C-SAFE

Zambia Baseline Survey

Report of Findings

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care CRS CATHOLIC RELIEF SERVICES World Vision

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Acronyms and Abbreviations

CARE	Cooperative Assistance and Relief Everywhere (NGO)
C-SAFE	Consortium for Southern Africa Food Security Emergency
CSI	Coping Strategies Index
DfID	Department for International Development
FEZ	Food Economy Zone
NGO	Non Governmental Organizations
PPS	Probability Proportional to Size
VAM	Vulnerability Analysis and Mapping
WFP	(United Nations) World Food Programme

Glossary of Terms

Chronically Ill	A person who has had persistent and recurring illness during the last three months that has reduced his/her productivity.
Disabled	A person who has a mental and/or physical handicap that prevents him/her from full-productivity.
FEZ	A relatively homogenous geographic area, unique to other zones on the basis of primary subsistence activities, income strategies, cultural practices and hazards, as they affect food security
Head of the Household	The primary decision-maker in terms of allocating the natural, human, and financial resources available to the household.
Orphan	A child with one or both parents that have died.

Executive Summary

C-SAFE is a jointly planned and implemented response by World Vision, CARE and CRS to the current food security problems plaguing the three southern Africa countries of Malawi, Zambia and Zimbabwe, with World Vision serving as the lead. The C-SAFE Consortium represents the most significant collaborative initiative to date (both in scale and profile) embarked upon by these three largest American PVOs. The program itself is unique, in that it is neither exclusively emergency nor development oriented. Instead, C-SAFE works along the entire relief to development continuum, addressing the immediate nutritional needs of targeted vulnerable groups; as well as building productive assets and working with communities to increase their resilience to future food security shocks.

The development of the baseline survey began in March 2003. The baseline survey collected data on all outcome indicators listed in the M&E plan, as well as others, anticipating the need to measure the outcomes from future activities planned for Years 2 and 3. The main objectives of the baseline survey were 1) to establish baseline values of logical framework indicators against which future measurements of goal-related changes (e.g., practices and/or systemic changes) can be made and 2) to increase understanding of livelihood security factors impacting the lives of rural households. Other secondary objectives were 1) to identify groups and geographic areas where food and livelihood security may be low and 2) to gather and analyze information that will assist project staff in designing or modifying appropriate interventions or generate information for further refining the project logical framework.

Four survey zones were delineated based on a modification of food economy zones in Zambia. Each zone represented areas where C-SAFE is currently operational and will be operational in years two and three.

The Zambia survey includes a final sample on a total of 1663 households. Over 45% of the rural population sampled is 14 years of age or under. The average age of the head of household is 44.7 years, with the youngest reported as 10 years old and the oldest as 99 years old. Overall, 78.5 % of households are headed by a male member of the family and 21.5% are headed by a female member.

The major findings of the study include:

1. Household sizes in Zambia tend to be quite large and in this survey averaged 6.6 individuals per household with a range from 1 to 40 individuals. Male-headed households average 7.0 individuals, significantly larger than the average of 5.4 individuals in female-headed households. Household size was lowest in Zones 3 and 4 as (6.2 and 5.8, respectively) and significantly higher in Zones 1 and 2 (7.6 and 7.0 respectively).

2. Rural households have very few assets. In this survey, about 80% of households were classified as asset poor or very poor. Households with limited assets are vulnerable, not only because of their relative poverty, but also because they have few items to divest should they be forced to spend money on food or emergencies.

3. The percentage of vulnerable households in the C-SAFE project areas is very high. One-third of rural households are hosting at least one orphan, and almost 11.0% of households are hosting double orphans. Female-headed households bear much of the burden in caring for orphans, with just over half of their households hosting at least one orphan child. Just over one-quarter of male households are doing the same. All survey zones have at least 25% of households hosting an orphan. In all, 7.8% of all children below 18 years of age included in the study are orphans with one parent deceased and the other living in the household. Another 6.4% are orphans with one parent deceased and the other living outside of the household.

4. Chronically ill individuals were present in 30% of households surveyed, and only a small but significant difference exists between the percentage of chronically ill found in male versus female-headed households. Almost 21% of households include at least one chronically ill individual, while 11% include at least one disabled person. Chronic illness is having a severe impact on household food security. Although they have, on average, access to more land they have the largest gap between what they have access to and what they cultivate. This signals a labor shortage in these households, and more land is left fallow.

5. Over 40% of asset rich households have a chronically ill member, the same percentage that host at least one orphan. Deaths rates in chronically ill households are higher, and the data reconfirms the notion that chronic illnesses are not diseases of the "poor." Only small and statistically non-significant differences are found among the four asset categories.

6. The C-SAFE dependency ratio is 173, about 12% higher than the classical dependency ratio, reflecting the large number of dependents with respect to working members in rural Zambian households. The highest dependency ratio is for households hosting orphans at 211, followed by asset rich households at 211. Male-headed households and Zone 4 have the lowest dependency ratio, at 1659 and 134, respectively.

7. Households with chronically ill members and those hosting orphans are equally likely to be found in any of the three dependency categories. This means that chronically ill and orphans are almost equally distributed among dependency category, and it is not possible to generalize that chronically ill are found, for example, in high dependency households.

8. Out of 4,471 children aged 6 to 18 years old in the survey 21% have never been to school. Encouragingly, the attendance rate for male and female school-aged children does not significantly vary, and, the attendance rates for orphans, both males and females, are higher than in the general population.

9. Asset values for both genders are heavily skewed towards low asset values, reflecting the impoverished conditions found in rural Zambia. However, even though the range of asset values is similar, the lower asset values for male-headed households are considerably higher than for female-headed households, which is why a higher percentage of female-headed households are found in the asset very poor category.

10. The majority of households are engaged in agricultural activities. Only 6 households did not have access to land for the 2002-2003 cropping season. The average number of

hectares accessible to households was 6.2, while the average number of hectares actually cultivated was less than half of what was accessible, or 2.5 hectares per household.

11. HHs with high dependency ratios cultivate significantly less land than households with medium or low dependency. High dependency households often have more available labor for routine agricultural activities (e.g. – even if children are attending school they can supply labor at key points in the cropping cycle), but it the high dependency ratios are a result of high chronic illness, as is the case in Zambia, then the household has not only lost labor, but it has probably lost some one of its productive members.

12. Male-headed households dominate non-cereal production, and average almost four times the number of kgs as female-headed households. Zonal differences were significant, with Zone 4 producing far less than any other Zone, averaging a mere 170 kgs per household. In contrast, Zone 2 households averaged more than ten times this amount, or 1,768 kgs per household. Zone 1 had the next highest average production, at just over 1,000 kgs per household.

13. Households in rural Zambia are very food insecure. Households in general expect that the current harvest will be about one-half of what they normally obtain through cropping activities. This trend is similar for every household type analyzed, and demonstrates that food security problems in Zambia are widespread and impact on many livelihoods.

14. Almost 40% of asset poor households spend 75% or more of their household income on food. This is significantly more than asset intermediate households and asset rich households.

15. Food aid is an important source of calories for many rural Zambian households. Almost 90% of households have benefited from food aid, mostly through general feeding. Less than 2% of households reported benefiting from pregnant/lactating women feeding programs, malnutrition feeding, or feeding for chronically ill. Food-for-work programs resulted in food for 11.3% of the survey households. Food aid was received by about the same percentage of households irrespective of their vulnerability category. The average number of months food aid has been received was fairly uniform at about 3.6 months per household.

16. During the previous year, 18% of households experienced at least one death. The average age of death was 25.5 years old. In just over half of all deaths, the individual was ill for more than three months. All vulnerable household categories had at least one death at a significantly higher rate than the general survey population, averaging about one in four to one in five, or 20- 25%, for most vulnerable groups.

17. Households with chronically ill members have a significantly higher coping strategy index (85.0) than other vulnerable household types and non-vulnerable households. Male and female-headed households have no significant difference in their CSI score. Asset very poor and asset poor households have significantly higher CSIs than other asset categories.

I. Background and Objectives

C-SAFE

C-SAFE is a jointly planned and implemented response of World Vision, CARE and CRS to the current food security problems plaguing the three southern Africa countries of Malawi, Zambia and Zimbabwe, with World Vision serving as the lead. The Consortium represents the most significant collaborative initiative (both in scale and profile) embarked on by the three largest American PVO's. The program itself is unique, in that it is not exclusively emergency or development oriented. Instead, C-SAFE works along the entire relief to development continuum, addressing the immediate nutritional needs of targeted vulnerable groups; as well as building productive assets and working with communities to increase their resilience to future food security shocks.

Baseline Survey

The development of the baseline survey began in March 2003. TANGO International was contracted to design and manage the baseline survey process at a regional level, with C-SAFE M&E officers in the three countries to implement the survey in their respective countries. A Training of Trainers for country-based M&E officers was held in Johannesburg in early April, and subsequent training of in-country survey supervisors and enumerators was held prior to surveys being implemented in each of the three countries. C-SAFE's M&E advisor, based in Johannesburg, attended each of the in-country trainings. All three countries completed data collection by mid-May. Data entry was completed in-country using CSPRO2.3[2] software. A TANGO consultant in collaboration with the M&E Advisor and the 3M&E country officers performed subsequent data cleaning and analysis.

While it was envisioned that there would be a common baseline questionnaire applied in all three countries, circumstances led to a compromise in Zimbabwe. Also, the sampling strata and data collection methodology were adapted to the unique circumstances of each country. In Malawi, the survey had to accommodate the needs of all nine C-SAFE cooperating sponsors (six in addition to the C-SAFE core PVOs), while in Zambia; only 3 PVO's are concerned.

The baseline survey collected data on all outcome indicators listed in the M&E plan, as well as others, anticipating the need to measure the outcomes from future activities planned for Years 2 and 3. A Final Evaluation will take place in May 2005, with quarterly or semi-annual (still to be determined) monitoring to measure trends throughout the project. It should be noted that all recently conducted surveys (PVO and UN) in the three countries were reviewed and considered for their relevance to C-SAFE information needs (i.e., overlap in indicators and geographic area). Where possible, existing data was used in lieu of collecting new data. In all three countries, for example, C-SAFE intends to rely on UNICEF's most recent nutritional data for the nutrition component of the baseline.

Objectives

The main objectives of the C-SAFE Baseline Survey in Zambia were:

[2] The U.S.Census Bureau, Macro International and Serpro S.A developed CSPRO2.3 software. It can be downloaded for free by visiting www.census.gov/ipc/www/cspro.

- To establish baseline values of logframe indicators against which future measurements of goal-related changes (e.g., practices and/or systemic changes) can be made.
- To increase understanding of livelihood security factors impacting the lives of rural households.

The secondary objectives of the survey were:

- To identify groups and geographic areas where food and livelihood security may be low.
- To gather and analyse information that will assist project staff in designing or modifying appropriate interventions or generate information for further refining the project logframe.

II. Sampling Methods

Several challenges were faced in designing and implementing the baseline survey in Zambia. First, the geographic coverage of the survey had to extend over a large area of the country, and some of the areas surveyed had very difficult terrain. In the Western Province, sandy roads challenged even the sturdiest of 4 wheel drive vehicles. Some access roads were cut off due to flooding, resulting in teams having to drive longer distances to get from one survey site to another. During the period of the survey, the country was hit by an acute shortage of fuel, which led to some delays in the completion of data collection.

Designing a representative sample that could inform each PVO's, and at the same time provide for a reasonable sample within the limitations of budgets and timeframes, presented perhaps the biggest challenge. The survey was conducted in rural Zambia towards the end of a busy but difficult cropping season for farmers. Community members were quite busy with their economic activities and personal matters such as festivals and funerals.

The sampling methods employed for the Zambia baseline survey had to ensure that an adequate sample would be obtained in order to estimate indicators with sufficient precision. It also had to draw a meaningful sample such that valid and relevant comparisons could be made across geographic regions and household types.

II.A. Sampling Frame

The intent of the survey was to sample rural households within the current and future geographic intervention areas of C-SAFE. Several strata were considered, including administrative boundaries (districts), geographic intervention area of the operational C-SAFE partners, and food economy zones (FEZ). Administrative boundaries were ruled out since, in and of themselves, they have no meaning to the C-SAFE project nor do they have a direct influence on defining livelihood characteristics of households. The operational areas of C-SAFE partners would have been valid strata, since it would facilitate analysis of baseline data and data from future surveys by partner. This would allow comparisons across operational areas. However, with three operational partners operating over a large geographic area, the sample size would have been too large.

Food economy zones are ideal strata since they have meaning in terms of household livelihoods. Each food economy zone characterizes a primary livelihood strategy followed by the majority of households within the zone. The difficulty in using food economy zones as sampling zones in the baseline survey was that there are 23 zones in Zambia, of which almost half intersect with operational areas of C-SAFE. Despite this obstacle, it was decided that the baseline survey would be based on food economy zones, albeit on a modified basis.

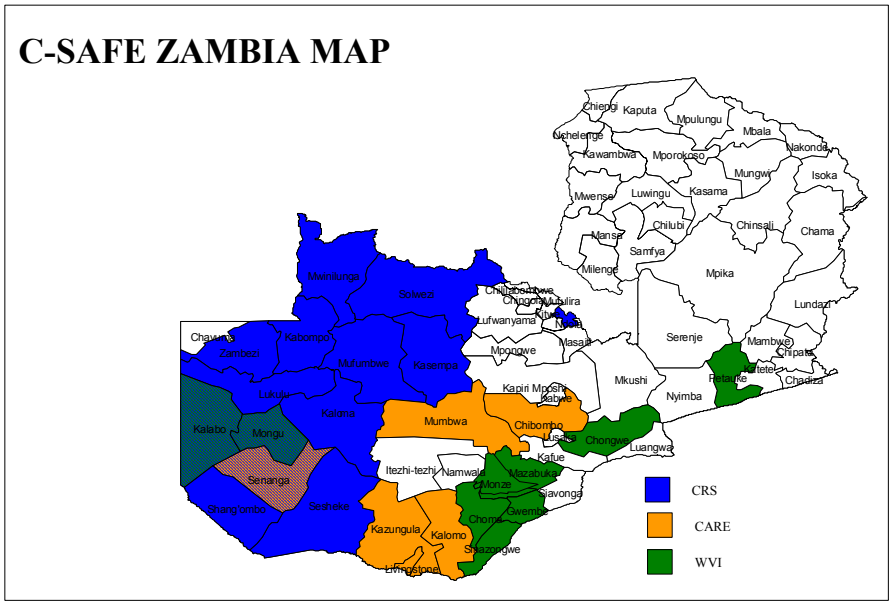
In order to derive sampling zones, the operational areas of C-SAFE were overlayed with the FEZ's. Four Survey Zones were delineated from this overlay, using criteria of size and relevancy to C-SAFE programming areas (Figure 1).

These four Survey Zones covered 7 districts in Western and Southern Provinces as shown in Table 1 below:

Table 1: Districts included in the baseline survey zones.

	Survey Zone 1	Survey Zone 2	Survey Zone 3	Survey Zone 4
District	Choma	Kazungula	Kazungula	Mongu
	Mazabuka	Kalomo	Kalomo	Shangombo
	Monze		Sesheke	

Figure 1: Zambia Baseline Sampling Zones



II.B. Sample Design and Sample Size

The survey utilized a three-stage random sampling methodology in an effort to provide an unbiased and representative estimation of the information obtained. The first stage was the selection of eligible Wards within the survey zones. Wards were selected with probability proportional to their size (population), or PPS. In each zone, seven wards were selected using this methodology.

The second stage was a random selection of villages within each of the selected Wards. A total of six villages were selected within each Ward, again using PPS. Village sizes were determined from either headmen's or health center records. The third and final stage was the random selection of eligible households included in the sampling frame. Sampling frames were derived from village-level lists of households.

The sample size was calculated using standard methods based on key dichotomous variables from the household questionnaire. To determine the sample size to be selected, the following formula was used:

$$n = \frac{z^2 pq}{d^2}$$

where n= sample size
z= statistical certainty desired
p= estimated prevalence rate
q= 1-p (proportion without the attribute of interest)
d= degree of precision.

The desired precision (d) was set at 8% (0.08) and the statistical certainty at 95% (z = 1.96). Since the general prevalence rate of key variables was not known, the value of p was

set at 50% (0.5) in order to maximize the impact of this variable on sample size (thus any error in estimation would be negated). The resulting sample size per sampling zone was 400. The resulting projected total sample size was 1,600 households. In planning the survey, this was increased by 5% to 1,680 to account for non-response. The final sample was 1,663 households.

The quantitative household survey was designed to collect the following types of information from the interviewed households:

1. **Household demographic information**: including age, sex, relation to household head, status of parents, physical status of individuals, level of education, and primary/secondary activities of individuals;
2. **Household access to resources**: including ownership and value of household assets such as agricultural tools and equipment, radios, modes of transport, etc., access to rainfed land for farming, and ownership of livestock;
3. **Livelihood activities:** that household members were engaged in during the previous year, including agricultural production and sales, other sources of cash income, borrowing, etc.; and,
4. **Household livelihood outcomes:** estimates of food consumption per family member, sources of household water, and coping strategies for addressing food shortages.

III. Survey Findings

III.A. Household Demographics

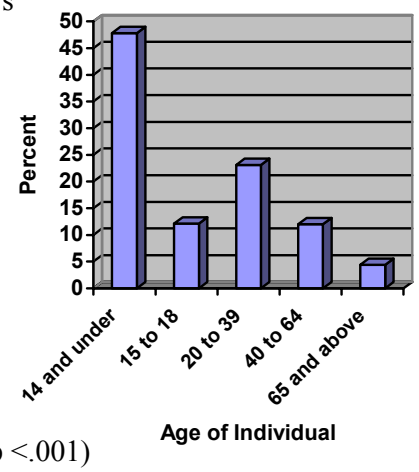
The Zambia survey includes a final sample on a total of 1,663 households. A number of control variables will be used throughout this report to disaggregate the data. Table 2 provides sample size for these various strata. All analyses apply appropriate weightings to account for unequal sample sizes among strata.

Table 2: Sample sizes for selected strata.

Strata/Category	Sub-strata	Sample Size (number of HHs)
Overall Population		1663
Gender of HH Head	Male	1305
	Female	358
Survey Zones	Zone 1	413
	Zone 2	415
	Zone 3	416
	Zone 4	419

Figure 2 provides age strata for the survey population. Over 45% of the rural population sampled is 14 years of age or under. The majority of household heads are between 22 years and 32 years of age, with about an even number in the 15 to 19 year range and 40 to 64 year range (Figure 3). The average age of the head of household is 44.7 years, with the youngest reported as 10 years old and the oldest as 99 years old. Male household heads are slightly younger than female household heads, 44.1 and 46.9 years old, respectively.

Figure 2: Age Strata of Sample Size



Overall, 78.5 % of households are headed by a male member of the family and 21.5 percent are headed by a female member. Table 3 shows the percentage of female-headed households by region and survey zone. The percentage of female-headed households is significantly lower in Zone 2 ($p < .001$) and highest in Zone 4.

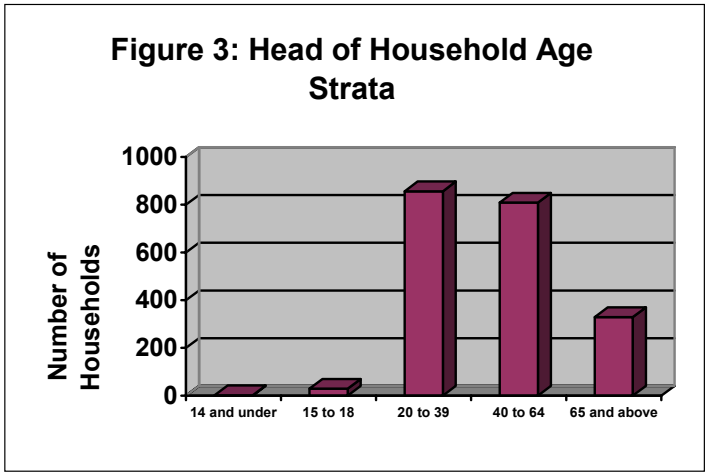


Table 3: Selected demographic characteristics of the survey population.

Strata/Category	Sub-strata	Average Age HHH	Female-headed Households (%)
Overall Population		44.7	21.5
Gender of HH Head	Male	44.1	
	Female	46.9	
Survey Zones	Zone 1	45.6	22.0
	Zone 2	42.5	15.2
	Zone 3	45.2	21.9
	Zone 4	45.8	26.9

More than half of the heads of household (58.6%) are able to both read and write, while 36.9% can do neither. A small percentage (4.5%) can either read or write but not both. There is a significant difference in literacy among the survey zones, with the lowest literacy

levels being experienced in Zone 4 (Table 4). The survey areas making up Zone 4 are particularly remote (Shangombo and Rural Mongu districts).

Table 4: Literacy rates among the survey zones.

Survey Zone	Literacy (% able to read and write)
Zone 1	65.0
Zone 2	65.0
Zone 3	61.0
Zone 4	43.6

Table 5 summarizes the marital status of the study population. The majority (79.2%) of household heads are married and 12.5% are widowed. Only a small fraction of the households are divorced or single. In Zone 2, a significantly lower percentage ($p < .001$) of household heads are widowed when compared to the other survey zones.

Table 5: Marital status of HHH.

		Frequency	Percent
Valid	Married	1310	79.2
	Divorced	88	5.3
	Widowed	206	12.5
	Single	49	3.0
	Total	1653	100.0

Household sizes in Zambia tend to be quite large, and in the survey population averaged 6.6 individuals per household with a range from 1 to 40 individuals. The median value was 6 meaning that 50% of households have 6 or more members. Male-headed households average 7.0 individuals, significantly larger than the average of 5.4 individuals in female-headed households. Household size was lowest in Zones 3 and 4 as (6.2 and 5.8, respectively) and significantly higher in Zones 1 and 2 (7.6 and 7.0 respectively).

III.B. C-SAFE Vulnerable Groups

The following section defines various vulnerable groups important to C-SAFE and used as variables to disaggregate survey data. These groups include economically disadvantaged households, households hosting orphans, households with chronically ill members, female-headed households, elderly-headed households with no productive-age members, and households headed by youth. C-SAFE interventions target these households, so it is important to understand their current status vis-à-vis baseline indicators.

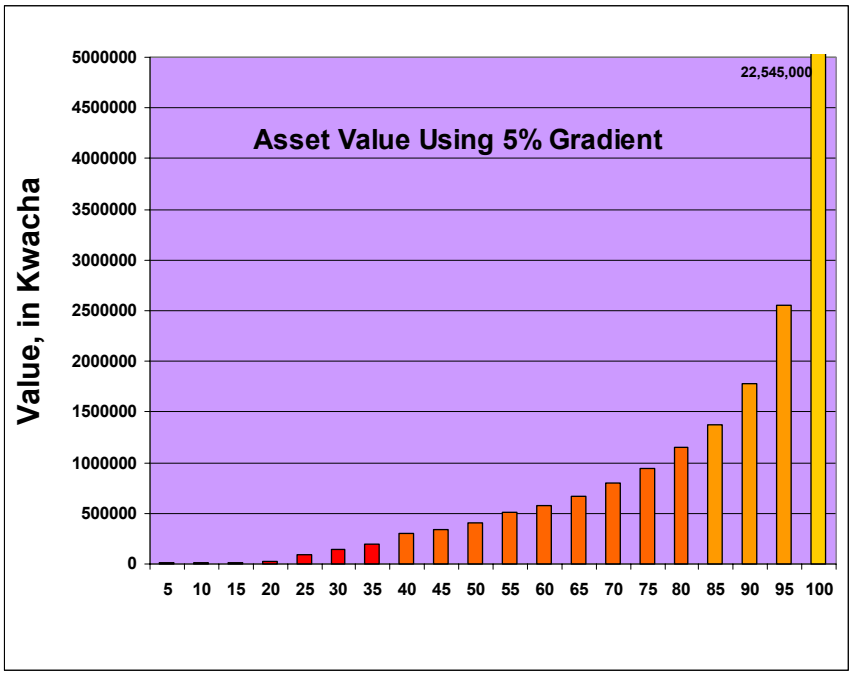
Although youth-headed households are important, they are too rare in the survey population (only 2 households out of 1663) to include as a strata.

Using Asset Ownership as a Wealth Category

Assets can be used to create wealth groups, which are useful for defining relative levels of poverty and for analyzing baseline indicators. The resultant groups can then be monitored over time to track changes in livelihood status of project households. The difficult part of creating wealth groups is to decide what percentage of the population should be placed in each category. Four equal groups, representing 25% of the population each, is not useful in the C-SAFE context because, in general, rural households are quite asset-poor. Figure 4 shows the frequency distribution of asset value using 5% gradients. Each bar, thus,

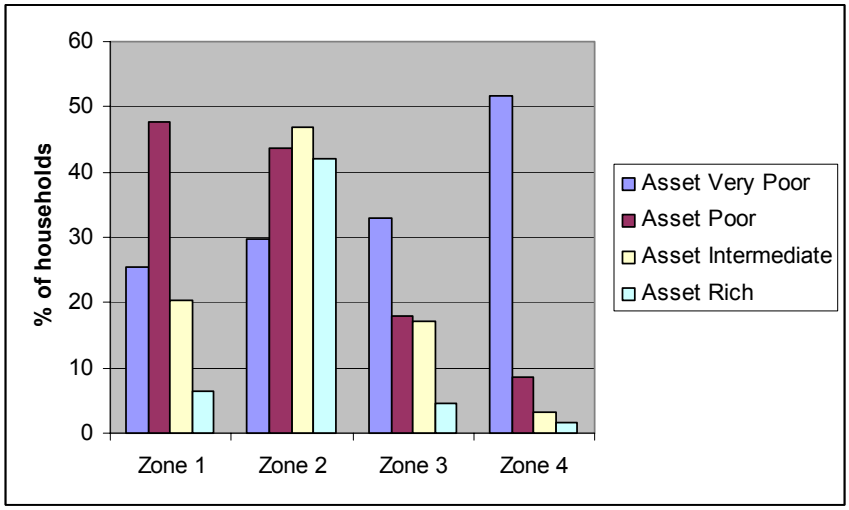
represents 5% of the population. The first bar represents the poorest 5% of the sample population and the last bar represents the wealthiest 5%. Note that for the Zambia baseline population there is a distinct change in asset value at the 35% bar. There are other distinct changes at the 85th and 95th percentiles.

Figure 4. Asset Ownership Gradients.



Using the data in Figure 4, four asset categories were created: asset very poor (35% of the sample population); asset poor (45% of the population); asset intermediate (15%); and asset rich (5%). These categories are used for selected analyses of the baseline data. Figure 5 shows the distribution of these four categories among the four survey zones. It shows that Zone 4 has the highest percentage of households that are "asset very poor" - over 50% of the households in this zone are classified in this category. Zone 4 has the highest percentage of asset very poor households, and Zone 1 has the highest percentage of asset poor households. Zone 2 has the wealthiest population according to this asset classification, and Zone 4 the poorest. Zone 3 is only slightly wealthier than Zone 4 in terms of assets. A detailed analysis of household assets is provided in Section III.C.

Figure 5: Asset Categories by Survey Zone.



Orphans

Orphans make up a significant percent of the rural population in Zambia, and C-SAFE emergency and development interventions target households with orphans. Orphans, for the purpose of the study, are defined as children under 18 years of age who have one or both parents deceased. Orphans have been further classified as those who have one parent deceased and the remaining parent lives in the same household, those who have one parent deceased and the remaining parent lives outside of the household, and those who have both parents deceased (double orphans).

Table 6 summarizes orphan data for a number of strata. One-third of rural households surveyed are hosting at least one orphan, and almost 11.0% of households are hosting double orphans. Female-headed households bear much of the burden in caring for orphans, with just over half of their households hosting at least one orphan child. Just over one-quarter of male households are doing the same. Almost 30% of female-headed households have an orphan whose father has died and the female HHH is widowed.

Table 6 also shows some important geographic differences. Zone 1 hosts orphans at the highest rate (42%), followed by Zone 2 (35%). Over one-quarter of households in Zones 3 and 4 host at least one orphan. All survey zones have at least 25% of households hosting an orphan. Double orphans are especially prevalent in Zone 1 where found in 16% of the households. One parent deceased and the other living outside of the household is also most common in Zone 1, as is one parent deceased and the other living inside of the household.

Table 6: Percent of orphans by selected strata.

Household Category	One parent deceased, one living in HH	One parent deceased, one living out of HH	Both parents deceased (double orphans)	Households with at least one orphan
	% of households			
General Population	13.2	15.6	10.9	33.5
Male-headed households	8.7	14.8	10.0	28.8
Female-headed households	29.6	18.7	14.2	50.6
Zone 1	15.3	23.5	16.2	41.6
Zone 2	13.3	14.7	12.8	35.2
Zone 3	10.3	11.3	9.6	27.4
Zone 4	14.1	13.1	5.3	29.8
Asset Very Poor	16.1	13.2	8.1	30.9
Asset Poor	12.6	14.7	11.5	32.3
Asset Intermediate	11.6	22.1	16.9	40.6
Asset Rich	10.8	21.7	16.9	41.0

Asset category also differs with respect to hosting orphans. Here, however, there is a positive and significant relationship – the more assets a households has the more likely it is to host an orphans ($p<.001$). Over 40% of Asset Rich households are hosting at least one orphan, compared to about 30% for the Asset Very Poor households.

In all, 7.8% (502) of all children below 18 years of age included in the study are orphans with one parent deceased and the other living in the household. Another 429 children (6.4%) are orphans with one parent deceased and the other living outside of the household. Just over 4% (282) of the population of children under 18 is a double orphan.

Just over 4% (72) of children under five years of age are orphans with one parent deceased, the other living in the household (Table 7), while 7.4% (151) are between 5 and 10 years of age and 9.6% (279) are between 10 and 17 years of age. A smaller percentage of children under 5 (1.9%) have one parent deceased and the other living outside of the home, and still a smaller percentage is double orphans.

Table 7: Percent of orphans by selected strata.

Age Category	One parent deceased, one living in HH	One parent deceased, one living in HH	Both parents deceased (double orphans)
	%, (#)		
Under 5 years of age	72 (4.1%)	33 (1.9%)	25 (1.4%)
5-9 years of age	151 (7.4%)	152 (7.5%)	76 (3.7%)
10-17 years of age	279 (9.6%)	244 (8.4%)	181 (6.2%)

Chronically Ill

Another vulnerable group that C-SAFE addresses are chronically ill and permanently disabled persons. Chronically ill individuals, for the purposes of the study, are those who have been ill for three months or longer prior to the study. This would include individuals with HIV/AIDS, and other long-term illnesses.

Chronically ill individuals were present in 29.7% of households surveyed. More detailed figures are presented in Table 8 for several strata. Chronically ill individuals comprise the majority of the vulnerable in this category. Almost 21% of households include at least one chronically ill individual, while 11% include at least one disabled person. As the data suggests, many households that include a disabled individual also include one or more individuals who are chronically ill, and in 1.7% of the cases this is the same individual.

There is a small but significant difference ($p<.05$) between the percentage of chronically ill found in male- and female-headed households. There is no difference, however, in the number of disabled individuals between the two household types.

Table 8: Percent of households with chronically ill and/or disabled individuals.

Category	Chronically Ill Individuals	Disabled Individuals	Chronically Ill and Disabled Individuals	Households with at least one chronically ill member
	% of households			
General Population	20.9	11.1	1.7	29.7
Male-headed households	21.3	11.5	1.4	30.2
Female-headed households	19.6	9.8	2.8	27.9
Zone 1	31.5	9.9	23.5	31.5
Zone 2	32.5	9.4	26.3	32.5
Zone 3	33.3	11.8	25.6	33.2
Zone 4	21.7	13.4	10.5	21.7
Asset Very Poor	17.0	10.3	1.7	25.6
Asset Poor	22.3	10.1	1.6	30.4
Asset Intermediate	24.5	12.9	2.0	33.3
Asset Rich	25.3	20.5	1.2	41.0

Zone 4 households reported significantly lower levels of chronic illness than the other three zones ($p<.001$), with 21.7% of households having at least one chronically ill member (Table 8). The other three zones host the same percentage, statistically, of chronically ill. There is little difference in the number of disabled in Zone 1-3, but Zone 4 has significantly fewer ($p<.001$)

The data strongly reconfirms the notion that chronic illnesses are not diseases of the "poor." Asset Rich and Asset Intermediate households have significantly more chronically ill members than Asset Poor or Asset Very Poor households (Table 8). Asset Rich households also have significantly more disabled members. Over 40% of Asset Rich households have a chronically ill member, the same percentage that host at least one orphan.

Elderly and Youthful Households

Elderly households are defined as those households having members living alone who are above the age of sixty or only having youth and children below the age of 18. Of the 1,663 households sampled, 82 (4.9%) satisfied these criteria. The majority (57%) of these were male-headed households.

A youthful household is any household whose head of household is below 18 years of age. In the sample, only two households met these criteria, both of which were headed by a male member.

Vulnerable Households

C-SAFE works to improve the food security of vulnerable households. There are a number of types of vulnerable households in Zambia, including female-headed households, households with chronically ill members, households with orphans, resource-poor households, and elderly households. Table 9 below shows the percentage of households in each of these vulnerability categories, with the exception of resource-poor households, which are presented in Section III.C, Assets. Data is provided for the general population as a whole and by survey zone. The percentage of vulnerable households in the C-SAFE project areas is very high. Nearly sixty percent of households surveyed fall into one or more types of vulnerable household as defined by C-SAFE.

Table 9: Percent of vulnerable households by category.

	Female HHH	Elderly HHH	Chronically Ill Member	Hosting Orphans
	% of households			
General Population	**21.5**	**4.9**	**20.9**	**33.5**
Zone 1	**22.0**	**4.6**	**31.5**	**41.6**
Zone 2	**15.2**	**3.6**	**32.5**	**35.2**
Zone 3	**21.9**	**4.3**	**33.3**	**27.4**
Zone 4	**26.9**	**7.2**	**21.7**	**29.8**

Any particular household can be in from none to all four of the vulnerable household categories above. For example, an elderly female head of household with chronically ill household members and hosting orphans would be in all four categories. Likewise, a 45-year-old male-headed household with no orphans or chronically ill members would not appear in any of the vulnerable categories.

Hosting orphans is a significant factor contributing to household vulnerability. Zone 1 had the highest number of households hosting orphans. Zone 4 had significantly higher numbers of female-headed households (26.9%) than the other zones. This zone includes Shangombo and Mongu. The reason for the higher levels of female headed households may be the migration of males to urban areas in search of employment. Zone 4 also had a slightly higher percentage of elderly households.

Table 10: Number of vulnerability categories.

	Frequency	Percent
No vulnerability categories	651	39.1
One vulnerability category	612	36.8
Two vulnerability categories	325	19.5
Three vulnerability categories	73	4.4
Four vulnerability categories	2	.1
Total	1663	100.0

The preceding table (Table 10) shows the percentage of households found in no vulnerability category, and the number of households found in 1-4 vulnerability categories. Overall, 60.9% of all households surveyed were found to be in at least one of the four vulnerability categories, and 24% of households are in at least two vulnerability categories.

Although Zones 3 and 4 host more orphans and chronically ill, they have only slightly more households in at least one vulnerability category (Table 11). Zone 1 has the highest rate, with 63.7% of households in at least one vulnerability category.

Table 11: Number of vulnerability categories by survey zone.

Survey Zone		No vulnerability categories	One vulnerability category	Two vulnerability categories	Three vulnerability categories	Four vulnerability categories	Total
1	Frequency	150	143	93	26	1	413
	Percent	36.3	34.6	22.5	6.3	.2	100.0
2	Frequency	157	168	79	11		415
	Percent	37.8	40.5	19.0	2.7		100.0
3	Frequency	170	150	78	17	1	416
	Percent	40.9	36.1	18.8	4.1	.2	100.0
4	Frequency	174	151	75	19		419
	Percent	41.5	36.0	17.9	4.5		100.0

Dependency ratio

Dependency ratios are useful parameters for defining vulnerable households, as they describe the ratio of non-productive to productive members of a household. Dependency ratios are often calculated by the following formula:

*(population < age 15 and > age 65/working-age population (15-64)) * 100*

Using this formula, the dependency ratio is expressed as a percentage instead of as a ratio between zero and one. For C-SAFE, which focuses on vulnerable households many of

which have non-working members in the 15-64 year age category, the following formula is used:

*((total number in the household – productive members)/productive members) * 100*

A dependency ratio of 90, thus, means there are 9 dependants for every 10 working members. It indicates the economic responsibility of those economically active in providing for those that are not able to be economically active (due to age or illness, for example). C-SAFE uses this modified definition of dependency to capture the reality of rural life in Zambia – there are children under age 15 who are economically active either working on the land or in the informal sector of the economy, and there are many adults household members who would normally be economically active but who are suffering from long-term illness. Thus, C-SAFE's dependency ratio is a measure of the dependence that non-working people have on working people. In general, the larger the dependency ratio, the greater the vulnerability of the household and the burden on productive members to provide basic consumption needs for those people who are dependent.

Using the survey population, the mean dependency ratio was calculated using the above to methods. As Table 12 shows, the C-SAFE dependency ratio is 172.8, about 12% higher than the classical dependency ratio.

Table 12: Mean dependency ratios.

	CSAFE Dependency Ratio	Classic Dependency Ratio
N	1621	1544
Mean	172.79	150.03
Std. Deviation	137.16	115.07

Table 13: Dependency ratio categories.

	Frequency	Percent
Low	668	40.2
Medium	524	31.5
High	471	28.3
Total	1663	100.0

Using the dependency ratio, three categories were created and assigned to each household, corresponding to low, medium and high dependency ratios. Low dependency ratios ranged from zero to 100, medium ranged from 101 to 200, and high was above 200. The resultant groups and their frequency and percentage of the population are provided in Table 13.

Table 14: Dependency ratios for selected strata.

Category	C-SAFE Dependency Ratio
General Population	**172.8**
Male-headed households	**164.9**
Female-headed households	**196.6**
Zone 1	**202.5**
Zone 2	**189.8**
Zone3	**161.5**
Zone4	**134.4**
HHs w/ chronically ill members	**192.5**
HHs w/ orphans	**211.1**
Asset Very Poor	**157.6**
Asset Poor	**171.2**
Asset Intermediate	**190.8**
Asset Rich	**210.8**

Table 14 provides C-SAFE dependency ratios for selected strata. The overall mean dependency ration is 172.8, reflecting the large number of dependents with respect to working members in rural Zambian households. The highest dependency ratio is for households hosting orphans at 211.1, followed by Asset Rich households at 210.8. Male-headed households and Zone 4 have the lowest dependency ratio, at 164.9 and 134, respectively. There are large and significant differences ($p<.001$) among survey zones with the highest dependency ratio found in Zone 1, followed by Zone2, 3 and 4. A clear relationship also exists between dependency ratio and asset category, with Asset Very Poor households having the lowest dependency ration and Asset Rich households the highest. This is atypical of many countries where poor, rural households often have the highest dependency ratio. This may be explained by the fact that in Zambia, families usually depend on better off relatives to look after orphans.

Table 15 shows the percent of vulnerable household types in the survey population, and the percentage of each vulnerable household type by dependency category. A significant percentage of female-headed households and elderly-headed households are in the low dependency category. Household sizes are smaller in these households and there are generally more working members to non-working members. Households with chronically ill members and those hosting orphans are equally likely to be found in any of the three dependency categories. This means that chronically ill and orphans are almost equally distributed among dependency category, and it is not possible to generalize that chronically ill are found, for example, in high dependency households.

Table 15: Percent of vulnerable households by dependency category.

	Female HHH	Elderly HHH	Chronically Ill Member	Hosting Orphans
	% of households in survey population			
General Population	**21.5**	**4.8**	**29.7**	**35.5**
	% of vulnerable HHs			
Low Dependency	**41.2**	**65.3**	**33.6**	**30.8**
Medium Dependency	**26.3**	**19.4**	**33.4**	**33.5**
High Dependency	**32.5**	**15.3**	**33.0**	**35.7**

III.C. Education

Out of 4,471 children aged 6 to 18 years old in the survey, 962, or 21.5%, have never been to school (Table 16). Just over 69% of school-aged children are currently attending school, while only 4% have completed primary school. Encouragingly, the attendance rate for male and female school-aged children does not significantly vary, and, the attendance rates for orphans, both males and females, are higher than in the general population. In the general survey population of school-aged children, 12.1% (414 youth) have dropped out – 11.2% (199) of males and 13.0% (215) of females. Dropout rates are about the same for orphans at 12.2% (100) overall, with 10.6% (46) of male orphans and 14.0% (54) of female orphans leaving school versus11.4% (153) and 12.7% (161) for male and female non-orphans, respectively.

Table 16: School Attendance for School-Aged Children (6-18 years old)

Children 6-19	Never been to school	Primary uncompleted	Primary completed	Secondary	Above Secondary	Total aged 6-18
Number of children (% of total)	962 (21.5%)	3091 (69.1%)	188 (4.2%)	227 (5.1%)	3 (0.1%)	4471
Number of male children (% of total)	495 (21.5%)	1601 (69.7%)	90 (3.9%)	110 (4.8%)	2 (0.1%)	2298
Number of female children (% of total)	467 (21.5%)	1490 (68.6%)	98 (4.5%)	117 (5.4%)	1 (0%)	2173
Number of male orphan children (% of total)	82 (15.8%)	387 (74.4%)	24 (4.6%)	25 (4.8%)	2 (0.4%)	664
Number of female orphan children (% of total)	92 (18.9%)	345 (70.8%)	19 (3.9%)	31 (6.4%)	0 (0%)	587

The primary reason cited by households for dropping out of school is provided in Table 17. Just above 50% of dropouts have left school because the household could not afford the fees. Many households cited "other" reasons, such as low motivation, distance to school, and dissatisfaction with the school system. Reasons do not vary by gender or orphan status.

Table 17: Reasons for School Drop

	School Fees too high	Household needed labor	Chronically ill or disabled	Marriage	Other	Total
Male children	104 (52.5%)	7 (3.5%)	14 (7.1%)	1 (0.5%)	72 (36.4%)	197
Female children	109 (51.7%)	8 (3.8%)	13 (6.2%)	19 (9.0%)	62 (29.4%)	211
Total	213	15	27	19	134	409

School attendance does not vary significantly by survey zone (Table 18). In all four zones, attendance rates are between 85% and 88%. In Zone 3, about 14% of school-aged children have dropped out, as opposed to about 11-12% in the other three zones. School completion rates are low, primarily due to the age bracket considered.

Table 18: School attendance data by survey zone.

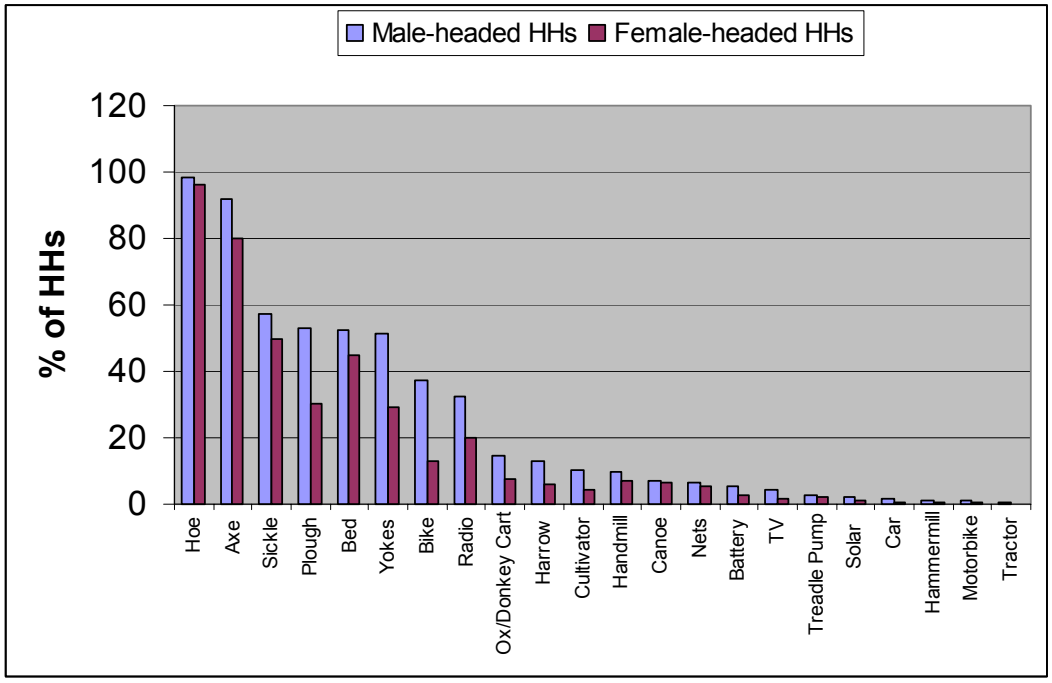
Survey Zone		Frequency	Percent
1	Attending	944	88.3
	Dropout	121	11.3
	School completed	4	.4
	Total	1069	100.0
2	Attending	821	88.4
	Dropout	103	11.1
	School completed	5	.5
	Total	929	100.0
3	Attending	661	85.2
	Dropout	110	14.2
	School completed	5	.6
	Total	776	100.0
4	Attending	568	87.3
	Dropout	80	12.3
	School completed	3	.5
	Total	651	100.0

III.D. Assets

Asset ownership is an important indicator of wealth and is a useful proxy for characterizing livelihood security of households. In Malawi and other countries such as Madagascar, the value of assets owned by rural households has been shown to correlate highly with other livelihood indicators, and to closely mimic qualitative wealth rankings.

Overall there is an inequitable ownership of assets between male and female-headed households (Figure 6). In every asset category measured, male ownership is higher than female ownership. Some key assets with the largest gap between the two genders includes ploughs, yokes, axes, radios and bicycles, impacting the extent to which female households can perform key agricultural labor tasks, listen to radio broadcasts, and transport themselves and goods.

Figure 6: Percent of households owning various assets, by gender.



Asset ownership also varies considerably among the four survey zones. In general, productive assets used primarily for agriculture are owned at a higher rate in the first three zones as opposed to Zone 4, which appears to be the poorest zone in asset ownership. This same trend continues for non-productive assets, with households in Zone 4 owning fewer items such as radios, beds or bicycles (Table 19).

Table 19: Asset ownership by zone.

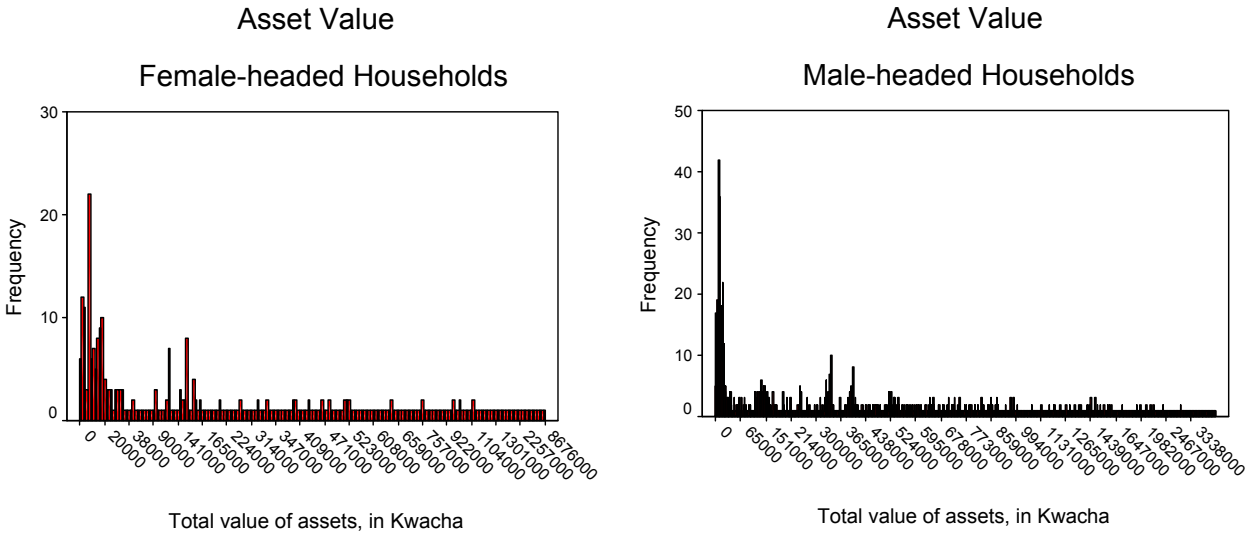
Asset	Zone 1	Zone 2	Zone 3	Zone 4
Hoe	407 24.5%	408 24.5%	401 24.1%	414 24.9%
Sickle	290 17.4%	283 17.0%	248 14.9%	107 6.4%
Plough	215 12.9%	225 13.5%	214 12.9%	146 8.8%
Axe	375 22.5%	379 22.8%	374 22.5%	361 21.7%
Ox/Donkey Cart	70 4.2%	88 5.3%	37 2.2%	23 1.4%
Handmill	38 2.3%	75 4.5%	38 2.3%	1 0.1%
Hammermill	4 0.2%	12 0.7%	0 0%	2 0.1%
Yokes	217 13.0%	226 13.6%	215 12.9%	115 6.9%
Treadle Pump	4 0.2%	12 0.7%	10 0.6%	14 0.8%

Table 19: Asset ownership by zone (cont.).

Asset	Zone 1	Zone 2	Zone 3	Zone 4
Cultivator	73 4.4%	54 3.2%	19 1.1%	2 0.1%
Harrow	74 4.4%	82 4.9%	35 2.1%	2 0.1%
Tractor	1 0.1%	4 0.2%	3 0.2%	0 0%
Nets	20 1.2%	4 0.2%	23 1.4%	55 3.3%
Radio	149 8.9%	151 9.1%	128 7.7%	63 3.8%
TV	29 1.7%	11 0.7%	17 1.0%	1 0.1%
Solar	10 0.6%	9 0.5%	11 0.7%	4 0.2%
Bed	298 17.9%	240 14.4%	184 11.1%	123 7.4%
Bike	186 11.2%	198 11.9%	129 7.6%	20 1.2%
Motorbike	5 0.4%	7 0.4%	5 0.4%	1 0.1%
Canoe	11 0.7%	5 0.3%	26 1.6%	75 4.5%
Car	8 0.5%	9 0.5%	3 0.2%	1 0.1%
Battery	30 1.8%	26 1.6%	21 1.3%	2 0.1%

Figure 7 shows the value of assets owned by gender of the head of household. Asset values for both genders are heavily skewed towards low asset values, reflecting the impoverished conditions found in rural Zambia. However, even though the range of asset values is similar, the lower asset values for male-headed households are considerably higher than for female-headed households, which is why a higher percentage of female-headed households are found in the asset very poor category.

Figure 7: Asset Value by Gender.



There are also important differences in asset value by survey zone (Tables 20 and 21). Average asset value in Zone 2 is almost three times that of Zone 4, the poorest of the four zones. Means comparisons show that Zones 1 and 2 are statistically the same despite the more than 100,000 kwacha difference. This is due to the high variance in asset ownership. All other zonal differences are significant.

Tables 20 and 21: Mean and median asset ownership by survey zone; LSD means comparison.

ASSETS

Zone 1	N	413
	Mean	896000.00
	Median	555000.00
Zone 2	N	415
	Mean	1023710.84
	Median	536000.00
Zone 3	N	416
	Mean	717105.77
	Median	457000.00
Zone 4	N	419
	Mean	381140.81
	Median	172000.00

Dependent Variable: ASSETS

LSD

Zone	Zone	Mean Difference (I-J)	Std. Error	Sig.
1	2	-127710.84	84093.129	.129
	3	178894.23*	84042.700	.033
	4	514859.19*	83892.676	.000
2	1	127710.84	84093.129	.129
	3	306605.07*	83941.015	.000
	4	642570.03*	83790.809	.000
3	1	-178894.23*	84042.700	.033
	2	-306605.07*	83941.015	.000
	4	335964.96*	83740.197	.000
4	1	-514859.19*	83892.676	.000
	2	-642570.03*	83790.809	.000
	3	-335964.96*	83740.197	.000

*. The mean difference is significant at the .05 level.

Asset ownership is related to a household's ability to recover from shock, as assets can be used as security or collateral when a household needs income. Also, if poor asset households are forced to sell their productive assets, as is common in prolonged crises or

when a household experiences multiple shocks (e.g. – deaths of household members during a drought period), they have a difficult time fully recovering, and their food and livelihood security can spiral downward.

Table 22: Mean asset ownership, in Kwacha, by selected vulnerable groups.

Category	N	Asset Value (in Kwacha)
General Population	1663	753,399
Low Dependency Ratio	668	579,537
Medium Dependency Ratio	524	850,431
High Dependency Ratio	429	941,468
Chronically Ill HHs	494	909,927
Households with Orphans	557	905,384
0 Vulnerable Categories	651	721,884
1 Vulnerable Category	612	764.839
2 Vulnerable Categories	325	863,772
3 Vulnerable Categories	73	463,863

Asset ownership by vulnerable group is shown in Table 22 above. Vulnerable households in Zambia are able to accumulate assets at a higher rate than the general population, which is explained by the fact that in the survey population, wealthier households are hosting the larger numbers of orphans and chronically ill members. This leads to the conclusion that in C-SAFE operational zones of Zambia, the majority of households hosting orphans and chronically ill may be among the relative wealthy households. However, in these types of vulnerable households, assets can erode quickly if the family is forced to sell off assets in order to pay for health expenses, funerals, etc.

However, due to high variance in the data, there is no real difference among asset values of vulnerability categories 0, 1 and 2 in Table 22. Households in three vulnerability categories, however, have statistically lower asset values.

Assets Sales

Table 23: Number of assets sold.

	Frequency	Percent
0	*1533*	*92.2*
1	*101*	*6.1*
2	*20*	*1.2*
3	*3*	*.2*
4	*5*	*.3*
5	*1*	*.1*
Total	*1663*	*100.0*

In all, 7.8% of households sold at least one of the twenty-one assets included in the questionnaire (Table 23). Most of these assets are "productive" assets, meaning that they play a role in generating household income. The sale of a productive asset is often a coping strategy to mitigate a household crisis. When asked why they sold an asset, 77% of households responded that they sold the asset to meet household food needs. Another 9% sold an asset to meet normal expenses. Only 6% of those who sold assets did so to pay for medical expenses and only 2% to pay for school fees.

III.E. Land Use and Production

The majority of households that were included in the study are engaged in agricultural activities. Only 6 households out of 1,663, or less than 0.03% of the sample, did not have access to land for the 2002-2003 cropping season. The average number of hectares accessible to households was 6.2, while the average number of hectares actually cultivated was less than half of what was accessible, or 2.5 hectares per household. Area cultivated ranged from one-tenth of a hectare to 100 hectares.

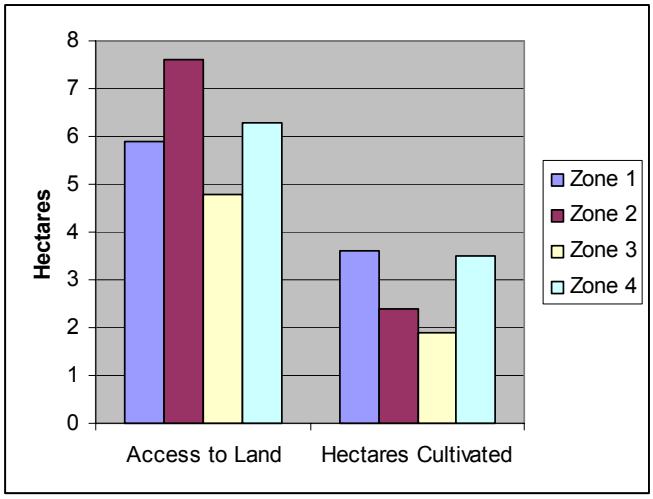
Table 24: Hectares accessible and cultivated, by gender.

Statistics

Sex of HHH		Number of hectares	Hectares cultivated
Male	N	1305	1303
	Mean	6.6436	2.6791
	Median	4.0000	1.7500
Female	N	358	355
	Mean	4.3671	1.8846
	Median	3.0000	1.0000

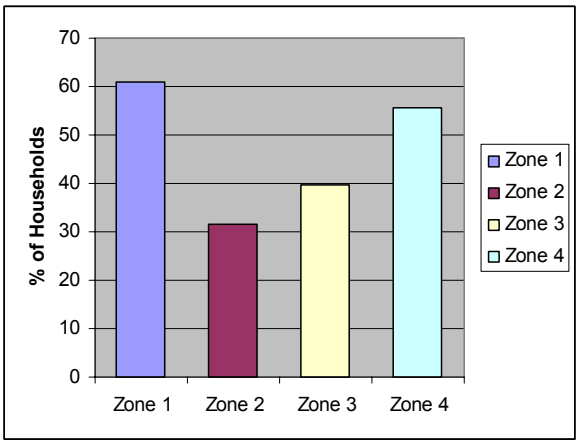
Table 24 shows that male-headed households had access to, on average, about 50% more land than female-headed households (6.6 versus 4.4 hectares, respectively). They left slightly larger amounts of land out of cultivation, however, only farming 2.7 hectares, or 40% of what was accessible. Female-headed households cultivated, on average, 1.9 hectares, or 43% of what was available.

Figure 8: Cultivation trends by zone.



Access to land varies by survey zone (Figure 8). Zone 2 households had, on average, access to significantly more land than households in the other three zones. The average amount of land in Zone 2 is 7.6 hectares, compared to 5.9, 4.8 and 6.3 hectares in Zones 1, 3 and 4, respectively. Households in Zone 2 and Zone 4 both cultivated 3.5 hectares, despite large difference in access noted above. Zone 1 and Zone 3 households cultivated 3.6 and 1.9 hectares, respectively.

Figure 9: Hectares cultivated as a percentage of land available



Percentage of land cultivated compared to land available is the highest in Zone 1, where households cultivated 61% of land they had access to and was the lowest in Zone 2, at just above 30% (Figure 9). Percentage of land does not reflect the actual amount of land being used, only the "efficiency" with which it is being used. Thus, even though Zone 4 uses a large amount of its available land compared to Zones 2 and 3, households are still relatively asset poor.

Cultivation trends for each of the four asset categories are shown in Table 25. As expected, those households with the fewest assets also had access to the least land and cultivated the least land. Asset Very Poor households cultivated only 1.7 hectares each, compared to 3.0 hectares for Asset Poor households, 3.5 hectares for Asset Intermediate households, and 7.7 hectares for Asset Rich households.

Mean for all four asset categories are different, meaning that access to land is significantly greater as asset category increases from Very Poor to Rich. The Asset Very Poor households cultivated the lowest percentage of their land available (39%) while the Asset Rich households cultivated 52% of their available land.

Table 25: Cultivation trends by asset category.

Asset categories		Number of Hectares	Hectares Cultivated
Asset Very Poor	N	582	579
	Mean	4.4026	1.7245
	Median	3.0000	1.0000
Asset Poor	N	749	748
	Mean	5.8598	3.0205
	Median	4.0000	1.5000
Asset Intermediate	N	249	248
	Mean	8.4500	3.3591
	Median	5.5000	2.5000
Asset Rich	N	83	83
	Mean	14.1928	7.6898
	Median	10.0000	5.0000

The difference in cultivation trends shown in Table 25 is significant for asset category comparison ($p<.001$). Asset very poor and asset poor households have access to and cultivate significantly less land than the wealthier asset households.

Table 26 highlights some important differences in access and use of land by vulnerable category. The differences with respect to access to and cultivation of land with respect to gender of the head of household have been discussed above. Table 22 shows, however, that male and female-headed households are cultivating nearly the same percentage of their available land. HHs with high dependency ratios cultivate significantly less land than households with medium or low dependency. High dependency households often have more available labor for routine agricultural activities (e.g. – even if children are attending school they can supply labor at key points in the cropping cycle), but it the high dependency ratios are a result of high chronic illness, as is the case in Zambia, then the household has not only lost labor, but it has probably lost some one of its productive members. Recall in Table 14 the fact that high dependency households are generally hosting orphans and have the highest percentage of chronically ill members. These facts together suggest that high dependency households are not cultivating a high percentage of their land because of key labor shortages due to chronic illness.

Table 26: Cultivation trends by selected vulnerable categories.

Category	N	Number of Hectares Accessible	Hectares Cultivated	Hectares Cultivated as % of Hectares Available
General Population	1657	6.18	2.86	46.3
Male-headed Households	1301	6.66	3.12	46.8
Female-headed Households	356	4.39	1.90	43.3
Low Dependency Ratio	668	5.35	2.32	43.4
Medium Dependency Ratio	522	6.31	3.70	58.6
High Dependency Ratio	428	7.43	2.73	36.7
Chronically Ill HHs	489	6.94	2.49	35.9
Households with Orphans	554	6.38	3.48	54.5
0 Vulnerable Categories	651	6.18	2.72	44.0
1 Vulnerable Category	610	6.27	3.42	54.5
2 Vulnerable Categories	323	6.41	2.40	37.4
3 Vulnerable Categories	71	4.25	1.51	35.5

When households were asked to provide reasons for leaving land uncultivated, the following frequencies resulted:

Lack of rainfall (drought)	**37.3%**	**Other**	**3.1%**
Lack of seed	**18.5%**	**Poor soils**	**2.0%**
Lack of draught power	**15.5%**	**Lack of other inputs**	**8.9%**
Poor/too much rain	**9.7%**	**Not enough land**	**0.3%**
Lack of labor	**4.8%**		

A large percentage of households (37.3%) left land uncultivated due to drought, which discouraged them from investing labor and financial resources on their fields. Another large percentage, 18.5, said they lacked enough seed to utilize all of their land.

Table 27: Reasons land left uncultivated, by sex of household head.

		Sex	
		Male	Female
Percent	Not enough land	.1	.9
	Drought	35.5	43.5
	Poor soils	1.9	2.4
	Not enough labor	5.2	3.5
	Not enough seed	19.7	14.4
	Lack of inputs/fertilizer	7.9	12.4
	Lack of draught power	17.1	10.0
	Other	2.9	3.5
	Poor or too much rain	9.8	9.4
	Total	100.0	100.0

Table 27 shows these responses for male and female headed households. A higher percentage of female-headed households left land uncultivated due to drought. This suggests that they are lass able to take the risks of investment, or they put their scarce labor to other uses during drought periods. Many women also indicated that they did not have enough inputs other than seed to put more of their land into production. Men were more likely to mention a shortage of seed or draught power.

Table 28: Reasons for leaving land uncultivated.

Table 28 shows reasons for leaving some land uncultivated by survey zone. From this table, it appears that drought was perceived as a bigger problem in Zones 1 and 4. These two zones also had a higher percentage of households citing labor shortage as a reason for leaving some land uncultivated. Seed was cited more often in Zones 2 and 3, as was lack of draught power. Poor rainfall distribution, or too much rain, was frequently cited in Zone 1 and often cited in Zone 3.

	Percent			
	Zone			
	1	2	3	4
Not enough land	.5			.5
Drought	41.8	27.3	34.1	44.8
Poor soils	1.6	.8	1.5	3.7
Not enough labor	7.7	2.0	1.3	8.1
Not enough seed	13.2	22.0	21.8	17.2
Lack of inputs/fertilizer	9.8	12.1	8.5	5.7
Lack of draught power	6.9	22.5	17.7	15.3
Other	1.9	3.9	3.3	3.2
Poor or too much rain	16.7	9.3	11.8	1.5
Total	100.0	100.0	100.0	100.0

Table 29 provides summary data for cereals for the general population and the four survey zones. Maize, obviously, is the dominant crop and it is cultivated by more than 97% of all households. The only important regional difference is in Zone 4, where significantly fewer (75%) households grow maize. Zone 4 is also where the hectarage per household is highest at 2.3, so although fewer households are grew maize, those that do grew more of it. The majority of maize seed comes from direct purchase or from NGOs.

Sorghum and millet, two crops adapted to arid climates, were cultivated by 13.3% and 16.8% of farm households, respectively. Sorghum is grown by 23% of households in Zone 3 and millet by 42% of households in Zone 4. Both of these crops are grown more for beer brewing than for consumption. Hectarage of sorghum and millet are both highest in Zone 4. NGOs supply much of sorghum seed, and households also rely heavily on seed retained

from previous harvests. For millet, NGOs were the only source of supply cited in Zone 1. Households in other zones rely on purchasing millet seed or saving it from previous harvests. Both sorghum and millet production were low, perhaps reflecting the poor growing conditions experienced during the 2002/2003 cropping season.

Cassava is an important staple crop in Zone 4 where the soils are very sandy (Table 29). In this zone, almost one-third of all households grew cassava and production was over 300 kgs per household. Almost 14% of those households that grew cassava sold at least a portion of their harvest.

Table 29: Production of major cereal and staple crops among sampled households, by zone.

Crop	Survey Zone				
	General Population	Zone 1	Zone 2	Zone 3	Zone 4
Maize (% growing)	97.1	97.6	99.5	96.4	75.2
Area (hectares)	1.72	1.43	1.79	1.41	2.30
Dominant seed sources	Purchased	Purchased	NGOs	NGOs	Purchased
	NGOs	NGOs	Purchased	Purchased	NGOs
Production (kgs)	927.6	1,039	1,759	568.0	150.0
Value (Kwacha)	1,283,172	1,599,154	2,638,184	851,993	225,091
Households selling (%)	9.6	11.9	14.0	7.7	3.2
Sorghum (% growing)	13.3	4.1	16.4	24.3	8.4
Area (hectares)	0.81	0.44	0.52	0.71	1.63
Dominant seed sources	NGOs	Last harvest	NGOs	Purchased	Last harvest
	Borrowed	NGOs	Last harvest	Last harvest	NGOs
Production (kgs)	38.1	39.1	48.1	70.7	130.4
Value (Kwacha)	106,161	58,676	72,110	106,129	195,471
Households selling (%)	5.6	0.0	5.0	7.9	2.9
Millet (% growing)	16.8	0.2	4.6	20.0	42.0
Area (hectares)	1.67	0.25	0.42	0.84	2.03
Dominant seed sources	Last harvest	NGO	Last harvest	Purchased	Last harvest
	Purchased	NGO	Purchased	Last harvest	Purchased
Production (kgs)	100.2	83.0	158.3	91.4	98.1
Value (Kwacha)	150,318	124,500	237,553	137,177	147,170
Households selling (%)	2.6	0.0	6.3	1.3	2.8
Rice (% growing)	1.4		0.5	2.2	2.9
Area (hectares)	1.90		0.37	1.30	2.60
Dominant seed sources	Purchased		Seed Bank	Borrowed	Last harvest
	Last harvest		Borrowed	Purchased	Purchased
Production (kgs)	53.7		0.0	16.6	96.4
Value (Kwacha)	107,391		0	33,333	180,833
Households selling (%)	8.7		0.0	0.0	16.7
Cassava (% growing)	9.0	1.9	2.2		31.7
Area (hectares)	1.49	0.65	0.30		1.63
Dominant seed sources	Last harvest	Gift	NGO		Last harvest
	Purchased	Purchased	Last harvest		Purchased
Production (kgs)	276.39	5.37	8.44		310.83
Value (Kwacha)	276,393	5375	8444		310830
Households selling (%)	14.1	33.0	0.0		14.1

Table 29.1 shows figures for those non-cereal crops that were grown by at least three percent of households.

Table 29.1: Production of other major vegetable and cash crops among sampled households, by zone.

Crop	Survey Zone				
	General Population	Zone 1	Zone 2	Zone 3	Zone 4
Beans (% growing)	9.3	13.1	15.9	7.2	1.2
Area (hectares)	.83	1.33	.50	.64	.99
Dominant seed sources	NGOs	NGOs	NGOs	NGOs	NGOs
	Purchased	Purchased	Purchased	Purchased	Seed bank
Production (kgs)	49.7	34.6	66.1	34.9	85.0
Value (Kwacha)	99,329	69,111	132,121	69,800	170,000
Households selling (%)	14.5	14.6	15.6	5.0	40.0
Peanut (% growing)	19.2	31.5	22.2	17.3	2.1
Area (hectares)	0.83	0.81	0.79	0.62	3.17
Dominant seed sources	Purchased	Purchased	Last harvest	Purchased	Last harvest
	NGOs	Last harvest	Purchased	NGOs	NGOs
Production (kgs)	96.7	118.5	92.7	57.6	137.8
Value (Kwacha)	145,109	177,681	138,995	86,416	206,666
Households selling (%)	11.3	14.5	10.4	5.8	11.1
Cowpea (% growing)	19.4	19.1	40.5	16.3	1.7
Area (hectares)	0 .48	0.50	0.38	0.43	3.12
Dominant seed sources	NGOs	Purchased	NGOs	NGOs	Last harvest
	Purchased	NGOs	Purchased	Purchased	NGOs
Production (kgs)	49.9	53.7	54.8	32.6	59.6
Value (Kwacha)	149,860	161,126	164,392	97,897	178,714
Households selling (%)	6.2	3.0	2.8	2.3	14.3
Cotton (% growing)	5.5	11.9	10.4		
Area (hectares)	1.15	1.01	1.32		
Dominant seed sources	NGOs	Other	NGOs		
	Government	Government	Borrowed		
Production (kgs)	2427.3	547.0	4569.9		
Value (Kwacha)	2,184,554	492,337	4,112,895		
Households selling (%)	95.9	92.5	97.0		
Sweet Potato	9.3	24.2	8.7	3.8	0.5
Area (hectares)	1.18	1.63	0.35	0.30	0.70
Dominant seed sources	Last harvest	Last harvest	Last harvest	Last harvest	Last harvest
	Purchased	Purchased	Purchased	Purchased	Purchased
Production (kgs)	112.1	122.2	104.0	65.0	125.0
Value (Kwacha)	172,697	172,581	176,733	162,500	156,250
Households selling (%)	24.5	29.3	6.7	12.5	100.0
Green Vegetables	3.4	10.2	0.5	1.2	1.0
Area (hectares)	1.69	2.09	0.17	0.27	1.47
Dominant seed sources	Purchased	Purchased	Purchased	Purchased	Purchased
	Last harvest	NGOs	NGOs	Last harvest	Last harvest
Production (kgs)	59.7	20.5	50.2	239.2	15.0
Value (Kwacha)	72,227	25,323	52,000	358,833	30,000
Households selling (%)	81.3	88.9	100.0	50.0	50.0

Crops not included in the above table were cultivated by fewer than 1% of households queried, and include potato, onion, banana, papaya, tomato, tobacco, cashew and pumpkin. The most common non-cereal crops were peanut and cowpea, each cultivated by about 20% of households. Peanut was most common in Zone 1, but also cultivated in Zone 2 and 3. It was rare in Zone 4. The average area planted was less than one hectare and production was relatively low, about 100 kgs.

Peanut seed mostly came from purchases, seed retained from previous harvests, and NGOs. Cowpea was grown by 40% of households in Zone 2, and by 16-20% of households in Zones 1 and 3. It was not important in Zone 4. The area cultivated averaged nearly one-half hectare and the reported production was quite low, about 50 kgs. Cowpea seed was mostly purchased or provided by NGOs.

Overall, cash crop production was low throughout the survey zones. Cotton was cultivated in Zones 1 and 2 by 10-12% of all households. Those households planted about one hectare of cotton and derived their seed mostly from NGO and government sources. Cotton production, as reported by households, averaged about 550 kgs in Zone 1 and over 4,000 kgs in Zone 2. The reported economic gains were significant.

Production means for vulnerable households are quite varied (Table 30). Low dependency households had significantly lower cereals production than other dependency classes (Table 30). Part of this production shortfall comes from the fact that low dependency households are cultivating significantly less land than the other two dependency classes, and from the fact they produce much less per capita than other classes.

Table 30 Agricultural production for HHs producing crops, by selected strata.

Category	Total Cereal/Staple Production (kgs)	Total Other Crop Production (kgs)
General Survey Population	**883.7**	**217.3**
Male-headed households	**1,025.1**	**256.7**
Female-headed households	**368.5**	**73.8**
HHs hosting orphans	**826.6**	**265.3**
HHs not hosting orphans	**997.2**	**122.1**
HHs with chronically ill	**893.3**	**202.5**
HHs with no chronically ill	**879.7**	**223.5**
Low Dependency	**544.2**	**97.5**
Medium Dependency	**1,167.5**	**105.1**
High Dependency	**1,096.9**	**549.7**
Zone 1	**1,018.0**	**169.7**
Zone 2	**1,768.0**	**562.8**
Zone 3	**587.6**	**30.2**
Zone 4	**169.7**	**107.7**
Asset Very Poor	**280.2**	**51.9**
Asset Poor	**593.9**	**94.0**
Asset Intermediate	**1,348.8**	**414.0**
Asset Rich	**6,336.5**	**1,889.2**

Male-headed households dominate non-cereal production, and average almost

four times the number of kgs as female-headed households. Male-headed households also dominated other crop production, averaging nearly four times the production of female-headed households.

Households that do not host orphans had significantly higher cereal production than those hosting orphans, with the difference being about 175 kgs per household. Orphan-hosting households, however, produced more non-cereal crops and averaged more than twice the production of non-orphan households. There were no significant differences in either cereal or non-cereal production between those households with chronically ill members and those households without chronically ill members.

Zonal differences were significant, with Zone 4 producing far less than any other Zone, averaging a mere 170 kgs per household. In contrast, Zone 2 households averaged more than ten times this amount, or 1,768 kgs per household. Zone 1 had the next highest average production, at just over 1,000 kgs per household. Zone 3 was intermediate at almost 600 kgs per household. Non-cereal crop production was also highest in Zone 2 and it was lowest in Zone 3.

Large and significant differences in cereal crop production were also noted with respect to asset value of households. Asset rich households averaged over 6,000 kgs of cereal production, while asset very poor households averaged less than 300 kgs. This stark difference in staple food production highlights the precarious food security situation found in poor, agricultural-based households in Zambia.

III.F. Improved Techniques

Farm households were asked the following question, "Do you currently use one of the following techniques for any of your crops"? Results by survey zones are provided in Table 31.

Table 31: Cropping techniques currently known or used, by survey zone.

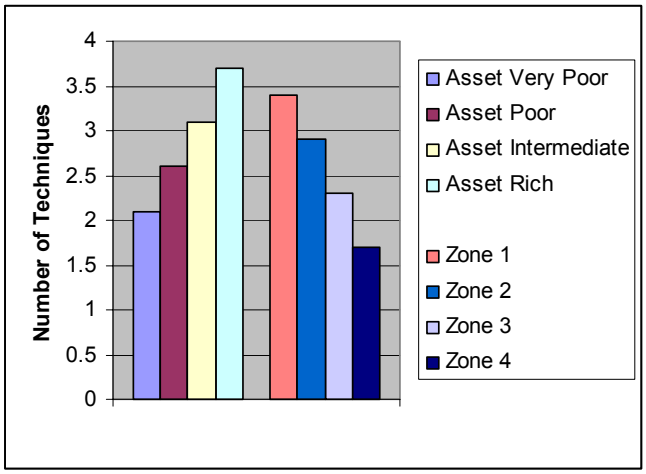
Cropping Technique	Survey Zone				
	General Population	Zone 1	Zone 2	Zone 3	Zone 4
Agroforestry	5.8	14.7	1.9	1.7	5.0
Water Harvesting	3.6	10.0	3.6	0.2	0.7
Food Storage	8.4	14.7	6.8	4.6	7.6
Winter Plowing	35.4	36.2	43.6	28.0	34.1
Conservation Tillage	40.6	46.5	55.1	44.8	16.2
Urea Treatment	31.2	38.0	42.4	32.8	12.2
Use of Legumes	2.8	5.1	3.6	1.7	1.0
Fodder Production	26.6	56.0	29.8	17.3	3.8
Compost/manure	62.5	73.3	73.9	61.9	41.3
Crop Rotation	41.0	46.9	31.0	32.8	53.2
Overall Average	25.8	34.1	29.2	22.6	17.5

The most commonly practiced techniques are composting/manuring (62.5 %), crop rotation (41.0 %), conservation tillage (40.6 %), winter plowing (35.4 %) and urea

treatment (31.2 %). There is no information on the frequency or quality of these practices, however. Several practices are not at all common, including the use of legumes, water harvesting, agroforestry food storage. In Zone 1, more than one third of the households are using at least one improved cropping technique compared to only 17.5 % of those leaving in Zone 4.

As household assets increase, so does the adoption of new or varied agricultural techniques. In Figure 10, the average number of techniques adopted per household is shown. Asset poor households are currently using, on average, just over 2 techniques, while asset rich households are currently employing almost 3.7 techniques.

Figure 10: Number of Techniques Employed



The regional data mimics those results shown in Table 29, with Zone 4 lagging far behind in its use of improved agricultural techniques and Zone 1 households employing the greatest number of techniques

Table 32 summarizes similar information for other vulnerable household categories. On average, about 30% of households employ at least one cropping technique, and the average household uses 2.6-3.1 techniques. Data in Table 32 serves as baseline data against which to measure progress and promoting agricultural techniques.

Table 32: Cropping techniques currently known or used, by survey zone.

Cropping Technique	Vulnerable Category				
	Female-headed households	HHs hosting orphans	High Dependency	HHs with chronically ill	HHs in 2 or more categories
Agroforestry	3.6	6.3	6.8	7.5	4.2
Water Harvesting	3.8	3.4	4.9	3.9	2.8
Food Storage	8.8	7.6	8.9	8.4	2.8
Winter Plowing	30.3	32.7	36.0	34.8	25.0
Conservation Tillage	33.9	39.6	48.5	44.9	43.1
Urea Treatment	26.7	32.0	36.2	34.2	31.9
Use of Legumes	1.4	3.1	3.3	4.7	2.8
Fodder Production	19.6	27.8	30.1	33.2	29.2
Compost/manure	52.7	62.5	69.6	64.6	51.4
Crop Rotation	39.6	40.4	42.3	36.8	34.7
Overall Average					
Number of techniques	2.2	2.6	2.8	2.7	2.3

III.G. Livestock

Seventy-eight percent of households surveyed own some livestock at the time of the survey (1,289 out of 1663 households, Table 33). Livestock ownership is highest is Zone 1, with t 89% of households reporting owning at least one type of livestock and lowest in Zone 4 (65% of households).

Table 33: Percent of HHs owning livestock, by zone.

FEZ		Frequency	Percent
1	Yes	366	88.8
	No	46	11.2
	Total	412	100.0
2	Yes	335	81.1
	No	78	18.9
	Total	413	100.0
3	Yes	315	75.9
	No	100	24.1
	Total	415	100.0
4	Yes	273	65.2
	No	146	34.8
	Total	419	100.0

Data for livestock by survey zone are presented in Table 34. Ownership of draught cattle is about 42% of households for the general survey population, reaching its highest in Zone 4 where over half of households (51%) own an average of 1.3 animals each.

Other cattle ownership is also highest in Zone 4 where the same percentage of households (51%) own cattle as own draught cows. The average number of animals owned is 1.8. Ownership is lowest in Zone 1. In Zone 2, although only 30% of households own other cattle, the average number owned is 6.6. Other livestock deaths have been the highest in Zone 3, and very few have been lost or consumed in any of the four zones.

Overall, about one-third of households own goats. Ownership ranges from a low of 10 % in Zone 4 to a high of 48% in Zone 2. The average number of goats owned ranges from 0.5 in Zone 4 to 2.3 per household in Zone 3. Goat mortality has been high relative to the number of goats owned, with 1.4 per household dieing in Zone 4.

Pig ownership is most common in Zone 2, where 22% of households own an average of 0.5 pigs. Pig sales are high relative to ownership, and consumption is also high. Very few households own donkeys or horses.

Over 85% of all households in the survey own poultry, and it is highest in Zone 1 where over 90% of households own an average of 3.7 birds. Although slightly fewer households in Zone 2 own poultry, the average number per household is the highest at 6.4 birds. Poultry is both sold and consumed at a higher rate than any other livestock. Finally, rabbits are owned by less than one percent of all households and are not an economically important animal.

Table 34: Livestock ownership among sampled households, by survey zone.

Livestock Type	Survey Zone				
	General Population	Zone 1	Zone 2	Zone 3	Zone 4
Draught Cows (% owning)	42.0	39.6	38.3	40.6	51.3
Number owned	1.65	1.89	1.51	1.81	1.35
Number Sold	0.61	1.08	0.24	0.34	0.70
Reason for Sale	Fill HH food needs (68%)	Fill HH food needs (62%)	Fill HH food needs (66%)	Fill HH food needs (73%)	Fill HH food needs (69%)
Number Died	0.79	0.40	1.58	0.48	0.74
Number Lost	0.07	0.09	0.03	0.12	0.05
Number Consumed	0.02	0.01	0.01	0.05	0.01
Other Cattle (% owning)	35.0	26.8	29.4	36.5	51.3
Number owned	3.03	1.98	6.60	1.76	1.78
Number Sold	0.56	0.79	0.38	0.40	0.64
Reason for Sale	Fill HH food needs (74%)	Fill HH food needs (84%)	Fill HH food needs (58%)	Fill HH food needs (83%)	Fill HH food needs (73%)
Number Died	0.62	0.55	0.38	0.90	0.59
Number Lost	0.04	0.01	0.04	0.05	0.06
Number Consumed	0.02	0.00	0.02	0.05	0.01
Goats (% owning)	35.5	47.1	48.4	30.2	10.3
Number owned	1.69	2.15	3.29	1.15	0.18
Number Sold	2.07	2.24	1.99	2.31	0.61
Reason for Sale	Fill HH food needs (74%)	Fill HH food needs (81%)	Fill HH food needs (70%)	Fill HH food needs (79%)	Normal expenses (50%)
Number Died	0.76	0.80	0.82	0.42	1.36
Number Lost	0.21	0.26	0.23	0.09	0.11
Number Consumed	0.27	0.29	0.28	0.18	0.36
Pigs (% owning)	15.3	15.1	22.0	12.4	10.6
Number owned	0.28	0.17	0.53	0.21	0.20
Number Sold	0.64	0.64	0.70	0.79	0.28
Number Died	0.98	1.51	1.07	0.49	0.45
Reason for Sale	Fill HH food needs (78%)	Fill HH food needs (83%)	Fill HH food needs (76%)	Fill HH food needs (79%)	Fill HH food needs (67%)
Number Lost	0.1	0.13	0.16	0.00	0.00
Number Consumed	0.20	0.20	0.18	0.03	0.52
Donkeys/Horses (% owning)	2.3	1.4	3.6	3.2	0.07
Number owned	0.11	0.01	0.02	0.13	0.10
Number Sold	1.62	2.20	2.02	0.90	0.00
Reason for Sale	Fill HH food needs (88%)	Fill HH food needs (100%)	Fill HH food needs (100%)	Fill HH food needs (75%)	Fill HH food needs (75%)
Number Died	0.66	0.80	0.58	0.80	0.00
Number Lost	0.03	0.20	0.00	0.00	0.00
Number Consumed	0.17	1.00	0.00	0.00	0.00
Poultry (% owning)	86.9	90.7	89.5	86.3	79.5
Number owned	1.13	5.68	6.43	5.05	2.86
Number Sold	3.20	3.70	4.42	3.06	0.92
Number Died	2.12	2.77	1.88	1.75	1.89
Reason for Sale	Fill HH food needs (77%)	Fill HH food needs (70%)	Fill HH food needs (85%)	Fill HH food needs (84%)	Fill HH food needs (54%)
Number Lost	0.53	0.83	0.56	0.32	0.31
Number Consumed	1.32	1.60	1.50	0.87	1.19

Except for poultry and rabbits, sale of livestock is not a common practice in Zambia and when livestock are sold, it is often to fulfill household food needs or to provide cash for a household emergency. Thus, livestock sales are often categorized as a negative coping strategy.

Value of Livestock

The value of livestock was estimated by using median values, in Kwacha, for each animal type obtained from various points throughout Zambia. Recalling that 77% of households own livestock, the average value of livestock assets for these households is worth about 3,583,472 Kwacha. The median value is 610,000 Kwacha, meaning that 50% of households have livestock valued less than this and 50% have livestock valued more. There is a large range of value found in livestock values and these values are skewed heavily toward high values (likely due to several livestock owners with significant herd numbers). Table 35 shows that much of the livestock wealth is with households that are also asset rich. The average value of livestock for asset rich households is about six times that of asset intermediate households, and about forty times that of asset very poor households.

Table 35: Livestock value, by selected strata.

Category	n	Average Livestock Value, in Kwacha
General Survey Population	**1213**	**3,583,472**
Zone 1	**333**	**2,872,369**
Zone 2	**315**	**5,519,232**
Zone 3	**299**	**3,032,311**
Zone 4	**266**	**2,880,800**
Asset Very Poor	**303**	**635,145**
Asset Poor	**596**	**1,819,299**
Asset Intermediate	**233**	**4,567,519**
Asset Rich	**81**	**25,345,454**

Table 35 also provides the average value by survey zone for livestock. These figures highlight the discrepancy in livestock value between Zones 1 and 4, both which average about 2.8 million Kwacha, with Zone 2 that averages nearly 5.5 million

Asset value of cattle is highly and positively correlated with the asset value of a household, meaning that as the value of assets of a household increase, so will the value of livestock. The relationship has a regression coefficient of $R=.138$ and is highly significant ($p<.001$).

Fish

Households were also asked about their access to fishing. In the survey population, 17.3% of households engaged in fishing during the previous 12 months. A total of 74% of these households consumed all of the fish they caught. Another 6% sold their entire catches, and the remaining 20% consumed a portion and sold a portion of their catch. The percent of households fishing ranged from a high of 26.7% in Zone 4 to a low of 9.6% in Zone 2. Sales of fish were highest in Zone 1 and lowest in Zone 4. About 20% of households in

asset very poor, asset poor and asset intermediate households engaged in fishing while only about 8% of the asset rich did the same.

III.H. Household Food Economy

Months of current food stocks is a good proxy indicator for food security, especially for rural households that primarily depend on their own production to satisfy a significant percentage of their food needs. In Zambia, the difference between what households perceive as the number of months they "normally" have sufficient food stocks from their own production and the number of months they expect to have from their current harvest is large. For the general population, the expectancy is that the current harvest will last about four months, six months less than the average ten months households report to produce during for a normal year.

Figure 11: Months of Normal and Current Food Stocks

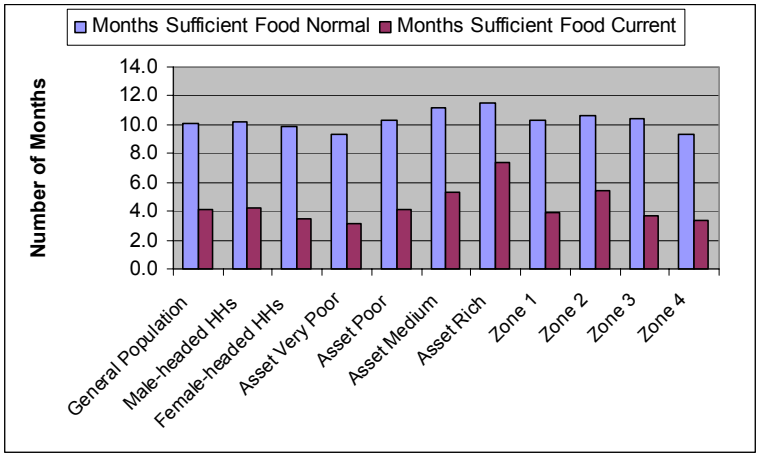


Figure 11 and Table 36 show this discrepancy for a number of strata. There is no significant difference between expectations of male and female headed households, both feel that current food stocks are only about 40% of normal. There is a trend when expectations are disaggregated by asset wealth. Asset Very Poor households normally expect their production to last about nine months and the current harvest to last three. Asset wealthy households normally expect between eleven and twelve months out of a harvest, and only seven and eight out of the current harvest. Although normal expectations by zone are similar, the outlook for the current harvest is slightly more positive in Zone 2.

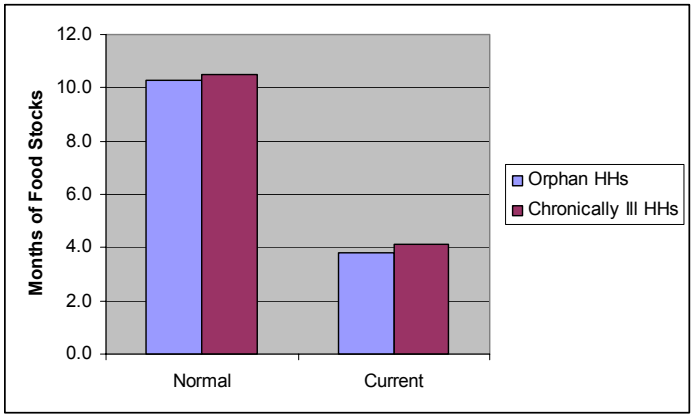
Table 36: Normal and present food stocks, by strata.

Strata/Category	Sub-strata	Months Sufficient Food Normal	Months Sufficient Food Current
Overall Population		10.1	4.1
Gender of HH Head	Male	10.2 a	4.2 b
	Female	9.9 b	3.5 a
Survey Zones	Zone 1	9.3 a	3.2 a
	Zone 2	10.3 b	4.1 b
	Zone 3	11.2 c	5.3 c
	Zone 4	11.5 c	7.4 d
Asset Rankings	Asset Very Poor	10.3 a	3.9 b
	Asset Poor	10.6 a	5.4 c
	Asset Medium	10.4 a	3.7 ab
	Asset Rich	9.3 b	3.4 a

Note: Within a strata, means with different letters are significantly different at p<.05. For example, male and female-headed households have significantly different months of normal food stocks.

Households hosting orphans and households with chronically ill members have been seen their expectations of current food stocks decline with the same magnitude. Figure 12 shows current and expected food stocks for these two vulnerable groups. Normal food stocks last approximately ten months out of a year, but stocks from the current harvest are expected to last, on average, just under four months.

Figure 12: Food stock projections for households with orphans and with chronically ill members.



When households were asked why their food stock expectations were lower for the current harvest than for normal harvests they provided a variety of reasons (Table 37). The majority responded that the primary reason was due to drought. Next, in order of importance, was a shortage of required seed, a lack of adequate draught power, too much rain or poorly distributed rain, and a shortage of other required inputs. Shortages attributed to poor soils, inadequate labor supply and not enough land were infrequently cited.

In general, male and female-headed household opinions mirrored those of the general population. Female-headed households, however, ranked a lack of other inputs (such as

fertilizer and pesticides) higher than did male-headed households. Viewpoints were also similar among the four survey zones, with the main difference being the views related to draught power. Zone 4 ranked labor shortages quite high compared to other groups.

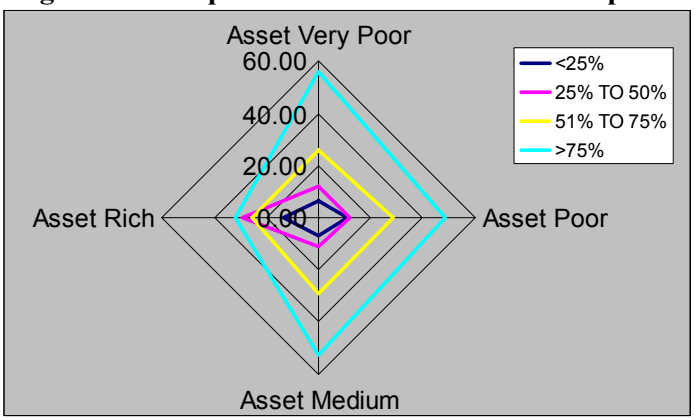
There was no difference in rankings between households with chronically ill members and those without, and only about 5% of households in each of these two categories cited labor shortages as a problem.

Table 37: Rankings of reasons for insufficient food.

	Not enough land	Drought	Poor soils	Not enough labor	Not enough seed	Lack of inputs	Draught power	Other	Too much rain or poorly distributed
	Rankings (highest = 1)								
General Population	9	1	8	6	2	5	3	7	4
Male HHs	9	1	8	6	2	5	3	7	4
Female HHs	9	1	8	6	2	3	4	7	5
Zone 1	9	1	8	6	3	4	5	7	2
Zone 2	9	1	8	7	3	4	2	6	5
Zone 3	9	1	7	8	2	5	3	6	4
Zone 4	9	1	6	4	2	5	3	7	8
Asset Very Poor	9	1	8	5	2	4	3	7	6
Asset Poor	8	1	7	6	2	5	3	9	4
Asset Medium	9	1	6	7	2	5	3	8	4
Asset Rich	8	1	7	5	2	4	6	9	3

Household budgets go primarily to procuring food. Figure 13 shows the proportion of the household income spent on food. Almost 40% of asset poor households spend 75% or more of their household income on food. This is significantly more than asset intermediate households and asset rich households.

Figure 13: Proportion of Household Income Spent on Food



III.I. Consumption and Food Aid

Survey participants were asked which food types were consumed in their households the day before the survey. Maize was the most significant food source with 88.3% of households eating maize, or maize meal, the previous day (Table 38). Over 63% of households also consumed green vegetables and 84% consumed salt. Beans and other vegetables were both consumed by 30-35% of households. Fat and oil were consumed by about one out of five households along with dairy products. Sugar or sugar products were used in just 17% of all households. Other foods were less used, including sorghum, millet, rice, other cereals, and cassava, all used in less than 10% of households. Still other foods were rare in the diet, with meat, chicken and eggs used in less than 5% of households. Fish, however, was consumed by about 12% of households. Beverage consumption was mostly other than tea and coffee.

The following table shows the percent of households consuming various food groups during the 24-hours prior to the survey.

Table 38: Percent of households consuming various food yesterday.

Food Item	Percent	Food Item	Percent
Maize	88.3	Vegetables	33.8
Sorghum	3.7	Green veggies	63.8
Millet	6.5	Fruit	5.7
Rice	1.8	Fats/Oil	20.3
Other cereals	8.1	Dairy	19.5
Beans	33.7	Sugar	16.9
Cassava/potatoes	7.9	Salt	83.9
Other tubers	15.1	Tea	5.3
Meat	6.4	Coffee	0.5
Fish	13.2	Beer	4.0
Chicken	1.8	Other beverages	14.1
Eggs	3.8	Other foods	23.6
Nuts	13.8		

Table 39 shows differences in the consumption of protein by various household classifications. Fish was consumed by more households than other protein sources. However, a significantly lower percentage of households with chronically ill and households in two or more vulnerability categories ate fish compared to other household types. Households with chronically ill members ate significantly less meat and eggs than other household types, but the same amount of chicken as the general population. Households in two or more vulnerability categories had the lowest overall protein consumption, followed by households with chronically ill members and high dependency households. Households hosting orphans had the highest protein percentages compared to other vulnerable groups.

Table 39: Consumption of protein within 24 hours of the survey, by household type.

Protein Category	Vulnerable Category					
	General survey	Female-headed households	HHs hosting orphans	High Dependency	HHs with chronically ill	HHs in 2 or more categories
Fish	13.2	12.6	14.5	12.8	11.8	10.6
Meat	5.6	6.7	7.7	6.1	4.7	4.2
Chickens	1.8	0.9	1.7	1.8	1.7	0.8
Eggs	2.9	2.2	3.6	5.2	2.1	2.8

Several indicators can be used in tandem to understand current food security in households. Two such indicators include the number of meals consumed the previous day and the number of items in the diet consumed in the previous day. These two indicators are provided in Table 40 below.

There is little difference in the mean number of meals per day for the majority of vulnerable groups. Those households with more assets tend to eat more meals per day. There are also important geographic differences, with zones 3 and 4 eating fewer meals than zones 1 and 2. The number of items in the diet varies significantly among asset groups, with a strong upward trend in the number of items as asset wealth increases. Zone 4 has the fewest number of items in the diet, significantly less than the other three zones ($p<.001$). The same applies for Zone 3 when compared to Zones 1 and 2.

Table 40: Number of meals and items in the diet by strata.

Category	N	Number of Meals	Number of Items in the Diet
General Population	1656	2.3	4.6
Male-headed Households	1299	2.3	4.6
Female-headed Households	357	2.3	4.6
Low Dependency Ratio	664	2.2	4.3
Medium Dependency Ratio	523	2.4	4.6
High Dependency Ratio	427	2.4	5.0
Chronically Ill HHs	554	2.3	4.7
Households with Orphans	492	2.3	4.7
0 Vulnerable Categories	648	2.3	4.5
1 Vulnerable Category	611	2.3	4.6
2 Vulnerable Categories	322	2.3	4.7
3 Vulnerable Categories	73	2.1	4.7
Asset Very Poor	579	2.1	3.9
Asset Poor	748	2.3	4.6
Asset Intermediate	247	2.6	5.4
Asset Rich	82	2.6	6.5
Zone 1	412	2.5	5.4
Zone 2	410	2.5	5.2
Zone 3	415	2.2	4.3
Zone 4	419	2.0	3.5

Table 41: Water Sources

Drinking water comes from a variety of sources, but about one-third of households receive their water from a pump, and another third from open wells (Table 41). Just over 24% of households only have access to surface water. Only a small number of households rely on covered wells (5%) and tap water (0.7%).

Water Source - Survey Population

		Frequency	Percent
Valid	Open well	551	33.1
	Covered well	83	5.0
	Pump	608	36.6
	Tap water	12	.7
	Surface water	406	24.4
	Other	3	.2
	Total	1663	100.0

Source of water varies considerably by survey zone, as shown in Table 42. Surface water use is highest in Zone 3, where approximately 30% of houses rely on it for their water. Open wells are highly common in Zone 4 where 69% of households use them for water. Pumps in this zone are rare. About half of all households use pumps in the other three zones.

Table 42: Source of water by survey zone.

Water source

Survey Zone		Open well	Covered well	Pump	Tap water	Surface water	Other	Total
1	Frequency	88	32	201	9	83		413
	Percent	21.3	7.7	48.7	2.2	20.1		100.0
2	Frequency	97	17	189	3	106	3	415
	Percent	23.4	4.1	45.5	.7	25.5	.7	100.0
3	Frequency	77	7	208		124		416
	Percent	18.5	1.7	50.0		29.8		100.0
4	Frequency	289	27	10		93		419
	Percent	69.0	6.4	2.4		22.2		100.0

Food Aid

Food aid is an important source of calories for many rural Zambian households. Respondents were asked whether or not their family had benefited from food aid during the previous six months. Of the survey population, the vast majority (89.3%) of households had benefited from food aid. Of those households receiving food aid, 80.7% received it from general feeding (Table 43). Less than 2% of households reported benefiting from pregnant/lactating women feeding programs, malnutrition feeding, or feeding for chronically ill. Food-for-work programs resulted in food for 11.3% of the survey households.

Table 43: Type of food aid for the general survey population.

		Frequency	Percent
Valid	General feeding	1159	80.7
	Pregnant/lactating women	27	1.9
	Malnutrition	4	.3
	Orphans	31	2.2
	Chronically ill	17	1.2
	FFW	162	11.3
	Other	36	2.5
	Total	1436	100.0
Total		1663	

Food aid was received by about the same percentage of households irrespective of their vulnerability category. As Table 44 shows, about 86% of households received food aid in female-headed households, the lowest percentage of all vulnerable groups. All other vulnerable groups had at least 90% of households receiving food aid (almost 89% of households considered non-vulnerable in this survey received food aid). Slightly higher percentages of households with chronically ill members and high dependency households received food aid. The average number of months food aid has been received was fairly uniform at about 3.6 months per household. The primary reasons households thought they did not receive food aid were also uniform, with about half of all non-receiving households feeling they did not meet the criteria for food aid. In general, about slightly more than half of all households report they give food to neighbors, or would if the need arose, and overall about 11% would expect repayment.

Table 44 also provides a breakdown of the percentage of households that receive food aid in each food aid category. Totals here can exceed 100% because a small percentage of households receive food aid in more than one category.

Table 44: Food aid by vulnerable category.

Type of Food Aid	Vulnerable Category				
	Female-headed households	HHs hosting orphans	High Dependency	HHs with chronically ill	General Survey Population
% receiving food aid	86.3	90.5	93.2	91.9	89.3
Number of months	3.3	3.6	3.7	3.7	3.6
Main reason not receiving	Did not meet criteria	Did not meet criteria	Did not meet criteria	Did not meet criteria	Did not meet criteria
Give food to neighbors	49.4	52.2	55.2	50.0	51.7
Expect repayment?	11.8	11.0	10.5	11.6	11.8
General feeding	78.3	79.4	80.5	77.7	87.0
Pregnant/lactating women	2.7	2.6	3.4	5.6	1.9
Malnutrition	0.7	0.4	0.3	0.7	0.3
Orphans	3.4	4.1	2.1	2.0	2.2
Chronically Ill	1.4	1.2	1.3	4.6	1.2
FFW	10.8	12.5	11.5	13.3	11.3
Other	4.7	2.7	3.3	4.6	2.5

Food aid was received by almost every household in Zones 1, 2 and 3 (93% or more) and by 68.7% in Zone 4.

Mortality

During the previous year, 17.6% of survey households (293) experienced at least one death. The average age of death was 25.5 years old. In just over half of all deaths, the individual was ill for more than three months. Table 43 provides mortality statistics for several survey strata. All vulnerable household categories had at least one death at a significantly higher rate than the general survey population, averaging about one in four to one in five, or 20- 25%, for most vulnerable groups. Zones 2 and 1 had the highest percentages of households with deaths. Average age was generally in the mid to upper 20s. Deaths by asset category varied significantly, with the asset rich households averaging more and younger deaths than the other categories. Over 67% of asset intermediate households with chronically ill members experienced at least one death in the previous year.

Table 43: Mortality statistics for selected strata.

Strata/Category	Sub-strata	HHs with Death in Last Year (%)	Average Age (yrs)	% Ill More Than 3 Months
Overall Population		17.6	25.5	51.6
Gender of HH Head	Male	15.4	24.5	48.3
	Female	25.7	29.5	54.5
Chronically Ill HHs		23.7	28.6	65.6
Orphan-hosting HHs		21.9	27.8	53.8
Survey Zone	Zone 1	22.0	27.9	60.9
	Zone 2	24.2	29.7	48.1
	Zone 3	15.9	27.1	50.7
	Zone 4	18.4	20.6	44.3
Asset Rankings	Asset Very Poor	16.6	24.7	57.9
	Asset Poor	18.0	26.8	47.7
	Asset Intermediate	18.1	30.5	67.7
	Asset Rich	20.5	22.1	42.3

III.J. Coping Strategies

The Coping Strategies Index (CSI) is a relatively simple and efficient indicator of household food security that corresponds well with other more complex measures of food insecurity. Developed by CARE, and field tested by WFP and CARE, the CSI has been used for early warning and food security assessments in eight African countries. The CSI gives a quantitative score for each household that is a cumulative measure of the level of coping - and therefore the measure of food insecurity. In similar studies in 6 countries in the Greater Horn of Africa region, this has been found to be a robust indicator of household food security, and one which is straight forward to measure and analyze, and can be used to track both household food security in emergencies, and the impact of interventions such as food aid.

The CSI measures the *frequency* and *severity* of a household's coping strategies for dealing with shortfalls in food supply. Information on the frequency and severity is combined into a single CSI score. Comparing scores and averages gives a good comparison of overall household food security and establishes the baseline for monitoring drought trends and the impact of interventions (food aid). The measure includes only those short-term consumption strategies that are most important in a particular context.

C-SAFE recognizes the CSI as a useful monitoring tool to measure changes in household food security status and provide program managers with timely information. To be effective, the CSI must be adapted to the local context and should be developed as part of a more time and resource intensive assessment. Developing the index from the raw data requires background knowledge of the indicator, or several days of training.

To develop the CSI, a short list of the most applicable coping strategies is developed. Examples of short term consumption coping strategies include:

1. **Dietary change**: from a more expensive preferred food to a less preferred option;
2. **Increase non-sustainable strategies to increase food supply**: such as credit or consuming seed stocks;
3. **Reduce the number of consumers**: send children elsewhere at mealtime; and,
4. **Rationing**: reducing portions, skipping meals or whole days, feeding some, but not all members of the family.

Through focus group work and field testing, a list of 14 coping strategies was developed during the assessment training (Table 44).

This list of strategies was incorporated into the survey questionnaire with five relative frequency categories ranging between "every day per week" to "never" (see Appendix C, Section I). Through focus group work, the assessment collected contextual information on the relevance of coping strategies among sample communities and determined the relative severity of each coping strategy by assigning a value between one and four to each strategy – or severity score.

To analyze the data, the frequency score recorded during the household surveys is multiplied by the severity score determined through focus groups. This produces a single score for each strategy, setting a baseline from which food security status can be monitored in a timely way.

Consumption Strategies

The household survey indicated which coping strategies the household used during the last 30 days (Table 39). Consumption strategies included borrowing food, borrowing money to buy food, buying food on credit, relying on less preferred foods as substitutes for maize, regularly reducing the number of meals eaten per day, regularly skipping entire days without eating due to lack of money or food, regularly eating meals of vegetables only, eating unusual types of wild food that are not normally eaten, restricting consumption of adults so children can eat normally, feeding working members at the expense of

nonworking members, eating all green maize fresh from the field, and slaughtering more animals than normal for food. Over the last 30 days, the respondents were asked if they participated in these coping strategies every day, 3-6 times per week, 1-2 times per week, less than one day per week, or never.

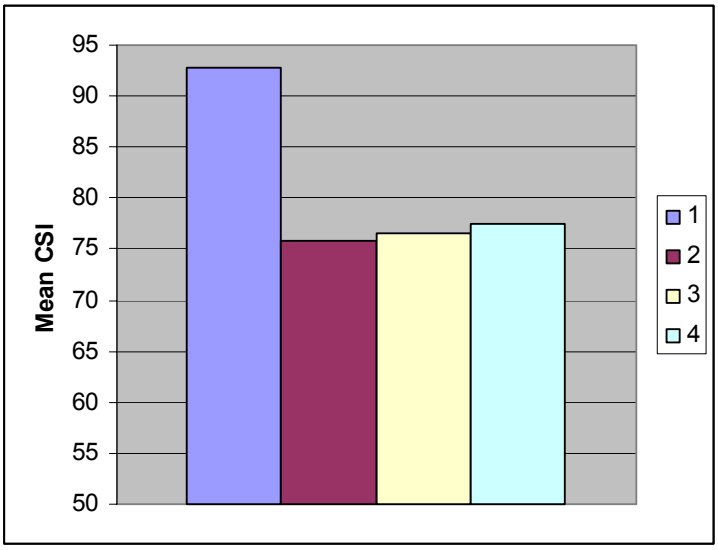
Table 44: Consumption strategies (percentage of HH using).

Consumption Strategies	Every Day	3-6 Times per Week	1-2 Times per Week	<1 Time per Week	Never
Rely on less preferred food or less expensive food? (2.00)	23.7	11.5	13.2	9.1	42.5
Borrow food, or rely on help from friends and/or relatives? (2.75)	1.6	8.3	14.6	11.4	64.1
Purchase food on credit? (3.25)	0.5	4.8	8.5	10.2	76.0
Rely more on wild food or rely more on hunting? (2.5)	6.3	8.2	7.5	8.7	69.2
Harvest immature crops? (3.50)	18.1	10.9	9.1	7.3	54.7
Send HH members to eat elsewhere? (3.25)	0.4	2.6	4.1	4.1	88.7
Send HH members to beg? (3.50)	0.8	3.8	4.6	5.2	85.6
Limit portion sizes at mealtime? (3.25)	20.0	10.9	12.7	8.9	47.5
Restrict consumption by adults so children can eat? (2.75)	3.3	8.8	14.9	11.7	61.3
Restrict consumption of non-productive members in favor of productive ones? (2.25)	0.7	2.2	2.6	2.8	91.7
Reduce the number of meals eaten in a day? (2.75)	23.3	14.7	17.3	9.6	35.1
Skip entire days without eating? (4.00)	1.0	6.4	11.8	12.4	68.4
Rely more on piecework? (2.00)	5.4	8.7	12.4	11.1	62.4
Increase reliance of sales of wild or natural products? (2.25)	3.9	3.7	4.6	6.3	81.4
Rely on food aid? (3.75)	14.2	10.0	11.1	15.6	49.1

Over half the households (54%) responded that they relied on less preferred food, limited their portions at meal time, reduced the number of meals they ate per day, and/or relied on food aid at least one time per week during the last 30 days. The most frequent coping behaviors, in order of their use every day, were reducing the number of meals per day, relying on less preferred foods, limiting portions at mealtime, harvesting immature crops, and relying on food aid. Over 75% of households never engaged in the following activities: purchasing food on credit, sending household members to beg or to eat elsewhere, favoring productive household members over non-productive household members, and increasing their dependency on the sale of wild or natural products.

The coping strategy index averaged 80.6 for all households, with a range of 44 to 186. Coping index values for the four survey zones are depicted in Figure 15. Zone 1 had the highest coping strategy index, averaging 92.7, which is significantly higher than the other zones ($p<.001$). The other three zones all have average CSIs of 76.0 to 77.5 and are statistically the same. The relatively high vale of zone 1 reflects a worse food security situation in that zone compared to the other zones.

Figure 15: CSI for the four survey zones.



The index is significantly correlated with several key food security variables, including asset value, number of food items in the diet, and total cereal production ($p<.001$). The CSI is provided in Table 45 for other key vulnerability categories.

Table 45: Number of meals and items in the diet by strata.

Category	N	CSI
General Population	1663	80.6
Male-headed Households	1305	80.4
Female-headed Households	358	81.3
Low Dependency Ratio	668	79.4
Medium Dependency Ratio	524	80.7
High Dependency Ratio	429	81.8
Chronically Ill HHs	494	85.0
Households with Orphans	557	80.0
0 Vulnerable Categories	651	78.8
1 Vulnerable Category	612	81.7
2 Vulnerable Categories	325	81.3
3 Vulnerable Categories	73	84.6
4Vulnerable Categories	2	89.3
Asset Very Poor	582	82.1
Asset Poor	749	82.2
Asset Intermediate	249	75.6
Asset Rich	83	71.4

Households with chronically ill members have a significantly higher index (85.0) than other vulnerable household types and non-vulnerable households. Male and female-headed households have no significant difference in their CSI score. Asset very poor and asset poor households have significantly higher CSIs than other asset categories.

IV. Summary

The following main points summarize the findings from the Zambia Baseline Survey:

1. Household sizes in Zambia tend to be quite large and in this survey averaged 6.6 individuals per household with a range from 1 to 40 individuals. Male-headed households average 7.0 individuals, significantly larger than the average of 5.4 individuals in female-headed households. Household size was lowest in Zones 3 and 4 as (6.2 and 5.8, respectively) and significantly higher in Zones 1 and 2 (7.6 and 7.0 respectively).

2. Rural households have very few assets. In this survey, about 80% of households were classified as asset poor or very poor. Households with limited assets are vulnerable, not only because of their relative poverty, but also because they have few items to divest should they be forced to spend money on food or emergencies.

2. The percentage of vulnerable households in the C-SAFE project areas is very high. One-third of rural households are hosting at least one orphan, and almost 11.0% of households are hosting double orphans. Female-headed households bear much of the burden in caring for orphans, with just over half of their households hosting at least one orphan child. Just over one-quarter of male households are doing the same. All survey zones have at least 25% of households hosting an orphan. In all, 7.8% of all children below 18 years of age included in the study are orphans with one parent deceased and the other living in the household. Another 6.4% are orphans with one parent deceased and the other living outside of the household.

3. Chronically ill individuals were present in 30% of households surveyed, and only a small but significant difference exists between the percentage of chronically ill found in male versus female-headed households. Almost 21% of households include at least one chronically ill individual, while 11% include at least one disabled person. Chronic illness is having a severe impact on household food security. Although they have, on average, access to more land they have the largest gap between what they have access to and what they cultivate. This signals a labor shortage in these households, and more land is left fallow.

4. Over 40% of asset rich households have a chronically ill member, the same percentage that host at least one orphan. Deaths rates in chronically ill households are higher, and the data reconfirms the notion that chronic illnesses are not diseases of the "poor." Only small and statistically non-significant differences are found among the four asset categories.

5. The C-SAFE dependency ratio is 173, about 12% higher than the classical dependency ratio, reflecting the large number of dependents with respect to working members in rural Zambian households. The highest dependency ratio is for households hosting orphans at 211, followed by asset rich households at 211. Male-headed households and Zone 4 have the lowest dependency ratio, at 1659 and 134, respectively.

6. Households with chronically ill members and those hosting orphans are equally likely to be found in any of the three dependency categories. This means that chronically ill and orphans are almost equally distributed among dependency category, and it is not possible to generalize that chronically ill are found, for example, in high dependency households.

7. Out of 4,471 children aged 6 to 18 years old in the survey 21% have never been to school. Encouragingly, the attendance rate for male and female school-aged children does not significantly vary, and, the attendance rates for orphans, both males and females, are higher than in the general population.

8. Asset values for both genders are heavily skewed towards low asset values, reflecting the impoverished conditions found in rural Zambia. However, even though the range of asset values is similar, the lower asset values for male-headed households are considerably higher than for female-headed households, which is why a higher percentage of female-headed households are found in the asset very poor category.

9. The majority of households are engaged in agricultural activities. Only 6 households did not have access to land for the 2002-2003 cropping season. The average number of hectares accessible to households was 6.2, while the average number of hectares actually cultivated was less than half of what was accessible, or 2.5 hectares per household.

10. HHs with high dependency ratios cultivate significantly less land than households with medium or low dependency. High dependency households often have more available labor for routine agricultural activities (e.g. – even if children are attending school they can supply labor at key points in the cropping cycle), but it the high dependency ratios are a result of high chronic illness, as is the case in Zambia, then the household has not only lost labor, but it has probably lost some one of its productive members.

11. Male-headed households dominate non-cereal production, and average almost four times the number of kgs as female-headed households. Zonal differences were significant, with Zone 4 producing far less than any other Zone, averaging a mere 170 kgs per household. In contrast, Zone 2 households averaged more than ten times this amount, or 1,768 kgs per household. Zone 1 had the next highest average production, at just over 1,000 kgs per household.

12. Households in rural Zambia are very food insecure. Households in general expect that the current harvest will be about one-half of what they normally obtain through cropping activities. This trend is similar for every household type analyzed, and demonstrates that food security problems in Zambia are widespread and impact on many livelihoods.

13. Almost 40% of asset poor households spend 75% or more of their household income on food. This is significantly more than asset intermediate households and asset rich households.

14. Food aid is an important source of calories for many rural Zambian households. Almost 90% of households have benefited from food aid, mostly through general feeding. Less than 2% of households reported benefiting from pregnant/lactating women feeding programs, malnutrition feeding, or feeding for chronically ill. Food-for-work programs resulted in food for 11.3% of the survey households. Food aid was received by about the same percentage of households irrespective of their vulnerability category. The average number of months food aid has been received was fairly uniform at about 3.6 months per household.

15. During the previous year, 18% of households experienced at least one death. The average age of death was 25.5 years old. In just over half of all deaths, the individual was

ill for more than three months. All vulnerable household categories had at least one death at a significantly higher rate than the general survey population, averaging about one in four to one in five, or 20- 25%, for most vulnerable groups.

16. Households with chronically ill members have a significantly higher coping strategy index (85.0) than other vulnerable household types and non-vulnerable households. Male and female-headed households have no significant difference in their CSI score. Asset very poor and asset poor households have significantly higher CSIs than other asset categories.

Appendix A
Household Survey Questionnaire

C-SAFE Zambia

BASELINE SURVEY – APRIL 2003

HOUSEHOLD QUESTIONNAIRE

IDENTIFICATION (see code sheets)	
FEZ ☐	**Village name and code** ☐ _____
Ward ☐☐	
Household number ☐☐	**Date of interview** ☐☐☐ ☐☐☐ **D D M M Y Y**
Name of Respondent: _____	
Name of Enumerator: _____	
Name of Supervisor: _____	**Checked:** _____

Basic Household information	**Codes**
Result	Complete..... 1 Did not reply..... 2 Partially replied ..... 3 Others..... 4
Literacy level of Head of HH	Able to read..... 1 Able to write ..... 2 Able to read and write ..... 3 Unable to read or write..... 4
Marital Status	Married..... 1 Divorced..... 2 Widowed ..... 3 Single..... 4
TOTAL NUMBER OF PEOPLE IN THE HOUSEHOLD	☐☐

Section A.Demographic Background of Household Members (do not include members absent for 3 months or more)

A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
ID	Name of Household members	Relationship to Head of HH	Sex	Age	Mother status	Father status	Physical Status	Level of Education	Current School Attendance	Main Drop-out Reason	Primary and Secondary Activity
		HHH .....1 **Spouse .....2** **Son/daughter.....3** **Father/mother.....4** **Brother/sister .....5** **Grandchildren .....6** **Other relative.....7** **Foster child 8** **No relationship 9**	**Male 1** **Female 2**		IF AGE (A5) IS 18 OR MORE, SKIP A6 AND A7, GO TO A8 **Mother in HH……1** **Mother alive, not in same HH…2** **Mother dead……3**	**Father in HH…….1** **Father alive, not in same HH…….2** **Father dead……3**	**Long term Illness 1** **Disabled 2** **Both 3** **No 4**	IF UNDER 6, SKIP TO A12 **Never been to school 1** SKIP TO A12 **Primary uncompleted2** **Primary completed.... 3** **Secondary.....4** **Above secondary..... 5**	ASK ONLY FOR AGES 6 TO 18. IF OLDER THAN 18, SKIP TO A12 **Attending** **Drop-out ……2** **School completed ..3** SKIP TO A12	**School fees too high1** **HH needed labor ..... 2** **Child chronically ill or disabled ..... 3** **Marriage..... 4** **Other ..... 5** **(Specify)**	**None .....1** **Agriculture .....2** **Cattle Farming .....3** **Casual Labor .....4** **Self-employed .....5** **Skilled labor.....6** **Fishing .....7** **Student.....8** **Salaried employment ...9** **Petty Commerce.....10** **Physically unable to work 11** **Other.....12**
1.											1st 2 nd
2.											1st 2 nd
3.											1st 2 nd
4.											1st 2 nd
5.											1st 2 nd
6.											1st 2 nd
7.											1st 2 nd
8.											1st 2 nd
9.											1st 2 nd
10.											1st 2 nd
11.											1st 2nd
12.											1st 2 nd
13.											1st 2nd
14.											1st 2 nd

Section B: Household Livelihoods

N°	QUESTIONS	ANSWERS	SKIP TO
B1	What is your main source of drinking water?	Open Well .....1 Covered Well .....2 Pump.....3 Tap Water .....4 Surface Water .....5 Other_____.....6 (Specify)	
B2	Has your household benefited from any food aid/distribution during the last 6 months?	Yes.....1 No 2	➔ B5
B3	Which of the following types of food aid have you received? CIRCLE ALL THAT APPLY	General Feeding .....1 Pregnant/Lactating Women.....2 Malnutrition .....3 Orphans .....4 Chronically Ill.....5 FFW .....6 Other: _____..7 (specify)	
B4	For how many months during the last six months has your household received food aid?	☐	➔ B6
B5	In your opinion, what is the main reason your household did not receive food?	Need, but did not meet criteria .....1 Discriminated against.....2 Wasn't present at time of enrollment.....3 Do not need .....4 Do not know.....5 Other_____.....6 (Specify) No food aid in this community 7	
B6	Did you give any food to your neighbors in need in the last 6 months?	Yes.....1 No 2	➔ B8
B7	Did you expect any form of repayment from them?	Yes.....1 No 2	
B8	In your opinion, has the food aid program entirely met the needs of your community, partially met the needs of your community or not at all met the needs of your community?	Entirely .....1 Partially .....2 Not at all .....3 No food aid in this community 4	
B9	Are any of your HH members part of a community organization or association?	Yes.....1 No 2	➔ B11
B10	Which organizations is your household a member of? CIRCLE ALL THAT APPLY	Farmers Association / Coops ..... 1 Livestock Association..... 2 Savings Group/Club ..... 3 Irrigation/Water Mgmt Group..... 4 NGO..... 5 Health and nutrition groups ..... 6 Religious / faith groups..... 7 Other_____..... 8 (Specify)	
B11	Have any household members died since May 2002?	Yes.....1 No 2	➔ C1

	I would need more information about the members of your household who died in the last 12 months.		
	B12 SEX Male = 1 ; Female = 2	**B13** AGE AT DEATH IF LESS THAN 1 YEAR, CODE 00	**B14** Was this person continuously sick during the 3 months prior to death ? Yes = 1 ; No = 2
1			
2			
3			
4			

Section C: Crops and Production

N°	QUESTIONS	ANSWERS	SKIP TO
C1	How much land (limas, acres or hectares) did you have access to in 2002-2003 season? **1 HECTARE (HA) = 100m X 100m** **1 lima = 0.25 HA = 50m X 50m** **1 acre = 0.4 HA** **4 bags of fertilizer = 1 HA** **1 bag of Basal Fertilizer = 1 lima** **5kg of maize seeds = 1 lima** CONVERT IN HECTARES	**HECTARES** ☐☐☐ IF 000	➔ **D1**
C2	How much land (limas, acres, hectares) did you cultivate in 2002-2003 season? **1 HECTARE (HA) = 100m X 100m** **1 lima = 0.25 HA = 50m X 50m** **1 acre = 0.4 HA** **4 bags of fertilizer = 1 HA** **1 bag of Basal Fertilizer = 1 lima** **5kg of maize seeds = 1 lima** CONVERT IN HECTARES	**HECTARES** ☐☐☐ **IF C2 EQUAL TO C1, GO TO C4**	
C3	Why did you not cultivate all your land? CIRCLE ALL THAT APPLY	Not enough labor.....1 Not enough seed.....2 Not enough other input.....3 Not enough water.....4 Left fallow land .....5 Other_____6 (SPECIFY)	

PRODUCTION OF 2002 – 2003 PLANTING SEASON

C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
Commodity	**How much land have you planted to:** USE EQUIVALENCES IN C1, AND CONVERT IN HA	Sources of seeds **Previous harvest = 1** **Seeds banks =2** **NGO =3** **GOV =4** **Purchased =5** **Borrowed = 6** **Gift =7** **Other (Specify) = 8** WRITE ALL THAT APPLY	Production	Unit	**Have you used (do you intend to use) part of your production of (COMMODITY) to pay debt or land lease?** Yes =1; No = 2 IF NO, SKIP TO C11	**How much of your production of (COMMODITY) have you used (do you intend to use) to pay debt or land lease?** < 25% =1 25 –50% = 2 51 – 75 % = 3 > 75 % = 4 DK = 5	**Have you sold (do you intend to sale) part of your production of (COMMODITY)?** Yes =1; No = 2 IF NO, SKIP TO C 13	**How much of your production of (COMMODITY) have you sold (do you intend to sale)?** < 25% =1 25 –50% = 2 51 – 75 % = 3 > 75 % = 4 DK = 5	**How much of your production of (COMMODITY) have you kept (do you intend to keep) for your own HH consumption?** < 25% =1 25 –50% = 2 51 – 75 % = 3 > 75 % = 4 DK = 5 Nothing = 6
Maize									
Sorghum									
Rice									
Millet									
Beans									
Cowpeas									
Groundnuts									
Potato									
Sweet Potato									
Cassava									
Cashew Nuts									
Banana									
Tobacco									
Sunflower									
Cotton									
Garden Crops									
Tomatoes									
Onions									
Pumpkins									
Green Vegetables									

Improved Techniques

C14	C15
Improved productive and water management techniques	Do you currently use one of the following techniques for any of your crops? **Yes = 1 ; No = 2**
Agroforestry	
Water harvesting	
Improved food storage (cribs, granaries)	
Winter ploughing	
Conservation tillage (potholing, tied ridges, contour ridging,)	
Incorportation of legumes	
Fodder production and storage	
Compost / Manure	
Crop Rotation	
Intercropping	

Section D: Livestock and main Assets

N°	QUESTIONS	ANSWERS	SKIP TO
D1	Over the last 6 months, has anyone in your household owned any livestock / poultry?	Yes.....1 No 2	➔ D14

D1.1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
Type of Livestock	Over the last 6 months, has anyone in your household owned (LIVESTOCK) **Yes = 1; No = 2**	How many are owned by: Men	Women	Joint ownership	Total	In the last 6 months how many were sold? **IF 0 GO TO D9**	Reasons for sale? Normal daily expenses = 1 To fill Household food shortage = 2 School fees = 3 Health/ Medical emergency = 4 Other emergencies = 5 Social events = 6 Normal herd maintenance = 7 Threat to herd = 8 Loan repayment = 9 Other (specify) = 10 **WRITE ALL THAT APPLY**	In the last 6 months how many livestock died? **IF 0 GO TO D11**	Reasons of death? Insufficient water = 1 Insufficient pasture = 2 Illness = 3 Witchcraft = 4 Other (specify) = 5 **WRITE ALL THAT APPLY**	In the last 6 months how many were lost? **IF 0 GO TO D13**	Reasons of loss? Wandered off = 1 Stolen = 2 Dispossessed by death of HHH = 3 Other (specify) = 4 **WRITE ALL THAT APPLY**	In the last 6 months how many were used for your own consumption ?
Draught Cattle	1 2 GO TO NEXT ↵											
Other cattle	1 2 GO TO NEXT ↵											
Goat / Sheep	1 2 GO TO NEXT ↵											
Pigs	1 2 GO TO NEXT ↵											
Donkeys /Horses	1 2 GO TO NEXT ↵											
Poultry	1 2 GO TO NEXT ↵											
Rabbit	1 2 GO TO NEXT ↵											

N°	QUESTIONS	ANSWERS	SKIP TO
D14	Has anyone in your HH caught fish during the last months?	Yes ..... 1 No..... 2	➔ **D16**
D15	What did you do with the fish you caught?	Consumed in the home..... 1 Sold at market ..... 2 Consumed some and sold some ..... 3 Other_____ 4 (Specify)	

ASSETS

List of Assets.	Over the last 6 months, has anyone in your household owned any of the following: **Yes = 1; No = 2**	How many (ASSETS) are owned by				In the last 6 months, has anyone in your HH sold (ASSET)? **Yes = 1; No = 2**	Reasons for sale? Normal daily expenses = 1 To fill Household food shortage = 2 School fees = 3 Health/ Medical emergency = 4 Other emergencies = 5 Social events = 6 Loan repayment = 7 Other (specify) = 8 **WRITE ALL THAT APPLY**
		Men	Women	Joint owner ship ?	Total		
D16	**D17**	**D18**	**D19**	**D20**	**D21**	**D22**	**D23**
Hoe	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Bicycle	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Motorbike	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Ox or donkey Cart	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Plough	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Sickle	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Hammer mill	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Hand Mill	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Whiteman Bed	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Radio	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Yoke chain	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Treadle pump	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Fish nets	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Canoe	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Axe	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Cultivator	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	
Harrow	1 2 GO TO NEXT ↵					1 2 GO TO NEXT ↵	

Section E: HH Food economy

N°	QUESTIONS	ANSWERS	SKIP TO
E1	In a normal year, how many months out of 12 do y have sufficient food from your own househ production to meet your household needs?	NUMBER OF MONTHS ☐☐	
E2	How many months do you expect to have food fr your *current* harvest?	NUMBER OF MONTHS ☐☐	
E3	**IF E2 EQUAL TO E1 THEN, SKIP TO E4** If production is not sufficient year-round, please specify the ***main*** reason.	Not enough land ..... 1 Drought..... 2 Poor soils..... 3 Not enough labor ..... 4 Not enough seed ..... 5 Lack of input/Fertilizer..... 6 Draught power ..... 7 Other_____ 8 (Specify) Poor or too much rains 9	
E4	In the last 12 months, what was the proportion of your total household income (includes all in-kind, production, casual labor wages…) spent on food?	< 25% ..... 1 25% to 50% ..... 2 51% to 75% ..... 3 > 75% 4	
E5	Besides your own production, what are the other sources of food for your household? CIRCLE ALL THAT APPLY	Food aid ..... 1 Gift from family and relatives ..... 2 Market purchases ..... 3 Lease of land ..... 4 Hunting and gathering wild food ..... 5 Grain Bank ..... 6 Credit..... 7 Other ..... 8 (Specify)	

Section F: Coping Strategies

In the past 30 days, how frequently did your household have to rely on the following in order to access food:

SN	COPING STRATEGIES	Every day **1**	3-6 times per week **2**	1-2 times per week **3**	Less than once/ week **4**	Never **5**
F1	Rely on less preferred food or less expensive food?	1	2	3	4	5
F2	Borrow food, or rely on help from friends and/or relatives?	1	2	3	4	5
F3	Purchase food on credit?	1	2	3	4	5
F4	Rely more on wild food or rely more on hunting?	1	2	3	4	5
F5	Harvest immature crops?	1	2	3	4	5
F6	Send HH members to eat elsewhere?	1	2	3	4	5
F7	Send HH members to beg?	1	2	3	4	5
F8	Limit portion sizes at mealtime?	1	2	3	4	5
F9	Restrict consumption by adults so children can eat?	1	2	3	4	5
F10	Restrict consumption of non-productive members in favor of productive ones?	1	2	3	4	5
F11	Reduce the number of meals eaten in a day?	1	2	3	4	5
F12	Skip entire days without eating?	1	2	3	4	5
F13	Rely more on piecework?	1	2	3	4	5
F14	Increase reliance of sales of wild or natural products	1	2	3	4	5
F15	Rely on food aid					
F16	Other: Specify: _____	1	2	3	4	5

Section G: Dietary Diversity

N°	QUESTIONS	ANSWERS		SKIP TO
G1	How many meals did your household members eat yesterday?	NUMBER OF MEALS ☐		
G2	Yesterday, which of the following items did your household consume as part of a meal or snack? **FOR EACH ITEM, CIRCLE YES OR NO**	YES	NO	
	- Maize			
	- Sorghum	1	2	
	- Millet	1	2	
	- Rice	1	2	
	- Other Cereals	1	2	
	- Beans	1	2	
	- Cassava	1	2	
	- Other tubers (Yam, Sweet potato...)	1	2	
	- Meat (beef, pork, lamb, game)	1	2	
	- Fish	1	2	
	- Chicken	1	2	
	- Eggs	1	2	
	- Nuts	1	2	
	- Green leafy vegetables	1	2	
	- Other vegetables (pumpkin, cucumbers...)	1	2	
	- Fruits	1	2	
	- Fat /oil	1	2	
	- Milk, Cheese, Yogurt	1	2	
	- Sugar	1	2	
	- Salt	1	2	
	- Tea	1	2	
	- Coffee	1	2	
	- Beer	1	2	
	- Other Beverages	1	2	
	- Other food	1	2	
	-	1	2	

Appendix B
Schedule of Site Visits and Survey Team Members

Table B.1. District, Ward and Selected Villages Surveyed by WVZ Teams

FEZ	DISTRICT	WARD	VILLAGES
1	CHOMA	1. Itebe	(1) MUGWAGWA (2) MANSINSI (3) SHEEMBWE (4) KUPOLA (5) MUKOBELA (6) SICHIKOLOMA
1	MAZABUKA	2. Chivuna	(1) MUNACUUKA (2) NACHINTYOMBWE (3) SING'ANDU (4) KAZANI (5) CHIBBWALU (6) MUNJILE (HANAGUBILA)
1	MAZABUKA	3. Nega-Nega	(1) CHAKOLA (2) HOLMES SETTLEMENT* (3) KASAKA (4) MUGOTO (5) NEGA-EGA
1	MONZE	4. Bweengwa West	(1) MAKULO (2) HAMUSONDE (3) MWANANGONZE (4) GWATI (5) LUBABA (6) MUNAMBABA
1	MONZE	5. Chisekesi	(1) MAAMBO (2) HAACHIKO (3) MUJAYALISO (4) CHISEKESI (5) HABUMPINDU (6) SILWIILI B
1	CHOMA	6. Macha	(1) CHIDAKWA (2) SINGWALE (3) HALWIINDI (4) MALIMBA (5) MWANAMBIYA (6) NTOMBABANYAMA
1	CHOMA	7. Batoka	(1) SIACHIMPULI (2) SIACHEKULU (3) CHIHOLYONGA (4) BULOONGO (5) SICHIINDE (6) CHILUMBI

All locations selected prior to the start of the survey were in fact visited by the data collection teams with the exception noted in red; the original ward 1selected for inclusion into the survey by the WVZ team, Itebe, was in assessable due to poor road conditions, and another area (unsure of ward name, assume it is still Itebe) was selected instead. The only other village that was not visited and was pre-selected was Hanagubila, instead Munjile was surveyed. In ward 3, twenty surveys (probably due to pps sampling) were conducted in the village of Holmes Settlement. A total of 420 households were sampled for WVZs food economic zone, for the purposes of this report labeled FEZ 1.

The WVZ data collection team was comprised of 10 people; 6 enumerators and 4 supervisors. On 8 records no supervisor checked or signed the forms. The team members were:

Table B.2. Listing of Data Collection Team Members for WVZ

Enumerators
ERNEST MPATISHYA
FABIAN KABAZUNGU
HILDAH MUNAMPAMBA
LIBOMA C LIBOMA
MARY K KADIMBA
MAUREEN MUSIYA
MUNKANDA ALBERT
NGANDU MARTIN
REGINA LIALABI

Supervisors
L LILEMBALEMBA
LIBOMA C LIBOMA
NGANDU MARTIN
MAUREEN MUSIYA
REGINA LIALABI

Table B.3. District, Ward and Selected Villages Surveyed by Care International Teams

FEZ	DISTRICT	WARD	Village
2		1. Chikanta	1. Moopu B 2. Habulile 3. Nkunkwa 4. Nakonje 5. Chilwi 6. Munakalale
2		2. Kasukwe	1. Simutenguna 2. Sibenzu 3. Mutinta 4. Hambweka 5. Lynamba 6. Simoonga
2		3. Namela	1. Sichundu 2. Mafwafwa 3. Simapungula 4. Mulibu 5. Chinkombe 6. Paipi
2		4. Siachitema	1. Chitembo 2. Lwaambi 3. Chifusa 4. Siachuunga 5. Mudobo 6. Chibusya
2		5. Mayoba	1. Mayoba 2. Sikalubya 3. Kulungu A 4. Tubeleke/Bowood/Dingi 5. Matondo 6. Simuluwe
2		6. Kauwe	1. Mutoyiwa 2. Silembe 3. Kantini 4. Chigali 5. Katanda 6. Sibunji
2		7. Kanchele (only 58 records, in Village 2)	1. Masole 2. Kalembwe 3. Matubuleni 4. Muzandu 5. Sialwindi 6. Nalituwe

Table B.3. District, Ward and Selected Villages Surveyed by Care International Teams (con't)

FEZ	DISTRICT	WARD	Village
3		2. Luyaba	1. Siayuni 2. Lemima 3. Kanynaga 4. Siangombe 5. Munsaka 6. Syejumba
3		3. Siayakwe	1. Sibululi 2. Siyambala 3. Siabowa 4. Munaswi 5. Shibinda 6. Silyangalyanga
3		4. Sekute	1. Jimmy Ngandu 2. Maibwe 3. Kooma 4. Nyambe Mundia 5. Time Simasiku 6. Sekute
3		5. Maondo	1. Mwenendela 2. Tahalima 3. Simalumba 4. Busitakolo 5. Mudohole 6. Kacansi
3		6. Siamafumba	1. Siayuni 2. Lemima 3. Kanyanga 4. Sinangombe 5. Munsaka 6. Syejumba
3	Sesheke	7. Loazamba	1. Sankwanga 2. Lunuualo 3. Sabukube 4. Kanyeu 5. Lishomwa 6. Kulwa

The Care International survey team covered two FEZ zones, FEZ 2 and 3. A total of 778 households were surveyed by the Care survey teams, it is apparent that the coordination and supervision did not go according to plan, it was even observed by the data entry staff that when certain combinations of enumerators and supervisors were teamed up, they would expect some inconsistencies with the surveys.

The Care International data collection team was comprised of 15 people; 10 enumerators and 5 supervisors. On 8 records no supervisor checked or signed the forms. The team members were:

Table B.4. Listing of Data Collection Team Members for Care International

Enumerators
CLYMORE KALIYANGI
COSMAS MBANACELE
DONALD SYAMULEYA
JOB MILAPO
KAMPAMBA KAELA
KANDINDI PHIRI
MAINZA KAFWAMBA
MAKETO KABATANA
MUBITA MORRIS
MUKUKA HUMBU
SEBASTIAN KASABO
WATSON SIATUBOTU
Supervisors
COSMAS MBANACELE
COSMAS MILAPO
JASPER HATWIINDA
KANDINDI PHIRI
MUKUKA HUMBU
TIME SIMASIKU
WATSON SIATUBOTU

Table B.5. District, Ward and Selected Villages Surveyed by CRS Teams

FEZ	DISTRICT	WARD	Village
3	Sesheke	1. Kalobolelwa	1. Mukengami/Matula 2. Makanda/Solola 3. Kapau 4. Mutanda 5. Kpau 6. Kabuyu
4	Shangombo	2. Mbeta	1. Sikuli 2. Namakusi 3. Lishotokelo 4. Kaanja Central 5. Mbeta Island (Namakuni Village) 6. Lubuta
4	Shangombo	3. Kaungamashi	1. Shilukoma 2. Likuyu 3. Kaumi 4. Namatanda 5. Kayowa 6. Namiyundu
4	Shangombo	4. Mutomena	1. Luanda I 2. Luandamasiyala 3. Mushukula 4. Sipangule

FEZ	DISTRICT	WARD	Village
			5. Chanziba 6. Nalisha
4	Shangombo	5. Mulonga	1. Mitunda 2. Kazili 3. Nasimbandu 4. Nakasilu 5. Namalongo 6. Solochi
4	Mongu	6. Mutondo	1. Puunyu 2. Nawama 3. Kandiana 4. Nalitondo 5. Sipondo 6. Salikumbi
4	Mongu	7. Imalyo	1. Sinanda 2. Kawii 3. Liyundelo 4. Musiwa 5. Lusinde 6. Namasho
4	Mongu	8. Ndanda	1. Lilambwe 2. Namusa 3. Saamba 4. Nakaya 5. Sinjenje 6. Shalila

The CRS survey teams covered primarily one FEZ zone, zone 4 and one ward in FEZ 3. A total of 480 households were surveyed by the CRS survey teams. The CRS data collection team was comprised of 11 people; 7 enumerators and 4 supervisors. The team members are shown in table 6.

Table B.6. Listing of Data Collection Team Members for CRS

Enumerators
DAVID MUYENDEKWA
EVANS MWANANYAMBE
FREDERICK SILILO
JIMMY MBUMWAE
JIMMY WALUBITA
MAUREEN SITUMBEKO
MUKELABAI MULEMWA
MUPUWALIYWA NAMUKOLO
MWANAMUKE
PRECIOUS WALUBITA
RAYMOND MWALE

SUPRNAME
DAVID MUYENDEKWA
MUPUWALIYWA NAMUKOLO
MWANAMUKE
RAYMOND MWALE
CLARE MBIZULE

Appendix C. Procedures for Constructing Coping Strategies Index (CSI)

The coping strategies index is calculated using measures of the frequency and severity of coping strategies that households adopt. The frequency measure was collected from individual households in the quantitative survey. The severity weights for all the possible coping strategies were obtained through focus group interviews, in which the groups were asked to give their own perceptions of the severity of each of the coping strategies, and rank them on a scale of 1 to 4.

During the survey design phase, possible coping strategies were identified and incorporated into the household survey instrument and the topical outlines for the focus groups. The strategies identified were:

1. Rely on less preferred and less expensive foods
2. Borrow food or rely on help from friends and relatives
3. Purchase food on credit
4. Gather wild food
5. Consume seed stock held for next season
6. Send household members to live elsewhere
7. Limit portion sizes at mealtimes
8. Restrict consumption of adults so children can eat
9. Red number of meals eaten in a day
10. Skip entire days without eating
11. Sell jewelry or household items
12. Sell livestock
13. Sell farm implements

Focus group interviews were conducted in several locations. The information collected from the household surveys and the focus group interviews is combined to calculate the CSI value for each household. Two decisions must be made to arrive at the final definition of the CSI:

i. Which strategies to include in the index. As described in the Coping Strategies Index Field Methods Manual, one aspect of adopting the CSI to the local context is identifying the appropriate coping strategies that are appropriate within a given study area. Furthermore, the Manual suggests that the appropriate strategies to include in the index are immediate and short term alteration of consumption patterns, but not longer term or less reversible strategies. The survey included several longer term strategies: sell jewelry or household items; sell livestock; and sell farm implements. Another strategy; send household members to live elsewhere could also be considered as a longer term strategy. Three different sets of coping strategies were considered for inclusion in the CSI:
    a. Include all 13 coping strategies identified in the survey instrument
    b. Exclude sale of jewelry or household items, sale of livestock and sale of farm implements
    c. Exclude sale of jewelry or household items, sale of livestock and sale of farm implements and send family members to live elsewhere

ii. Which severity weights to use in the CSI calculations. Two options are to:
    a. use separate weights for each survey zone
    b. use the sample average weights, taking the average across the survey zones.

Appendix D. Market prices from

MARKET PRICES FORM - ZAMBIA

DISTRICT NAME	*WARD NAME*	VILLAGE MARKET	DATE	NAME OF SUPERVISOR

MAIN PRODUCTS	QUANTITY / UNIT	PRICE IN KWACHA (for one unit)	AVAILABILITY IN THE LAST 3 MONTHS		
			ALWAYS	MOST OF THE TIME	NEVER
Maize					
Sorghum					
Rice					
Millet					
Beans					
Cowpeas					
Groundnuts					
Potato					
Sweet Potato					
Cassava					
Cashew Nuts					
Bananas					
Tobacco					
Sunflower					
Cotton					
Tomatoes					
Onions					
Pumpkin					
Green vegetables					
Draught cow					
Other cows					
Goat					
Sheep					
Pig					
Donkey					
Poultry					
Rabbit					
Hoe					
Bicycle					
Motorbike					
Ox or Donkey Cart					
Plough					
Sickle					
Hammer Mill					
Hand Mill					
Whiteman Bed					
Radio					
Yoke chain					
Treadle Pump					
Fish nets					
Canoe					
Axe					
Cultivator					
Harrow					