the reference year.

Table 3: Key parameters

Livelihood zone → Key parameters:	Mangalme Agro-Pastoral	Moundjoura Agro-Pastoral	Salal Pastoral
Camel milk production		x	x
Cow milk production		x	
Camel sales (herd size and prices)		x	x
Cattle sales (herd size and prices)	x	x	
Goat sales (herd size and prices)	x	x	x
Sheep sales (herd size and prices)		x	x
Sorghum (production and prices)	x		
Groundnut (production and prices)	x		
Sesame (production)	x		
Okra dried (production and prices)	x		
Millet (production and prices)		x	
Agricultural labour	x		
Self-employment	x	x	
Petty trade	x		
Labour migration	x		
Remittances		x	x
Gifts			x

In an ideal situation, all of the key parameters are being monitored regularly and problem specifications can easily be developed. In reality, this is rarely the case.

3.3 Analysis of Projected Situation (The Outcome Analysis)

Outcome analysis is the term used to describe the process of taking information on the current situation (the monitoring data) and combining it with information on the reference year (the baseline) to project total income for the current year. Three types of data are combined: data on baseline access, data on hazard (i.e. factors affecting access to food and cash this year, such as crop production or market prices) and data on coping strategies (i.e.

[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.

the sources of food and income that people turn to when exposed to a hazard)[3]. The approach can be summarised as follows:

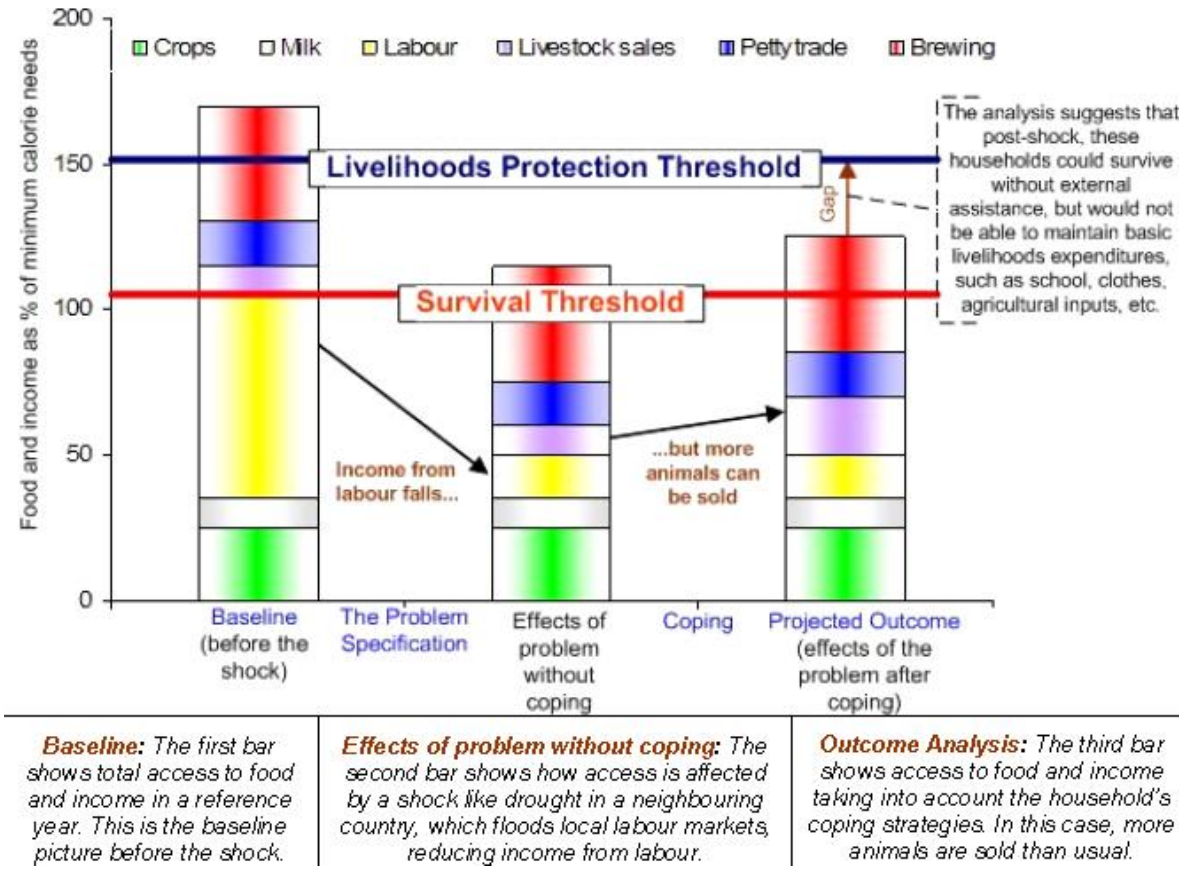
Baseline + Hazard + Coping = Outcome

In this context, the purpose of this analysis is to utilise available information on current hazards and their likely effects on baseline sources of food and cash income. The output from an outcome analysis is an estimate of total food and cash income for the current year, once the effects of current hazards and income generated from coping strategies have been taken into account. No negative or damaging coping strategies are included in the analysis.

The next step is to compare projected total income against two clearly defined thresholds to determine whether an intervention of some kind is required. This is explained further in **Error! Reference source not found.** below. Total food income in the reference year is shown in the left-hand bar, while total food income in the analysis year after the inclusion of coping strategies is shown in the right-hand bar. This is then compared against two thresholds.

[3] Information on coping strategies is collected as part of the baseline assessment.

Figure 2: The Household Economy Analytical framework: a simplified illustration



The Survival threshold: The income required to cover 100% of minimum food needs plus survival non-food.[4]

The Livelihoods Protection Threshold: The income required to cover additional expenditure on health, education, inputs, etc.[5]

Where total income falls below the livelihoods protection threshold an emergency intervention is required to sustain livelihoods in the short and medium terms (so that people can continue to pay for health, education, productive inputs, etc.). Where total income falls below the survival threshold, intervention is required to maintain food intake at a minimum acceptable level (2100 kcals per person per day) in addition to sustaining livelihoods. Given the current emphasis on preserving livelihoods in addition to saving lives, deficits – and therefore intervention needs – are usually calculated in relation to the livelihoods protection threshold, not the survival threshold.

[4] The survival threshold is set at slightly above 100% of minimum food needs to allow for expenditure on survival non-food items. These are items associated with food preparation (e.g. salt, soap, cooking fuel) and water for human consumption, where these were paid for in the reference year.

[5] The 'livelihood protection basket' includes 100% of expenditure by each wealth group on productive inputs for crop and livestock production, health and education costs. Other items (related to standard of living) have been included at 25-100% of the level of poor household expenditure (e.g. clothes, non-staple food items, basic non-food items etc).

4 SCENARIOS

Two scenarios have been developed for each livelihood zone. For Scenario 1, as much as possible, official monitoring data on crop production and prices was used for the definition of the current year problem. This data is only available at regional level (not at district level). Where official information was not available (for example for livestock herd sizes and production), assumptions have been made based on a consensus amongst the workshop participants and their field experience.

For Scenario 2, the workshop participants developed assumptions about the crop production situation at district level and a worst case scenario for the development of prices. In this scenario, the capacity of coping strategies related to self-employment and migration to expand is also more conservative. In sum, Scenario 2 is a worse case than Scenario 1.

Each element of the scenarios analysed is clearly outlined in the report below and can be monitored and revised in future as additional information becomes available. In addition, other scenarios can be analysed if decision makers would like to examine vulnerability to different types of shock.

Overall, the performance of last year's agricultural season was very poor. Staple food prices are high in relation to the reference years for which baseline information was gathered

The following table summarises the periods analysed in the current year and the month through which the scenarios apply. In the zone where agriculture is dominant (Mangalme agro-pastoral), the current year analysis continues to September 2012, while in the two other zones, where pastoralism dominates, it continues to June 2012.

Table 4: Current years

Livelihood zone	Reference year	Current year
Salal pastoral	July 2008 – June 2009	July 2011 – June 2012
Moundjoura agro-pastoral	July 2010 – June 2011	July 2011 – June 2012
Mangalme agro-pastoral	October 2008 – September 2009	October 2011 – September 2012

As part of the scenario in the agricultural livelihood zones, it has been assumed that the 2012 rainy season will be normal and that agricultural labour opportunities for land preparation and weeding will be normal in the coming months.

Scenario 1

Price data for the current year is currently available up to January 2012 for some markets. In the absence of a reliable means of projecting forward, the same months (in most cases December and/or January) from the current year and reference year are compared in Scenario 1 for each zone (Table 5). The change in price is indicated (e.g. +50%% indicates a 50% increase in price in the current year compared to the reference year).

Table 5: SCENARIO 1 – price scenario and inflation[6]			
	Mangalme agro-pastoral	**Moundjoura agro-pastoral**	**Salal pastoral**
Sorghum[7]	**+20%**		
Millet		**+37%**	**+16%**
Groundnuts	+95%		
Other crops	+17% (inflation)		
Camels		+5%	-2%
Cattle	+3%	+12%	
Goats	+51%	+7%	+2%
Sheep		-1%	-27%
Self-employment	+/-0%	+/-0%	
Wage rates – agricultural	+60%		
Wage rates – migration	+50%		
Inflation[8]	+17%	-2%	+17%

Inflation has been used to represent the price change for non-food items in the survival and livelihood protection expenditure baskets, except where otherwise indicated.

Crop production data is not available below regional level. The data for the relevant reference years and for the current year are compared in the following table. The change in production is indicated (e.g. -58% indicates a 42% reduction in production in the current year compared to the reference year; -100% indicates a total failure).

Table 6: SCENARIO 1 – crop production[9]			
	Mangalme agro-pastoral	**Moundjoura agro-pastoral**	**Salal pastoral**
Sorghum	-58%		
Millet		+10%	
Groundnuts	-46%		
Sesame	-62%		
Dried okra	+/-0%		
Rice	-100%		
Vegetables	-60%		

Monitoring data on herd size changes and milk yields is not available. The following table summarises the problem specifications that have been used in the analysis, largely developed through participant consensus. Any of these assumptions can be changed if

[6] An empty box indicates that the item is not a key parameter in the livelihood zone.
[7] The main staple food purchased in the zone is in red. Where possible, these scenarios compare January 2012 with the same month in the relevant reference year.
[8] Inflation has been used to represent the price change for non-food items in the survival and livelihood protection expenditure baskets. Inflation per year since the reference year has been compounded.
[9] An empty box indicates that the item is not a key parameter in the livelihood zone.

better information becomes available or if decision makers would like to see the results of a different scenario.

Table 7: SCENARIO 1 – Livestock production			
	Mangalme agro-pastoral	**Moundjoura agro-pastoral**	**Salal pastoral**
Herd sizes[10]	+/-0%	+/-0%	+/-0%
Excess deaths in current year	-2% (cattle) -5% (shoats)	-5% (camels) -7% (cattle) -7% (shoats)	-5% (camels) -7% (shoats)
Milk production (next rainy season)	-25% (cattle)		
Milk production (last rainy season)		-25% (camels) -50% (cattle) -100% (shoats)	-25% (camels) -100% (shoats)

For other elements of Scenario 1 related to casual labour, self-employment and labour migration, the following problem specifications were used.

Table 8: SCENARIO 1 – other sources of food and income			
	Mangalme agro-pastoral	**Moundjoura agro-pastoral**	**Salal pastoral**
Agricultural labour – harvest (last season)	-60%		
Agricultural labour – land preparation and weeding (next season)	+/-0%		
Casual labour – construction	-50%		
Casual labour – herding		+/-0%	
Remittances		+/-0%	+/-0%
Labour migration	+40% (coping strategy)		
Self-employment	+25% (coping strategy)	+/-0%	
Petty trade	-25%		

[10] This is the change in herd size at the start of the current year in relation to herd size at the start of the reference year.

Scenario 2

In Scenario 2 for prices, the workshop participants tried to imagine the level that prices might reach in the hunger season under a worst case (but still possible) scenario. Any price scenario that has not changed from Scenario 1 has not been included in the following table.

Table 9: SCENARIO 2 – price scenario

	Mangalme agro-pastoral	Moundjoura agro-pastoral	Salal pastoral
Sorghum	+60%		
Millet		+50%	+30%
Camels		-40%	-40%
Cattle	-25%	-40%	
Goats	-15%	-40%	-40%
Sheep		-40%	-40%
Wage rates – general	+20%		

Crop production data is only available at regional level. In Scenario 2 for crop production, the workshop participants have tried to estimate the change in the current year compared to the reference year for the part of the region that falls in the specified livelihood zone. For example, Scenario 1 for the Mangalme agro-pastoral livelihood zone uses crop production data for Guéra Region. But Guéra Region includes three livelihood zones, two of which are agricultural zones with better crop production conditions every year compared to the Mangalme agro-pastoral livelihood zone. The table below presents a worse scenario for crop production than Scenario 1. Key informants have indicated that there was near total crop failure in the Moundjoura agro-pastoral livelihood zone in 2011.

Table 10: SCENARIO 2 – crop production[11]

	Mangalme agro-pastoral	Moundjoura agro-pastoral	Salal pastoral
Sorghum	-80%		
Millet		-90%	
Groundnuts	-70%		
Sesame	-80%		
Dried okra	-20%		
Vegetables	-80%		

Scenario 2 uses the same assumptions about herd size changes and milk yields as Scenario 1, so the livestock production table is not included here.

For other elements of the scenario related to casual labour, self-employment and labour migration, the following problem specifications were used in Scenario 2.

[11] An empty box indicates that the item is not a key parameter in the livelihood zone.

Table 11: SCENARIO 2 – other sources of food and income			
	Mangalme agro-pastoral	**Moundjoura agro-pastoral**	**Salal pastoral**
Agricultural labour – harvest (last season)	-80%		
Labour migration	-20%		
Self-employment	+/-0%	+/-0%	
Remittances		+/-0%	+/-0%

5 PROJECTED FOOD SECURITY PROSPECTS FOR 2011-12

The results of the outcome analyses are presented in this section. These illustrate how the changes outlined in the two scenarios in section 4 are expected to impact upon total income for households in different wealth groups in the three livelihood zones. This is followed by a summary of likely duration of any resulting livelihood protection and survival deficits.

5.1 THE PERIOD COVERED BY THE CURRENT ANALYSIS

Table 1 outlined the period or consumption year covered by the current analysis, which was October 2011 – September 2012 for the Mangalme agropastoral livelihood zone and July 2011 – June 2012 for the Salal pastoral and Moundjoura agropastoral livelihood zones. For agricultural areas, the consumption year runs from the beginning of one harvest until the start of the following year's harvest. In pastoral areas, the consumption year runs from the beginning of one rainy season (when milk output starts to increase) until the start of the next year's rains. In the Moundjoura agropastoral livelihood zone, the pastoral component of household livelihoods is more important than the agricultural component.

5.2 OUTCOME FOR THREE LIVELIHOOD ZONES

The following figures present the results of the two scenarios for very poor and poor households in each livelihood zone. The summary results for all zones are presented at the end of the section. Middle households face a livelihood protection in one livelihood zone (Mangalme) under Scenario 2, while better off households do not face survival or livelihood protection deficits in any livelihood zone under either scenario.

5.2a Mangalme Agro-Pastoral Livelihood Zone – SCENARIO 1

Figure 3a: Outcome Analysis for Very Poor Households, Mangalme SCENARIO 1

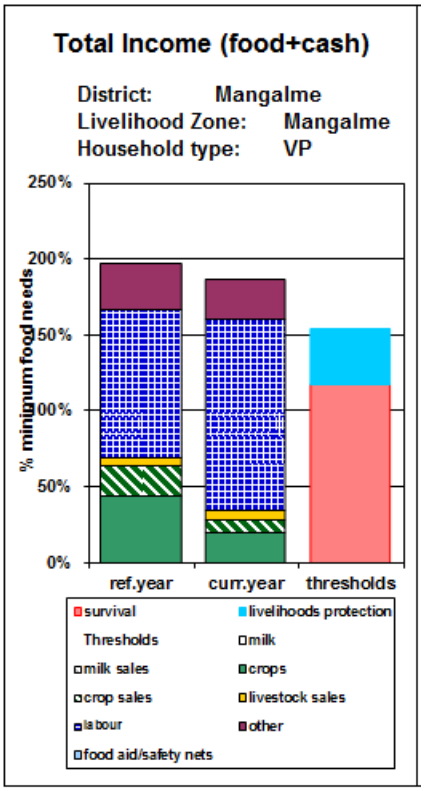
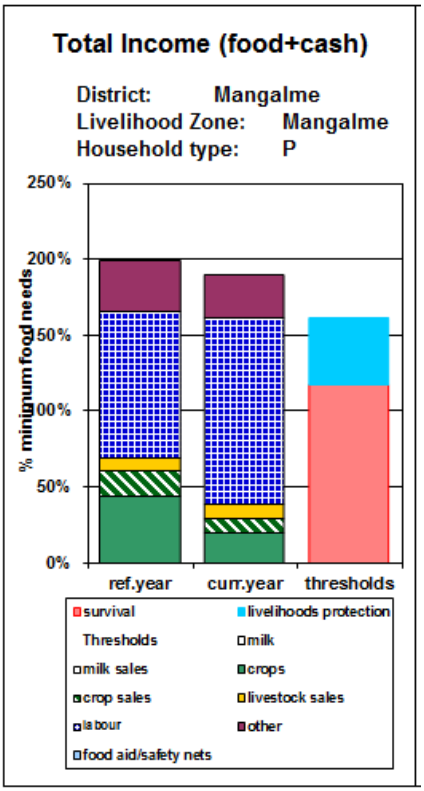


Figure 3b: Outcome Analysis for Poor Households, Mangalme SCENARIO 1



Note: The charts show estimates of total income (food plus cash) for the current and reference years. These are compared with the intervention thresholds (in the right-hand bar) to determine whether there is a deficit this year. The pink section of the thresholds bar represents the survival threshold, while the pale blue section represents the livelihoods protection threshold.

Figure 3a on the left presents the outcome analysis for very poor households. Food and cash income is combined into one bar and compared to the two thresholds. For the scenario outlined in Section 4, very poor households (15-20% of the population) in the Mangalme agro-pastoral livelihood zone will most likely not face livelihood protection or survival deficits. Figure 3b presents the same outcome analysis for poor households (25-30% of the population). They are also not likely to face deficits.

The main sources of income for very poor and poor households in the reference year (2008-09) were labour (including labour migration and local agricultural labour) and self-employment (which is labelled 'other' in the graphics and includes handicrafts, wild food, firewood and charcoal sales). With a scenario of increased wage rates in the current year, projected total income for 2011-12 is expected to be fairly similar to that in the reference year (in terms of its food equivalent) and above the thresholds for intervention (the livelihoods protection and survival thresholds). This is despite a large decrease in crop production.

5.2b Mangalme Agro-Pastoral Livelihood Zone – SCENARIO 2

Figure 4a: Outcome Analysis for Very Poor Households, Mangalme SCENARIO 2

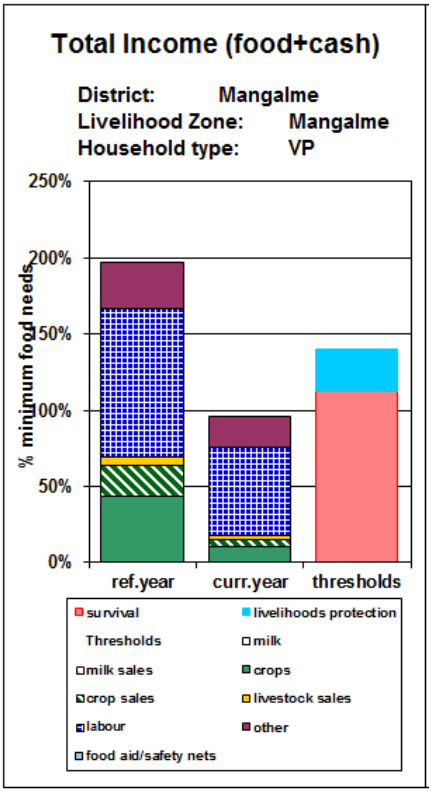


Figure 4b: Outcome Analysis for Poor Households, Mangalme SCENARIO 2

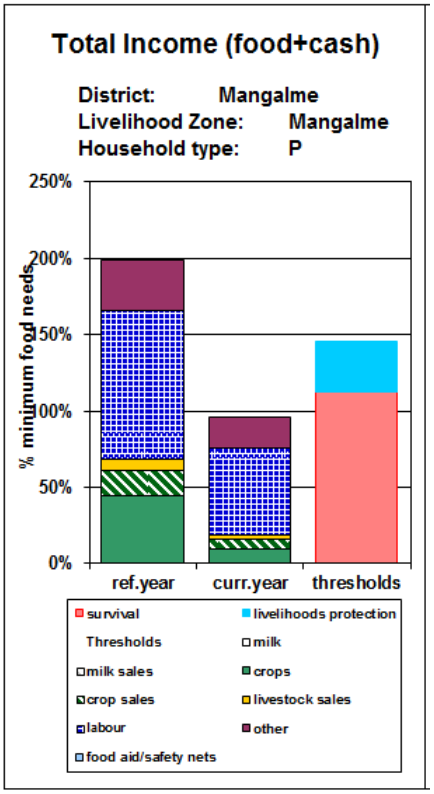


Figure 4a on the left presents the outcome analysis for very poor households under Scenario 2. They are likely to face a full livelihood protection deficit and a survival deficit. Figure 4b on the right presents the same outcome analysis for poor households. They are in a similar situation to the very poor. Middle households in this livelihood zone face a small livelihood protection deficit under Scenario 2, but no survival deficit. Scenario 2 models worse crop production, increased staple food prices and lower labour wage rates than Scenario 1.

5.2c Moundjoura Agro-Pastoral Livelihood Zone – SCENARIO 1

Figure 5a: Outcome Analysis for Very Poor Households, Moundjoura SCENARIO 1

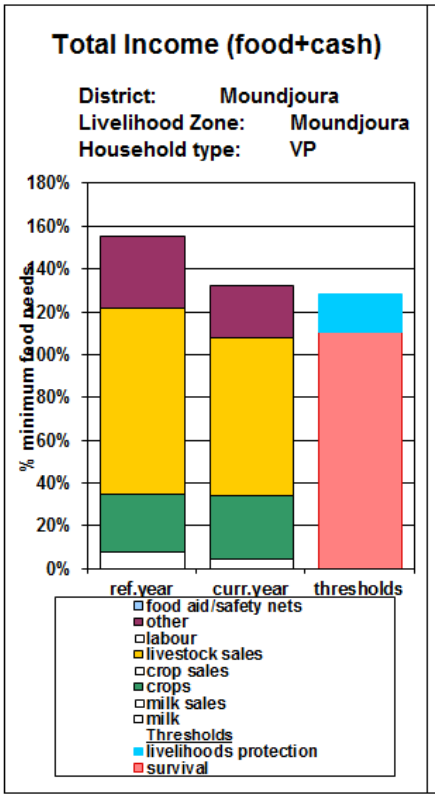


Figure 5b: Outcome Analysis for Poor Households, Moundjoura SCENARIO 2

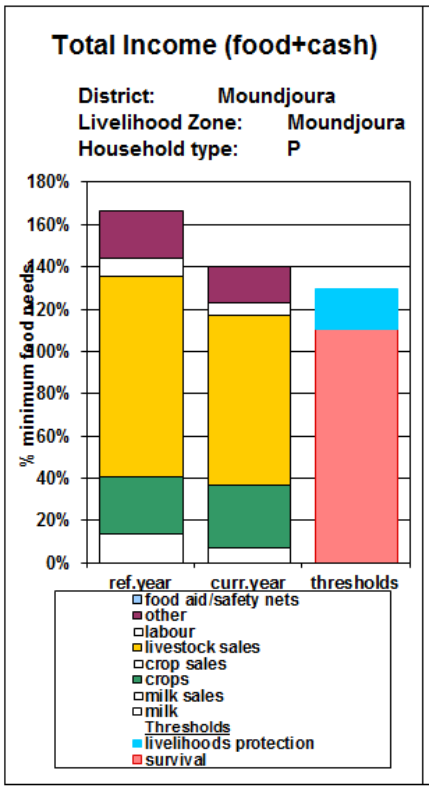


Figure 5a on the left is for very poor households in the Moundjoura agro-pastoral livelihood zone, who make up 15-30%% of the population according to the HEA baseline. Given Scenario 1 described in Section 4, these households are not expected to face deficits in the current year, but they are close to the livelihood protection threshold. Figure 5b on the right is for the poor, who make up 20-35% of the population. They are above both thresholds.

The main sources of income for very poor and poor households in the reference year (2010-11) were livestock sales (in yellow in the graphic) and 'other' (maroon in the graphic, including remittances and handicraft sales). Since livestock prices have not increased to the same extent as staple food prices, the contribution of livestock sales decreases in the current year (in terms of its food equivalent). In Scenario 1, the contribution of own crop production increases slightly.

5.2d Moundjoura Agro-Pastoral Livelihood Zone – SCENARIO 2

Figure 6a: Outcome Analysis for Very Poor Households, Moundjoura SCENARIO 2

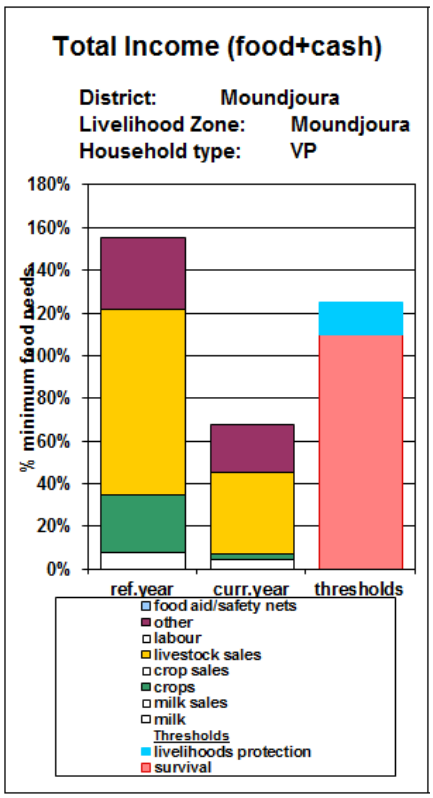
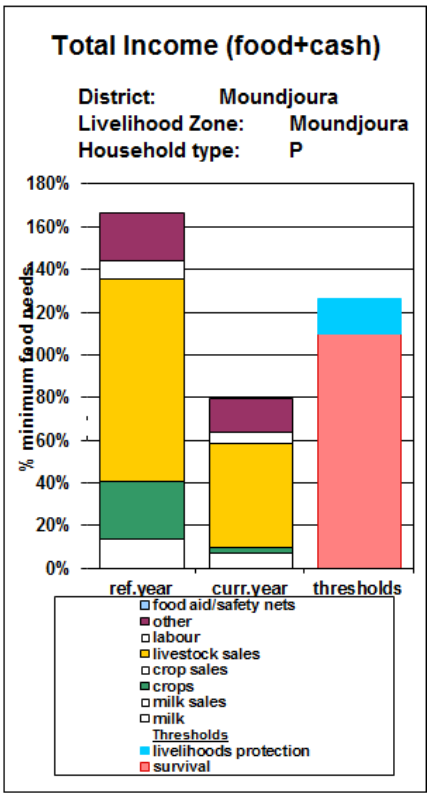


Figure 6b: Outcome Analysis for Poor Households, Moundjoura SCENARIO 2



Figures 6a and 6b are for Scenario 2 in the Moundjoura agro-pastoral livelihood zone. Under this scenario, very poor and poor households are expected to face both large survival deficits and complete livelihood protection deficits in the current year. Compared to Scenario 1, staple food prices are higher, livestock prices are lower and crop production is much lower in this scenario.

5.2e Salal Pastoral Livelihood Zone – SCENARIO 1

Figure 7a: Outcome Analysis for Very Poor Households, Salal SCENARIO 1

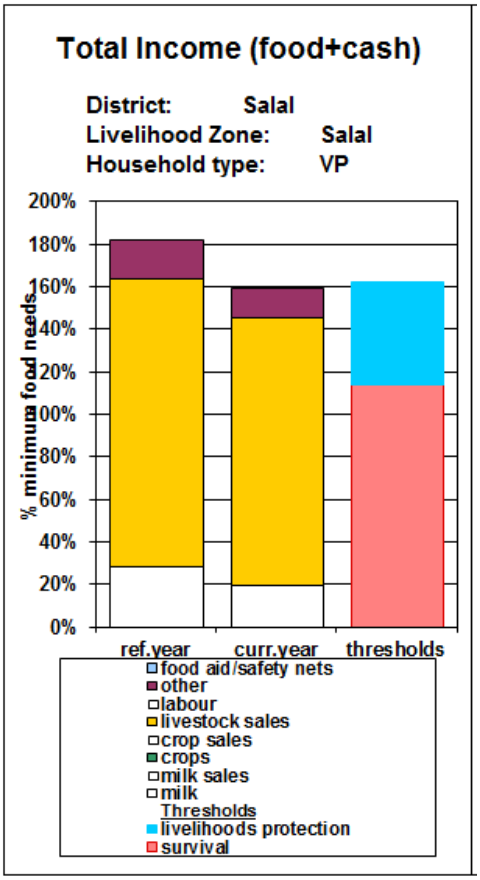


Figure 7b: Outcome Analysis for Poor Households, Salal SCENARIO 1

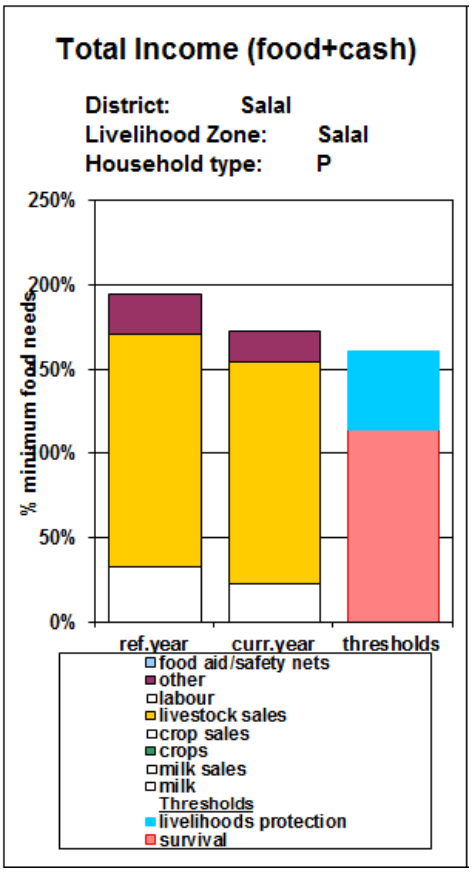


Figure 7a on the left is for very poor households, who make up 15-25% of the population. Given Scenario 1, as described in Section 4, these households are likely to face a small livelihood protection deficit in the current year (which runs up to June 2012). Figure 7b on the right is for the poor, who make up 20-30% of the population. They are unlikely to face deficits under this scenario.

The main sources of income for very poor and poor households in the reference year (2008-09) were livestock sales (in yellow in the graphic) and 'other' (maroon in the graphic, including remittances and gifts (*zakat*)). Since livestock prices have not increased to the same extent as staple food prices in this scenario, the contribution of livestock sales decreases slightly in the current year (in terms of its food equivalent).

5.2f Salal Pastoral Livelihood Zone – SCENARIO 2

Figure 8a: Outcome Analysis for Very Poor Households, Salal SCENARIO 2

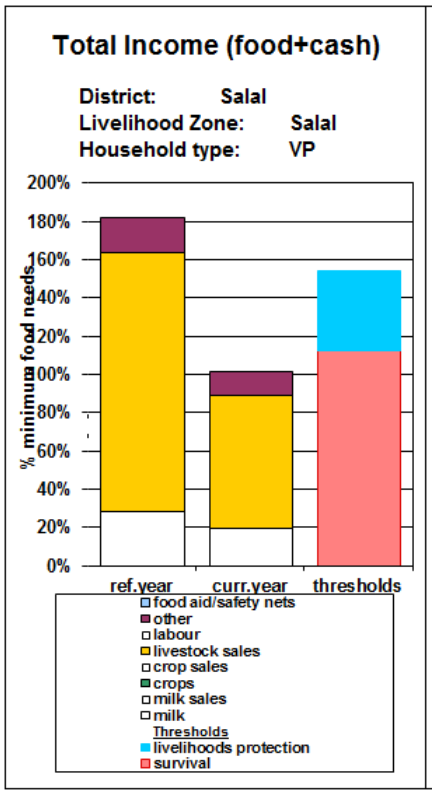
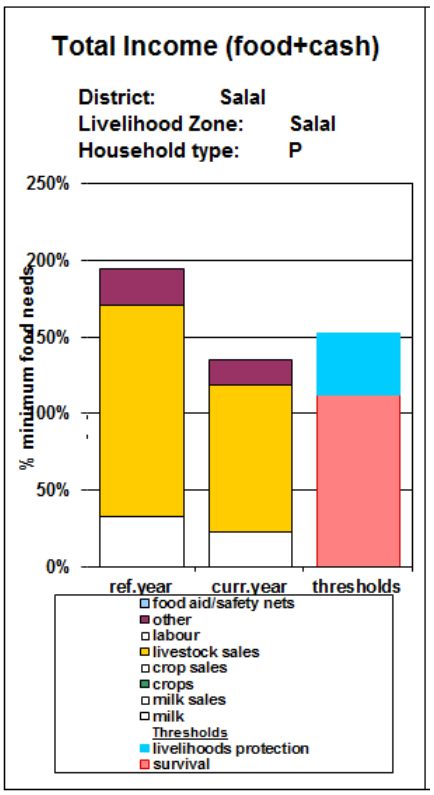


Figure 8b: Outcome Analysis for Poor Households, Salal SCENARIO 2



Figures 8a and 8b are for Scenario 2 in the Salal pastoral livelihood zone. Under this scenario, very poor households are expected to face both survival and livelihood protection deficits in the current year. Poor households a face livelihood protection deficit. Compared to Scenario 1, staple food prices are higher and livestock prices are lower in this scenario.

5.2g Summary of results

The following table summarises the results of the 2011-12 scenario analysis. Under Scenario 2, the zones where very poor and poor households are likely to face the worst problems (both survival and livelihood protection deficits) are the Mangalme and Moundjoura agropastoral livelihood zones. In Mangalme, middle households also face a livelihood protection deficit under Scenario 2. The situation is slightly less severe in the Salal pastoral livelihood zone, where very poor households face survival and livelihood protection deficits under Scenario 2 and poor households face a livelihood protection deficit. However, very poor households face a small livelihoods protection deficit under Scenario 1.

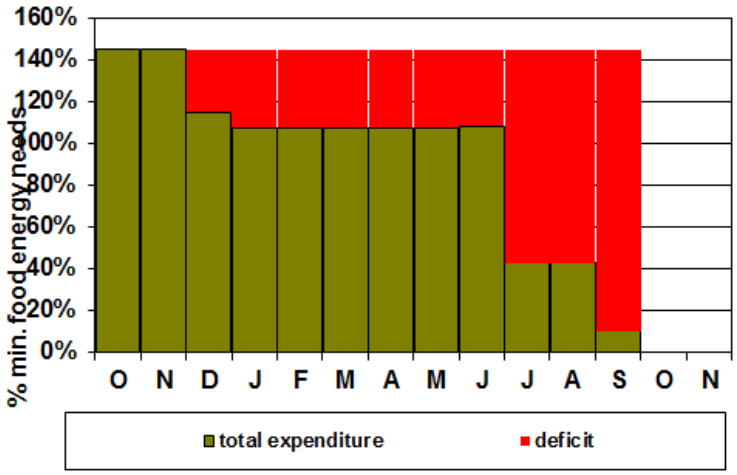
Table 12: Summary of Outcome Analysis Results: Wealth Groups/Livelihood Zones Facing Deficits						
	Mangalme Scenario 1	**Mangalme Scenario 2**	**Salal Scenario 1**	**Salal Scenario 2**	**Moundjoura Scenario 1**	**Moundjoura Scenario 2**
Very poor	No deficits	Survival and livelihood protection deficits	Livelihood protection deficit (very small)	Survival and livelihood protection deficits	No deficits	Survival and livelihood protection deficits
Poor	No deficits	Survival and livelihood protection deficits	No deficits	Livelihood protection deficit	No deficits	Survival and livelihood protection deficits
Middle	No deficits	Livelihood protection deficit	No deficits	No deficits	No deficits	No deficits
Better off	No deficits	No deficits	No deficits	No deficits	No deficits	No deficits

To repeat, a livelihood protection deficit represents an emergency situation whereby households cannot afford many basic things that they spent money on in the reference year, including education, health, inputs, clothes and non-staple foods. Faced with this situation, they may make a choice to purchase some items in the livelihood protection basket in preference to staple food, thus also going hungry.

5.3 TIMING OF DEFICITS

The seasonal consumption/ expenditure analyses in Figures 8a and 8b have been generated by combining information on total income with seasonal calendar data showing when different sources of food and cash become available. The results in Figure 8a suggest that livelihood protection deficits for poor households in the Mangalme agro-pastoral livelihood zone are likely to have started from December 2011. Survival deficits are likely to fall in the period July – September 2012, the peak of the hunger season.

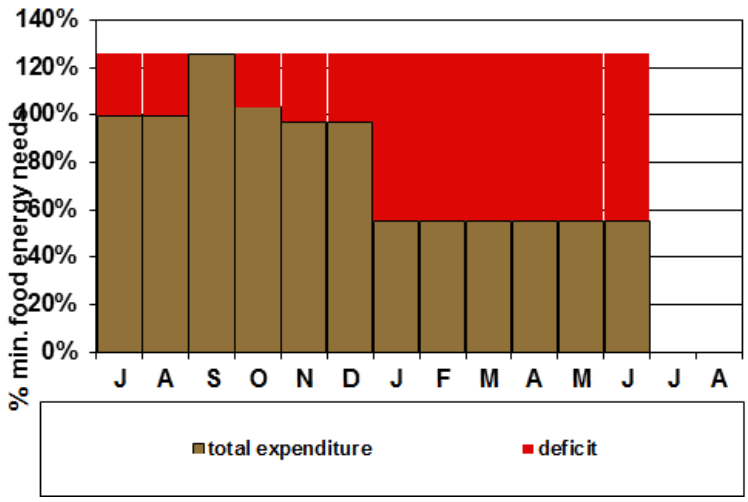
Figure 8a: Seasonal Pattern of Consumption/ Expenditure and Timing of Deficits Poor Households, Mangalme Agro-Pastoral Zone, Scenario 2



Notes: The chart above shows the projected pattern of consumption/ expenditure, by month, from October 2011 to September 2012. The chart below shows the projected pattern from July 2011 to June 2012. The periods when households are unlikely to be able to cover their livelihood protection and survival needs are shown in red.

The results in Figure 8b suggest that livelihood protection deficits for poor households in the Mangalme agro-pastoral livelihood zone are likely to have started as early as July 2011, with the failure of the rains. Survival deficits are likely to fall in the period January – June 2012, the peak of the hunger season.

Figure 8b: Seasonal Pattern of Consumption/ Expenditure and Timing of Deficits Poor Households, Moundjoura Agro-Pastoral Zone, Scenario 2



The timing of deficits is difficult to predict precisely in agro-pastoral and pastoral livelihood zones because households will shift their normal livestock selling patterns and the extent to which this will be possible (in terms of market demand) is unclear.

5.4 SENSITIVITY TO STAPLE FOOD PRICE SCENARIO

The results of this analysis are very sensitive to the scenario specified for staple food prices in the coming months.

The results in Figures 9a suggest that the worst period of deficit for very poor households in the Salal pastoral livelihood zone is likely to occur in January - June 2012, under Scenario 2. Under that scenario, staple food prices increase by on average 30% in the current year in relation to staple food prices in the reference year.

Should staple food prices not increase (Figure 9b) or double (Figure 9c) on average in relation to staple food prices in the reference year, the picture is different. The worst period remains January – June 2012, but the level of deficit differs, as does the situation in the earlier period of July – December 2011.

Projecting staple food prices is difficult. Very careful monitoring of cereal prices in relation to the evolution of income sources is critical to understanding the situation this year.

Figure 9a: Seasonal Pattern of Consumption/ Expenditure and Timing of Deficits Very Poor Households, Salal Pastoral Zone Scenario 2

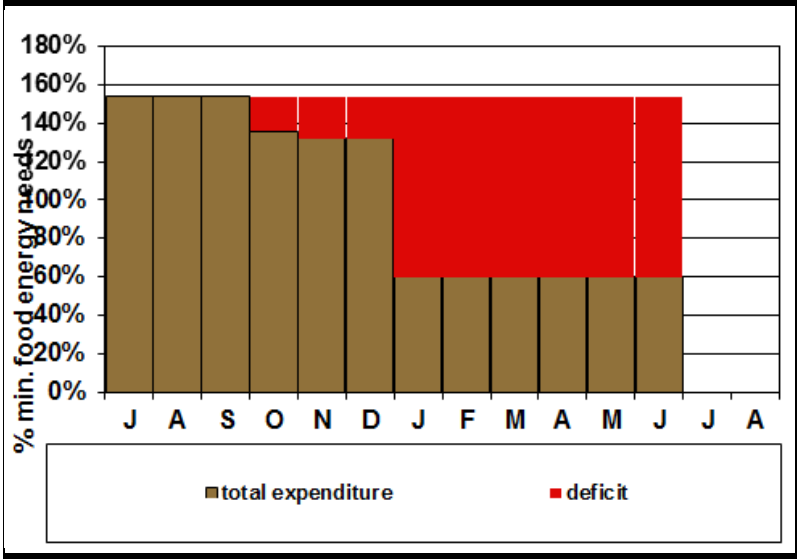


Figure 9b: With a scenario of smaller staple food price increases (+/-0%) in relation to the reference year

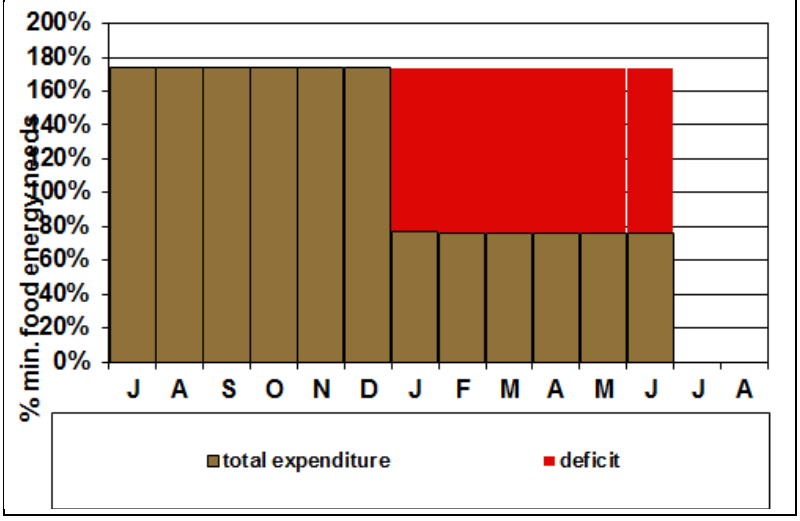
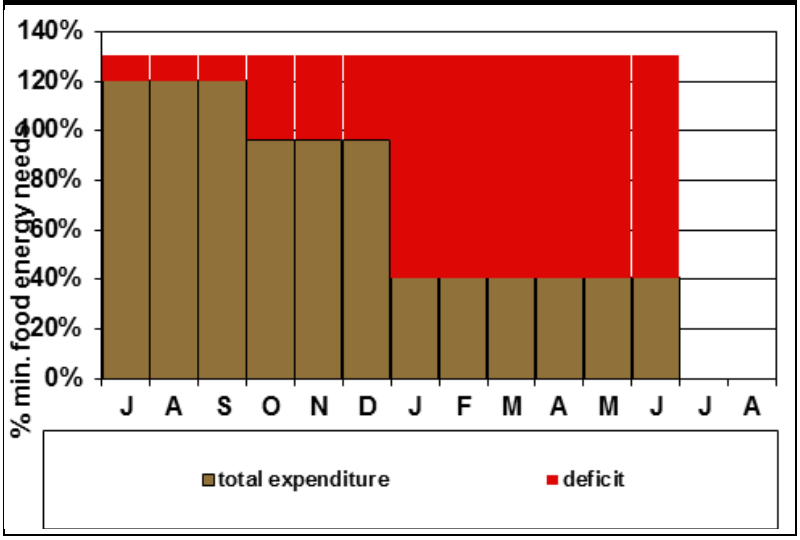


Figure 9c: With a scenario of larger staple food price increases (+100%) in relation to the reference year



6 RESPONSE OPTIONS

The results of this analysis were presented at a one-day workshop on 2 March, where response options were discussed and proposed by livelihood zone. The conclusions from this workshop are presented in this section.

Table 13 below summarises the level of deficits by wealth group and livelihood zone. The percentage deficits are expressed in terms of food needs (as a percentage of 2100 kcals per person per day). The livelihood protection deficits (LPD) are also expressed as the cash requirement per household in the current year (using current year projected staple food prices to convert food needs). Note that the size of the livelihood protection basket increases with wealth because of the increasing cost of productive inputs. All of the figures in this table represent the mid-point of a range.

Table 13:Level of Deficits* by Wealth Group / Livelihood Zone						
	Mangalme Scenario 1	**Mangalme Scenario 2**	**Salal Scenario 1**	**Salal Scenario 2**	**Moundjoura Scenario 1**	**Moundjoura Scenario 2**
Very poor	No deficits	SD: 17% (~2 months of food**) LPD: 27% (~3 months of food or ~82,000 XAF per HH pa)	LPD: 3% (~ ½ a month of food or 13,000 per HH per year)	SD: 11% (~1½ months food) LPD: 41% (~5 months of food or ~220,000 XAF per HH pa)	No deficits	SD: 42%(~5 months of food) LPD: 15% (~2 months of food or ~73,000 XAF per HH pa)
Poor	No deficits	SD: 17% (~2 months of food) LPD: 33% (~4 months of food or ~127,000 XAF per HH pa)	No deficits	LPD: 17% (~2 momths of food or ~118,000 XAF per HH pa)	No deficits	SD: 30% (~3½ months of food) LPD: 16% (~2 months of food or ~92,000 XAF per HH pa)
Middle	No deficits	LPD: 9% (~2 months of food or ~42,000 XAF per HH pa)	No deficits	No deficits	No deficits	No deficits

* SD = survival deficit, LPD = livelihood protection deficit, pa = per year. All of the figures represent the mid-point of a range.
** A one-month deficit is 8% (= 1/12).

Three groups of workshop participants discussed response options for the three livelihood zones for three separate time periods:

1) the remainder of the current consumption year (up to September 2012 for the Mangalme agro-pastoral livelihood zone and up to June 2012 for the other two zones), to ensure access to immediate essential needs;
2) the next consumption year (2012-13), to support rehabilitation or protection of livelihoods in the medium term;
3) and longer term, to promote development and livelihoods.

The following table summarises the discussions from each group. As a reminder, the current consumption year runs to September 2012 for the Mangalme agro-pastoral livelihood zone and to June 2012 for the other two livelihood zones.

Table 14: Response Options			
	Mangalme Agro-pastoral Scenario 2	**Salal Pastoral Scenario 2**	**Moundjoura Agro-pastoral Scenario 2**
Current consumption year	• Estimation of population numbers in different wealth groups • Targeted distribution of food to very poor and poor households • Blanket feeding for children from 6-23 months • Cash distributions • Distribution of improved seeds and tools for the next cultivation season	• Early destocking • Fodder provision • Livestock vaccination campaign and veterinary support • Food aid for the most vulnerable, blanket supplementary feeding • Cash for work • Ensure access to water for human and livestock consumption • School feeding	• Food for work • Targeted distribution • Blanket feeding • Seed distribution • Fodder distribution
Next consumption year	• Income generation activities support • Livestock rehabilitation • Support to livestock health • Support to agricultural production • Support to off-season vegetable production • Setting up cereal banks • Improved marketing channels	• Promote the use of pastoral and veterinary inputs • Facilitate access to and strengthen network of veterinary services/ training of community based paravets/ animal health workers	• Livestock restocking • Improved livestock health (vaccination, training of auxiliaries, etc) • Support to vegetable production in wadis
Longer-term	• Advocate on behalf of the poor • Establish water points / wells for pastoralists	• Promote more productive systems through the dissemination of good practices and appropriate innovations • Strengthen the network and functionality of local markets and cereal and livestock value chains • Create networks of community-based fodder stocks ("animal feed banks") including along transhumance routes • Promote transformation and higher added value products and value chains (ie. dried meat....)	• Strengthening the early warning system • Fodder reserves/banks • Training

7 FINAL COMMENTS

The results of this analysis are very sensitive to the scenario specified for staple food prices in the coming months. Careful monitoring of cereal prices in relation to the evolution of income sources is critical to understanding the situation this year.

Some of the crop production data included in this analysis is subject to revision by the Ministry of Agriculture (as of early March 2012). When the final figures are available, this analysis can be revised.

Other scenarios can be analysed as additional information becomes available or if decision makers would like to understand vulnerability to different types of shock.

8 APPENDIX 1 – THE HEA FRAMEWORK

8.1 THE HOUSEHOLD ECONOMY BASELINE

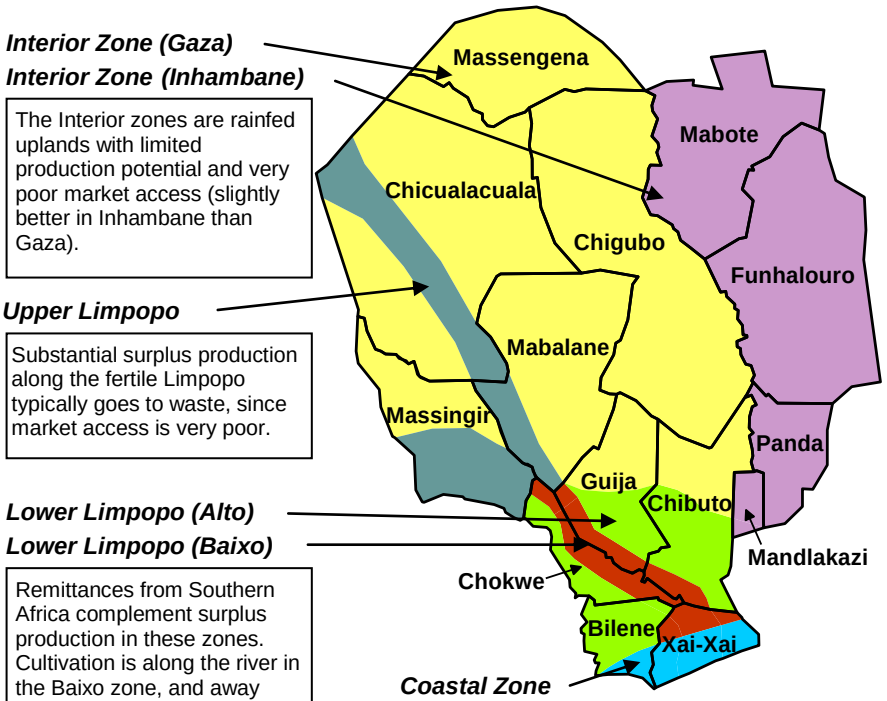
The Household Economy Approach (HEA) to analysing livelihoods and assessing food security has been used widely in Africa and elsewhere over the past decade. The basic principle underlying the approach is that an analysis of local livelihoods is essential for a proper understanding of the impact– at household level - of hazards such as drought or conflict or market dislocation. Total crop failure may, for example, leave one group of households destitute because the failed crop is their only source of staple food, while another group may be able to cope because they have alternative food and income sources that can make up the production shortfall (e.g. they may have livestock to sell or relatives living elsewhere that can provide assistance). The idea of the household economy baseline is to capture this essential information on local livelihoods and coping strategies, making it available for the analysis of hazard impacts.

A Livelihood is the sum of ways in which people make their living.

In the context of an analysis of food and non-food needs, the most important aspects of livelihood to understand are the means by which people produce food for themselves, and the means by which they obtain income to buy food and non-food goods and services from others.

A livelihood zone is an area within which people share broadly the same means of production and broadly the same patterns of access to markets.

Livelihood Zone Map: The Limpopo Basin, Mozambique
(with district boundaries)



Patterns of livelihood clearly vary from one area to another, according to local factors such as climate, soil, access to markets etc. The first step in a household economy analysis is therefore to prepare a **livelihood zone map**, i.e. a map delineating geographical areas within which people share basically the same patterns of access to food (i.e. they grow the same crops, keep the same types of livestock, etc.) and have the same access to markets and to

sources of cash income. An example of a livelihood zone map based on information gathered from southern Mozambique is presented above.

In nearly all developing countries, the household is the basic unit of economic operation in rural areas in terms of the ownership of land and livestock and equipment, of stocking and consuming food, and of sharing cash income. The household is therefore taken as the basic unit of reference in household economy analysis.

Where a household lives is one factor determining its options for obtaining food and generating income. Another is wealth, since this is the major factor determining the ability of a household to exploit the available options within a given zone. It is obvious, for example, that better-off households owning larger farms will in general produce more crops and be more food secure than their poorer neighbours. Land is just one aspect of wealth, however, and wealth groups are typically defined in terms of their land holdings, livestock holdings, capital, education, skills, labour availability and/or social capital. Defining the different wealth groups in each zone is the second step in a household economy analysis, the output from which is a **wealth breakdown**.

Having grouped households according to where they live and their wealth, the next step is to generate **household economy baseline** information for typical households in each group for a defined reference or baseline year[12]. Access to food and to non-food goods and services is determined by investigating the sum of ways households obtain food and cash — what food they grow, gather or receive as gifts, how much food they buy, how much cash income is earned in a year, and how other essential needs are met with income earned.

Once this baseline is established, an analysis can be made of the likely impact of a shock or hazard in a bad year. This is done by assessing how access to food and cash income will be affected by the shock, what other food and cash sources can be added or expanded to make up initial shortages, and what final deficits emerge.

Once the baselines have been compiled, the idea is that they can be used repeatedly over a number of years - until significant changes in the underlying economy render them invalid. Rural economies in developing countries tend not to change all that rapidly however, and a good household economy baseline will generally be valid for between 5 and 10 years. What varies is the prevailing level of access to food and non-food goods and services, but this is a function of variations in hazard, not variations in the baseline. Put another way, the level of maize production may vary from year to year (hazard), but the underlying pattern of agricultural production does not (the baseline).

8.2 PREDICTING FUTURE ACCESS TO FOOD AND NON-FOOD GOODS AND SERVICES

One objective of HEA is to investigate the effects of hazards on *future* access to food and income, so that decisions can be taken about the most appropriate types of intervention to

[12] The baseline or reference year can be the last 12 months or a 'normal' or typical year. In terms of data collection and the ability of interviewees to recollect details (including quantities and prices), it is usually best to choose a recent year. The most recent 12 month period is ideal (beginning at the start of the harvest for agricultural communities), provided there wasn't an unusually large amount of food aid or other assistance distributed and provided it wasn't a very good year. If any of these situations applies then it can be very difficult to understand coping strategies and it makes sense to choose an earlier year.

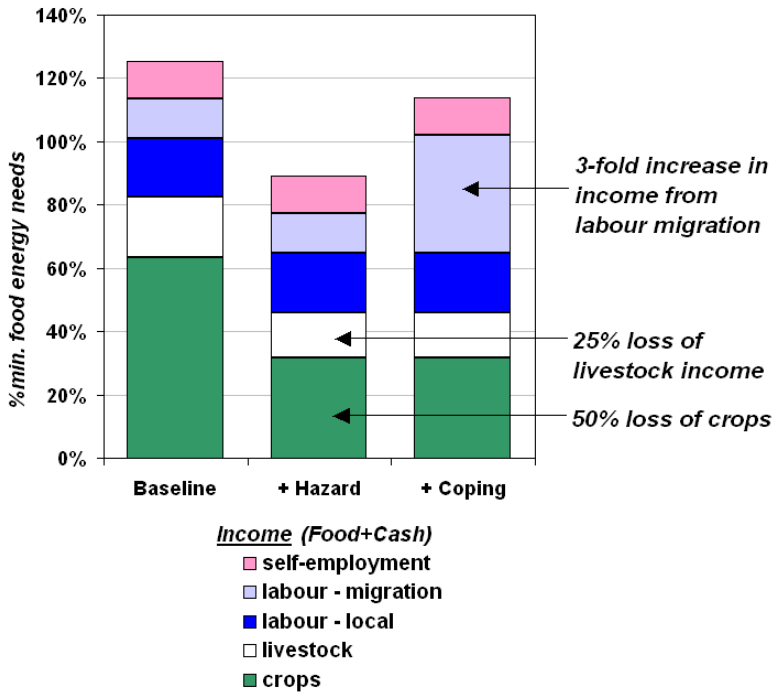
implement. The rationale behind the approach is that a good understanding of how people have survived in the past provides a sound basis for projecting into the future. Three types of information are combined for the analysis; information on baseline access, information on hazard (i.e. factors affecting access to food/income, such as crop production or market prices) and information on coping strategies (i.e. the sources of food and income that people turn to when exposed to a hazard). The approach can be summarised as follows:

Baseline + Hazard + Coping = Outcome

The output from an outcome analysis is an estimate of total food and cash income for the current year, once the cumulative effects of current hazards and income generated from coping strategies have been taken into account. The next step is to compare projected total income against two clearly defined thresholds to determine whether an intervention of some kind is required.

An Example of an Outcome Analysis for Poor Households from the Wolayita Maize and Root Crop Livelihood Zone in Southern Ethiopia

Three types of quantitative data are combined to predict outcome; data on baseline sources of food and cash, data on the hazard and data on coping strategies.
First of all, the effects of the hazard on baseline sources of food and cash income are calculated (middle bar in the chart).
Then the effect of any coping strategies is added in (right-hand bar).
The result is an estimate of maximum total food and cash income for the current year.
Note: *In this graphic, food and cash income have been added together and, in this case, expressed in food terms. (The results could also be expressed in cash terms – see* ***Figure 1****).*



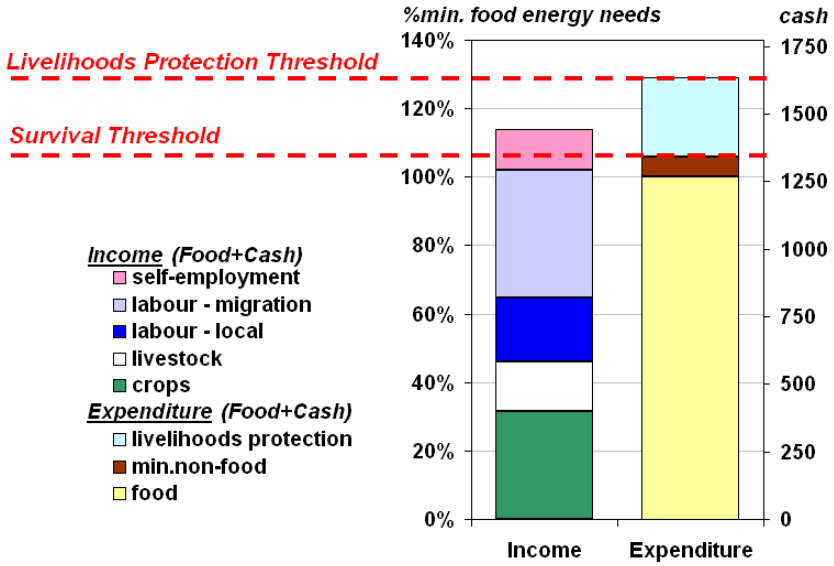
The two thresholds – the ***Livelihoods Protection Threshold*** and the ***Survival Threshold*** – are described in the figure below. The *Survival Threshold* is the amount of food and cash income required to ensure survival in the short-term, i.e. to cover minimum food and non-food needs. Minimum non-food needs will generally include the costs of preparing and consuming food plus any cash expenditure on water for human consumption. Shelter and clothing are also basic requirements for survival, and it may on rare occasions be appropriate to include these in the minimum non-food basket. The point to bear in mind here is that the items included in the minimum non-food basket should be those required to ensure survival in the short term. In most settled rural situations, expenditure on shelter and clothing can be forgone in a bad year, with repairs to housing and replacement of clothes

being postponed until better times. Situations in which failure to spend money on shelter and clothing could be life-threatening might include war (where shelters are destroyed and clothing looted), and sudden onset disasters such as earthquake, hurricane or flood.

The *Livelihoods Protection Threshold* is the amount of food and cash income required to protect local livelihoods. This means a level of income that gives people the option to maintain

Figure 1: Comparison of Projected Income against Two Clearly Defined Thresholds

Projected total income (including income from coping) is compared against two thresholds defined on the basis of local patterns of expenditure.



The Survival Threshold represents the total income required to cover:
- 100% of minimum food energy needs (2100 kcals per person), plus
- the costs associated with food preparation and consumption (i.e. salt, soap, kerosene and/or firewood for cooking and basic lighting), plus
- any expenditure on water for human consumption.

The Livelihoods Protection Threshold represents the total income required to sustain local livelihoods. This means total expenditure to:
- ensure basic survival (see above), plus
- maintain access to basic services (e.g. routine medical and schooling expenses), plus
- sustain livelihoods in the medium to longer term (e.g. regular purchases of seeds, fertilizer, veterinary drugs, etc.), plus
- achieve a minimum locally acceptable standard of living (e.g. purchase of basic clothing, coffee/tea, etc.)

expenditure on basic non-food goods and services at the levels prevailing in the reference year (assuming the reference year was neither especially good nor especially bad). This does not mean that people will have exactly the same standard of living as in the reference year (since the livelihoods protection basket excludes non-essential items such as beer and cigarettes), nor that they will pursue exactly the same activities as in the reference year (since the Livelihoods Protection Threshold is set at a level that assumes additional income can be generated from coping strategies). But it does mean that – provided they prioritise these

items – people can continue to spend similar amounts of money on inputs and on health and education as in the reference year.

Besides these essential non-food goods and services, the *Livelihoods Protection expenditure basket* can also contain a number of items that – while not absolutely essential for survival – can nonetheless be considered essential in terms of sustaining a minimum locally acceptable standard of living. It is usually quite easy to identify these items through discussions with local key informants. Tea and sugar, for example, are considered essential among Somalis, and it is appropriate to include these in the Livelihoods Protection basket in Somali areas. For highland Ethiopians, on the other hand, tea and sugar will be replaced in the Livelihoods Protection basket by coffee and berberi (a mix of spices based on chilli pepper). Clearly, the exact composition of the Livelihoods Protection Basket will vary from livelihood zone to livelihood zone, depending upon local circumstances. This applies not only to items such as tea and coffee, but also to inputs (e.g. veterinary drugs in pastoral areas verses fertilizer in agricultural areas) and to health expenditures (e.g. expenditure on anti-malarials in lowland but not highland areas).

Another important point about the *Livelihoods Protection Threshold* is that, as defined here, it is set relative to local conditions rather than relative to international standards, such as Sphere. This is an area for further debate and further work, i.e. should the *Livelihoods Protection Threshold* be set relative to international standards, and if so, which standards should be adopted for those items not covered by, for example, Sphere (which does not include standards for firewood or for fertilizer, for example)?

8.3 Analysing Coping Strategies

It is not usual to include every possible coping strategy in the calculation of outcome. This would have the effect of minimising and almost certainly under-estimating the need for assistance as measured by the deficit[14]. Instead, only those strategies that are appropriate responses to local stress are included. In this context, appropriate means both 'considered a normal response by the local population' and 'unlikely to damage local livelihoods in the medium to longer term'. In a pastoral setting, for example, it is usual to increase livestock sales in a bad year. This is an appropriate response to economic stress - provided the increase in sales is not excessive. Similarly, in many agricultural areas, it may be usual for one or more household members to migrate for labour when times are hard. Provided the response is not pushed too far (i.e. too many people migrating for too long a period of time), this can also be considered an appropriate response to stress. In HEA, therefore, the most important characteristic of a coping strategy is its cost, where cost is measured in terms

Type of Coping Strategy[13]
Low Cost *(included in outcome analysis)*
Reduced expenditure on non-essential items (beer, cigarettes, ceremonies, festivals, expensive clothing, meat, sugar, more expensive staples, etc.)
Harvesting of reserve crops (e.g. cassava, enset)
Consumption rather than sale of any crop surplus
Medium Cost *(included in outcome analysis)*
Increased sale/slaughter of livestock (sustainable)
Intensification of local labour activities
Short-term/seasonal labour migration
Intensification of self-employment activities (firewood, charcoal, building poles, etc.)
Increased remittance income
Increased social support/gifts
Borrowing of food/cash
Sale of non-productive assets (jewellery, clothing, etc.)
Collection of wild foods
High Cost *(excluded from outcome analysis)*
Unsustainable sale/slaughter of livestock
Long-term/permanent migration (including distress migration of whole households)
Excessive sale of firewood/charcoal (e.g. because of its effect on the environment)
Sale/mortgaging of productive assets (land, tools, seeds, etc.)
Prostitution
Reduced expenditure on productive inputs (fertilizer, livestock drugs etc.)
Reduced expenditure on health and education
Reduced expenditure on water
Decreased food intake

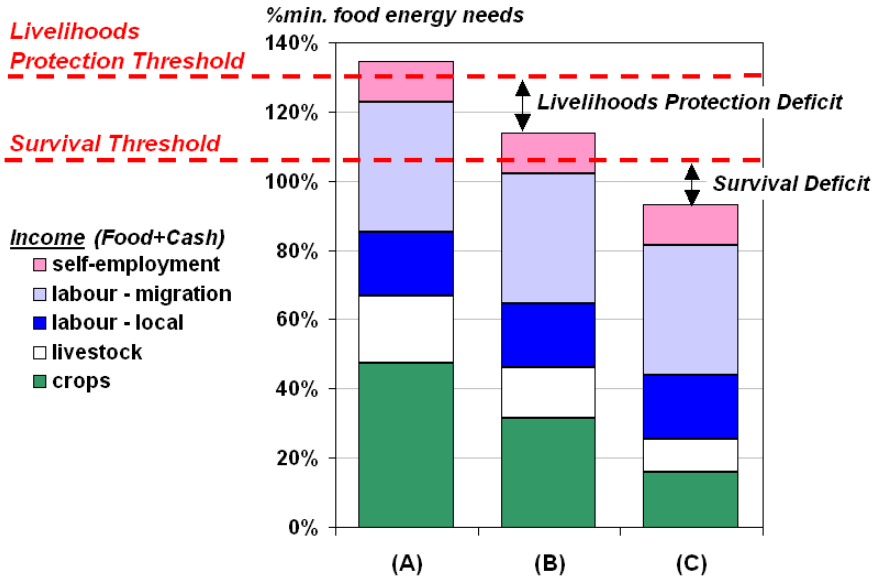
[13] Note that some strategies usually included in lists of coping strategies are not included here, e.g. strategies that maintain primary production in the face of a hazard (e.g. re-planting of crops, replacement of long-cycle by short-cycle crops, long distance grazing of livestock). This is because in household economy analysis these aspects of coping are captured in the 'hazard'. Replanting of crops and replacement of long- by short-cycle crops are captured through the crop production 'problem' and the effects of long-distance grazing are captured through the livestock production 'problem'.

[14] This is because the inclusion of a strategy in the outcome analysis has the effect of reducing the deficit, effectively delaying any intervention until that strategy has been fully utilised. It would not, for example, make sense to include the sale of *all* livestock in the outcome analysis, as this would delay intervention until all livestock had been sold – rendering pastoral households destitute, for example. Likewise it makes no sense to include undesirable stress-induced activities such as prostitution in the calculation of outcome, since this would reduce the estimated assistance requirement by an amount equivalent to the income that can be earned from prostitution.

of the effect on livelihood assets, on future production by the household, and on the health and welfare of individual household members. The table presents a basic categorisation of coping strategies according to cost. Note that cost is not just a function of the type of activity, but the extent to which it is utilised (as in the livestock sale and labour migration examples described above).

What it Means if Total Income Falls below One or Other Threshold

The figure compares three different situations, of progressively greater severity and urgency.



(A) – No deficit: In this situation, total income (including income from low and medium-cost coping strategies) is sufficient to ensure basic survival and to protect existing patterns of livelihood. There is therefore no pressing need for an emergency intervention.

(B) – Livelihoods Protection Deficit: Total income is no longer sufficient to cover the cost of survival plus the expenditure required to protect local livelihoods, and an intervention of some kind is required to cover the deficit. At this level, local people can still cover expenditure on survival (including the consumption of 2100 kcals per person per day), provided they accord these needs a high enough priority. In other words, people should not have to go hungry at this level[1], although they will have to resort to other high-cost strategies including a reduction in expenditure on productive inputs, on health and on education. The primary objective of intervention at this level is to protect livelihoods, both in the current year and for the future.

(C) – Survival Deficit: At this level, total income is insufficient to cover the cost of survival, even if full use is made of all the available low- and medium-cost coping strategies, and all the money usually used to protect livelihoods is switched to the purchase of staple foods. It is very probable that people facing this type of deficit will go hungry, unless they resort to other undesirable high-cost coping strategies (see **Error! Reference source not found.** for a description of these). The primary objective of intervention at this level is to protect health and life in the short-term.

[1]Although they may opt to do so, if, for example, not increasing livestock sales or not migrating for labour has a higher priority than maintaining food intake.

8.4 How HEA Helps Address Core Decision Maker Questions

If total income falls below one or other threshold, this implies the existence of a deficit and the need for an intervention of some kind. HEA helps to distinguish clearly between situations according to their severity and urgency. The existence of a *Livelihoods Protection Deficit* indicates the need for interventions to protect livelihoods, while a *Survival Deficit* indicates the need for an intervention to ensure survival in the short term.

There is a range of options that can be used to fill a deficit, from food and cash transfers, through non-food interventions to market price interventions. Information on patterns of local livelihood (collected during the household economy fieldwork) will help to identify the most appropriate intervention in any particular situation. The only point to bear in mind in relation to the *type* of deficit is that the intervention selected must be commensurate with the scale and urgency of the problem. There is little point, for example, in proposing a distribution of soap to fill a survival deficit. Something much larger in scale will generally be required, which will usually mean a distribution of food or cash, or a market intervention on a relatively large scale.

The output from a Household Economy analysis is quantitative. That is HEA provides quantitative estimates of how many people will face a deficit, how big that deficit is, and therefore the scale of intervention required to address the problem. Besides answering the critical question of how much? HEA also generates answers to the other core questions posed by decision-makers in relation to emergency interventions, as outlined below.

How HEA Helps Address Core Decision Maker Questions	
Core question	*How HEA helps answer the question*
WHO	***Wealth breakdowns*** help group the population in a way that shows who will be most affected by different shocks.
WHAT	***Livelihood strategy identification, description and quantification*** (Food, income, expenditure) shows what can be done to support existing livelihoods, and, just as important, what might harm them.
HOW MUCH	***Outcome analysis*** determines what kinds of gaps will be left in the event of a shock or multiple shocks. This leads directly to an analysis of how much help is needed.
WHERE	***Livelihood zoning*** helps group people in a way that allows you to see where affected populations will be.
WHEN and FOR HOW LONG	***Outcome analysis***, combined with careful use of seasonal calendars, provides a basis for determining when different types of assistance are needed and for how long.