SOMALI SAFETY NET DESIGN

Designing a Scalable Safety Net Program
for Somalia Using Household Economy Analysis (HEA)

Somali Cash Consortium - 24th January 2019
Report by Mark Lawrence, FEG

FEG
THE FOOD ECONOMY GROUP

Funded by
European Union
Humanitarian Aid

About the author

Mark Lawrence is a PhD nutritionist with over 25 years of experience in the design and management of quantitative and qualitative food security assessments and famine early warning information systems. He leads on the development of all Food Economy Group's quantitative HEA tools, including the Livelihoods Integrated Analysis Spreadsheet, and on statistical analysis using HEA data.

Mark's worked extensively in The Gambia, Ethiopia, Somaliland, Sudan, Malawi and Zambia, and has taught under- and post-graduate courses at the University of Glasgow.

About Somali Cash Consortium

Through the Somali Cash Consortium, INGOs, supported by EU humanitarian aid and other institutional donors, provide life-saving multi-purpose cash to vulnerable Somali communities, exclusively through mobile-money transfers.

The Cash Consortium focusses on famine prevention and providing life-saving humanitarian response to reduce household consumption gaps (primarily food) in the most affected districts in Somalia. The project specifically targets populations in IPC3 and 4 especially the newly displaced and worst affected pastoralist/agro-pastoralist communities.

Since the Cash Consortium began work in Jan 2018, it has provided assistance to over 300,000 Somalis. It is building better and more robust cash transfer systems, by working with all stakeholders to streamline each stage of the cash-transfer process; from community registrations to payment aggregation, reporting, forecasting and coordination.

For more information on the work of the Somali Cash Consortium, or its use of HEA, contact alessandro.bini@concern.net

Contents

1 Summary 5
2 Objectives of the Study 8
3 The 15-Year Time series Analysis Used in the Study 10
3.1 Household Economy Analysis (HEA) 10
3.1.1 Baseline Analysis 10
3.1.2 Outcome Analysis 11
3.2 Livelihood Zones Included in the Analysis 13
3.3 Running the Analysis by Year or by Season 15
3.4 Modelling total income, 2001-2015 16
3.5 Modelling Livestock Production 16
3.6 Crop Production 19
3.7 Market Prices 20
3.7.1 Availability of Market Price Data 20
3.7.2 Correcting for Inflation and Other Trends in Prices 21
3.7.3 Price Trends in Relation to Rainfall 22
3.8 Other Sources of Food and Cash 24
3.9 Factors Not Taken into Account in the Analysis 24
3.10 Outputs from the Analysis 24
4 The Safety Net Design Study 26
4.1 Introduction 26
4.1.1 The Design Process 26
4.1.2 Some Technical Details 28
4.2 Steps in Modelling the Safety Net Program 30
4.3 Safety Net Scenarios Included in the Analysis 34
4.4 Summary of Main Findings 35
4.5 Regular Safety Net Program : Scenarios 3A & 3B 36
4.6 Regular + Emergency Program: Scenarios 3A & 3B 38
4.7 Simplifying Implementation of the Emergency Program 40
4.8 Differences between Scenarios 1, 2 and 3 45
4.9 In Which Months Should Assistance be Provided? 46
5 Using HEA to Help Implement a Scalable Safety Net for Somalia 48
5.1 The HEA Methodology 48

5.2 What is the Role of HEA in Managing a Scalable Safety Net? 49
5.3 What is Required to Implement the HEA Methodology? 50
6 Appendices 52
6.1 Results Tables for Scenario 1........ 52
6.2 Results Tables for Scenario 2........ 53

About EU Civil Protection and Humanitarian Aid

The European Union and its Member States are the world's leading donor of humanitarian aid. Relief assistance is an expression of European solidarity with people in need all around the world. It aims to save lives, prevent and alleviate human suffering, and safeguard the integrity and human dignity of populations affected by natural disasters and man-made crises.

Through its Civil Protection and Humanitarian aid Operations department (ECHO), the European Union helps millions of victims of conflict and disasters every year. With headquarters in Brussels and a global network of field offices, the EU provides assistance to the most vulnerable people on the basis of humanitarian needs.

Safety Net Design Analysis for Somalia

1 Summary

1. The aim of the study was to use existing household economy analysis (HEA) data to help in the design of a scalable cash-transfer-based safety net program for Somalia. The study made use of a recently completed 15-year (30-season) time series analysis covering 13 livelihood zones in Somalia. The population of the study area was 3.37 million (2015), equal to 55% of the total rural plus nomadic population of Somalia (6.16 million in 2015). Note that most safety net assistance currently goes to urban areas and to the internally displaced (IDPs). These groups were not covered by the current study.

2. This analysis modelled the seasonal consumption/expenditure deficits faced by households living at 3 or 4 levels of wealth (very poor/ poor, middle and better-off) in the 13 livelihood zones studied, over the 15 years (30 seasons) from 2001-2015.

3. For the purposes of this study, the objective of the safety net program was defined as being to cover the deficits faced by most households in most seasons, keeping the need to scale up the program in 'emergency seasons' to a minimum. A second objective was to keep the program as simple to implement as possible. The specific objectives of the design process were therefore to:
   - set the number of beneficiaries at a level that covered needs in at least 20 out of 30 seasons
   - set a single transfer level (e.g. $40 per person per year) covering needs in 20 out of 30 seasons
   - harmonise/ standardise transfer levels across 'supra-regions', i.e. the north, centre and south

The Somali Cash Consortium expresses transfers as an amount per household per month, whereas results in this report are given in per person per year. Note that a transfer of, for example, $40 per person per year is equal to a transfer of $40 per household per month, assuming a household size of 6, and 6 distributions in the year.

4. One of the key findings from the design process is the potential complexity of a scalable safety net program in Somalia. This is because there are big variations in livestock and crop production, and therefore income, from one season to the next. For any one livelihood zone, this means that in a sequence of 30 seasons, there will be a number of seasons in which there are no deficits, but there will also be a few seasons with very large deficits indeed.

5. Another finding is that there is a trade-off between complexity and cost. A simple program, with a constant number of beneficiaries, a small number of transfer levels and only a few emergency seasons, will be far more expensive than a more complicated program with less 'over-distribution'. A number of scenarios were run to explore the relationship between cost and complexity, and to try and find a reasonable compromise between the two.

6. The report focuses on two scenarios, termed **Scenarios 3A** and **3B**. These present the results after the harmonisation step referred to in point (3) above. The difference between 3A and 3B is in the 'maximum acceptable deficit'. This is defined as the maximum level of deficit that should be faced by any one beneficiary. For Scenario 3A, this was set to zero; for Scenario 3B it was set to $20 per person per year.

7. **Scenario 3A**: For 6 of the 13 livelihood zones (LZs), the number of safety net beneficiaries is zero. These are LZs that, even without any safety net, have fewer than 10 deficit seasons in total. In other words, they do not need a safety net program to achieve the objective of the program, because they have 10 or fewer emergency (deficit) seasons to begin with.

"

In the context of big differences in household food security from one season to the next, an effective safety net needs to;

1. **Cover the deficits faced by households in most seasons**
2. **Be as simple to implement as possible**

For the remaining 7 LZs, between 8% and 24% of the LZ population require safety net assistance. The required level of transfer varies from $40 per person per year (pppy) in the north and centre, to $60 pppy in the south. Overall, taking all 13 LZs together, 364,620 people or 11% of the total population require safety net assistance.

The total cost of the safety net transfers would be $17.3 million per year (at 2015 prices). Once emergency transfers are included, this rises to $41.1 million per year (2.4 times higher than the cost of the safety net program alone). This is just the cost of the transfers and does not include any other program costs related to implementation. Note also that this is the cost of a program covering 55% of the total rural plus nomadic population, and excluding the needs of the urban population and IDPs.

8. **Scenario 3B**: Under this scenario, there are large reductions in the size of the safety net. This includes the number of beneficiaries (63% reduction to 136,088 people, or 4% of the total population) and the size of the transfer required ($20 in the north; $40 in the centre and the south). The number of LZs requiring a safety net is also reduced, from 7 to 5 out of 13 LZs. The overall cost is also reduced, both for the safety net - $5.2 million (70% reduction), and for the safety net + emergencies - $24.2 million (41% reduction).

9. Further analyses looked at the effects of simplifying the program in emergency seasons, by reducing the number of transfer levels (note that in non-emergency seasons, there is only one transfer level). Under Scenario 3A, as described above, there would be on average 6 transfer levels (i.e. some beneficiaries receiving $10 per season, some $20, some $30, and so on). Reducing the number of transfer levels to an average of 4 increased the cost of the program by 15%, while reducing the number further, to an average of 3, increased costs by 29%. Similar increases in cost were noted under Scenario 3B.

10. The report also looks at how HEA could be used to help manage a scalable safety net program in Somalia in the future (especially in relation to setting the regular transfer level, and scaling the program up and down in emergency seasons). There is also a section on the requirements (baseline and monitoring data, in-country capacity etc.) for implementing such a program.

2 Objectives of the Study

This study was commissioned by Concern Worldwide, a member and lead of the Somali Cash Consortium, implementing an ECHO funded Cash Transfer project in Somalia. The programme aims to provide life and livelihood saving cash transfers to the most in-need households in Somalia. The consortium further aims to build scalable and replicable cash delivery systems working towards the aim of a national cash safety net and surge approaches.

The aim of the study was to use existing household economy analysis (HEA) data to help in the design of a scalable cash-transfer-based safety net program for Somalia. The study made use of a recently completed 15-year time series analysis covering 13 livelihood zones carried out for the USAID-funded FEWS NET project. This study modelled the seasonal consumption/expenditure deficits faced by households living at 3 or 4 levels of wealth (very poor/ poor, middle and better-off) over the 15 years from 2001-2015.

The Somali Cash Consortium provides assistance to rural and urban areas, and to IDPs. This study deals only with rural areas, for two reasons. Firstly, the 15-time series analysis was only available for rural areas. Secondly, although HEA baseline data does exist for several urban areas in Somali, these data were collected more than 10 years ago, and are now out of date.

The following five questions were posed in the ToR:

1. What would be an appropriate average per-household monthly safety net amount (USD) and duration/frequency (number of months/which months) for Somalia?

2. Suggest a feasible methodology of setting safety net transfer values using HEA that can be used by the Cash Working Group (CWG) and international donors to set optimum cash safety net monthly amounts, frequencies and durations.

3. Suggest a feasible methodology for surging or reducing safety net transfer values/frequency/duration in order to gain optimal cost effectiveness of cash transfers when faced with changes in context. Provide basic examples of how that methodology could have been applied to cash transfer approaches in regards to the 2016-2017 drought and any other scenarios seen as especially useful in highlighting the HEA-based methodology.

4. Recommend an approach for clustering livelihood zones into “Supra-Regions” through which standard cash safety net values/durations can be uniformly set and updated using the HEA-based methodologies recommended above.

5. In order of importance, provide a list of livelihood zones (including potentially new zones - e.g. urban areas) where new HEA reference data is most in need of collection.

Broadly speaking, these five questions (and parts of questions) can be divided into two categories:

1. Basic questions about safety net design.
    a. Which livelihood zones would benefit most from a safety net program?
    b. How many people require regular safety net assistance?
    c. What level of regular transfer should be provided?
    d. When should assistance be provided (which months of the year)?
    e. Is it possible to standardise regular cash transfer values across 'supra-regions'?
    f. How often will it be necessary to scale the program up to deal with emergencies?
    g. What level of assistance will be required in emergencies (number of beneficiaries, levels of transfer)?

2. Questions about methodology, and how HEA could be used to monitor the program (e.g. adjust regular transfer amounts) and to scale the program up/down during emergencies.

This report deals primarily with the first set of questions. The methodological questions are addressed in a short section at the end of the report (Section 5).

3 The 15-Year Time series Analysis Used in the Study

This section of the report deals with the 15-year times series analysis that was used in the safety net design process. It begins with a brief description of household economy analysis (HEA), and then looks at the modelling process, i.e. the data that was used and how this was used in the model to generate the 15-year time series data on consumption/expenditure deficits.

3.1 Household Economy Analysis (HEA)

Household Economy Analysis (HEA) was used for the analysis. The basis of this method is to prepare a baseline analysis of the household economy and to use this as a starting point for understanding how total household income will change over time, whether in relation to inter-annual shocks (drought, staple food price shock, etc.) or in relation to the effects of different interventions.

HEA is carried out in two stages:

1. Baseline analysis – the analysis of how people get by year to year and the connections with other people and places that enable them to do so, and
2. Outcome analysis - the investigation of how that baseline access to food and income might change as a result of a specific hazard such as drought or as the result of a positive change, such as a program input or beneficial price policy.

3.1.1 Baseline Analysis

The HEA baseline is a quantified summary of annual food, cash and expenditure for typical households from different wealth groups living within a specified area or livelihood zone. There are three steps to preparing an HEA baseline:

1. The Livelihood Zone Map: A livelihood zone (LZ) is an area within which people share broadly the same means of production (the same crops, the same types of livestock) and broadly the same patterns of access to markets. Preparing this map is the first step to analysing livelihoods within a larger area (e.g. a region or country).
2. The Wealth Breakdown: This is a division of the livelihood zone population into 3 or 4 locally defined wealth groups (the very poor, poor, middle and better-off), based primarily upon the ownership of/access to productive assets (land, livestock, household labour, etc.). The rationale for this second step is that wealth is a major factor determining the ability of a household to exploit the available options within each livelihood zone.
3. Food, Income and Expenditure Analysis: This is a detailed analysis of sources and amounts of food, income and expenditure, for a defined or reference year. Knowing where households obtain their food and income, and what they need to spend money on, plus a

quantification of these, provides the starting point for understanding how they will be affected by a shock (or a positive change).

The baseline analysis relates to a specific reference year (e.g. 2014-15). For agricultural and agro-pastoral livelihood zones the reference year usually starts with one harvest and ends 12 months later. For example, if crops are harvested in April, then the reference year might run from Apr'14-Mar'15. For pastoral livelihood zones, the reference year usually starts at the beginning of the main rainy season, when livestock births occur and milk production increases. Generally, but not always, the reference year will be a year that was neither especially good nor especially bad, but somewhere in the middle. The most important point about the reference year is not that it should be an average year, but that it should provide a good starting point for understanding how livelihoods will vary from one year to the next in relation to changes in factors such as crop production and market prices.

Once a baseline has been prepared, it can be used repeatedly over a number of years (generally between 5 and 10), until significant changes in the underlying economy render it invalid.

3.1.2 Outcome Analysis

Outcome analysis consists of three steps designed to produce a rational and defensible statement about the predicted effects of a hazard or positive change on household livelihood strategies (i.e. their ability to obtain food and cash income, and to acquire the non-food items they need to live). These steps are:

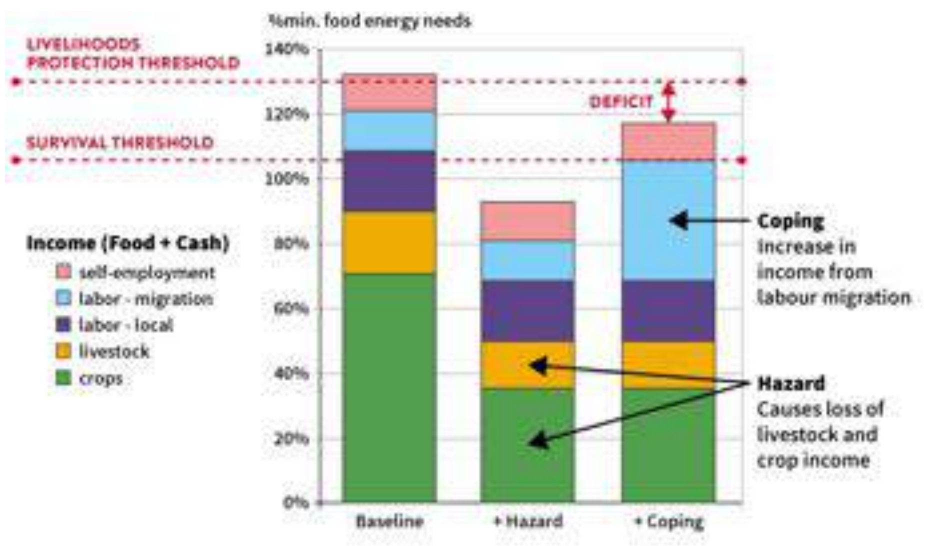
1. Problem specification: the translation of a shock such as drought into economic consequences at household level (such as a percentage fall in crop production or increase in food prices compared with the baseline),
2. Coping analysis: the assessment of the capacity of households in different wealth groups to cope themselves with the hazard, and
3. Projected outcome: access to food and income at household level is predicted for a defined future period and compared to two critical thresholds – the survival and livelihood protection thresholds - to determine whether there is a gap or deficit.

Figure 1: An Example of Outcome Analysis

First, 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 (right-hand bar).

Finally, the result is compared against the two thresholds to determine the size of any deficit.



Note: *This graphic shows changes in total income, i.e. food and cash income added together and, in this case, expressed in food terms.*

The process is illustrated in Figure 1. Note that in Figure 1 total income has been expressed in food terms (i.e. cash income has been converted into the amount of staple food that can be purchased with the corresponding cash). It is also possible to express total income in cash terms, in which case food that is directly consumed (e.g. crop production, livestock production, food aid, etc.) has to be converted into its cash value.

The survival threshold provides a measure of a household's ability to cover the bare minimum requirements for survival – to obtain and prepare basic food and, if necessary, purchase water. The livelihoods protection threshold provides a broader measure of a household's ability to sustain local patterns of livelihood, including covering the costs of productive inputs (seeds, livestock drugs, etc.) and basic expenditure on health and education.

A key feature of outcome analysis is that it is not an analysis of behaviour. Rather, it provides an estimate of what the deficit might be given certain conditions. This is especially important in relation to coping, and which coping strategies are included in the analysis. The most damaging negative strategies are always excluded from the analysis (e.g. sale of all livestock, mortgaging or sale of land). Including such strategies would have the effect of reducing the calculated deficit, effectively delaying any intervention until after that strategy has been fully utilised. Since we want to intervene before that stage is reached, we need to know what the deficit will be if these strategies are not used, i.e. if they are excluded from the analysis.

3.2 Livelihood Zones Included in the Analysis

The following livelihood 13 zones for Somalia were included in the analysis.

LZ Code (Study)	LZ Code (General)	LZ Name	LZ Type	Ref.Year
02-WGP	SO02	West Golis Pastoral	P	Apr13-Mar14
03-NWA	SO03	Northwest Agro-pastoral	AP	Apr10-Mar11
04-TAP	SO04	Togdheer Agro-pastoral	AP	Apr09-Mar10
05-HDP1	SO05	Hawd Pastoral (north)	P	Apr09-Mar10
05-HDP2	SO05	Hawd Pastoral (east)	P	Oct09-Sep10
06-NIP	SO06	Northern Inland Pastoral	P	Oct09-Sep10
08-COD	SO08	Coastal Deeh Pastoral and Fishing	P	Apr14-Mar15
09-ADD	SO09	Addun pastoral	P	Oct09-Sep10
BAPHP	SO15	Sorghum High Potential Agropastoral	AP	Apr06-Mar07
BAPLP	SO16	Bay Bakool Low Potential Agropastoral	AP	Apr06-Mar07
BSIP	SO11	Southern Inland Pastoral	P	Apr06-Mar07
SO11	SO11	Southern Inland Pastoral	P	Apr15-Mar16
SO18	SO18	Juba Pastoral	P	Apr15-Mar16

Notes:
LZ Code (Study): This is the code used throughout this report
LZ Code (General): This is the general code for the livelihood zone used by FSNAU and FEWS NET.
LZ Type: P=Pastoral; AP=Agropastoral
Ref.Year: The reference year starts either in April (the start of the Gu rains) or October (the start of the Deyr rains).

For nine LZs, the whole of the livelihood zone was included in the analysis. For the remaining four (BAPHP, BSIP, SO11 and SO18), the baseline covers only part of a larger livelihood zone. Details of the area covered are given in the table and the map on the next page.

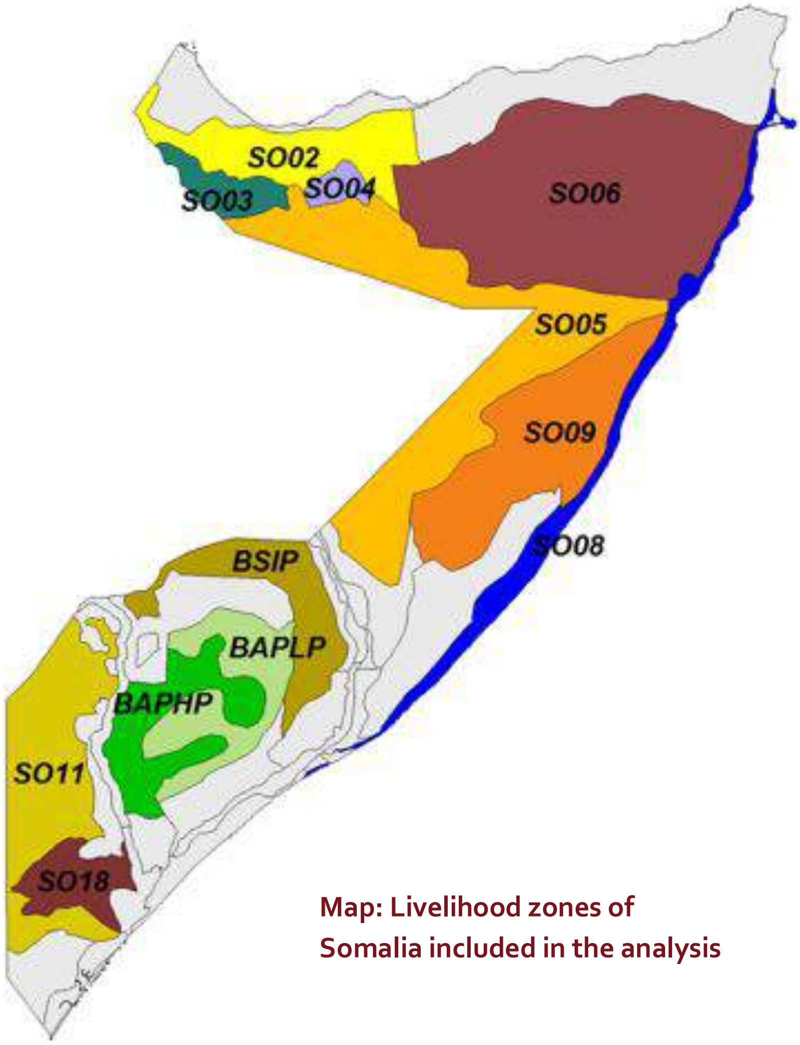
There is only one baseline for the Hawd Pastoral LZ, but because this straddles the Ethiopian border and has a very irregular shape, it was split for the analysis between a northern section (north of the Ethiopian border) and an eastern section (east of the Ethiopian border).

LZ Code	Area Covered	Population (2015)
02-WGP	Whole LZ	345,397
03-NWA	Whole LZ	197,154
04-TAP	Whole LZ	17,530
05-HDP1	Whole LZ	298,972
05-HDP2	Whole LZ	301,667
06-NIP	Whole LZ	596,839
08-COD	Whole LZ	174,539
09-ADD	Whole LZ	257,523
BAPHP	Part of LZ falling in Bay & Bakool Regions	497,016
BAPLP	Whole LZ	353,150
BSIP	Part of LZ falling in Bakool& Hiraan Regions	125,800
SO11	Part of LZ falling in Gedo, Middle Juba and Lower Juba Regions	177,539
SO18	Part of LZ falling in Afmadow district (Lower Juba Region)	28,344
Total Population Covered by this Analysis		3,371,470
Total Rural+Nomadic Populaton – Whole Country		6,161,577
Percentage of Total Rural+Nomadic Populaton Covered by the Analysis		**55%**

Source of population data: UNFPA (2014), based upon figures for 2014 plus 2.8%, the annual population growth rate given in the report.

The HEA baseline data for most of these LZs was made available to the study by FSNAU/FEWS NET. The data for two livelihood zones in Lower Juba (SO11 and SO18), collected by KasmoDev Consulting, were made available by STREAM Consortium members Adeso and ACTED.

HEA baseline data are also available for two other LZs bordering the northern Coast (SO01 Guban Pastoral, and SO07 East Golis – these are shown in grey at the top of the map). However, these are zones with very low levels of rainfall, and they were excluded from the analysis because the livestock model (described in section 0) does not work well in these areas.



Map: Livelihood zones of Somalia included in the analysis

3.3 Running the Analysis by Year or by Season

The usual procedure is to run the HEA outcome analysis for the whole of one consumption year (e.g. from October to the next September for a cropping zone where harvesting begins in October). This is also the correct approach where there is one main harvest per year for agro-pastoralists or one main rainy season for pastoralists. But it is not appropriate for most of Somalia, where there are two rainy seasons that are of approximately equal importance. This means that there can be a big change in food security status from one six-month period to the next, and it is therefore important to run the analysis by season rather than by year. For the current study, the analysis has been run by season except for the two agro-pastoral livelihood zones in the north (03-NWA and 04-TAP), which harvest the bulk of their crops once a year.

A second feature of the annual analysis usually employed in HEA is an assumption that there is no saving from one year to the next. This is justified, especially for very poor and poor households, because much of the year's income is received in the form of crops in the 1st half of the year and is then 'spent' over a relatively long 'lean' season in the 2nd half of the year. The 'no saving' assumption is unlikely to be true for Somali pastoralists who may experience large changes in income, and will often need to carry some income over from one season to the next. For this reason, saving has always been set to 'on' in the model for the 11 livelihood zones analysed by season.

3.4 Modelling total income, 2001-2015

Problem Specifications were developed for all significant sources of food and cash income. These problem specifications fell into four categories:

- Livestock production
- Crop Production
- Market Prices
- Other Sources of Food and Cash

3.5 Modelling Livestock Production

For the HEA analysis, problem specifications are required for the following variables:

Problem Specification Required	Affected by
Amount of milk production, by season	Changes in herd size, the number of births this season and the milk yield per lactating animal. These variables are in turn affected by the performance of the current rains (which directly impacts upon milk yield) and the performance of the rains in previous seasons (which affect current herd size and the number of births[1]).
Number of livestock sold, by season	Changes in herd size and the need to sell. Reasons for selling include getting cash to buy food and other essentials, and the need to sell animals that might otherwise die.

Generally speaking, there is very little regular and reliable monitoring data available on livestock production in pastoral and agro-pastoral areas. This is especially true for the key variables in relation to HEA, such as herd size, number of animals sold, number giving milk, milk yield, and so on. For this reason, we have used a livestock model to develop problem specifications for milk production and livestock sales. This model was developed for the USAID FEWS NET Project by the author of this report.

[1] *poor rains in the season of conception will reduce the number of births this season*

The model takes satellite-based estimates of rainfall (RFE) and uses these to model changes (over time) in herd size, number of animals sold, number of milking animals, milk yield, livestock mortality, rates of conception and number of births.

An example of the model's outputs - projected trends in camel herd size - is given in Figure 2. Note the reductions in herd size associated with two very bad years, 2005 and 2010.

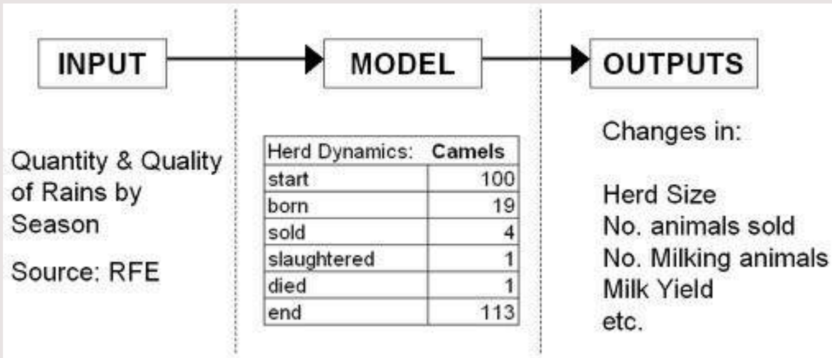
Figure 2: Example Output from the Tool

The graph shows satellite-based estimates of rainfall (green bars) and projected trends in camel herd size for the Southern Inland Pastoral Livelihood Zone in southern Somalia (blue line). Other outputs from the model include estimates – for camels, cattle and sheep/goats - of number of births, sales, slaughters and deaths, the number of animals giving milk, and average daily milk output.

The basic model design is simple (Figure 3). First of all the RFE data are processed to generate measures of rainfall quantity and quality, including dry spells during the season and the length of the dry season between rains. These are then used to estimate, for each season, the number of births, sales, slaughters and deaths, and therefore the change in herd size over the season. In the Figure 3 example, the herd size at the start of the season is 100, 19 animals are added to the herd during the season (births) and 6 are lost/removed (sales, slaughters and deaths) so that the herd size at the end of the season is 113.

By running this analysis for consecutive seasons it is possible to build up a picture of changes in herd size over time. In the Figure 3 example, the 113 animals at the end of the season would be carried over to form the number of animals at the start of the next season, and so on.

Figure 3: Basic Model Design

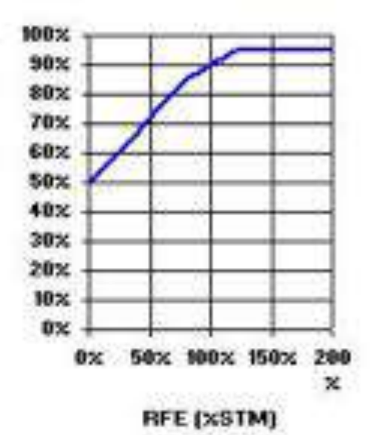


Built into the model is a set of rainfall 'impacts', which define how variables such as rates of conception and mortality vary in relation to rainfall quantity and quality. Examples of two rainfall impacts are given in Figure 4. This shows how rates of conception and mortality vary in relation to the quantity of rainfall[2].

Clearly, it is very important for the model to be calibrated against real field data, to check the performance of the model and to improve it over time. Table 1 shows the results of the preliminary calibration carried out so far. This compares the results from the model with the livelihoods baseline (HEA) data for pastoral and agro-pastoral LZs in Ethiopia. The comparison in each case is between the herd dynamics analysis in the HEA baseline (which relates to a specific year – the reference year) and the model results for that year. The main differences are for the number of adult females and the number of births, and therefore the increase in herd size during the year. The results are encouraging, but since the reference years are generally average to good years, this says little about the performance of the model in bad years, and more calibration work is required.

Figure 4: Examples of Rainfall 'Impacts'

Conception Rate (adult females)



Mortality Rate (adult animals)

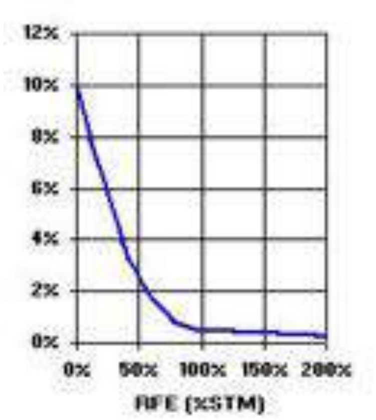


Table 1: Comparison of Model and HEA Field Results for the Reference Year

	Camels		Cattle		Shoats	
	HEA	Model	HEA	Model	HEA	Model
Start	100	100	100	100	100	100
Adult females	48	39	47	38	55	49
Born	21	17	25	18	44	40
Sold	5	6	9	10	16	18
Slaughtered	1	1	1	0	7	7
Died	4	4	5	4	7	8
End	111	106	111	104	114	107

The model also has a number of limitations. Most obviously, it looks only at the effects of variation in rainfall. It does not therefore take account of the following

[2] *The model is more complicated than these simple diagrams indicate. These relationships vary according to a number of factors, including the performance of the previous rainy season. For example, poor rains last season and a long dry season will increase mortality for any given level of rainfall in the current season.*

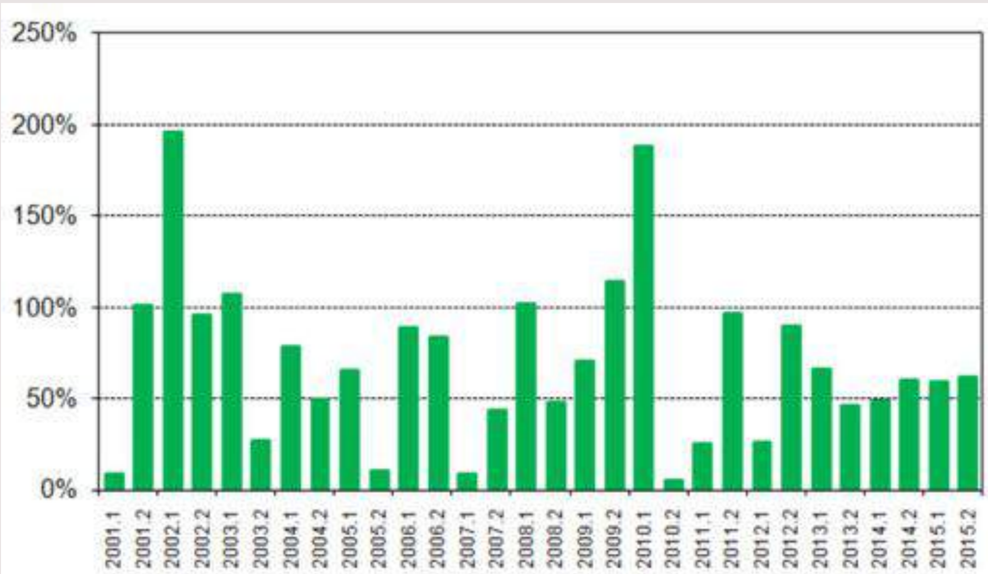
- Disease shocks, especially the effects of epidemic diseases such as rinderpest, contagious bovine pleuropneumonia (CBPP) and Rift Valley fever.
- Import of livestock from outside the livelihood zone. This may be a significant re-stocking strategy after drought or livestock loss from disease.
- External interventions, especially during and after a drought, including de-stocking and re-stocking and supplementary feeding.

There is a good argument for not including these factors in the model. This is because simpler models are more likely to work and complex models are more likely to fail (quite simply because there are too many assumptions). The existing livestock model is already relatively complex, and it is not clear that adding even more assumptions will improve its accuracy.

3.6 Crop Production

Problem specifications for crop production were based upon data collected by FSNAU/FEWS NET.

Figure 5: Problem Specifications for Grain Crop Production, Baidoa District (% Reference Year)



Notes:
1) Grain crop production is the total of maize plus sorghum
2) 2001.1 means Gu 2001, 2001.2 means Deyr 2001.
3) Crop production data were corrected for population growth to develop problem specifications that could be applied at household level. The correction was based upon an estimated 2.8% per annum increase in population (Source: UNFPA)

An example of the results for Baidoa district is shown in the graph above. Note the very low production in two consecutive seasons (2010.2 and 2011.1) that contributed to the development of famine in that year.

Since crop production data is collected by district, while the HEA analysis was carried out per livelihood zone, data from the largest district in each zone was used to develop the problem specifications. The district data used for the analysis was as follows.

Livelihood Zone	District Data Used
BAPHP & BAPLP	Baidoa
03-TAP	Odweyne
04-NWA	Total for Boroma plus Baki

Where there were gaps in the data (and there were few), these were 'filled' based upon correlations between production and satellite-based estimates of rainfall (RFE) for the 15-year time series.

3.7 Market Prices

3.7.1 Availability of Market Price Data

Data are available from FSNAU/FEWS NET for a wide range of items and markets in Somalia. For some items and markets a long time series is available, for others there may only be 1-2 years of data. In order to prepare the price problem specifications, items and markets for which the most complete time series were selected, and these were matched, on the basis of geographical proximity, to each of the livelihood zones. The markets used are listed to the right.

Code	Market Name
Afm	Afmadow
Bai	Baidoa
Bar	Bardera
Bor	Boroma
Bos	Bossaso
Bur	Burao
BW	Belet Weyne
Din	Dinsor
EB	El Barde
Eri	Erigavo
Gal	Galkayo
Gar	Garowe
Har	Hargeisa
Hud	Hudur
LA	Lasanod
Tog	Togwajale

Where more than 1 market was within reach of an individual LZ, an average of data from these markets was used in the analysis. Taking averages also helped fill gaps in the data from any one market. Note however, that averages were only calculated after checking that the individual markets showed consistent trends for those periods where there was data from both markets.

The final list of commodities and markets used in the analysis is given the table below (see list of market codes above). Where an average of more than one market was used, individual markets are separated by a '-' sign. So, Har-Tog indicates an average of prices from Hargeisa and Togwajale.

Although the availability, geographical coverage and completeness of data were relatively good, there are some notable gaps in the data. There are, for example, no data on prices for camels or firewood, and only a very short time series of casual labour rates. For camel prices, we have taken the problem specifications for cattle. For other items (e.g. firewood prices, daily labour rates), we have assumed that prices have kept pace with inflation.

Source of Data for the Specification of the Market Price Problems

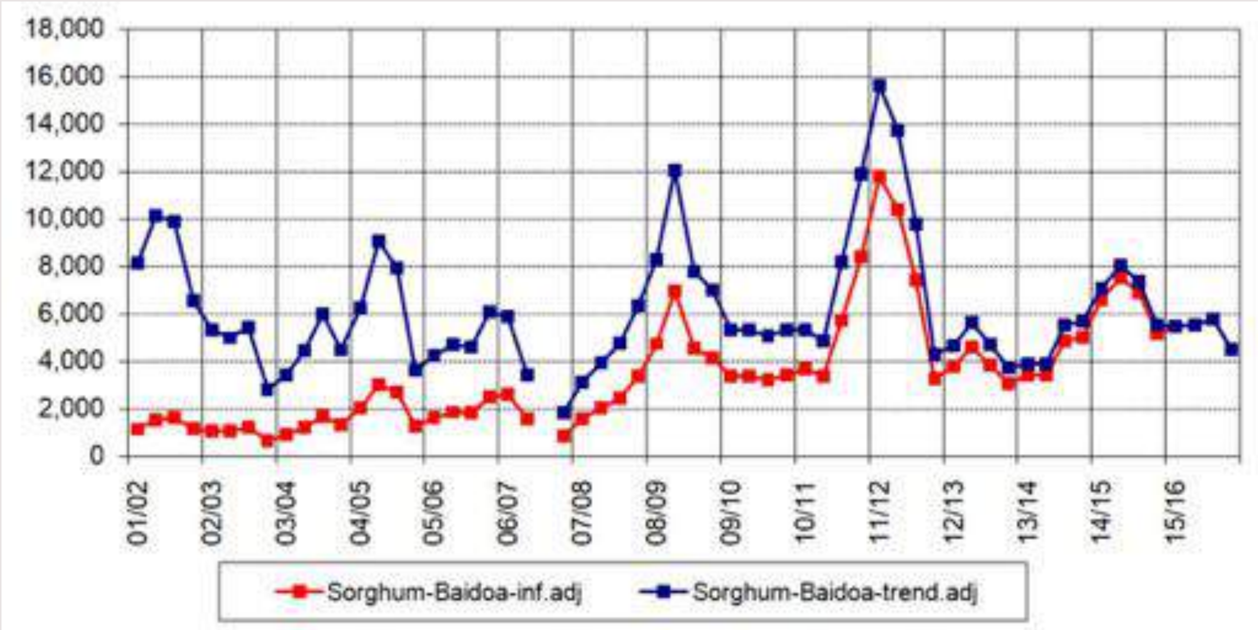
	Item					
LZ	Camel's milk (raw)	Cattle[1]	Goats[2]	Maize (White)	Sorghum (Red/White)	Rice
02-WGP	Har-Tog	Tog	Har-Tog-Bur		Har-Tog-Bor-Bur	Har-Bur
03-NWA	Har-Tog	Tog	Har-Tog-Bur		Har-Tog-Bor-Bur	Har-Bur
04-TAP	Bur	Tog	Har-Tog-Bur		Har-Tog-Bor-Bur	Har-Bur
05-HDP1	Bur	Tog	Har-Tog-Bur		Har-Tog-Bor-Bur	Har-Bur
05-HDP2	Gal		Gal-Bos-Eri-LA		Gal	Gar-Gal-BW-Bos
06-NIP	Eri		Gal-Bos-Eri-LA		Gal	Gar-Gal-BW-Bos
08-COD	Gal		Gal-Bos-Eri-LA		Gal	Gar-Gal-BW-Bos
09-ADD	Gal		Gal-Bos-Eri-LA		Gal	Gar-Gal-BW-Bos
BSIP	EB	Bai-Din	Hud		BW-EB	Bai
BAPHP	Bar-EB	Bai-Din	Hud-Bai		Bai	Bai
BAPLP	Bar-EB	Bai-Din	Hud-Bai		Bai	Bai
SO11	Bar	Afm-Bar	Afm-Bar	Afm	Bai	Bai
SO18	Bar	Afm-Bar	Hud-Bai	Afm	Bai	Bai

1 male, 2-3 years old, local quality   2 local quality

3.7.2 Correcting for Inflation and Other Trends in Prices

There is no measure of inflation available for Somalia. A two-step process was adopted to taking account of inflation and other longer-term trends in price. First of all, prices were corrected for any change in the exchange rate (local currency compared to USD). Then prices were corrected for any linear trend over time and the trend- and inflation-corrected data were used to calculate the price problem specification for each year. These corrections were necessary to remove the effects of longer term time-related trends (which are presumably unrelated to weather) from the HEA outcome analysis. Figure 6 shows an example before (red) and after (blue) making the corrections.

Figure 6: Correcting for Longer Term Trends in Prices



Notes:
Left-hand axis: Sorghum prices - Somali Shillings per kg
Red line: Prices adjusted for variations in the exchange rate; Blue line: Additional adjustment for linear trend.
Linear trend adjustments made by fitting a straight line to the exchange-rate price data (to get the linear trend over time) and then correcting each year's price for that trend. For example, if the trend was for prices to double (after correcting for the exchange rate) between 2001 and 2015, then 2001 prices were doubled before comparing them to 2015 prices.

3.7.3 Price Trends in Relation to Rainfall

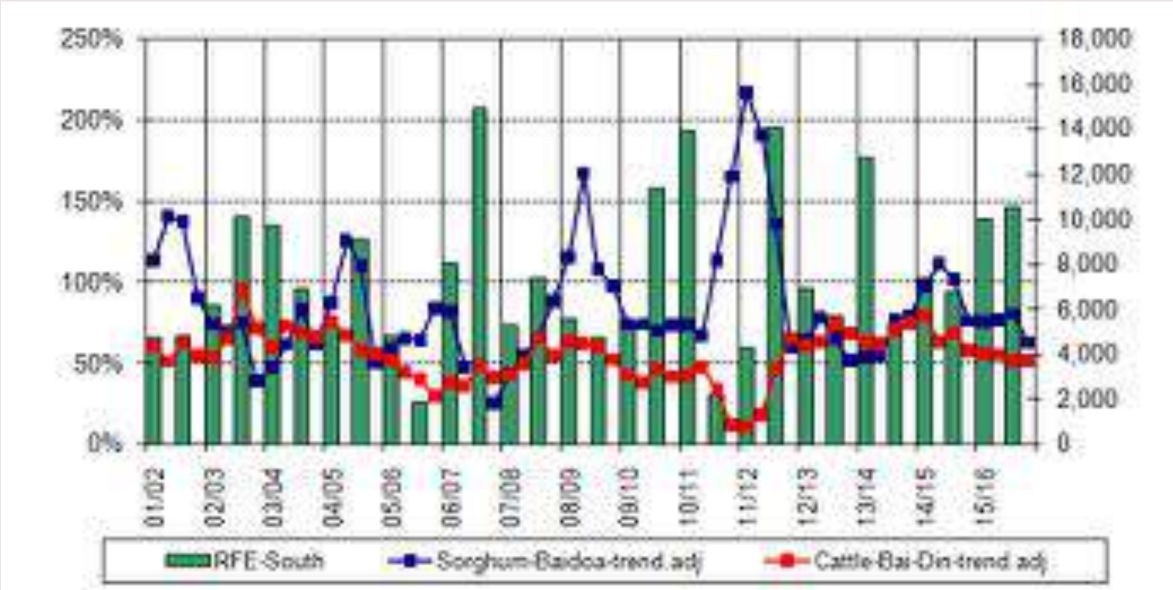
The following graph provides an example of price trends for sorghum and cattle in relation to rainfall. In general, there seems to be a reasonable correlation between prices and rainfall. In terms of price shock, the biggest 'event' was the failure of the Deyr 2010 and Gu 2011 rains. Sorghum prices increased by 280%, while cattle prices fell to 30% (compared to pre-drought levels). Terms or trade (i.e. the amount of sorghum that could be purchased in exchange for selling one animal) fell to 10% of pre-drought levels for cattle. This represents a catastrophic decline in purchasing power for both pastoralists and agro-pastoralists.

Sharp increases in sorghum prices and declines in livestock prices were also seen in 2001/2 and 2005/06, again linked to two or more seasons of poor rainfall.

Sorghum prices increased sharply in 2008, linked to an international staple food price shock that affected many countries. The rains were not especially bad in 2008, and there was little decline in livestock prices.

.

Figure 7: Sorghum and Cattle Price Trends in Relation to Rainfall, BAPHP Livelihood Zone, 2001/02 – 2015/16



Notes:
Left-hand axis: total rainfall; right-hand axis: prices
Units: Rainfall - %short term mean
Units: Sorghum prices are Somali Shillings per kg
Units: Cattle prices are per head, but have been divided by 1000 to fit on the same axis as sorghum
Prices are adjusted 2015 levels, based upon inflation and linear trend

3.8 Other Sources of Food and Cash

Other sources of food and cash are listed in the table. There are two components to the 'problem specification' for these sources, the quantity problem (i.e. the change in the amount of firewood sold) and the price problem (i.e. the change in the price at which firewood is sold).

Other Sources of Food and Cash
agricultural labour
construction labour
firewood/charcoal
self employment (e.g. handicrafts, bush products)
fishing
fishing labour
remittances
gifts
petty trade

There is no monitoring data on these other sources of food and cash, and the following assumptions have been made about quantity and price:

Quantity Problem: We have assumed constant access, i.e. no change compared to the reference year.

Price problem: We have assumed that prices have kept pace with inflation.

3.9 Factors Not Taken into Account in the Analysis

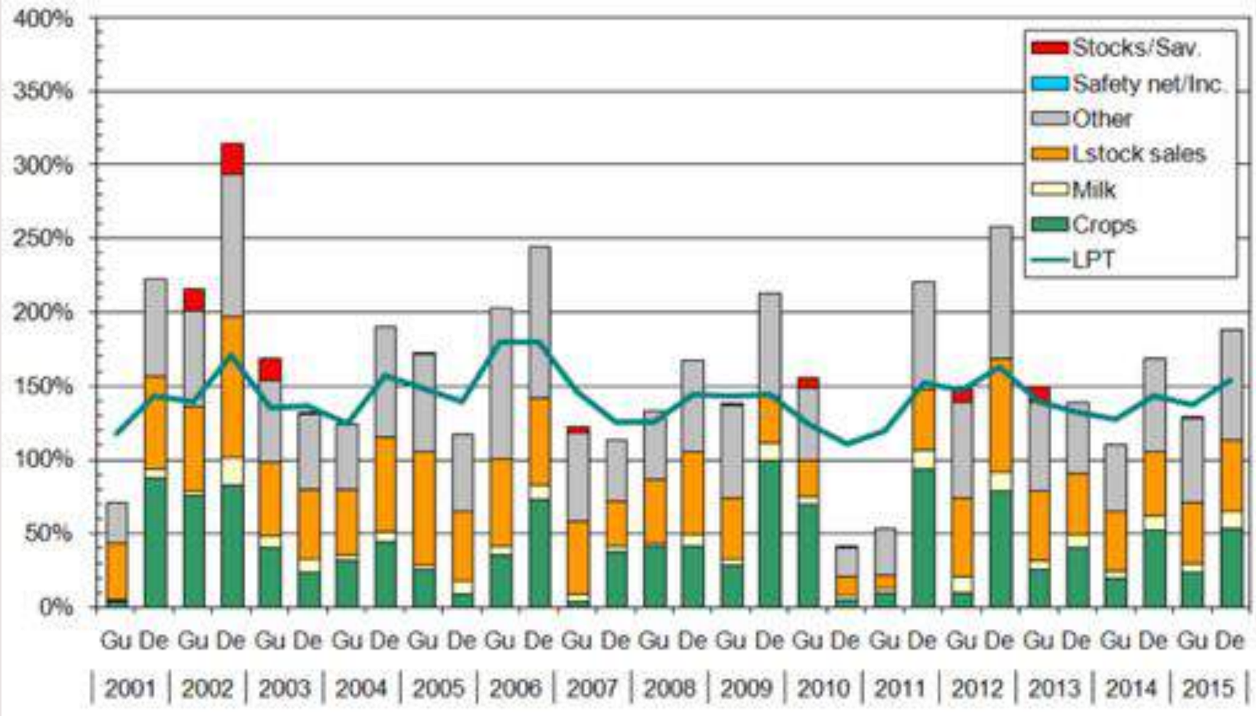
No account is taken of possible increases in expenditure on either water or fodder for livestock in bad years. This is because of a lack of data upon which to base assumptions about such expenditure. Where such expenditure is required, it is not reflected in the household income deficits calculated here. Additional interventions may therefore be required to provide water and fodder to livestock that are not included in the outputs from the current analysis.

3.10 Outputs from the Analysis

Figure 8 provides an example of the output from the 15-year time series analysis of total income, for poor households from the BAPLP livelihood zone in southern Somalia. The very low total incomes in Deyr 2010 and Gu 2011 – the most recent period of famine in Somalia – are very striking.

It is these data that have been used in the next phase of the analysis, the safety net design process. In relation to this, the most important results are the frequency with which deficits occur and the magnitude of these deficits. Results have been integrated across all 3-4 wealth groups to estimate, for each season, the number of people facing different levels of deficit. This is described further in the next section of the report.

Figure 8: Total Income, Poor Households, by Season 2001-2015
Livelihood Zone: Bay Bakol Agropastoral Low Potential (BAPLP)



Notes:
Left-hand axis: Total income (food plus cash) expressed as a % of minimum food needs.
Blue line: Livelihoods Protection Threshold (LPT). Where total income falls below the LPT, households have a consumption/expenditure deficit. An external intervention in the form of food/cash is required to fill this deficit.
The LPT includes both staple food and non-food items. The total cost of the LPT varies from year-to-year in the graph because of variations in the cost of the non-food component relative to the cost of staple food.

4 The Safety Net Design Study

4.1 Introduction

4.1.1 The Design Process

The safety net design process starts with the objective of the program. We have assumed that this is to cover the needs of poor households in most years (seasons), so that the need to scale up the program in emergencies is reduced to the minimum. Specifically, since we are dealing with a time series of 30 seasons, we have defined the objective as being to reduce the number of 'emergency' seasons to 10 or fewer out of 30. In this context, an emergency season is a season in which the safety net program has to scaled up, either by increasing the size of the transfer, and/or increasing the number of beneficiaries.

A second objective is to keep the program as simple to implement as possible. This means that in non-emergency seasons, all regular safety net beneficiaries should receive the same level of transfer, i.e. $10, $20, $30 etc. per person per season (ppps). And that in emergency seasons, the number of different levels of transfer should be kept to a minimum. For the emergency component, the starting point was to set the minimum emergency transfer to $10 ppps, with $10 increments, so that some beneficiaries would receive $10 ppps, some $20 ppps, and so on.

Further analyses were carried out to look at the effect of simplifying this emergency scheme, by reducing the number of different transfer levels (so that, for example, beneficiaries receiving $10, $20 or $30 would all be combined into a single category receiving $30).

A third objective, again linked to simplicity of implementation, was to harmonise or standardise transfer levels across 'supra-regions', i.e. large areas of the country. For this part of the analysis, we have grouped LZs into three 'supra-regions', the north, the centre and the south.

In summary, therefore the objectives of the safety net design process were to:

- to set the number of beneficiaries at a level that covered needs in at least 20 out of 30 seasons
- to set a single level of transfer to cover needs in at least 20 out of 30 seasons
- to harmonise or standardise transfer levels across 'supra-regions', i.e. the north, the centre and the south

Note, however, that to meet the third objective in relation to harmonisation, it was, for some LZs, necessary to allow the number of emergency seasons to rise above 10. The reasons for this are fully explained in the next section.

The study also addressed a number of additional questions relating to the scaling up of the program in emergency years, including how frequently it would be necessary to scale up, how many additional beneficiaries and what levels of transfer would require assistance in emergency years.

A step-by-step description of the safety net design process is given in section 4.2. This led to the development of a number of scenarios or options for the design of the safety net. These are described in section 4.3. One of the key issues to emerge from the design process was the potential complexity of a scalable safety net program in Somalia. This is because there are big variations in livestock and crop production, and therefore income, from one season to the next. For any one LZ, this means that in a sequence of 30 seasons, there will be a number of seasons in which there are no deficits, but there will also be a few seasons with very large deficits indeed. In these circumstances, there is going to be a trade-off between the complexity of a scheme and its cost. The simplest scheme will be one that covers all deficits in all seasons, since the number of beneficiaries and the level of transfer would then be the same each season. But this would be prohibitively expensive because the scale of the program would be set by needs in the worst season of the 30. At the other end of the scale, the cheapest scheme would be one that exactly meets the needs each season, with no 'over-distribution'. But this would be very complicated to implement because the caseload would change every season, and there would be many different levels of transfer (since some households will require a $10 per person per seasons transfer, while others will require $20 or $30, and so on). The reason for having several scenarios, therefore, is to explore this relationship between cost and complexity, and to try and find a reasonable compromise between the two.

A total of six scenarios were developed. Results for the two final scenarios are presented in detail in Section 0, with results for the other four included in Appendices 6.1 and 6.2.

4.1.2 Some Technical Details

How the Deficits were Converted to USD

Deficits calculated from the HEA outcome analysis are expressed in food terms, i.e. as a percentage of minimum food needs (2100 kcals per person per day), see Figure 8. These food deficits were converted into their equivalent in USD, based upon the following data:

Data	Source
Ration composition for the Minimum Expenditure Basket (MEB)	http://www.fsnau.org/sectors/markets
Food prices (in Somali/Somaliland Shillings), by livelihood zone, for 2015 (the final year of the time series)	FEWS NET/FSNAU
Exchange rates (SS per USD), by livelihood zone, for 2015 (the final year of the time series)	FEWS NET/FSNAU

The ration composition is shown in the table to the right. The MEB also includes allowances for expenditure on non-food items. However, there was no need to include these in the current analysis, since the HEA analysis already includes an allowance for non-food expenditure (because the HEA deficits are calculated in relation to the livelihoods protection threshold, see Section 0). Including MEB non-food expenditure would therefore represent double-counting.

Ration Composition, based on the Minimum Expenditure Basket (MEB)			
Item	**kcals/kg**	**Household Size 6.5**	
		kg/month	**kcals pppd**
Cereal	3480	98.75	1762
Cowpeas	3400	6	105
Oil	9000	3	138
Sugar	4000	5	103
Total			2108

In summary, the deficits calculated using HEA were converted into USD based upon average prices and exchange rates from 2015.

Presenting Results by Year or by Season

It is important to be clear about how the analyses were run and how the results are expressed.

<u>How the analyses were run</u>: As explained in Section 0, the analysis was run by season (Gu and Deyr) for 11 out of 13 livelihood zones. For the remaining two livelihood zones, the analysis was run by year. These are the two agro-pastoral livelihood zones in the north (03-NWA and 04-TAP), which harvest the bulk of their crops once a year.

How the results are expressed: In relation to the ***safety net transfers***, the final results are expressed per year. For the 11 LZs analysed by season, the conversion of seasonal to annual results is quite straightforward. If the seasonal analysis indicates that 1000 people require a transfer of $20 per season, this has been converted into an annual figure by doubling the transfer size, i.e. 1000 people require a transfer of $40 per year.

In relation to the ***emergency transfers***, the results are expressed per season. It does not make sense to convert these numbers into annual figures because the size of the transfer will vary from one season to the next. This is true of the 11 LZs analysed by season. For the 2 LZs analysed by year, the transfer values are, of course, expressed by year. However, this is not always noted in the tables or the text (to avoid constantly referring to these two exceptions). The reader should understand, however, the where emergency transfers are referred to as per season, this means per year for these two LZs.

Comparing the Results with the Existing Safety Net Plan for 2019

For 2019, the Somali Cash Consortium plans to provide different levels of transfer (e.g. $60) per household per month for 6 months of the year, based upon a household size of 6 (so the total transfer is $360 household per year). In this report transfer levels are expressed as USD per person per year, e.g. $60 pppy. For a household of 6, this would mean a total transfer of $360 per year. In other words the transfer amounts in the results tables are equivalent to the amounts per household, assuming 6 distributions in the year.

4.2 Steps in Modelling the Safety Net Program

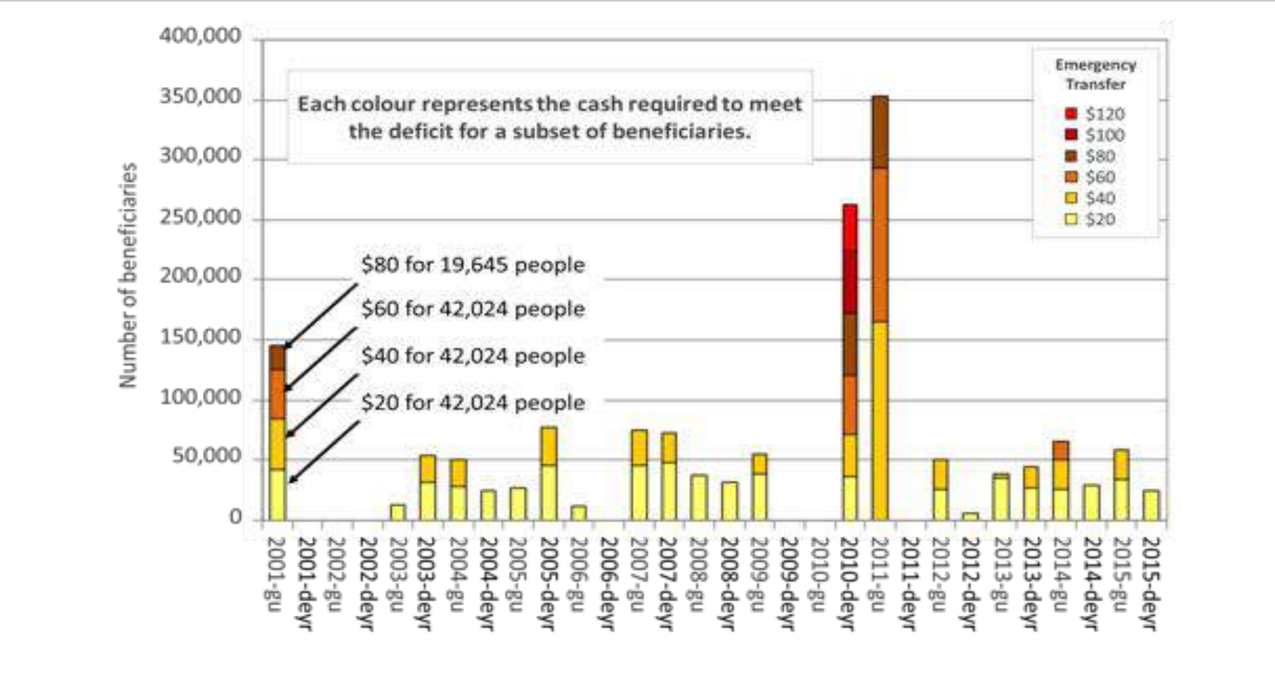
Explanation of the Graphs

The graphs below show the number of people (y-axis) facing a deficit in each season (x-axis), with the size of the deficit indicated by the colour-code (see explanation on graph to the right).

There are two seasons in each year, gu and dey.

The yellow-red colour-coding indicates the size of the 'emergency' deficit. Light-yellow, labelled E-$20, indicates a deficit of $0-$20 per person in that season. The blue-green colour-coding (second graph) indicates the size of the deficit for safety net beneficiaries.

BAPLP : No.People Facing Different Levels of Deficit, by Season



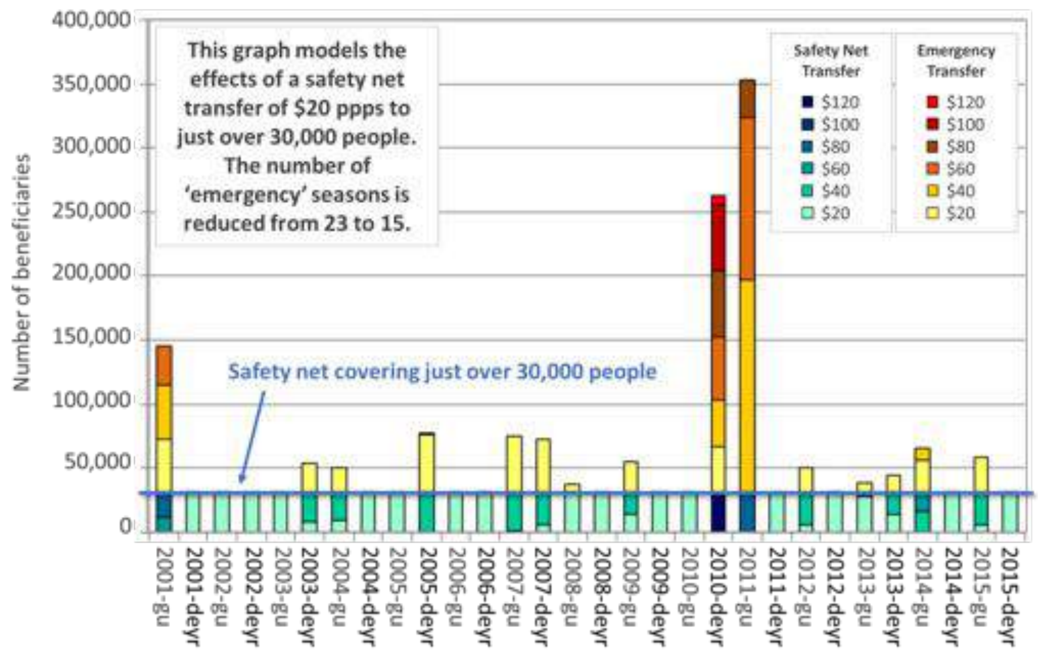
The graph above shows that, in the absence of any safety net, deficits were faced in 23 out of 30 seasons. In most seasons the deficit did not exceed $40 per person per season (ppps).

The graph below models a safety net program that reduces the number of 'emergency' seasons from 23 to 15. For this, just over 30,000 people would require a transfer of $20 ppps.

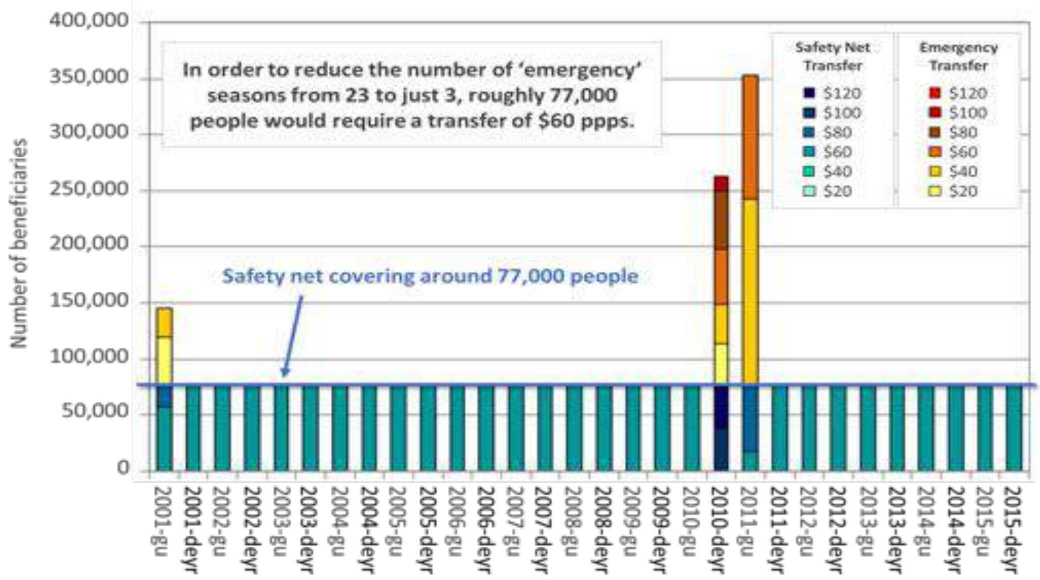
Note the complexity of the situation in many of the 'emergency' seasons.

In these seasons, safety net beneficiaries require larger transfers, and the total number of beneficiaries also has to increase (shown in yellow-red).

BAPLP : Safety Net that Reduces 'No. Emergency' Seasons to 15



BAPLP : Safety Net that Reduces 'No. Emergency' Seasons to 3



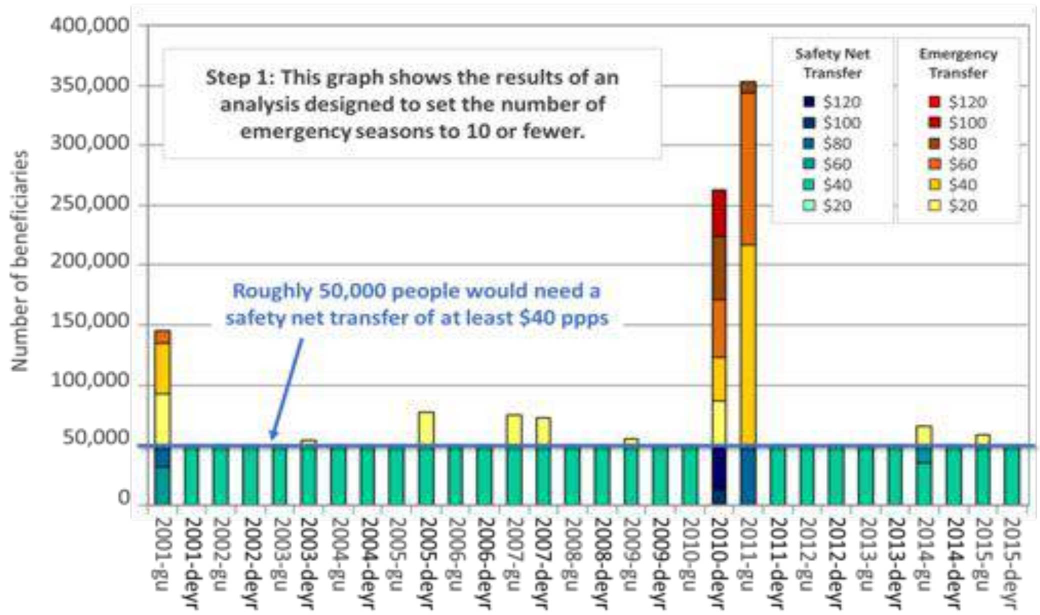
The graph above models a safety net program designed to reduce the number of 'emergency' seasons from 23 to just 3. To achieve this, roughly 77,000 people would require a transfer of $60 ppps. This program would be almost 8 times more expensive than the program reducing the number of emergencies to 15.

One important point to note (in relation to interpreting the results presented later in this report): reducing the number of 'emergency' seasons means increasing the number of safety net beneficiaries, the size of the transfer and the total cost of the program.

Step 1 in the analysis: The objective set for the analysis is to reduce the number of 'emergency' seasons to 10 or fewer. The first step was to calculate the number of beneficiaries and the size of transfer required to do this.

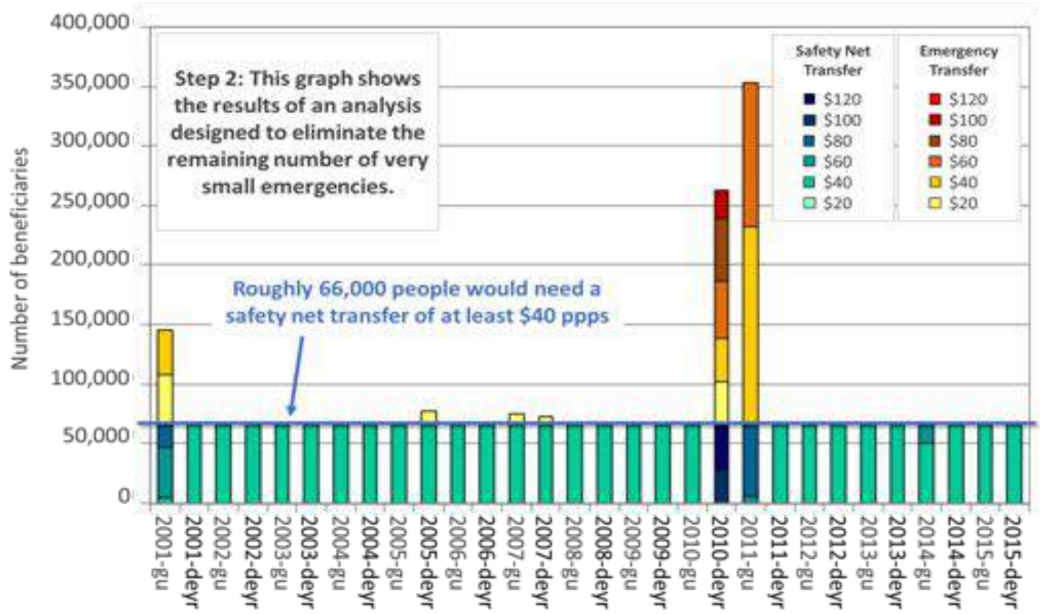
For BAPLP, roughly 50,000 people would require a transfer of $40 ppps (graph below).

BAPLP : Safety Net that Reduces 'No. Emergency' Seasons to 10



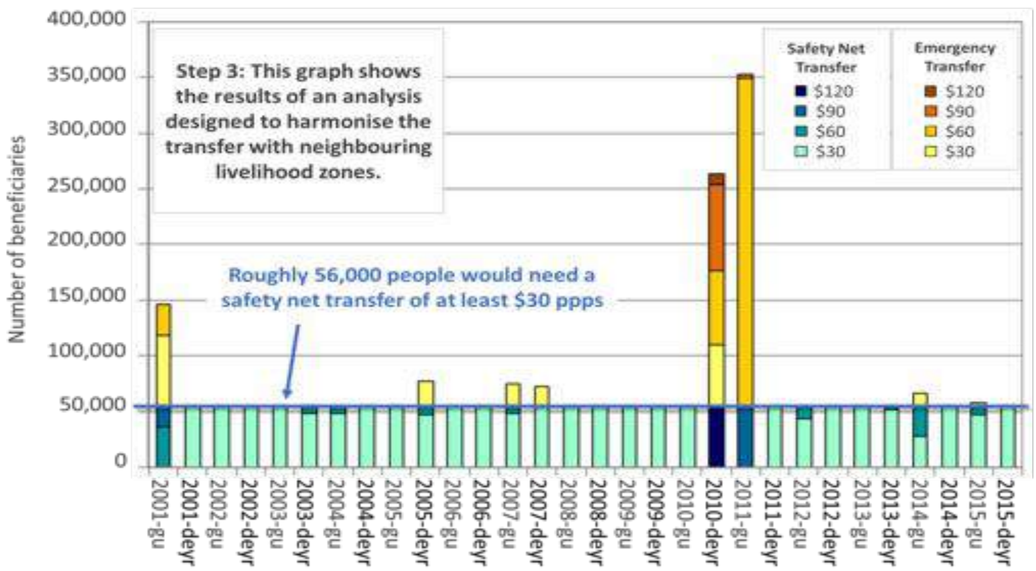
Step 2: Looking at the graph, it is clear that this leaves a number of seasons with a very small emergency caseload (e.g. 2009.1). The next step was therefore to allow the number of beneficiaries to rise by up to 30%, to see whether this helps eliminate these 'small' emergencies, but at a reasonable increase in cost. The result is shown in the graph below (number of safety net beneficiaries = 66,000).

BAPLP : Increasing Beneficiaries to Eliminate 'Small' Emergencies



<u>**Step 3**</u>: A further objective of the analysis was to harmonise the level of transfer between neighbouring LZs. The next step therefore, for some LZs, was to vary the safety net design to either increase or decrease the size of the transfer. As noted above, this had a number of knock-on effects within the model. For example, reducing the size of the transfer increased the number of emergency years. At this stage the number of emergency years was allowed to rise from 10 to a maximum of 15.

BAPLP : Varying the Transfer to Match Neighbouring LZs



BAPLP was one of the LZs for which the level of transfer was changed at step 3, from $40 to $30 ppps, to match the level of transfer in neighbouring BAPHP. The effect of this on the safety net design is shown in the bottom graph (note the change in the legend, which now shows the transfer in increments of $30, not $20). The number of emergency seasons has increased from 10 to 12, and the number of safety net beneficiaries has been reduced from 66,000 to 56,000. Note that in 4 of the 12 emergency seasons, there was no need to increase the number of beneficiaries, it was only necessary to increase the transfer size for some of the regular safety net beneficiaries.

Scenarios A & B: So far, the analysis was carried out on the basis that the safety net and emergency interventions should cover all the existing deficits. So, for example, beneficiaries facing a deficit of $0 - $20 per year would all receive $20; those requiring $20 - $40 would receive $40, and so on. This is referred to as Scenario A.

A second set of analyses (Scenario B) was also run. For this scenario. the model was adjusted to allow some deficits to develop, so that the program does not cover all deficits in every situation. This process is referred to as setting the maximum acceptable deficit, and is described further in the next section. Steps 1-3 were then repeated for this revised scenario. It had the obvious effect of reducing the number of people requiring different levels of transfer, for both the safety net and the emergency programs. It also therefore had a significant effect on the cost of the program.

4.3 Safety Net Scenarios Included in the Analysis

In summary, a total of six scenarios were run. These are labelled 1A, 1B, 2A, 2B, 3A and 3B in this report. They are summarised in the following two tables:

Scenarios 1-3	Description
Scenario 1	Basic Results from setting the maximum number of emergencies to 10 seasons out of 30
Scenario 2	Scenario 1 plus effect of increasing the beneficiary number by up to 30% to eliminate 'small' emergencies
Scenario 3	Scenario 2 plus adjustments to standardise the transfer size by area of the country (north, centre, south)

Sub-Scenarios A & B	Description
Scenario A	Maximum acceptable deficit equals zero. This means that, assuming perfect targeting, all deficits would be covered by the cash transfers. For example, beneficiaries facing a deficit of $0 - $20 per year would all receive $20; those requiring $20 - $40 would receive $40, and so on.
Scenario B	Maximum acceptable deficit equals $20 per year. In this case the objective would be to meet most, but not all of the deficits. In this case, beneficiaries facing a deficit of $0 - $20 per year would receive nothing, those requiring $20 - $40 would receive $20, and so on.

4.4 Summary of Main Findings

In the main report, detailed findings are presented for Scenarios 3A and 3B, i.e. after standardising transfer size by area of the country (Scenario 3), and looking at the effect of the two levels of acceptable deficit (Sub-Scenarios A & B). The main report also contains a summary of the main differences between Scenarios 1, 2 and 3. Detailed tables of results for Scenarios 1 & 2 are included in appendices 6.1 and 6.2.

4.5 Regular Safety Net Program : Scenarios 3A & 3B

Regular Safety Net Program – Scenario 3									
Livelihood Zone	Population	A: Maximum Acceptable Deficit = Zero				B: Max.Acc:Def = $20 py ($10 per season)			
		No. Beneficiaries		Transfer USD pppy	Total cost USD/yr	No. Beneficiaries		Transfer USD pppy	Total cost USD/yr
		Number	% pop			Number	% pop		
Northern Somalia									
02-WGP	345,397	83,431	20	40	3,337,240	12,564	4	20	251,280
03-NWA	197,154	0	0	0	0	0	0	0	0
04-TAP	17,530	0	0	0	0	0	0	0	0
05-HDP1	298,972	0	0	0	0	0	0	0	0
06-NIP	596,839	93,002	16	40	3,720,080	0	0	0	0
Central Somalia									
05-HDP2	301,667	32,985	11	40	1,319,400	0	0	0	0
08-COD	174,539	0	0	0	0	0	0	0	0
09-ADD	257,523	21,317	8	40	852,680	36,725	14	40	1,469,000
Southern Somalia									
BAPHP	497,016	73,965	15	60	4,437,900	46,176	9	40	1,847,040
BAPLP	353,150	55,676	16	60	3,340,560	38,415	11	40	1,536,600
BSIP	125,800	0	0	0	0	0	0	0	0
SO11	177,539	0	0	0	0	0	0	0	0
SO18	28,344	4,244	15	60	254,640	2,208	8	40	88,320
Total	**3,371,470**	**364,620**	**11**	**47**	**17,262,500**	**136,088**	**4**	**38**	**5,192,240**

Note: Transfer sizes are given in USD per person per year (pppy). This is equal to the transfer amount per household per month, assuming a household size of 6, and 6 distributions in the year.

Scenario 3A: Maximum Acceptable Deficit = Zero

For these analyses, the objective of the safety net is to reduce the number of 'emergency' seasons to 10 or fewer. In this context, an emergency year is a year in which the safety net program has to scaled up, either by increasing the size of the transfer, and/or increasing the number of beneficiaries.

For 6 of the 13 livelihood zones (LZs), the number of safety net beneficiaries is zero. These are LZs that, even without any safety net, have fewer than10 deficit seasons in total. In other words, they do not need a safety net program to achieve the objective of the program, because they have 10 or fewer emergency (deficit) seasons to begin with.

For the remaining 7 LZs, between 8% and 24% of the population require safety net assistance. The required level of transfer varies from $40 per person per year (pppy) in the north and centre of the country, to $60 pppy in the south. Overall, taking all 13 LZs together, 364,620 people or 11% of the total population require safety net assistance.

The total cost of the transfers (right-hand column under each scenario) would be $17.26 million per year. This does not include any other program costs related to implementation.

Scenario 3B: Maximum Acceptable Deficit = $20 per person per year ($10 per season)

Accepting some level of deficit has the obvious effect of reducing the size of the safety net program. If the maximum acceptable deficit is $20 pppy, then there are large reductions in the size of the program. This includes the number of beneficiaries (63% reduction to 136,088 people, or 4% of the total population), the size of the transfer required ($20 in the north; $40 in the centre and the south), and the total cost of transfers (70% reduction compared to the zero-deficit scenario). The number of LZs requiring a safety net program is also reduced, from 7 to 5 out of 13 LZs.

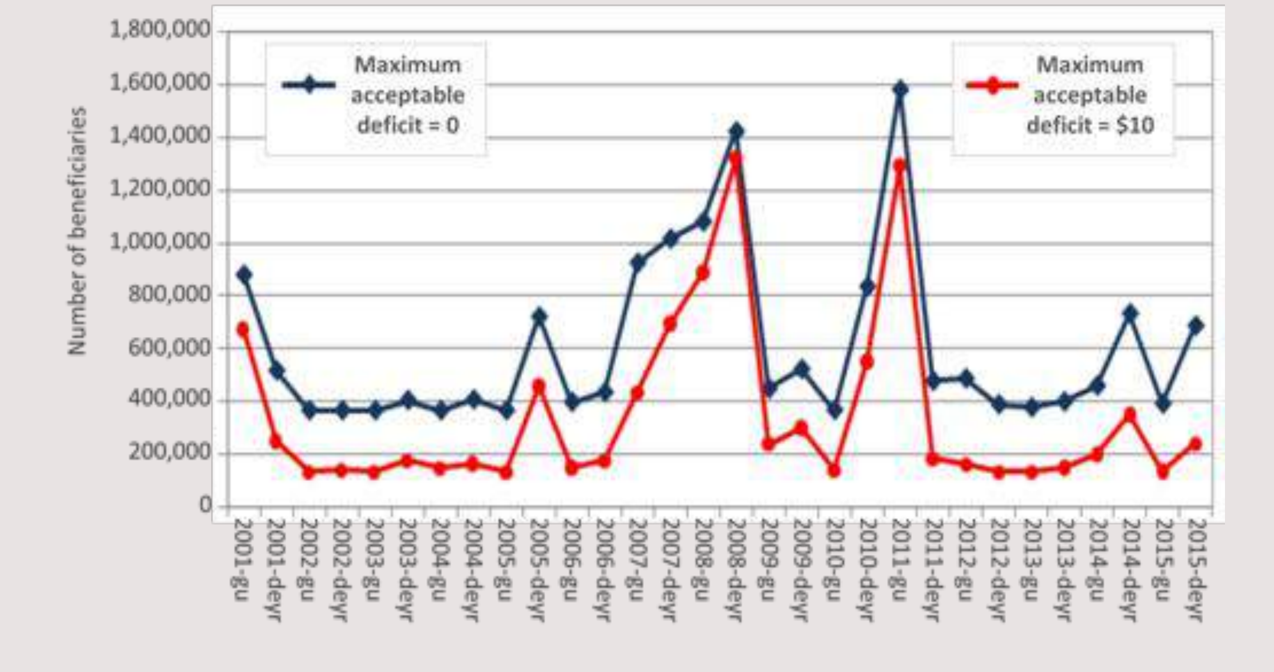
The total cost of the safety net program is lower in Scenario 3B than 3A for all LZs except 09-ADD. In this case the low cost of the program under Scenario 3A is explained by the need to reduce the size of the transfer under that scenario in order to match the transfer to that of a neighbouring LZ, 05-HDP2. As explained in the previous section, reducing the size of the transfer reduces the cost of the program, but at the expense of an increase in the number of emergency seasons. In the case of Scenario 3A, harmonisation increased the number of emergency seasons from 10 to 15. In Scenario B it was possible to bring that figure back down to 9, but this also had the effect of increasing the cost of the program to above that in Scenario A. This was justified, since it brought the result closer to achieving the program objective (max. 10 emergency seasons).

4.6 Regular + Emergency Program: Scenarios 3A & 3B

Regular Safety Net + Emergency Program – Scenario 3											
Livelihood Zone	Population	A: Maximum Acceptable Deficit = Zero					B: Max.Acc:Def = $20 py ($10 per season)				
		No. Emerg Seasons	Av. No. Beneficiaries		Av. Trans. USD pppy	Total cost USD/yr	No. Emerg seasons	Av. No. Beneficiaries		Av. Trans. USD pppy	Total cost USD/yr
			Number	% pop				Number	% pop		
Northern Somalia											
02-WGP	345,397	7	109,937	32	53	5,838,193	10	44,841	13	56	2,514,951
03-NWA	197,154	6	40,145	20	106	4,253,252	4	34,241	17	101	3,450,349
04-TAP	17,530	0	0	0	0	0	0	0	0	0	0
05-HDP1	298,972	1	7,172	2	135	969,809	1	6,867	2	120	826,367
06-NIP	596,839	5	148,559	25	51	7,543,160	6	49,808	8	61	3,026,534
Central Somalia											
05-HDP2	301,667	5	43,353	14	47	2,057,596	8	12,995	4	50	655,641
08-COD	174,539	8	11,525	7	47	542,477	2	5,300	3	59	311,984
09-ADD	257,523	15	38,830	15	47	1,830,623	9	41,655	16	42	1,757,881
Southern Somalia											
BAPHP	497,016	10	141,063	28	69	9,795,152	9	101,350	20	61	6,140,851
BAPLP	353,150	8	77,898	22	75	5,872,990	8	60,623	17	62	3,734,316
BSIP	125,800	1	2,982	2	29	86,575	1	1,346	1	20	26,927
SO11	177,539	5	17,373	10	113	1,956,595	3	15,449	9	104	1,609,144
SO18	28,344	8	6,137	22	53	328,051	8	3,674	13	38	139,710
Total	**3,371,470**	**6**	**644,972**	**19**	**64**	**41,074,472**	**5**	**378,148**	**11**	**64**	**24,194,655**

This table above provides data on the overall program, i.e. the safety net described above, plus responding to the needs in emergency seasons. The graph below shows the total number of beneficiaries, by season, for 10 out the 12 LZs (this graph excludes the results for NWA and TAP, for which the analysis is by year rather than season).

Figure 9: Scenario 3: Total Number of Beneficiaries (Safety Net plus Emergency), by Season



Scenario 3A: Maximum Acceptable Deficit = Zero

All but one of the 13 LZs had at least one emergency season (or year in the case of NWA). On average there were 6 emergencies per LZ (out of 30 seasons), with a range of 1-15. The total number of beneficiaries would vary widely from one year to the next (Figure 9), reaching peaks of 45% of the population in Deyr 2008 and 50% of the population in Gu 2011.

Looking across all 15 years and all 13 livelihood zones, the average number of beneficiaries per year would be 644,972, or 19% of the total population. This compares with 11% of the population on the safety net program alone. The total cost of the program would be $41.1 million per year (2.4 times higher than the cost of the safety net program alone).

Scenario 3B: Maximum Acceptable Deficit = $20 per person per year ($10 per season)

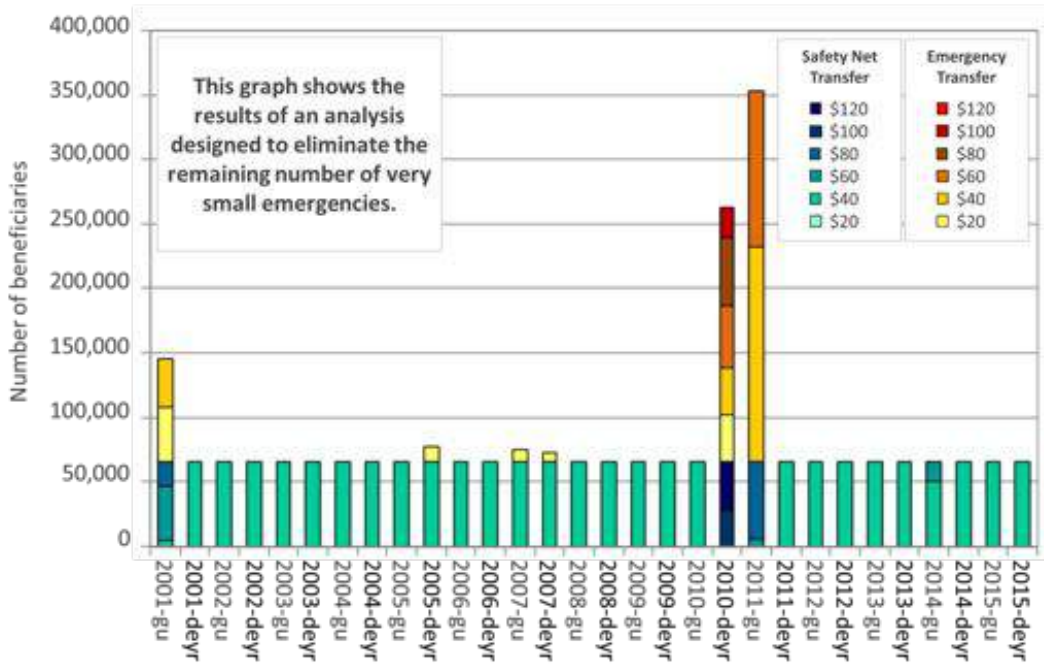
If the maximum acceptable deficit is $20 pppy ($10 ppps), then there are large reductions in the size of the program. This includes the number of beneficiaries (41% reduction to an average 378,148 people per year and the total cost of transfers (41% reduction compared to the zero-deficit scenario).

4.7 Simplifying Implementation of the Emergency Program

One objective of the safety net design process is that the same number of people should receive the same level of transfer in all non-emergency seasons. This makes the safety net component simple to implement in non-emergency seasons.

Things get much more complicated in emergency seasons, as shown in the graph below. Not only does the number of beneficiaries increase, but the number of transfer levels increases as well. For BAPLP in Deyr 2010, some beneficiaries required a transfer of between \$0-\$20, while others required \$80-\$100. The graph indicates a total of 7 different levels of transfer. But this is actually a simplification, since the category \$80-\$100 includes two levels of transfer, \$80-\$90 and \$90-\$100. It is almost certainly impractical to implement a transfer program with this level of complexity.

BAPLP : Safety Net Program after Eliminating 'Small' Emergencies



Further analyses were therefore carried out to look at the effects of simplifying the program in emergency years and reducing the number of transfer levels. Three different transfer schemes were considered, as summarised in the table below.

	Transfer Increment per person per season	Notes on Safety Net Program	Notes on Emergency Program
1	$10	Beneficiaries would receive $10, $20 or $30 per season ($20, $40 or $60 per year)	Beneficiaries would receive $10, $20, $30, etc up to a maximum $120 per season.
2	$20	Beneficiaries receiving $10 or $20 per season under Scheme 1 would receive $20. Those receiving $30 (Scheme 1) would now receive $40.	Beneficiaries receiving $10 or $20 per season under Scheme 1 would receive $20. Those receiving $30 or $40 would now receive $40, and so on.
3	$30	All beneficiaries would receive $30 per season ($60 per year)	Beneficiaries receiving $10, $20 or $30 per season under Scheme 1 would receive $30, and so on..

Scenario 3A: Maximum Acceptable Deficit = Zero

The results are presented in the table below.

Livelihood Zone	Transfer Increment					
	Scheme 1 ($10 ppps)		Scheme 2 ($20 ppps)		Scheme 3 ($30 ppps)	
	Max. no. trans.levels	Total cost USD/yr	Max. no. trans.levels	Total cost USD/yr	Max. no. trans.levels	Total cost USD/yr
Northern Somalia						
02-WGP	8	5,838,193	4	6,291,459	3	8,096,970
03-NWA	11	4,253,252	6	4,673,717	4	5,200,644
04-TAP	1	0	1	0	1	0
05-HDP1	8	969,809	4	1,000,859	3	1,125,966
06-NIP	4	7,543,160	2	8,438,125	2	10,747,102
Central Somalia						
05-HDP2	9	2,057,596	5	2,234,951	3	2,969,964
08-COD	6	542,477	3	705,021	2	880,944
09-ADD	6	1,830,623	3	2,141,815	2	2,661,598
Southern Somalia						
BAPHP	10	9,795,152	5	11,939,155	4	11,709,724
BAPLP	12	5,872,990	6	7,105,932	4	6,700,972
BSIP	2	86,575	1	119,297	1	178,946
SO11	10	1,956,595	5	2,144,040	4	2,272,236
SO18	5	328,051	3	431,373	3	393,888
Average/Total	7	41,074,472	4	47,225,744	3	52,938,954
Cost as a % of $10 increment		**100%**		**115%**		**129%**

Explanatory Notes:

1. **Scenario 3A**
    a. **Is the final program design, after standardising the transfer size by area of the country (north, centre, south)**
    b. **Is the scenario in which all deficits are covered by either safety net or emergency transfers (i.e. the maximum acceptable deficit is zero)**
2. **Schemes 1 to 3 differ in terms of the size of the transfer increment, and therefore the number of transfer levels.**
    a. **In Scheme 1, the minimum transfer is $10 ppps, with some people receiving $20 or $30.**
    b. **In Scheme 3, all these people would receive the minimum transfer of $30 ppps.**

Simplifying the transfer scheme had the expected effects of reducing the number of transfer levels, and increasing the overall cost of the program. The table provides data on the maximum number of transfer levels in any one season, by LZ. Under Scheme 1 (transfer increment $10 ppps), this ranged from 1 up to 12, with an average of 7.

Under Scheme 2, the max number of transfer levels fell to 4 on average (range 1-6). This was associated with a 15% increase in the total cost of the program.

Under Scheme 3, the max number of transfer levels fell to 3 on average (range 1-4). This was associated with a 29% increase in total cost compared with Scheme 1.

Scenario 3B: Maximum Acceptable Deficit = $10 per person per season

Similar results were obtained with Scenario B (see table on next page). The maximum number of transfer levels fell from an average 6 (Scheme 1) to 4 and 2 (Schemes 2 and 3 respectively). There were also comparable increases in program cost, with Schemes 2 and 3 costing 14% and 35% more than Scheme 1 respectively.

Livelihood Zone	Transfer Increment					
	Scheme 1 ($10 ppps)		Scheme 2 ($20 ppps)		Scheme 3 ($30 ppps)	
	Max. no. trans.levels	Total cost USD/yr	Max. no. trans.levels	Total cost USD/yr	Max. no. trans.levels	Total cost USD/yr
Northern Somalia						
02-WGP	7	2,514,951	4	3,135,908	3	3,848,658
03-NWA	10	3,450,349	5	3,832,787	4	4,128,264
04-TAP	1	0	1	0	1	0
05-HDP1	7	826,367	4	938,759	3	1,051,150
06-NIP	3	3,026,534	2	3,557,311	2	4,182,154
Central Somalia						
05-HDP2	8	655,641	4	810,441	3	974,434
08-COD	5	311,984	3	379,933	2	462,368
09-ADD	5	1,757,881	3	1,906,096	2	2,607,908
Southern Somalia						
BAPHP	9	6,140,851	5	6,871,821	3	8,278,492
BAPLP	11	3,734,316	6	4,096,981	4	4,856,940
BSIP	1	26,927	1	53,853	1	80,780
SO11	9	1,609,144	5	1,769,149	3	2,003,314
SO18	5	139,710	3	164,465	2	222,290
Average/Total	**6**	**24,194,655**	**4**	**27,517,505**	**2**	**32,696,752**
Cost as a % of $10 increment		**100%**		**114%**		**135%**

Explanatory Notes:

1. **Scenario 3B**
   a. **Is the final program design, after standardising the transfer size by area of the country (north, centre, south)**
   b. **Is the scenario in which all deficits are not covered by the safety net/ emergency transfers, with the maximum acceptable deficit set at $10 ppps.**
2. **Schemes 1 to 3 differ in terms of the size of the transfer increment, and therefore the number of transfer levels.**
   a. **In Scheme 1, the minimum transfer is $10 ppps, with some people receiving $20 or $30.**
   b. **In Scheme 3, all these people would receive the minimum transfer of $30 ppps.**

Note: Scheme number 1 is the basis of all the analyses presented elsewhere in this report, i.e. in Sections 4.5, 4.6 and 4.8.

4.8 Differences between Scenarios 1, 2 and 3

Regular Safety Net Program

This table summarises the main differences between the three scenarios, outlined in section 4.3. These scenarios can be summarised as follows:

Scenario 1: Basic Results with a maximum 10 emergency seasons out of 30
Scenario 2: Scenario 1 plus elimination of 'small' emergencies
Scenario 3: Scenario 2 plus harmonisation of transfer levels between neighbouring LZs

Regular Program					
	No. Beneficiaries		Av. Tranfer USD pppy	Total cost	
	Number	%pop		USD/yr	%Scen 1
Maximum Acceptable Deficit = Zero					
Scenario 1	250,936	7	57	14,240,700	100
Scenario 2	295,391	9	57	16,853,080	118
Scenario 3	364,620	11	47	17,262,500	121
Maximum Acceptable Deficit = $20 person per year					
Scenario 1	123,352	4	44	5,414,200	100
Scenario 2	139,215	4	44	6,148,160	114
Scenario 3	136,088	4	38	5,192,240	96

All the results presented in previous sections have dealt with Scenario 3. Moving from Scenario 1 to Scenario 3 results in a progressive simplification of the program. In Scenario 2 there are fewer emergency seasons than in Scenario 1, and in Scenario 3 there are fewer levels of transfer than in Scenario 2. The objective of this section is to summarise the effect of these changes on the scale and total cost of the program.

Under Sub-Scenario A (maximum acceptable deficit = zero), Scenario 3 is 21% more expensive than Scenario 1. Under Sub-Scenario B (maximum acceptable deficit = $20 pppy), Scenario 3 is actually 4% cheaper than Scenario 1. This is linked to reductions in the size of transfer brought about by harmonisation between neighbouring LZs.

Regular + Emergency Program

This table presents the same analysis for the whole program taken together (regular plus emergency). This shows that the differences in cost between the different scenarios are relatively modest. Under Sub-Scenario A (maximum acceptable deficit = zero), Scenario 3 is 7% more expensive than Scenario 1. Under Sub-Scenario B (maximum acceptable deficit = $20 pppy), Scenario 3 is 1% cheaper than Scenario 1.

Regular + Emergency Program						
	Av. No. Emerg. seasons	Av.No.Beneficiaries		Av. Tranfer USD pppy	Total cost	
		Number	%pop		USD/yr	%Scen 1
Maximum Acceptable Deficit = Zero						
Scenario 1	7	555,990	16	69	38,527,615	100
Scenario 2	6	587,744	17	69	40,671,641	106
Scenario 3	6	644,972	19	64	41,074,472	107
Maximum Acceptable Deficit = $20 person per year						
Scenario 1	6	369,634	11	66	24,417,763	100
Scenario 2	5	380,442	11	66	24,987,783	102
Scenario 3	5	378,148	11	64	24,194,655	99

4.9 In Which Months Should Assistance be Provided?

In relation to timing, the unit for analysis in this study is the season, and we have not looked systematically at how needs break down by month within each season. However, based upon previous experience, we can offer the following observations on the timing of deficits within each season. Note however that the timing of the deficit does not necessarily correspond to the optimal timing in terms of actual delivery. It may be desirable to provide assistance 1-2 months before deficits are expected to develop. There are at least two reasons for this. Firstly, deficits may develop earlier in the year than expected. Secondly, providing people with early assistance can help them prepare for the problems they will face in the future. In the case of a cash transfer, they may for example be able to purchase staple food at a lower price than later in the season. It may also mean that they do not turn to more damaging coping strategies (such as the excessive sale of livestock), because they have the guarantee that the assistance they require is being provided.

Type of Livelihood Zone	Season	Notes
Pastoral (02-WGP, 05-HDP1, 05-HDP2, 06-NIP, 08-COD, 09-ADD, BSIP, SO11, SO18)	Gu (Apr-Sep)	Milk production is highly seasonal, and is concentrated in the first 3 months of the season (Apr-May), when the rains fall. For poor households (i.e. those generally in need of the most assistance), milk consumption tends to be limited, and a production failure has little direct impact on kcal consumption. Where milk sales are significant, however, production failure will have a much more significant effect on consumption, via its effect on food purchasing power. Most food is purchased with income generated from livestock sales, labour and/or self-employment (e.g. sales of firewood). In relation to livestock sales, prices are a key factor in determining the size of the deficit. In bad years, prices will generally fall progressively towards the end of the season, producing the biggest deficits at this time of year. Labour and self-employment activities tend to be concentrated in the dry season (i.e. Jun-Sep). This helps reduce the severity of deficits in the second half of the season. Summary: Overall, we can expect deficits to be much more evenly spread over the season than is the case with agro-pastoralists (see below). Failure of milk production and lack of access to labour/self-employment will tend to push the deficit up early in the season, whereas reductions in livestock prices will generate larger deficits later in the season. Overall, it makes sense to intervene as early as possible in a pastoral context.
	Deyr (Oct-Mar)	The same considerations and conclusions apply as for Gu, and overall, it makes sense to intervene as early as possible.
Southern Agro-pastoral (BAPLP, BAPHP)	Gu (Jul-Dec)	Crop production is the major factor determining seasonal access to food. Deficits tend to be lower post-harvest (Jul-Sep), and higher in the second half of the season (Oct-Dec)
	Deyr (Jan-Jun)	As for Gu, deficits tend to be lower post-harvest (Jan-Mar), and higher in the second half of the season (Apr-Jun)
Northern Agro-Pastoral (03-NWA)	Whole year (Oct-Sep)	Crop production is the major factor determining seasonal access to food. Deficits tend to be lower post-harvest (Oct-Mar), and higher in the second half of the year (Apr-Sep)
Northern Agro-Pastoral (04-TAP)	Whole year (Jul-Jun)	Crop production is the major factor determining seasonal access to food. Deficits tend to be lower post-harvest (Jul-Dec), and higher in the second half of the year (Jan-Jun)

5 Using HEA to Help Implement a Scalable Safety Net for Somalia

5.1 The HEA Methodology

Household Economy Analysis, has, since the mid-1990s, been very widely used to analyse livelihoods and assess food security, and to generate results for famine early warning, emergency needs assessment and the design of resilience building interventions. Over 500 HEA baselines have been completed in 40 countries worldwide, and HEA forms the basis of national and sub-national early warning/needs assessment systems in at least 9 countries in sub-Saharan Africa.

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, through the HEA baseline, making it available for the analysis of hazard impacts.

A key objective is to investigate the effects of hazards on future access to food and income, so that decisions can be taken in a timely fashion about the most appropriate types of intervention to 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.

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 will be, 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 (see Box 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.

A further key feature of the HEA methodology is that the HEA baselines do not need to be updated every year. 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).

5.2 What is the Role of HEA in Managing a Scalable Safety Net?

The current analysis shows how HEA can be used in a retrospective analysis to answer the following basic questions about safety net design:

- Which livelihood zones would benefit most from a safety net program?
- How many people require regular safety net assistance?
- What level of regular transfer should be provided?
- When should assistance be provided (which months of the year)?
- Is it possible to standardise regular cash transfer values across 'supra-regions'?
- How often will it be necessary to scale the program up to deal with emergencies?

- What level of assistance will be required in emergency seasons (number of beneficiaries, levels of transfer)?

In relation to managing a scalable safety net into the future, it is simply a question of running the same analysis as in this report, but on a season-by-season basis. The next section answers the question, what is required to do this?

5.3 What is Required to Implement the HEA Methodology?

Implementing the HEA methodology requires the following five things:

1. **An up-to-date set of HEA baselines covering all areas benefitting from the safety net program, and ideally covering the whole country.**

Rural Areas: A full list of the HEA baselines available for Somalia is given in the table below. Nine of these are now 5 years old, and 3 are more than 10 years old. These are the priority for updating. The map in Section 3.2 shows that there are also a number of LZs for which there is no HEA baseline. Coverage is generally quite good for the north and centre, but is relatively poor in the south.

LZ Code (Study)	LZ Code (General)	LZ Name	LZ Type	Ref.Year	Age of Baseline
01-GUP	SO01	Guban Pastoral	P	Jan13-Dec13	>=5y
02-WGP	SO02	West Golis Pastoral	P	Apr13-Mar14	>=5y
03-NWA	SO03	Northwest Agro-pastoral	AP	Apr10-Mar11	>=5y
04-TAP	SO04	Togdheer Agro-pastoral	AP	Apr09-Mar10	>=5y
05-HDP1	SO05	Hawd Pastoral (north)	P	Apr09-Mar10	>=5y
05-HDP2	SO05	Hawd Pastoral (east)	P	Oct09-Sep10	>=5y
06-NIP	SO06	Northern Inland Pastoral	P	Oct09-Sep10	>=5y
07-EGP	SO07	East Golis Pastoral	P	Oct11-Sep12	>=5y
08-COD	SO08	Coastal Deeh Pastoral and Fishing	P	Apr14-Mar15	
09-ADD	SO09	Addun pastoral	P	Oct09-Sep10	>=5y
BAPHP	SO15	Sorghum High Potential Agropastoral	AP	Apr06-Mar07	>=10y
BAPLP	SO16	Bay Bakool Low Potential Agropastoral	AP	Apr06-Mar07	>=10y
BSIP	SO11	Southern Inland Pastoral	P	Apr06-Mar07	>=10y
SO11	SO11	Southern Inland Pastoral	P	Apr15-Mar16	
SO18	SO18	Juba Pastoral	P	Apr15-Mar16	

Urban Areas: HEA baselines have been prepared in the past for urban areas, but these are now all out of date.

2. **A monitoring system that generates data on crop production, livestock production, market prices and (ideally) other components of the household economy, in a timely fashion.**

An excellent monitoring system exists for Somalia, implemented by FSNAU and FEWS NET. These organisations were the source of the monitoring data used for the analyses presented in this report.

3. **The tools required to run the HEA outcome analysis**

Specialist tools are required to combine the monitoring data with the HEA baseline data and to run the seasonal outcome analysis. The basic tool is an excel-based spreadsheet, the Livelihoods Impact Analysis Spreadsheet (LIAS). These tools exist for all the currently available baselines.

4. **A technical support unit, staffed by people with a good understanding of HEA and able to run the outcome analysis season by season.**

There is a good capacity for HEA baseline fieldwork in Somalia, and moderate capacity for the seasonal outcome analysis. This capacity is to be found primarily within FEWS NET and FSNAU.

5. **Buy-in to the system from all relevant stakeholders, including government and NGO implementing agencies and donor organisations.**

There is already relatively good buy-in to the methodology from FEWS NET. There should also be relatively good buy-in from a number of NGOs that are familiar with HEA (although not necessarily within Somalia). Foremost amongst these would be Save the Children and Oxfam.

6 Appendices

6.1 Results Tables for Scenario 1

Regular Safety Net Program - Scenario 1									
		A: Maximum Acceptable Deficit = Zero				B: Max.Acc.Def = $20 py ($10 per season)			
Livelihood		No.Beneficiaries		Transfer	Total cost	No.Beneficiaries		Transfer	Total cost
Zone	Population	Number	%pop	USD pppy	USD/yr	Number	%pop	USD pppy	USD/yr
Northern Somalia									
02-WGP	345,397	65,093	19%	40	2,603,720	12,564	4%	20	251,280
03-NWA	197,154	191	0%	20	3,820	0	0%	0	0
04-TAP	17,530	0	0%	0	0	0	0%	0	0
05-HDP1	298,972	0	0%	0	0	0	0%	0	0
06-NIP	596,839	4,384	1%	20	87,680	0	0%	0	0
Central Somalia									
05-HDP2	301,667	8,733	3%	20	174,660	0	0%	0	0
08-COD	174,539	0	0%	0	0	0	0%	0	0
09-ADD	257,523	44,326	17%	60	2,659,560	29,744	12%	40	1,189,760
Southern Somalia									
BAPHP	497,016	73,965	15%	60	4,437,900	42,663	9%	40	1,706,520
BAPLP	353,150	50,936	14%	80	4,074,880	36,570	10%	60	2,194,200
BSIP	125,800	0	0%	0	0	0	0%	0	0
SO11	177,539	0	0%	0	0	0	0%	0	0
SO18	28,344	3,308	12%	60	198,480	1,811	6%	40	72,440
Total	**3,371,470**	**250,936**	**7%**	**57**	**14,240,700**	**123,352**	**4%**	**44**	**5,414,200**

Regular Safety Net + Emergency Program - Scenario 1											
		A: Maximum Acceptable Deficit = Zero					B: Max.Acc.Def = $20 per year ($10 per season)				
Livelihood		No.Emerg	Av.No.Beneficiaries		Av.Trans	Total cost	No.Emerg	Av.No.Beneficiaries		Av.Trans	Total cost
Zone	Population	seasons	Number	%pop	USD pppy	USD/yr	seasons	Number	%pop	USD pppy	USD/yr
Northern Somalia											
02-WGP	345,397	10	96,762	28%	54	5,269,058	10	44,841	13%	56	2,514,951
03-NWA	197,154	5	40,260	20%	106	4,255,544	4	34,241	17%	101	3,450,349
04-TAP	17,530	0	0	0%	0	0	0	0	0%	0	0
05-HDP1	298,972	1	7,172	2%	135	969,809	1	6,867	2%	120	826,367
06-NIP	596,839	10	81,689	14%	57	4,660,304	6	49,808	8%	61	3,026,534
Central Somalia											
05-HDP2	301,667	10	25,849	9%	45	1,172,618	8	12,995	4%	50	655,641
08-COD	174,539	8	11,525	7%	47	542,477	2	5,300	3%	59	311,984
09-ADD	257,523	10	51,152	20%	59	3,030,663	10	37,001	14%	42	1,545,059
Southern Somalia											
BAPHP	497,016	10	141,063	28%	69	9,795,152	10	99,008	20%	61	6,042,487
BAPLP	353,150	10	74,682	21%	87	6,504,675	10	59,372	17%	72	4,280,300
BSIP	125,800	1	2,982	2%	29	86,575	1	1,346	1%	20	26,927
SO11	177,539	5	17,373	10%	113	1,956,595	3	15,449	9%	104	1,609,144
SO18	28,344	10	5,484	19%	52	284,145	10	3,407	12%	38	128,020
Total	**3,371,470**	**7**	**555,990**	**16%**	**69**	**38,527,615**	**6**	**369,634**	**11%**	**66**	**24,417,763**

6.2 Results Tables for Scenario 2

Regular Safety Net Program - Scenario 2									
		A: Maximum Acceptable Deficit = Zero				B: Max.Acc.Def = $20 py ($10 per season)			
Livelihood		No.Beneficiaries		Transfer	Total cost	No.Beneficiaries		Transfer	Total cost
Zone	Population	Number	%pop	USD pppy	USD/yr	Number	%pop	USD pppy	USD/yr
Northern Somalia									
02-WGP	345,397	83,431	24%	40	3,337,240	12,564	4%	20	251,280
03-NWA	197,154	0	0%	0	0	0	0%	0	0
04-TAP	17,530	0	0%	0	0	0	0%	0	0
05-HDP1	298,972	0	0%	0	0	0	0%	0	0
06-NIP	596,839	4,384	1%	20	87,680	0	0%	0	0
Central Somalia									
05-HDP2	301,667	8,733	3%	20	174,660	0	0%	0	0
08-COD	174,539	0	0%	0	0	0	0%	0	0
09-ADD	257,523	54,488	21%	60	3,269,280	36,725	14%	40	1,469,000
Southern Somalia									
BAPHP	497,016	73,965	15%	60	4,437,900	46,176	9%	40	1,847,040
BAPLP	353,150	66,146	19%	80	5,291,680	41,542	12%	60	2,492,520
BSIP	125,800	0	0%	0	0	0	0%	0	0
SO11	177,539	0	0%	0	0	0	0%	0	0
SO18	28,344	4,244	15%	60	254,640	2,208	8%	40	88,320
Total	**3,371,470**	**295,391**	**9%**	**57**	**16,853,080**	**139,215**	**4%**	**44**	**6,148,160**

Regular Safety Net + Emergency Program - Scenario 2											
		A: Maximum Acceptable Deficit = Zero					B: Max.Acc.Def = $20 per year ($10 per season)				
Livelihood		No.Emerg	Av.No.Beneficiaries		Av.Trans	Total cost	No.Emerg	Av.No.Beneficiaries		Av.Trans	Total cost
Zone	Population	seasons	Number	%pop	USD pppy	USD/yr	seasons	Number	%pop	USD pppy	USD/yr
Northern Somalia											
02-WGP	345,397	7	109,937	32%	53	5,838,193	10	44,841	13%	56	2,514,951
03-NWA	197,154	6	40,145	20%	106	4,253,252	4	34,241	17%	101	3,450,349
04-TAP	17,530	0	0	0%	0	0	0	0	0%	0	0
05-HDP1	298,972	1	7,172	2%	135	969,809	1	6,867	2%	120	826,367
06-NIP	596,839	10	81,689	14%	57	4,660,304	6	49,808	8%	61	3,026,534
Central Somalia											
05-HDP2	301,667	10	25,849	9%	45	1,172,618	8	12,995	4%	50	655,641
08-COD	174,539	8	11,525	7%	47	542,477	2	5,300	3%	59	311,984
09-ADD	257,523	7	58,037	23%	61	3,524,567	9	41,655	16%	42	1,757,881
Southern Somalia											
BAPHP	497,016	10	141,063	28%	69	9,795,152	9	101,350	20%	61	6,140,851
BAPLP	353,150	6	85,837	24%	88	7,544,049	7	62,916	18%	72	4,527,444
BSIP	125,800	1	2,982	2%	29	86,575	1	1,346	1%	20	26,927
SO11	177,539	5	17,373	10%	113	1,956,595	3	15,449	9%	104	1,609,144
SO18	28,344	8	6,137	22%	53	328,051	8	3,674	13%	38	139,710
Total	**3,371,470**	**6**	**587,744**	**17%**	**69**	**40,671,641**	**5**	**380,442**	**11%**	**66**	**24,987,783**

SOMALI CASH
CONSORTIUM

SOMALI SAFETY NET DESIGN

Report by Mark Lawrence - 24th January 2019

Cover photo by Roopa Gogineni, taken at Alamin IDP Camp, Burco, Somaliland, 2018
Camel photo in summary by Francesca Sangiorgi, taken in Woqooyi Galbeed livestock market, Somaliland, 2019

ACTED

COOPI COOPERAZIONE INTERNAZIONALE
Together we can make the world a better place.

CONCERN worldwide

DRC DANISH REFUGEE COUNCIL

NRC NORWEGIAN REFUGEE COUNCIL

Save the Children

DESIGN: FLOCK OF CLOUDS