BASELINE SURVEY OF FOOD SECURITY AND NUTRITION IN MOZAMBIQUE

FEWS NET MOZAMBIQUE

December 2006

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BASELINE SURVEY OF FOOD SECURITY AND NUTRITION IN MOZAMBIQUE

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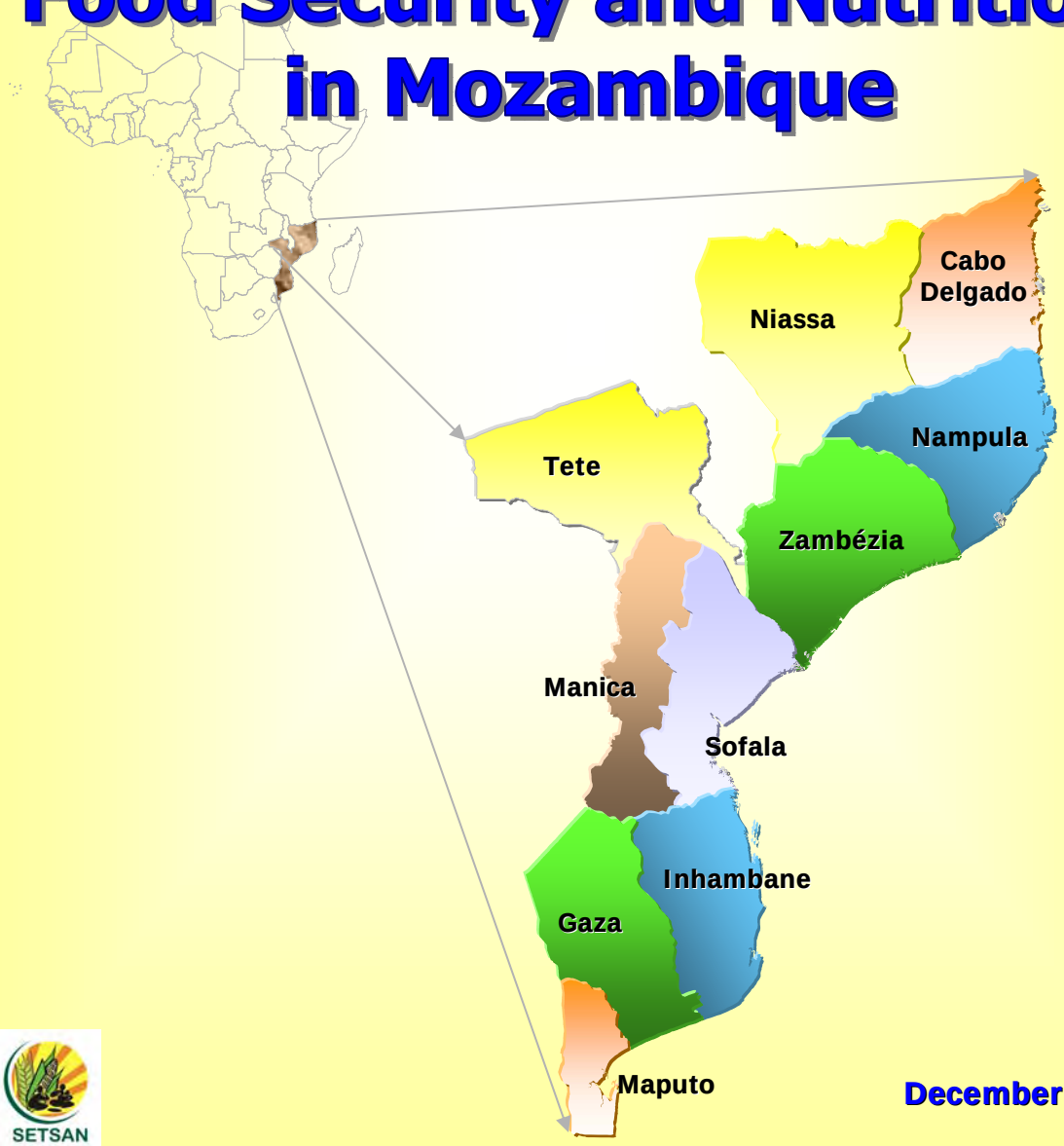
Republic of Mozambique

Technical Secretariat for Food Security and Nutrition

Report of Baseline Survey of Food Security and Nutrition in Mozambique



SETSAN

December, 2006

Technical Secretariat for Food Security and Nutrition
Vulnerability Analysis Group

Baseline Survey of Food Security and Nutrition in Mozambique

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Maputo, December 2006

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Thanks are due to all the technicians of the various institutions who have collaborated in the data collection and analysis (MISAU, INIA, INGC, INE, SETSAN).

The authors would like to thank all constructive advice and contributions provided by the participants of the SETSAN/GAV workshop held in Maputo on 14-15 November 2006.

Finally, sincere thanks are addressed to all the households and communities interviewed, with the hope that the findings of this analysis will be useful in assisting any efforts towards the improvement of their livelihoods.

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Annexes

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1. Executive summary

Taking advantage of a relatively stable food security situation, the Vulnerability Analysis Group (GAV) Mozambique conducted a country wide baseline study to further analyze chronic food security and malnutrition problems and their root causes in Mozambique. This baseline study built on the experience of previous, localized exercises aimed at achieving a better understanding of livelihood groups within the country, while targeting interventions both for emergency and development purposes. This full baseline study was not a rapid assessment, rather a deeper analysis of the links between food insecurity and malnutrition intended to help the Technical Secretariat for Food Security and Nutrition (SETSAN) and the GAV shape its research and policy agenda. The SETSAN will then solicit approval from the National Institute for Statistics (INE) so that the baseline data will be validated and integrated into a key national dataset for a variety of activities including poverty monitoring.

This baseline is to act as a foundation for future monitoring exercises with the hope that it will allow analysis of vulnerability and response to be household-specific. In particular, risk management and coping strategies at both the household and community levels are key components to this analysis. Rather than focusing only on outcome measures such as consumption, nutritional status, mortality, morbidity, and access to basic services, this analysis of household food security status was built on the process indicators of livelihood assets and strategies to highlight the chronic or transitory dimension of eventual food insecurity conditions. Based on this perspective, acute food insecurity was determined on the basis of household level variables (stocks, dietary adequacy, etc.) and cross-classified against the robustness of their livelihood grouping.

The specific objectives of this baseline activity was to collect and analyze data that would serve as an updated version of key household food security and nutrition indicators collected by the GAV in 2004 and aimed at:

- Identifying predictive factors for food insecurity and malnutrition taking into account regional variation in food availability, access, and utilization.
- Identifying criteria for differentiating between chronic and temporary food insecurity.
- Examining the link between poverty and food insecurity and malnutrition.
- Analyzing structural causes of food insecurity and malnutrition and suggest policy options for addressing these causes
- Examining the link between HIV/AIDS and food security.

Another key expected outcome in establishing a country-wide baseline is to strengthen the decentralization process of early warning and food security analysis at the sub-national level for SETSAN. The decentralization process is then expected to further strengthen the capacity of technical staff and collaborators at all levels, to conduct food security and nutrition assessments. Furthermore, the baseline results will complement the on-going process of reviewing the National Food Security and Nutrition Strategy (ESAN), the preparation of the Strategic District Plan for Development (PEDD), and improvement on the preparation of the Action Plan for Food Security and Nutrition (PASAN). Communities' involvement in the decision making process is also expected to be enhanced through these strategic planning activities.

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Vulnerability analysis is the key to risk reduction and development because it identifies the relevance of different types of shocks for different types of households. It also considers households' ability to withstand shocks. The main output of this exercise and report then is a vulnerability profile for each livelihood group organized as follows: 1.) a general background which contextualizes the analysis, 2.) a methodological section which introduces the conceptual framework utilized for the analysis and presents the livelihood perspective adopted throughout the different parts of the study, 3.) a description of the characteristics of the sample population –introduced in access to the five generally-recognized asset types (human, physical, natural, financial, and social). The analytical sections 4-9 address key aspects of the socio-economic status of the sample population, the impact of shocks and household coping capacities, sources of food and access to markets, food consumption, dietary diversity, health, and nutrition.

Key findings from the baseline analysis are:

Prevalence and causes of food insecurity

The prevalence of high vulnerability to food insecurity in Mozambique is 34.8% of households, where 20.3% are classified as highly vulnerable and 14.5% are classified as very highly vulnerable. Poor infrastructure, general isolation, and low purchasing capacity severely limits household level access to food and other basic services. Both physical distance and the lack of demand due to poor purchasing capacity creates further constraints for market development.

Vulnerability to chronic food insecurity

Vulnerability to chronic food insecurity is more prominent in the northern parts of the country, particularly in Niassa, Cabo Delgado, Nampula, Zambezia, and Tete provinces. The highest prevalence of non-vulnerable households is found in the southern provinces, especially in Gaza. In fact, although the southern parts of the country are more prone to natural disasters, they show higher levels of access to the five types of livelihood capitals and to stable and diverse income sources.

Transitory versus chronic food insecurity

While the provinces of the north and central parts of the country have the highest prevalence of vulnerability to chronic food insecurity, the provinces in the south of the country, namely Sofala, Inhambane, Gaza, and Maputo, show significantly lower levels of vulnerability to chronic food insecurity.

The southern areas of the country have a higher proportion of households which are transitorily food insecure. In the north, Nampula and Zambezia provinces show high levels of transitory food insecurity.

Dietary adequacy

The worst diets are found among households vulnerable to both chronic and transitory food insecurity. Households which are only vulnerable to chronic food insecurity had the same mean

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dietary intake as households vulnerable only to transitory food insecurity. This shows that households that are not vulnerable to chronic food insecurity but suffer from severe shocks are likely to lower their dietary intake.

Tete and Inhambane provinces have the largest percentage of households identified as having a very inadequate diet (38% to 40%). Zambezia, Sofala, Maputo, and Gaza provinces show the lowest rates of very inadequate diet.

Dietary diversity and assistance

Access to different types of assistance has had varying impacts on the dietary adequacy of beneficiary households. In the case of food assistance, the impact is less clear. More research is required to better understand the relationship between previous diet quality of beneficiaries and the real impact of assistance on quality of available diets at the household level.

Nutrition

The prevalence of wasting can be classified as acceptable. However, a very high level of stunting and a high level of wasting have been reported. Nampula Province has the highest prevalence of both stunting and wasting, while Inhambane, Gaza, and Maputo provinces have the lowest.

Vitamin A provision has been identified as a major factor in preventing malnutrition. Having said that, the Vitamin A programme is only functioning at a very low level, except in Maputo Province.

HIV/AIDS-affected households often experience lower food production and consumption.

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2. General background

2.1. Macroeconomics

Twenty years of war and recurring disasters have resulted in weak and damaged social and economic infrastructure in Mozambique. However, since the end of the civil war in 1992, the country has maintained an annual average economic growth rate of 8%. This has helped reduce poverty from 69% in 1997 to 54.5% in 2003.

Box 1 National Statistics – 2003

Total Population:	19 million
Urban Population:	31%
Female Population:	52%
Under 18 years:	51%
GDP per capita	$259
Access to safe water*:	37%
Access to improved sanitation:	45%
Chronic malnourished 6-59 months:	41%
Adult literacy rate:	46%
Infant mortality rate per 1000 live births:	124
Under 5 mortality rate per 1,000 live births:	173
1 year olds immunized against measles:	77%
Net enrolment ratio in primary school (EP1)	69%
Source: MDG report 2005 Except * : QUIBB 2002	

With a total area of 786,300 km^2 and a population officially projected at 19.9 million in mid-2006, Mozambique has a relatively low population density. Mozambique is richly endowed with natural resources, including arable land, forest, grasslands, inland water, marine fisheries, and minerals. As a result, the economy is diversified, and agriculture, transport, manufacturing, energy, fisheries, tourism, and remittances all make important contributions to the economy.

Mozambique has made significant advances in relation to key indicators of human and social development, with a considerable decrease in the rates of child and maternal mortality and an increase in the enrolment rates for primary education. Despite these improvements, Mozambique is one of the poorest countries in the world, ranking 168 out of 177 on the HDI[1], the lowest in the Southern African Development Community and 54% of the population lives below the national poverty line. The HIV/AIDS prevalence rate in the country, estimated at 16.2%[2], is further fuelling the vulnerability of the country by affecting people's lives and livelihoods and undermining development gains. Mozambique faces the triple threat of food insecurity, HIV/AIDS, and declining capacity to deliver services. Adding to the vulnerability, Mozambique is prone to a wide range of natural disasters, which regularly cause major damage and set back economic growth in the disaster-affected areas.

2.2. Agricultural production

Agriculture is a major component of the Mozambican economy. Agriculture and fisheries contribute 31 % of Mozambique's GDP and engage 80 % of the population. In general, since the country's agriculture is largely rainfed, agricultural performance depends on favorable rainfall. The rainy season generally runs from October to April; it starts earlier in the south and gradually spreads towards the north where rains normally start by November.

[1] UNDP Human Development Report for 2004
[2] The rate refers to adult population (15-49 years) found to be HIV-positive in 2004 (MOH/INE, 2005)

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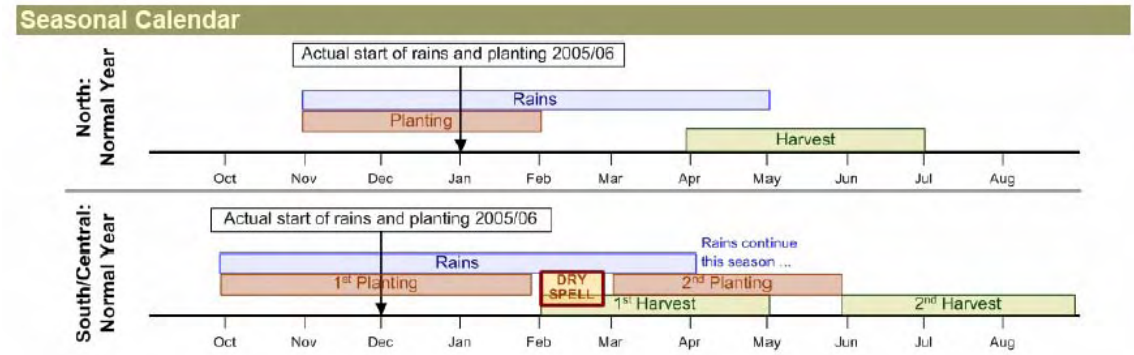
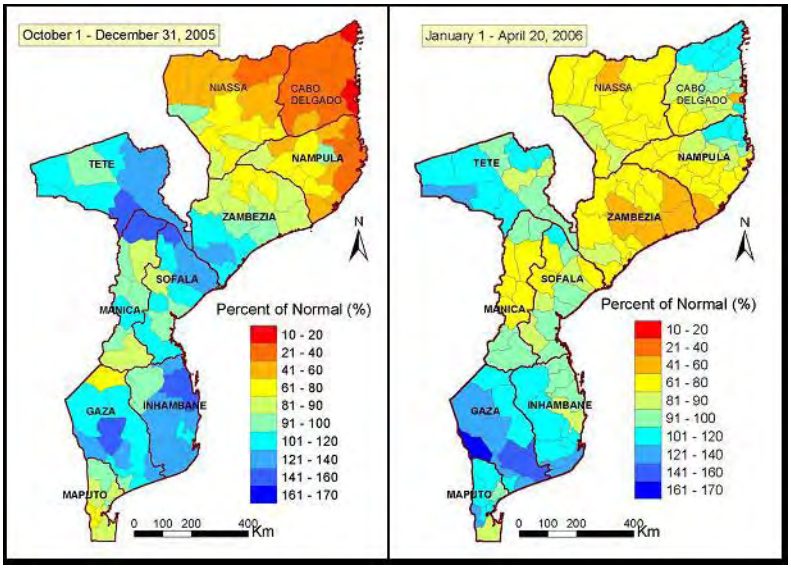
Figure 1 Seasonal calendar of agricultural activities



Source: FEWS NET, Mozambique Food Security Update, April 2006.

In general, the onset of rains for the 2005/06 season was rather late: end of November in the south and central parts of the country, and end of December / early January for the north. Despite the late onset, the amount and distribution of rains improved between January and May and this led to a good harvest, particularly when compared to recent years repeatedly affected by drought. Figure 2 shows the rainfall performance between Oct 2005 and April 2006.

Figure 2 Percentage of normal rainfall



Source: FEWSNET

As a result of the favorable rains during the 2005/06 growing season, cereal production reached about 2.1 million MTs, recording a 10% increase compared to 2004/05. As shown in Figure 3, other crops also benefited from the favorable rains, such as pulses and cassava, whose production rose by 10% and 14% respectively, compared to 2004/05.

The southern region has registered the highest increase in cereal production over last season, about 33%, followed by the central region and the northern region, with increases of 11% and 6% respectively. As shown in Figure 3, 2005/06 has registered the highest production in the last five years, mainly due to the favorable rainfall performance. In fact, with the exception of 2003/04, the period from 2001 to 2005 has been severely affected by drought.

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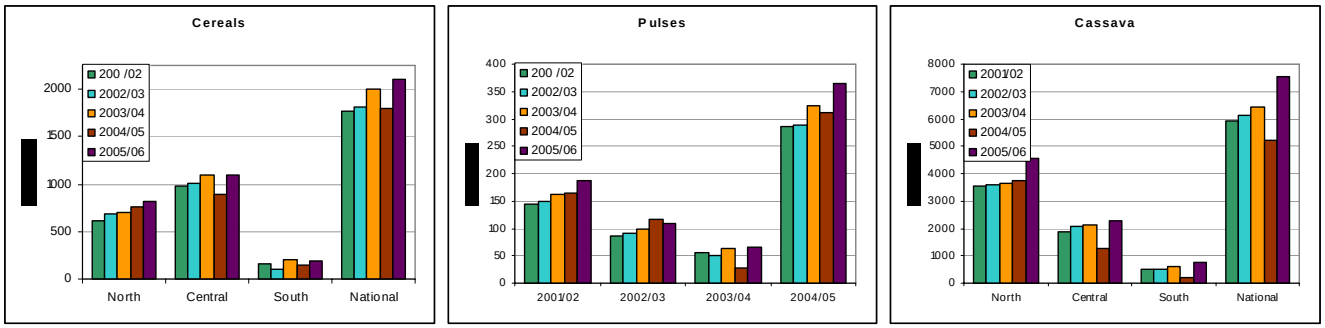
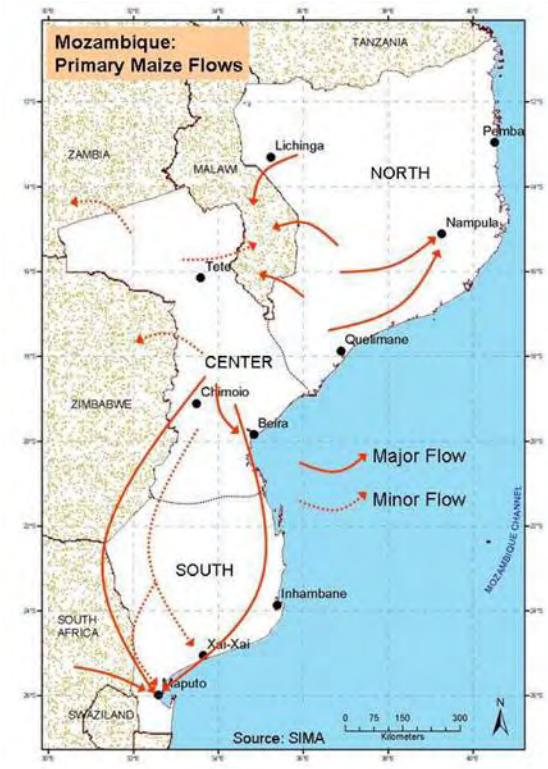
Figure 3 Production of main crops



Source: FEWSNET

2.3. Markets

Figure 4 Maize flows in Mozambique



Markets and prices play a critical role in determining food security, private trade flows, and producer incentives. The markets functioning in Mozambique are remarkably influenced by infrastructure and enabling policies.

The flow of commodities, response between markets, and seasonality are key features in describing the market systems in Mozambique. Figure 4 shows the primary maize flows on the basis of quantities of the main commodity transacted in most markets. The maize from the north rarely flows to the south. It rather moves towards neighboring Malawi and, to a lesser extent, Zambia. In the central region maize flows to Zimbabwe are not frequent. There is, rather, a strong informal sector movement of maize from central provinces towards the south. The south is more related to South Africa in terms of flows of several commodities. As with most other commodities, there is an inflow of maize from South Africa.

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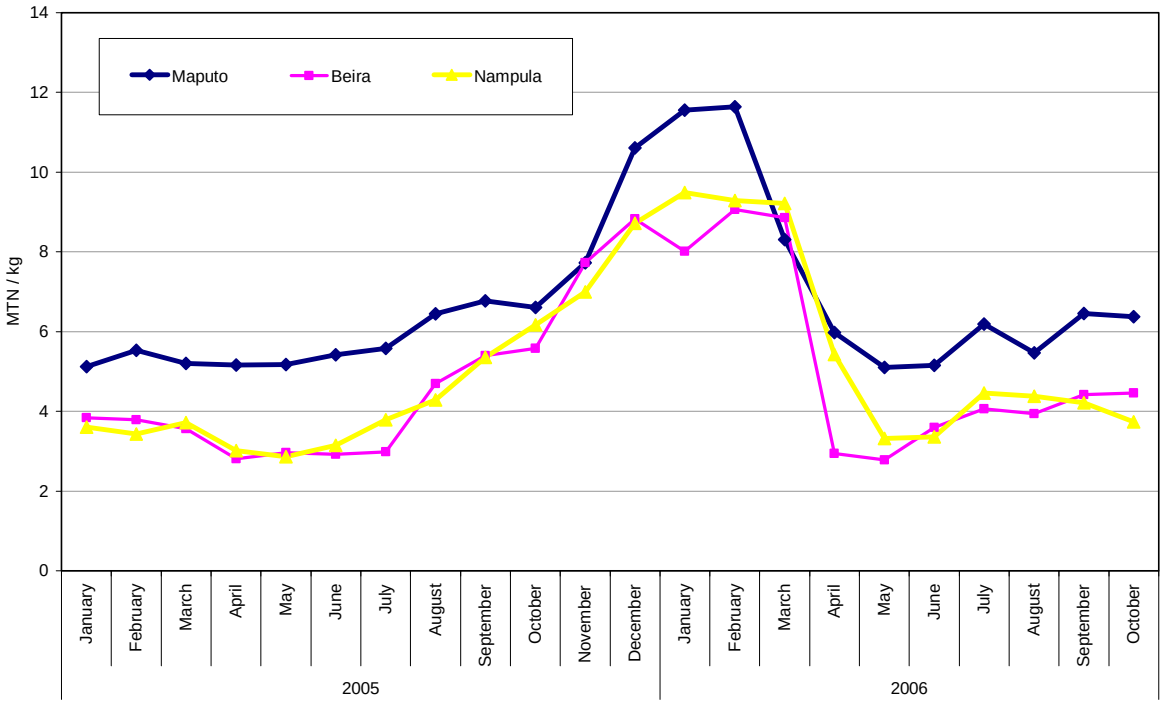
Figure 5 Evolution of maize prices in selected markets



In terms of seasonal variation of food prices, peaks are normally recorded at the end of the hunger period (between November and January). Figure 5 indicates the variation of prices from January 2005 to October 2006. Prices rose substantially between September and February. These increases were in line with seasonal trends, but prices were also affected by two factors: the devaluation of the Metical and the increase in fuel prices. This latter point plays a determinant role in price movements, in view of the high influence of cost of transport between surplus and deficit areas. Normally maize price tend to decline right after the harvest (April) and start to increase beginning in September.

Figure 6 compares the evolution of the price of maize during the last three years using the retail real prices (factored in the Consumer Index Prices) in some reference markets. At the beginning of 2006, the price of maize was much higher than average, reflecting the 2004/05 poor production season. However, the graph shows how after the 2006 harvest prices have remained generally lower than the previous year as well as the five year average, as a result of a relatively good production season.

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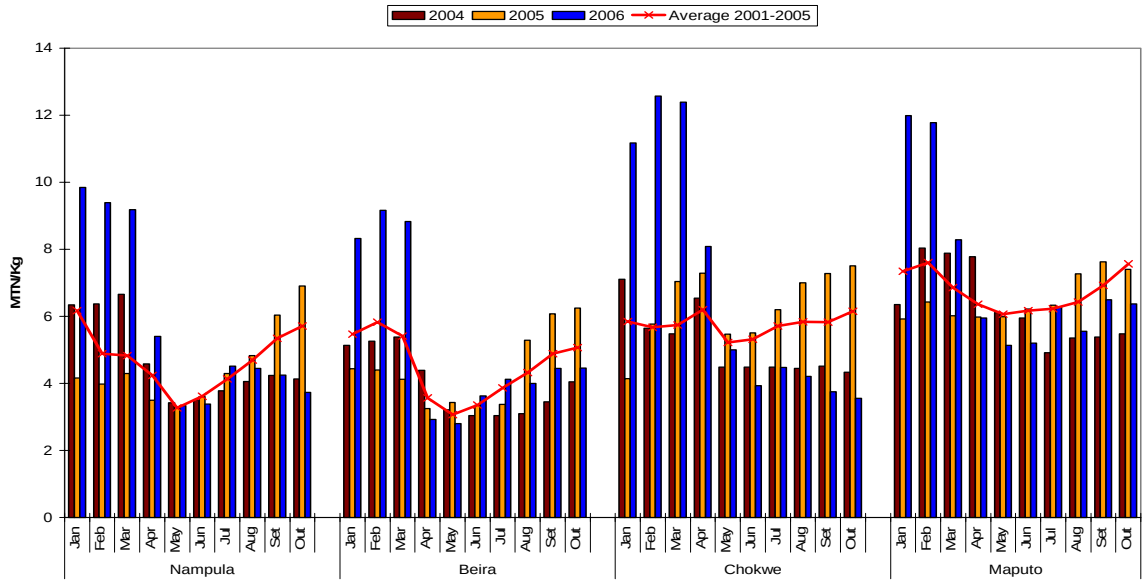
Figure 6 Evolution of the price of maize in selected markets compared to average



Source: FEWSNET / SIMA

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3. Baseline objectives and methodology

3.1. Objectives of the baseline

The specific objective of the baseline is to collect and analyze data that can serve as an update to data collected by the GAV in 2004 on key household food security and nutrition indicators. In particular, the analysis of such data should help to:

1. Identify predictive factors for food insecurity and malnutrition taking into account regional variation in food availability, access, and utilization.
2. Examine the link between HIV/AIDS and food security.
3. Identify criteria for differentiating between chronic and temporary food insecurity.
4. Examine the link between poverty and food insecurity and malnutrition.
5. Analyse structural causes of food insecurity and malnutrition and suggest policy options for addressing these causes.

The following sectors and indicators are covered through the analysis:

- Socio-demographic data on the household
- Livelihood assets – five capitals: natural, physical, human, social, and financial.
- Food availability – production, gathered foods, food aid, food stocks
- Food access – sources of income, assets, livestock and cash crops, credit/borrowing, and major expenses
- Markets and prices, including the cross border trade.
- Utilization – diet quality, morbidity, AIDS proxy, access to drinking water.
- Risks exposure and response
- Coping Strategies Index

3.2. Conceptual framework

While it is not within the scope of this document to provide a theoretical discussion on the concepts of food security and nutrition, the following framework underlies the analysis conducted through this exercise.

As shown in Figure 7, and following the FIVIMS framework adopted by SETSAN in Mozambique, food security is understood as a multidimensional function based on four pillars:

- food availability: the amount of food available to a household;
- food access: household ability to acquire adequate amounts of food;
- food utilization: the use of the food accessible and the individual ability to use nutrients properly;
- stability in availability, access, and proper utilization of food.

In order to achieve food security all the four dimensions need to be fulfilled. An insufficient achievement of any of the four dimensions is expected to lead to improper food consumption and, consequently, to a high risk of malnutrition.

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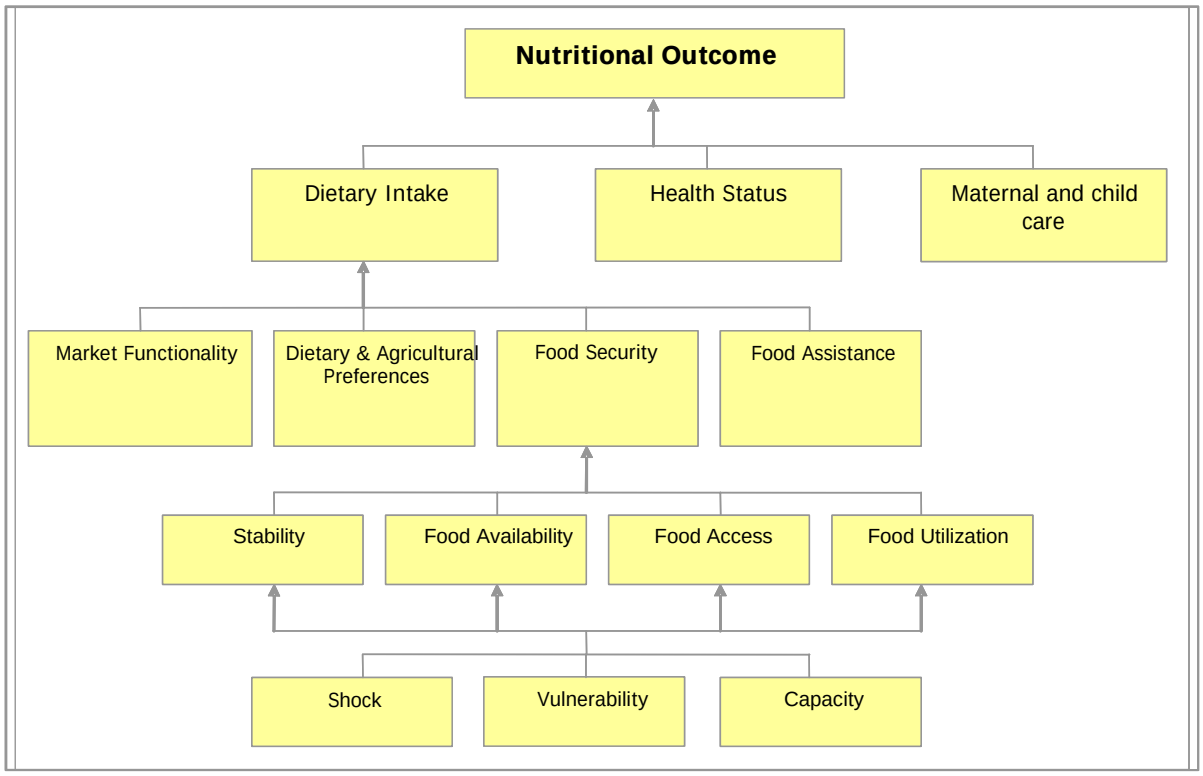
Figure 7 Conceptual framework



Adapted by the authors on the basis of UNICEF/FIVIMS Nutritional Framework

Having said the above, it is understood that the nutritional status of an individual is determined not only by food intake, but also by other factors such as health status and caring practices. Therefore, in line with UNICEF's conceptual framework of malnutrition, in this analysis malnutrition is considered as a complex condition determined by a variety of both micro and macro socio-political, economic, and health-related factors. Among the macro-determinants of malnutrition are: poverty, poor governance, and political instability. Among possible micro-causes of malnutrition are: inadequate infant and child feeding practices, poor hygiene, inadequate food intake, and food insecurity.

In addition to the above, the perspective adopted for this analysis is strongly based on the concept of livelihoods. A good working definition of livelihoods refers to *the assets (natural, physical, human, financial, and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by an individual or household.*[3]

In line with this perspective, this analysis has been based on an understanding of household characteristics. This has been done through the identification of livelihood groups. Livelihood groups are defined as subsets of the population with similar capital endowment as well as sharing similar ways of making their living in terms of activities, sources of income, and sources of food.

[3] Ellis, 2000

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3.3. Sampling frame

The National Institute for Statistics (INE) drew a sample of clusters from its standard sampling frame ("amostra mãe") based on data from the 1997 census. The sample was stratified by province and, within provinces, on rural and semi-urban areas (excluding the provincial capitals and Maputo City). At the first stage, UPAs ("unidades primárias de amostra") were sampled with probability proportional to size (PPS).

Table 1 Selected clusters per province

Province	Number of Sites Selected to be Visited	Number of Valid HH Interviews	Number of Weighted HH Interviews
Niassa	30	664	402
Cabo Delgado	32	669	737
Nampula	34	496	1,638
Zambézia	34	666	1,521
Tete	32	697	541
Manica	30	1,150	362
Sofala	32	701	447
Inhambane	32	580	571
Gaza	32	600	342
Maputo	32	540	204
Total	**320**	**6,763**	**6,763**

At the second stage, within each selected UPA, one AE ("área de enumeração") was sampled with equal probability among all AEs of the selected UPA. Within each selected AE, 22 households were to be surveyed. In total, there were 320 selected clusters. One of the sampled AEs in Maputo Province could not be located, which effectively reduced the sample to 319 clusters. In addition, due to difficulties encountered during data recording in the field which was done on Personal Digital Assistant (PDA), the final database provided information on 315 clusters instead of 319.

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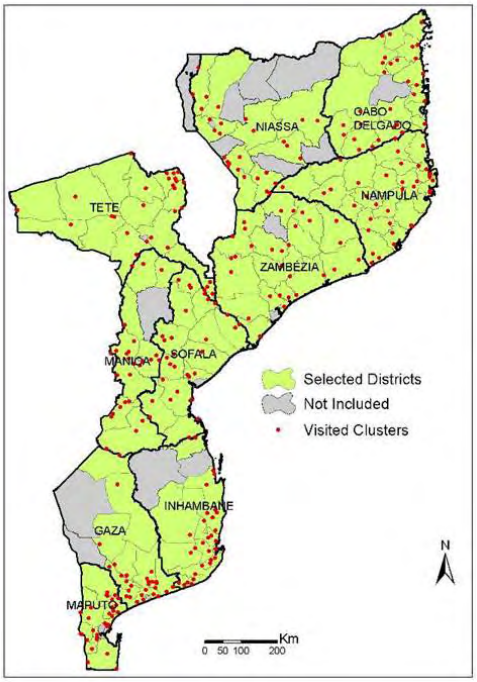
Figure 8 Clusters selected for the baseline



As a result, the overall sample resulted in 6,763 valid household interviews. Because of the different population found per province and clusters, base statistical weights were also applied for the analyses. Table 1 illustrates the dispersion of valid household interviews. The geographical distribution of the clusters in the sample is presented in Figure 8. For the nutritional component all children aged between 6 and 59 months found in the sampled households were measured. A total of 4,865 children under five years old were weighed and measured and information was collected about their health status. Base statistical weights were calculated by INE at the household and individual levels and used during the analysis.

3.4. Survey instruments

The survey was designed to collect information at the household, individual, and community level. Two different instruments were used during primary data collection: a household questionnaire and a community questionnaire[4]. Most of the field work was carried out during the September-October 2006 period.

3.4.1. Household survey

The household survey was designed to provide empirical data on the food security and vulnerability situation of rural populations in Mozambique. The household questionnaire, which collected information at household, household member, and child level, included the following modules: demographics and education, agricultural production, belongings and welfare, household income, household expenditures, participation in local organizations and social support, food consumption, shocks and strategies, chronic illness and mortality, maternal and child health, and nutritional status.

Several workshops were organized to come up with an instrument, allowing for comparison with existing database in-country and previous surveys carried out by GAV/SETSAN.
Twenty-two teams of two enumerators were selected and trained to conduct the interviews using PDAs. The sample was drawn to allow for some comparisons between provinces (see below sampling frame).

3.4.2. Review of secondary data

[4] They are reported in the Annex.

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Different reports and documents have been reviewed during preparation and analysis phases to better understand the current situation. However, the time allocated for such review was limited and further work needs to be done to link the current analysis with existing data.

3.4.3. Focus group discussions

In each village visited, the survey team organised focus groups involving the local community leaders, religious leaders, health officials, public health workers, agricultural extension officers, market traders, and representative of the different socio economic groups living in the area.

The community questionnaire included the following modules: demographics, access and markets, education, health, access to water, local economy, social support, expectation on current production, seasonal patterns of sources of food and income, aviculture, and food consumption.

3.5. Analytical Methods

The baseline data analysis has been carried out through four main analytical procedures:

(i) Descriptive Analyses – frequencies and means
(ii) Comparison Analyses – ANOVAS
(iii) Model Analyses – Regressions
(iv) Cluster Analyses – two stage cluster

A brief description of key concepts of each analyses are described in Box 2.

Box 2 Statistical Tips for understanding statistical analyses

Descriptive analysis usually focuses on detailing the occurrence of indicators in the sample data. It is normally used to identify the percent households with certain characteristics and the average of indicators.

Comparative analysis, usually done through ANOVAS in this study, allows for a validation of the difference of indicators among the selected groups. Note that $p<0.05$ means that there is a 95% confidence that the difference is not by chance; and where $p<0.01$ means that there is a 99% confidence that the difference is not by chance.

Model analysis, done either by linear or logic regressions, allows for modelling the importance of each indicator. The higher the R^2, the stronger is the model. Each indicator is given a coefficient and significance. The coefficient reflects the 'weight' it has on the dietary adequacy and the significance shows if the indicators are stable in the model.

Cluster analysis is an exploratory tool designed to identify natural groupings (or clusters) of households within a data set that would otherwise not be apparent. The algorithm employed by this procedure allows for inclusion of both continuous and categorical variables and allows for automatic choice of optimal number of clusters.

3.6. Analytical Process

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The data obtained were downloaded from PDAs and converted into SPSS and STATA for analysis. Child anthropometric data were entered into Epi Info and measurements were converted into z-scores using the Epi-Nut program in Epi Info and analyzed with STATA.
In order to better understand the inter-factor linkages with household food security data, key variables were analyzed and compared between households classified by livelihood activities characteristics (social unit) and by geographic unit (provinces).

There are two main levels of analysis discussed in this report:

(i) Administrative Level
(ii) Livelihood Level

The administrative level analysis reflects provincial findings, these being the lowest unit of analysis possible. Although pressure from decision makers focuses on desegregation of findings at the sub-provincial level, the sampling frame was not designed to fulfil this need. Although sub-provincial analyses are not valid, analyses done at the livelihood level may give further programmatic insights.

Several variables were analyzed to assess the food security situation of the different livelihood groups and differentiate the chronic versus transitory dimension of food insecurity. A composite indicator of the current food security situation (*SASA*) was adopted to identify different levels of food insecurity and estimate percentages of households falling into these profiles. In addition, building from the research carried out by the International Food Policy Research Institute (IFPRI) and the Food and Nutrition Technical Assistance project (FANTA), the use of dietary diversity as a proxy measure for food security was also analyzed.

Data on food and non-food expenditures, income diversity, assets ownership and coping strategies were analyzed to further characterize the household vulnerability profiles and project – together with crop forecast and market information – the likely food security situation over the coming months.

3.7. Limitations of the study

3.7.1. Related to data collection

Various difficulties were encountered during data collection in the field, the main one being related to the use of PDAs.

- Use of PDAs in the country has been so far very limited (probably only WFP may have made use of them previously in the country). The transfer of the technology to SETSAN for this exercise appeared to be quite challenging and a source of concern. Decentralized training initiatives were not sufficient to optimize the use of the new tool. Insufficient team supervision did not allow for close monitoring of difficulties encountered before the final download of the data for analysis. It seems that the decision to introduce the new tool for the baseline may have not been properly supported through training initiatives. In addition, due to insufficient supervision and the lack of a pilot phase for the exercise, the implications of such difficulties were realized only during the data analysis phase.
- The concomitant involvement of Ministry of Health staff to other pieces of work didn't allow for a close training and supervision of the team in charge of the anthropometric

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measurements. The quality of anthropometric measurements obtained is poor. This poor data quality (regarding age and height) has been challenging to the analyst's work.

- One of the sampled AEs in Maputo Province could not be located, which effectively reduced the sample to 319 clusters.
- The community questionnaire was usually based on the opinion provided by one –and rarely two- key informants. In some cases this has reduced the significance of the data provided.
- Because of the random nature of the site selection, in a few cases there were difficulties to access the area to be surveyed for logistical reasons. This type of difficulty may have reduced the time available to conduct the interviews.

3.7.2. Related to data analysis

- Due to difficulties encountered during data recording in the field, the final database provided information on 315 clusters instead of 319, with data available on an uneven number of households per cluster. Such difficulty resulted in the inability to link data of a large number of measured children to their household variables in the main data file. Consequently, while a restricted analysis was done on all children measured, the wider analysis using socioeconomic and other variables was restricted to about 45% of the measured children, those that could be linked to the main data file. This can obviously be an important source of bias. The figures presented in this report based on characteristics of the households should therefore be interpreted in this context and considered more as tentative rather than definite results.
- Inaccurate data recall and quantitative estimates have affected the quality of the results. In some cases, this may have been worsened by concomitant initiatives; such was the case for the launch of the new currency. In fact, the degree of inconsistency in variables based on monetary values –as is particularly the case for expenses- is much higher than others.
- As often observed in similar processes, the time given for analysis appears to be rather short given the underestimated and lengthy data cleaning process that has been required. In addition, not all the analysts were involved in the initial stage of the survey design and one may regret the continuous questioning of the analysis framework far after the data collection had taken place.

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4. Livelihood profiling and well being: the five capitals

4.1. Livelihood profiles

In order to subdivide the sample into relatively homogeneous groups, households were grouped on the basis of their activities, sources of income and sources of food consumed. The result achieved through cluster analysis is a set of nine groups as listed below. While nearly all groups depend on agriculture to sustain their lives, major distinctions between groups are based on secondary activities and other factors considered.

The livelihood groups were developed using the two-step clustering algorithm. The clustering was an iterative process in which a variety of variables were tested to determine how well they could discriminate different groups. After each run, the variation within each cluster was compared. The inclusion of additional variables was based on the level of reduced internal variation and increased homogeneity within each group. A large number of runs was attempted. The final run was based on the set of activities (up to five) carried out by the household and sources of income. Out of the ten clusters generated this way, two instances demonstrated a pair of clusters not sufficiently different either in terms of combination of activities and sources of income or in terms of their sources of main food consumed (in this case only maize and cassava were considered) and each pair was combined resulting in a reduction in the number of clusters. Finally, the outliers tested significantly homogeneous to be considered as a group. This group of households, currently named Group 9, resulted as outlier because of a lack of regular activities and sources of income.

The geographic distribution of the different groups is detailed in Table 2 which reports the relevance of each livelihood group in each province. In addition, the profile of each group is provided. Finally Table 3 and Figure 9 provide summary information on the various livelihood groups. By grouping the categories in order of wealth groups, different demographics can be compared to show relative household economic security.

Table 2 Distribution of provincial population by livelihood group

	Niassa	C. Delgado	Zambezia	Nampula	Tete	Manica	Sofala	Inhambane	Gaza	Maputo
Group 1	5.97	2.44	9.34	5.79	17.19	6.34	4.70	13.64	7.31	6.86
Group 2	11.19	14.91	12.33	13.94	9.98	12.12	14 54	8.04	3.80	23.04
Group 3	19.90	17.07	19.47	27.94	7.58	14.33	4.03	6.99	0.58	4.90
Group 4	13.68	18.43	13.13	4.54	4.81	4.68	11.41	13.46	18.13	13.24
Group 5	30.60	17.62	26.43	28.60	34.01	40.50	42.06	25.87	13.45	27.45
Group 6	1.00	1.08	0.00	0.00	10.72	0.00	0.00	0.17	0.00	0.00
Group 7	4.23	3.12	8.24	4.40	3.88	7.16	3.13	8.39	9.65	16.67
Group 8	9.95	3.39	4.15	13.54	7.39	13.50	19.91	9.27	44.74	6.86
Group 9	3.48	21.95	6.90	1.25	4.44	1.38	0 22	14.16	2.34	0.98
All groups	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*

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Summary description of livelihood groups

LIVELIHOOD GROUP 9	**MARGINAL HOUSEHOLDS:** Households that perpetually 'live on the edge'	Rural, very low well being (capital-based), very vulnerable to chronic food insecurity, asset poor and labor poor. BUT: Group 9 has a production focus, and Group 1 has a labor focus.	Group 9 could be defined as "very poor" and Group 1 as "poor."
LIVELIHOOD GROUP 1	**LOW INCOME LABORERS:** Households that rely principally on informal labor supplemented by low-production subsistence farming		
LIVELIHOOD GROUP 4	**LOWER PRODUCTION FARMERS:** Subsistence farming households that combine lower food and cash crop production with informal labor, fishing, livestock and remittances	Groups 4 and 2 have lower production than Group 3, and compensate for this lower production with diversification of household economic strategies.	Groups 4, 5, and 6 could be broadly defined as "middle."
LIVELIHOOD GROUP 2	**MEDIUM PRODUCTION AND HIGHLY ECONOMICALLY DIVERSIFIED FARMERS:** Subsistence farming households that combine medium-production food cultivation for their own consumption with cash crop production, informal labor and trade		
LIVELIHOOD GROUP 3	**SELF SUFFICIENT SUBSISTENCE FARMERS:** Subsistence farming households that concentrate on food crop production for their own consumption and sale	Group 3 is self-sufficient.	
LIVELIHOOD GROUP 5	**HIGH PRODUCTION, HIGHLY ECONOMICALLY DIVERSIFIED FARMERS WITH FOOD CROP FOCUS:** Subsistence farming households that combine high-production food crop cultivation for consumption and sale, supplemented with livestock and off-farm activities	Groups 5 and 6 have higher production than Group 3. BUT: Group 5 has food-crop focus, while Group 6 has mainly cash-crop and partly food-crop focus.	
LIVELIHOOD GROUP 6	**LARGE SCALE CASH AND FOOD CROP PRODUCERS:** Large-scale farming households that are largely self sufficient in food crops and earn additional income from cash crop sales		
LIVELIHOOD GROUP 8	**BETTER OFF, HIGHLY ECONOMICALLY DIVERSIFIED FARMERS:** Large-scale farming households that concentrate on both food and cash crop production, off-farm economic activities and livestock	Group 8: In a word: "better-off" from all perspectives: assets, money, diverse income base, etc.	Group 8 could be defined as the "better-off".
LIVELIHOOD GROUP 7	**FORMALLY EMPLOYED AND TRADERS:** Peri-urban households that rely heavily on trade and formal employment	Group 7: Peri-urban. Another form of "better-off," but bridging urban & rural – almost in a class of its own.	Group 7 is better off, but different from Group 8.

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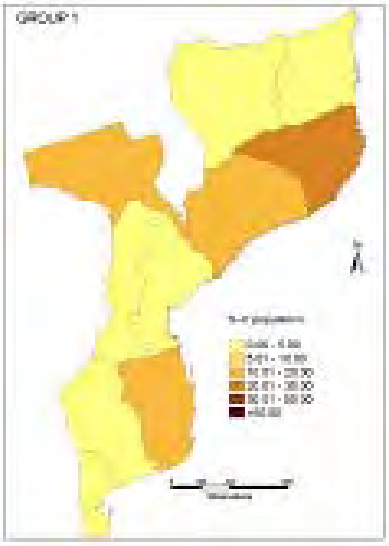
LIVELIHOOD GROUP 1

LOW INCOME LABORERS:

Households that rely principally on informal labor supplemented by low-production subsistence farming

Overview



Group 1 households are distinguished by their unique production and labor patterns: faced with very low access to productive capital (e.g. land and livestock), they earn their living mainly through informal labor for others (*ganho-ganho*). An overwhelming majority (97%) of households reported that *ganho-ganho* was their main source of income. As such, their principal economic asset is effectively household labor power. To supplement the food and income earned through work in informal markets, Group 1 households focus limited agricultural cultivation on food crop production for household consumption.

Group 1 accounts for an estimated 8% of the population of rural Mozambique. The highest concentrations of Group 1 households are found in the northern provinces of Nampula (20-30%), Zambezia (10-20%), Tete (10-20%), and the southern province of Inhambane (10-20%).

Livelihood capitals

Group 1 households own an average amount of land in high-lying areas (58% own more than 0.25 ha of high-lying land). However, they have the least access to land in productive low-lying areas –only one quarter of households reported owning any low-lying plots. Because of poor land quality and small household plot size, Group 1 exhibits the lowest crop production of all of the livelihood groups. They use their small agricultural plots mainly for producing staple food crops (particularly maize) for their own consumption. Their degree of crop diversification is the lowest of all groups. Even under normal conditions, members of this group face difficulties in getting access to necessary inputs for production. Less than half (43%) of households reported having seeds in stock for the next planting season.

Average ownership of overall productive assets by Group 1 is the lowest in the nation, at slightly more than two-thirds of the national average (4.13 versus 6.14 units). In terms of livestock, Group 1 households have the lowest overall livestock ownership (including cattle, small stock, and poultry). Only 6% of Group 1 households own at least 10 chickens, 3% of households own at least five small stock (goats, sheep or pigs), and 3% of households own at least 1 cattle.

They frequently work for payment in kind; specifically, more than 40% of households provided labor against payment in kind in the previous 12 months – more than twice the national average. Unlike Group 7 households that supplement their low food crop production with formal employment and trade, or Group 8 households that balance low food crop production with cash

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crop production and other economic activities, Group 1 households do not have other lucrative economic options. This lack of options is reflected in their low degree of income diversity.

When considering all of the five capitals together, Group 1 households are assessed to have a low level of well being. The only other livelihood group with similar results were the marginal households of Group 9.

Food security and dietary intake

Given the above, it is perhaps not surprising that Group 1 households have a higher than average vulnerability to chronic food insecurity. Over 60% of Group 1 households are estimated to have high or very high vulnerability to chronic food insecurity. The immediate causes of this emerged from the baseline study. Households are able to secure less than four months of cereal production from their own harvest per year, a very low self-sufficiency ratio for Mozambique. Alarmingly, more than 50% of Group 1 households report the average duration of their harvest being less than three months. Low household production requires that more than half of the basic food items consumed, such as maize and cassava, are purchased or received through exchange. Food aid provides more than 10% of the maize consumed. As a result of this consumption pattern, Group 1 households evidence a very low dietary adequacy (based on a weighted dietary diversity).

Heavily labor dependent, Group 1 has particular difficulty recovering from illness-related shocks to the household. Over half (56%) of households reported the main shocks being related to illness or death of a household member. Group 1 has the second lowest ability to recover from shocks they faced in the last 12 months: less than 40% of households recovered even partially from the shocks experienced.

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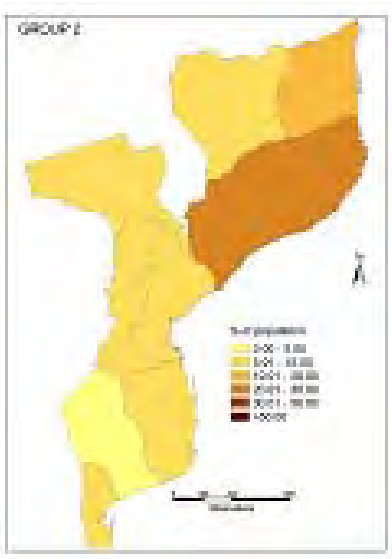
LIVELIHOOD GROUP 2

MEDIUM PRODUCTION AND HIGHLY ECONOMICALLY DIVERSIFIED FARMERS:

Subsistence farming households that combine medium-production food cultivation for their own consumption with cash crop production, informal labor and trade

Overview

Group 2 comprises households that combine a large degree of self-sufficiency in crop production with a markedly diverse set of economic strategies. In addition to producing the bulk of their cereal requirements, Group 2 households produce cash crops, and engage in other economic activities such as informal labor and trade. This economic diversification is an important source of resiliency for responding to shocks and smoothing out fluctuations in food consumption. Group 2, which accounts for an estimated 12% of the population of rural Mozambique, is dispersed more widely than Group 1. The highest concentrations of Group 2 households were found in the northern provinces of Zambezia, Nampula, and Cabo Delgado.



Livelihood capitals

Farms owned by Group 2 households tend to be concentrated in high-lying areas. Almost three-quarters (70%) of households own greater than 0.25 ha of land in high-lying areas. It is worth noting that almost a third (31%) of Group 2 households own more than 0.25 ha in low-lying areas as well. Cultivation patterns, characterized by diversified production into multiple food and cash crops (e.g. maize, rice, sorghum, small peanuts, and cowpeas), may further mitigate risk by reducing the net effect that a given hazard may have on food and income access. Almost two-thirds (63%) of households reported that they expect to have seeds for the next planting season.

The most notable observation about Group 2 households is the striking level of household economic diversification. Specifically, over 90% of Group 2 households reported more than one main source of household income (by comparison, only two other groups –Groups 5 and 8– exceeded the 60% mark).

A livelihood strategy that is not emphasized by Group 2 is animal husbandry. Households tend to own a small ruminant, but cattle ownership is uncommon. An estimated 20% of households own at least 10 chickens, 11% of households own at least five small stock, and 8% of households own at least one cattle.

In summary, when considering the composite of all five capitals, Group 2 households are identified to have a medium level of well being.

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Food security and dietary intake

In terms of vulnerability to chronic food insecurity, the picture for Group 2 is more encouraging than for Group 1. An estimated one-fifth (20%) of Group 2 households are identified to have a high or very high level of vulnerability to chronic food insecurity. They are able to produce only about half of their cereal consumption on their own farms.

Of the nine livelihood groups of Mozambique, Group 2 reported the lowest ratio of food expenditure to total expenditure, indicating that because of their reasonable food crop production levels and high income access, they are able to reserve most of their income for non-food items.

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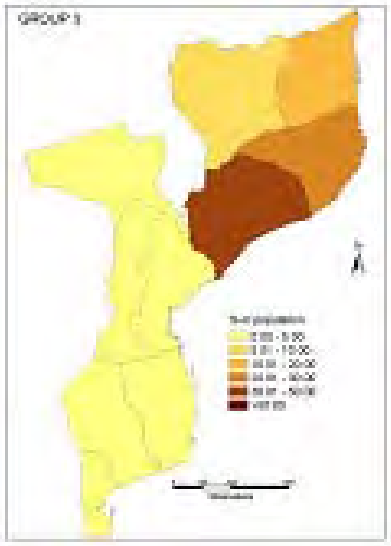
LIVELIHOOD GROUP 3

SELF SUFFICIENT SUBSISTENCE FARMERS:

Subsistence farming households that concentrate on food crop production for their own consumption and sale

Overview



Group 3 households may best reflect the popular stereotype of the rural Mozambican subsistence farming household: they focus on production of staple food crops for consumption by the household (especially maize and sorghum), and as a result they are very nearly self sufficient.

Geographically, Group 3, which is the second largest group and accounts for approximately 16% of the population of rural Mozambique, tends to be spread throughout the country. They are most concentrated, however, in Zambezia, Nampula, Cabo Delgado, and Sofala provinces.

Livelihood capitals

Group 3 households tend to farm plots that are clustered in the highlands – almost two-thirds (72%) own at least 0.25 ha on high-lying ground, and one fourth (25%) own at least 0.25 ha on low lying ground. They focus almost exclusively on food crop production for domestic consumption; once their food needs are met, they sell the surplus. Household production in absolute terms is relatively high by Mozambican standards. Engagement in off-farm economic activities is not an important source of food or income for these households.

Livestock ownership is low: one fifth (19%) of households own at least 10 chickens, 8% own at least five small stock, and 3% own at least one cattle.

One consequence of this overall livelihood profile is a low-cash household economy, characterized by low income diversity.

Food security and dietary intake

Given the above, it is perhaps not surprising that 90% of household staple food consumption for Group 3 households is reported to come from their own production. That does not mean they are not vulnerable to chronic food insecurity, however. Although some diversification is evident in farming practices (in addition to maize and sorghum, households reported an average of six other crops with production of 10-60 kg), diversification into off-farm activities is not in evidence, making households vulnerable to hazards that affect agricultural production, such as drought.

As such, while Group 3 households are not extreme in terms of levels of chronic food insecurity, levels are higher than average for rural Mozambique. Fully 50% of households are estimated to have high or very high vulnerability to chronic food insecurity.

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Expenditure on food is very low in absolute terms, not surprising given the small proportion of household consumption not provided by own production. However, because cash flows in Group 3 households are so low, restricted largely to income from surplus food crop sale, the estimated percent of household expenditure on food approximates the national average of about 50%.

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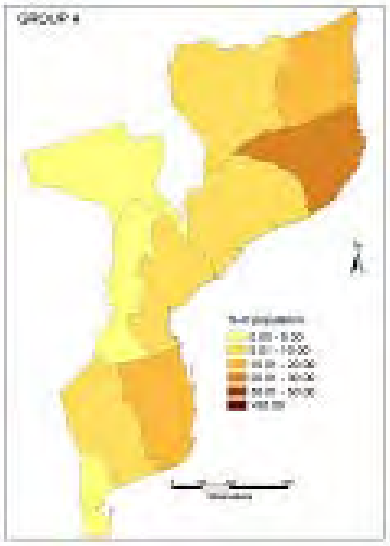
LIVELIHOOD GROUP 4

LOWER PRODUCTION FARMERS:

Subsistence farming households that combine lower food and cash crop production with informal labor, fishing, livestock and remittances

Overview



Similar to Group 2, Group 4 households supplement cultivation of food and (to a much lesser extent) cash crops with a range of off-farm income-generating activities. This study identified four principal differences between Group 2 and Group 4: Group 4 exhibits lower household crop production levels (estimated 20% lower on average), much less economic diversification, much less access to low-lying land, and greater reliance on both food purchase and food aid for consumption than their Group 2 counterparts.

Group 4 accounts for an estimated 11% of the population of rural Mozambique. In terms of geographical distribution, Group 4 is quite distributed throughout the country, with highest concentrations in Nampula (20-30%), Cabo Delgado, and Inhambane provinces (10-20% each).

Livelihood capitals

Group 4 households tend to cultivate their farms on high-lying lands. An estimated 69% of households own at least 0.25 ha of high-lying land. Only one quarter (24%) of households reported owning at least 0.25 ha of low-lying land – in fact almost two-thirds (64%) own no low-lying land (vis-a-vis 50% for Group 2).

Cereal production was expected to last for less than five months in the baseline year. Group 4 households produce both food and cash crops. In line with their lower production levels, only half of this group reports having seeds for the next season (vis-a-vis 63% for Group 2).

In addition to cash crop sales, Group 4 households earn income through fishing, informal labor, trade, or remittances (but usually only one of these). An estimated 15% of households in Group 4 earn income from remittances. Livestock assumes greater importance to the household economy for Group 4, with 14% of households reporting owning at least 10 chickens, 10% owning at least five small stock, and 7% owning at least one cattle.

Food security and dietary intake

Group 4 households were identified to have higher than average vulnerability to chronic food insecurity. Indeed humanitarian assistance was reported to provide a measurable percentage of maize consumption in the normal baseline year (5-10%). Additionally, Group 4 households must compensate for their reduced production by purchasing at least one third of their staple food consumption at the market.

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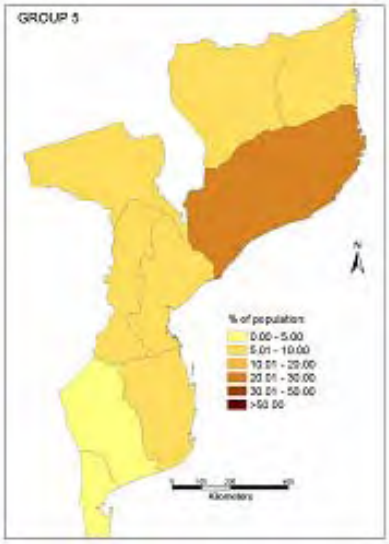
LIVELIHOOD GROUP 5

HIGH PRODUCTION, HIGHLY ECONOMICALLY DIVERSIFIED FARMERS WITH FOOD CROP FOCUS:

Subsistence farming households that combine high-production food crop cultivation for consumption and sale, supplemented with livestock and off-farm activities

Overview

Group 5 encompasses households with high total production. Similar to Group 3, Group 5 households emphasize food crop production and sale, rather than cash crops.



Group 5 represents 28% of the total rural population of Mozambique. Group 5 is dispersed across almost all provinces, but demonstrates the highest concentrations in Zambezia and Nampula provinces (20-30% each).

Livelihood capitals

Group 5 is somewhat diversified in terms of access to land, over two-thirds (69%) own at least 0.25 ha of high-lying land, and over one quarter (29%) own at least 0.25 ha of low-lying land. They produce essentially food crops and vegetables. Average agricultural production is rather good, second only to the household production of Group 3.

Households report that on average the stocks harvested may last for a bit more than five months. An estimated 56% of this group reported to have seeds for next planting season.

Group 5 has the second highest level of total livestock ownership among all of the groups. One quarter (24%) of households own at least 10 chickens, 14% own at least five small stock, and 8% own at least one cattle.

Like Group 2, Group 5 exhibits a very high level of economic diversification of the household: over 90% of households report more than one source of household income. Group 5 households reported many economic activities, but the most common were sale of cash crops and informal labor (*ganho-ganho*).

In summary, Group 5 was found to have a medium well being when considering all five capitals. This is probably explained in simple terms by the good agricultural production complemented by a diversified economic base.

Food security and dietary intake.

About one quarter (25%) of households have high or very high vulnerability to chronic food insecurity.

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Members of this group tend to sell their production; therefore, they rely both on self production and purchase as sources of food. The share of total expenditure spent on food is about average for rural Mozambique (around 50%).

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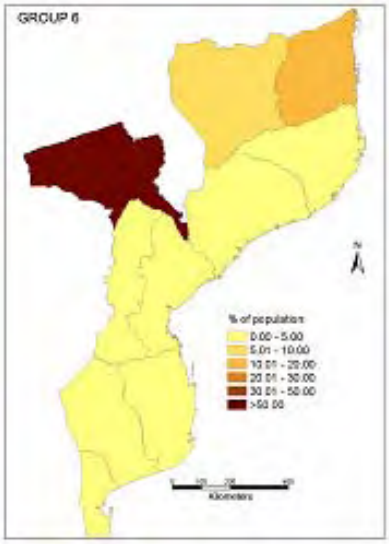
LIVELIHOOD GROUP 6

LARGE SCALE CASH AND FOOD CROP PRODUCERS:

Large-scale farming households that are largely self sufficient in food crops and earn additional income from cash crop sales

Overview



Group 6 is characterized by a small group of cash crop producers. The most distinguishing characteristic of Group 6 households is the cultivation of relatively large plots, often on low-lying land.

Group 6 encompasses approximately 1% of total population. The group has a strong geographical dimension, being mostly concentrated in Tete (80% of the entire group), Cabo Delgado, and Niassa provinces.

Livelihood capitals

In terms of access to land, Group 6 households are unusual in their access to the productive low-lying lands. Almost half (46%) of households own at least 0.25 ha of high land, while over half (57%) owns at least 0.25 ha of high land. Only a little more than a quarter (27%) of Group 6 households own no low land at all. Group 6 also records the largest farm sizes among all the groups both on high and low land.

Production of basic food commodities is minimum and essentially used for self-consumption. This increases the number of months in which the members of this groups feel confident to be self-reliant: more than seven, the highest among the different groups. Production system is characterized by a low diversification of crops.

Contrary to the optimism on self-reliance in terms of food, this group seems unable to maintain sufficient seed stocks. However, this seems in line with the profile of cash-crop producers, who usually rely on traders for the supply of farming inputs as well as to sell their produce.

In terms of livestock, this group has on average the highest number of small ruminants. They have the second highest level of livestock among all nine livelihood groups.

They have medium well being (in terms of the five capitals).

Food security and dietary intake

Up to 90% of maize consumed in the household is from own production. In terms of sources of food, this group reports a combination of consumption of basic commodities, of own production, and purchase of commodities not produced. In view of the strong reliance on cash crops production, the share of food commodities within the total household expenses is high.

An estimated 25% of households have high or very high vulnerability to chronic food insecurity.

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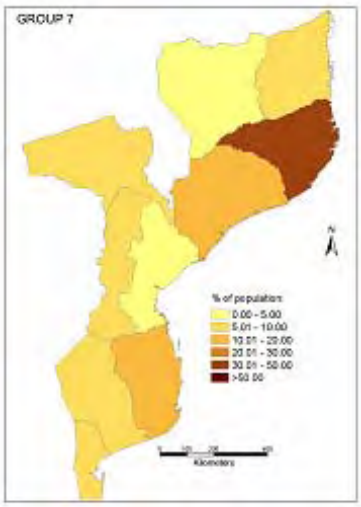
LIVELIHOOD GROUP 7

FORMALLY EMPLOYED AND TRADERS:

Peri-urban households that rely heavily on trade and formal employment

Overview



Group 7 represents households that make their living based upon formal employment and/or trade. Not surprisingly, Group 7 households often reside in peri-urban areas. As such, the analysis of livelihood capitals in this study, with its orientation towards assets of economic value in a rural, agricultural economy, may not reflect the level of livelihood security in this group accurately.

Group 7 represents approximately 6% of the total population. They are found throughout the country, with the highest concentrations in Nampula, Zambezia, and Maputo provinces.

Livelihood capitals

As might be expected for a peri-urban population engaging in formal employment, the proportion of household heads with a basic level of literacy (ability to read and write) is significantly higher for Group 7 than the other groups. More than four-fifths of household heads attended school. It is notable that Group 7 also exhibits a significantly higher than average percent of household heads less than 18 years of age.

Land ownership is low in this group: less than half (46%) of households own at least 0.25 ha of high land and only 16% of households own at least 0.25 ha of low land. Similarly, livestock holdings are not significant for this group. Only 12% of Group 7 households own at least 10 chickens, only 6% of households own at least five small stock, and only 5% own at least one cattle.

Food security and dietary intake

Food consumption patterns betray this peri-urban focus. The largest proportion of food consumed is obtained through purchase rather than production. Less than half (44%) of maize consumed is from their own production.

Because the absolute level of household income is much higher than the other groups (the level of expenditure in absolute terms is second only to Group 8), this helps to reduce the ratio between expenditures on food and total expenditures. Thus the observation that the proportion of expenditure on food is low may be misleading, and reflects a high total expenditure rather than low expenditure on food; indeed they are quite reliant on the market for food access.

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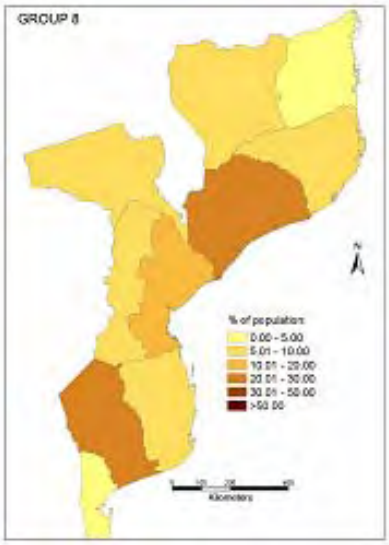
LIVELIHOOD GROUP 8

BETTER OFF, HIGHLY ECONOMICALLY DIVERSIFIED FARMERS:

Large-scale farming households that concentrate on both food and cash crop production, off-farm economic activities and livestock

Overview

Group 8 encompasses high-income, large-scale farming households that engage in a range of other income earning activities, including livestock.



Group 8 accounts for 11% of the population of rural Mozambique. They are found throughout the country, with the highest concentration in Nampula, Gaza, and Sofala provinces.

Livelihood capitals

Land access for Group 8 farmers is good: over half (57%) of households report owning at least 0.25 ha of high land, and over one quarter (29%) report owning at least 0.25 ha of low land (although many more have smaller plots of low land – only 41% of households reporting owning no low land at all. Less than 60% of households reported that they had seeds for the next planting season, but it is reasonable to assume that they will purchase seeds.

In addition to land, Group 8 has the highest number of productive assets among all livelihood groups. Livestock (cattle and small ruminants) was reported to play an important role in the household economy of Group 8, which records the highest proportion of households with cattle. Over one quarter (27%) of households own at least 10 chickens, 15% own at least five small stock, and 13% own at least one cattle.

In addition to agricultural and livestock activities, this group has an exceptionally diversified income base, including off-farm activities, informal labor, and trade. Over 90% of households report more than one source of income (as noted above, only three livelihood groups reported >60%). In summary, their high asset ownership combined with diversified economic base earned them the status of having the highest well being (based on the five capitals) of all of the livelihood groups.

Food security and dietary intake

Unlike Group 3, Group 8 households do not focus their agricultural production on their own consumption, and thus they report the lowest number of months of self-reliance from their last harvest. Given their overall high income, and the observation that Group 8 records the highest ratio of expenses on food to total expenses, it might be concluded that Group 8 elects to spend household income on purchasing non-staple foods, and thereby diversifying the diet.

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Relevance of agriculture production for self-consumption is limited and this group reports both the lowest number of months of self-reliance from the last harvest as well as the highest ratio between expenses on food and other expenses.

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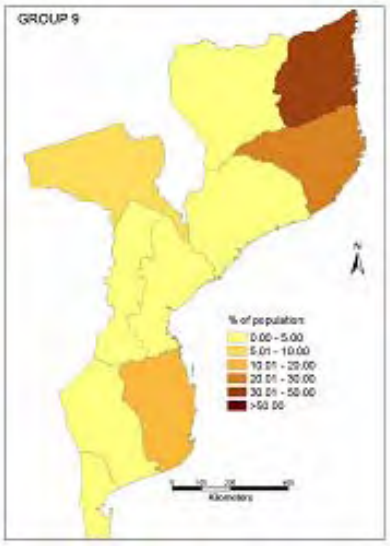
LIVELIHOOD GROUP 9

MARGINAL HOUSEHOLDS:

Households that perpetually 'live on the edge'

Overview

Group 9 encompasses the vulnerable stratum of low-income, economically marginal households. This group, which represents 6% of the rural population of Mozambique, is found throughout the country. However, the highest concentrations are found in Cabo Delgado, Nampula, and Inhambane provinces.



Livelihood capitals

In general, Group 9 is characterized by a very low access to resources of all types. One source of vulnerability is found in the demographics of the group: they have the highest dependency ratio, highest proportion of female-headed households (over 40%), and many elderly-headed households (almost 25%). Only one third of household heads reported being able to read and write, and over half (60%) had never attended school. Notably, Group 9 households reported two reasons for not attending school more frequently than other groups: the high cost of school and the need to take care of relatives.

Group 9 households rely essentially on monoculture of a staple food crop (most commonly maize), with a focus on producing for household consumption. Access to plots in the low lands is minimal. Members of this group report low expectations in terms of having access to seeds for next planting season: just a bit more than one third. Livestock is limited and present only in the form of small ruminants and chickens.

Reinforcing the conclusion that a diversified economic base is a major contributor to livelihood and food security, Group 9 households report a very low level of diversification of sources of household income (alarmingly, less than 5% of households reported more than one source of household income). In general, human resources within the household are quite limited and this strongly limits the amount of income achievable.

When analyzing the composite of the five capitals, Group 9 joined Group 1 in having the lowest level of overall well being.

Food security and dietary intake

Despite such poor access to resources, this group is still able to produce a good share of food consumed: approximately 70% of maize consumed is from their own production, and households from this group expect to be able to rely on the past harvest for four months. However, this contribution is not enough to assure resiliency in the face of common shocks: 70% of Group 9 households face high or very high vulnerability to chronic food insecurity.

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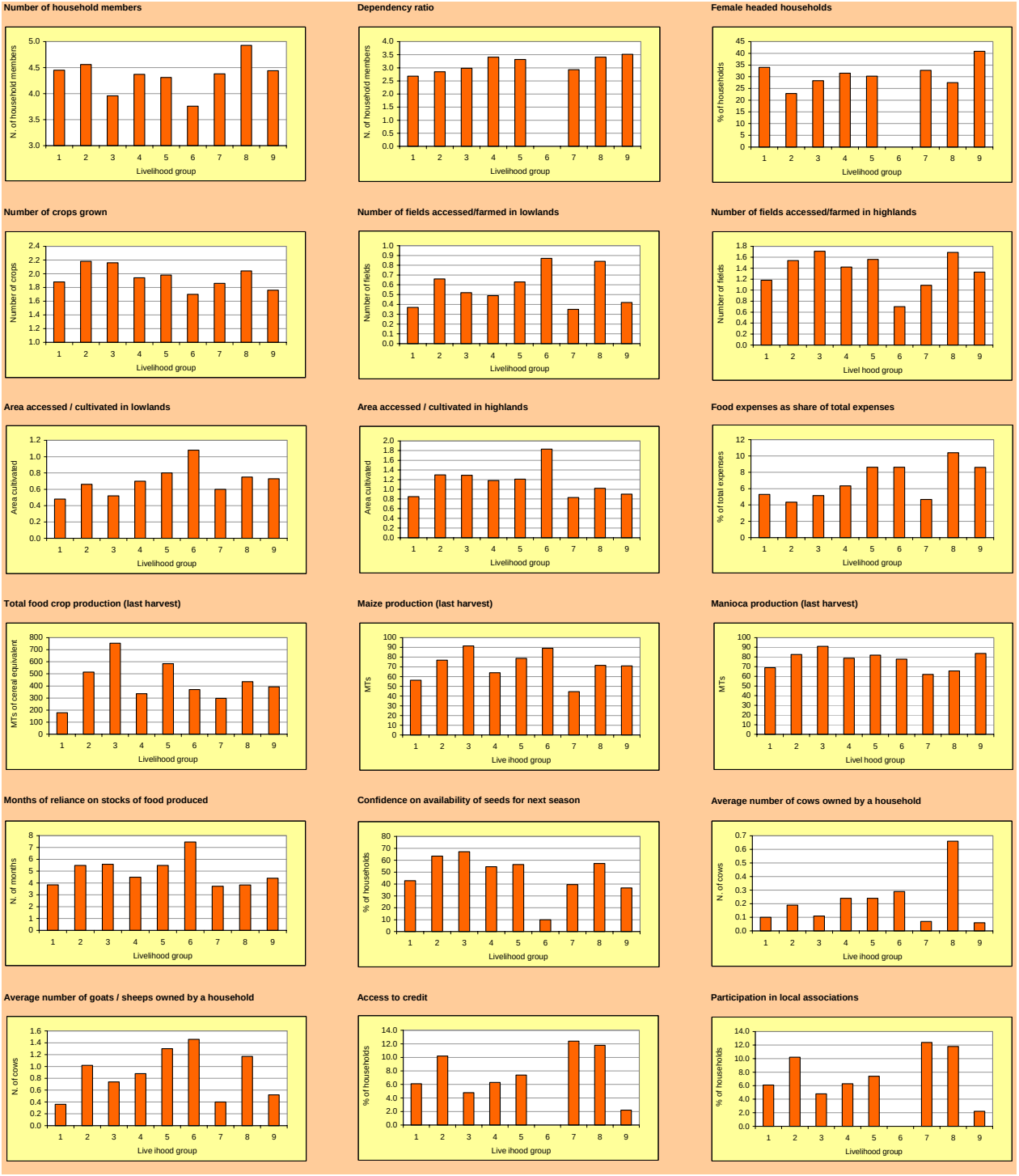
Table 3 Main characteristics of livelihood groups

		%of pop	main activity	involvement in agriculture	productive system	access to land	food production	self-sufficiency in food production	relevance of livestock	presence
Group 1	Subsistence farmers with strong reliance on informal labor	8	informal labor	minimum: manly self-consumption	basic, low efficiency	lowest access to land, minimum diversification	lowest level	low	minimum	mainly in the north
Group 2	Farmers which manage to combine cash crops and food crops with informal labor and trade	12	diversified	mixed	diversified			high	limited to small livestock	coast center-north
Group 3	Basic subsistance farmers	16	only food agriculture	very high		poor access to land	high production	very high		coast center-north
Group 4	Farmers with diversified production systems	11	diversified, mainly cash crops and sale of food crops, with complementary sources of income	mixed			limited	rather low		all provinces
Group 5	Farmers with diversified food production systems	28	mainly food crops	high	diversified	mixed	rather good	high share of expenditures on food		all provinces
Group 6	Farmers relying on cash crops	1	cash crops	very high	low diversification	largest farm size in low land		very high	high number of small ruminants	mainly Tete, C.Delgado
Group 7	HHs which rely essentially on income from trade and formal employment	6	employment & trade	minimum		very good access to land	low	low	not relevant	mainly Maputo, Nampula
Group 8	Farmers with diversified production systems and animals	11	diversified, with strong relevance of agriculture	mixed, mainly for sale		good	average	highest % on food expenses	high	all provinces. High concentration in Gaza
Group 9	marginal livelihoods	6	monocolture of staple food	minimum, mainly self-consumption	very poor, low access to resources	very low	average / limited	medium	low	mainly C.Delgado, Nampula, Inhambane

Figure 9 Summary statistics on livelihood groups



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4.2. Human capital

Human capital deals with the number, age, and gender of household members and their level of educational development. Along such line, this section is divided into two parts: demographics and access and level of education.

4.2.1. Demographics5

On average the number of household members is 4.3 individuals. This is in line with the average estimated by the 2003 Demographic and Health Survey (DHS) of 4.5 members per household in rural areas. The distribution among the different livelihood groups does not show relevant differences. Having said that, it is interesting to consider how Group 3 and Group 6 have a lower average number of members, while in the case of Group 8, the estimate is higher than average. There is limited difference among provinces with the exception of Gaza which records the highest estimate with an average of 5.7.

Table 4 Number of household members

	Mean	1 - 5	6 - 9	10 or +
		%		
Province				
Niassa	4.3	76.9	21.6	1.5
Cabo Delgado	4.4	74.6	24.2	1.2
Nampula	4.1	79.7	18.2	2.1
Zambézia	4.6	68.0	30.7	1.2
Tete	4.3	75.6	23.5	0.9
Manica	..	..	..	..
Sofala	4.9	63.5	31.4	5.2
Inhambane	4.9	64.1	28.4	7.5
Gaza	5.7	55.0	32.5	12.6
Maputo	4.5	69.0	25.6	5.4
Livelihood group				
Group 1	4.4	75.8	21.8	2.5
Group 2	4.6	70.3	25.3	4.4
Group 3	4.0	81.1	17.9	1.0
Group 4	4.4	72.2	22.9	4.9
Group 5	4.3	74.2	22.5	3.3
Group 6	3.8	82.6	16.3	1.2
Group 7	4.4	69.8	26.5	3.7
Group 8	4.9	66.8	26.6	6.6
Group 9	4.4	73.4	24.0	2.5

The presence of female-headed households was reported in 29% of the sample. This is in line with the rate of 26.4% estimated by the 2003 DHS. The presence of female-headed households was found to be significantly more numerous among Group 9, with a share of more than 40% of households in the group being headed by women. At the same time, it is interesting to consider how Group 9 records the highest average dependency ratio[6].

[5] The demographic section does not include households surveyed in Manica, since no data on household members were systematically entered in that province.

[6] In this case, the effective dependency ratio, has been estimated on the basis of the ratio of the sum of persons in "dependent ages" (population below 18 years and above 59 years) and in chronically ill status to the number of adults (aged between 18 and 59) who are economically active.

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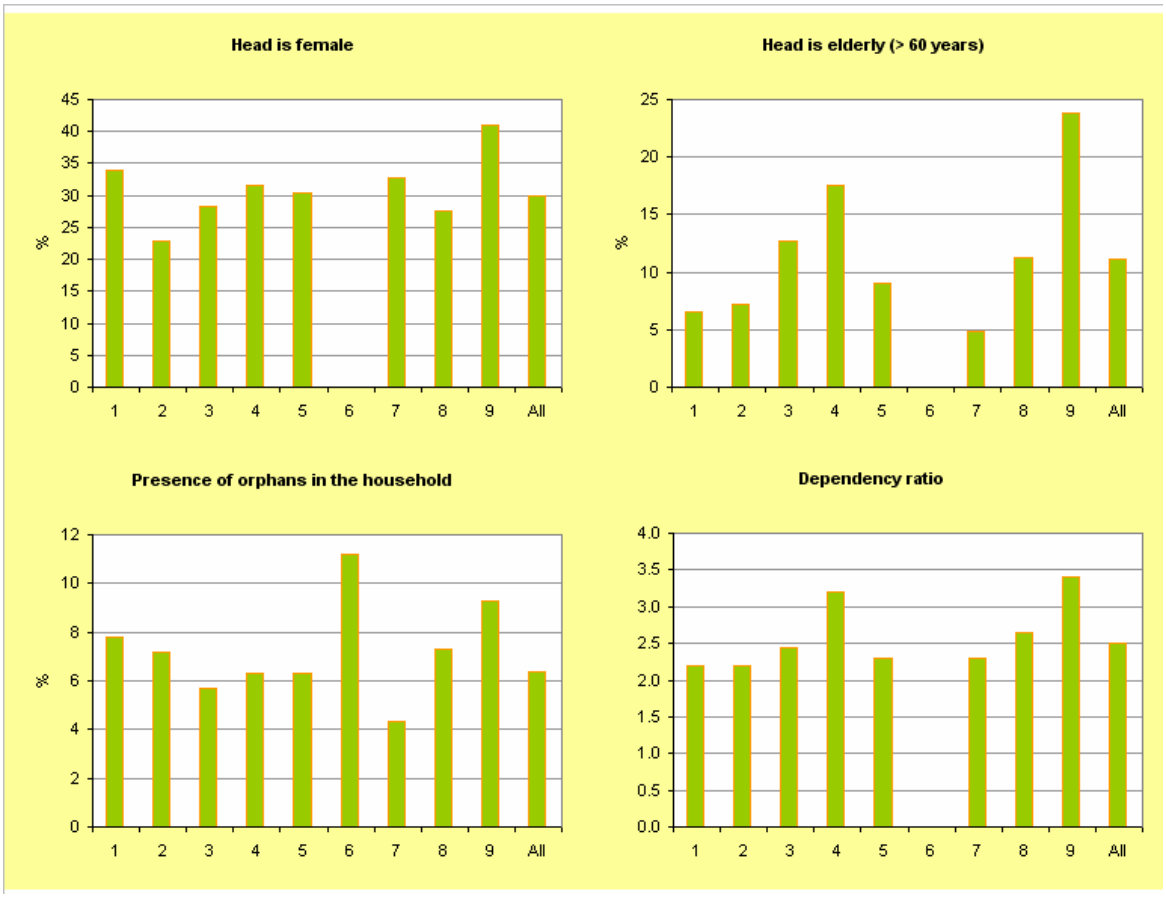
Figure 10 Indicators of household demographics by livelihood group



Between 74% and 91% of households have a head of household that is within the economically active age range. It is worth considering, in the case of Group 9, the higher share of households headed by elder people (almost one fourth of the entire group). This fits well with the general profile of Group 9 as destitute or in general more vulnerable households. It is remarkable, as well, the significantly higher than average share of households within Group 7 headed by under-18-year old individuals. In view of the profile of these households, from a peri-urban environment and mainly involved in formal employment and trade activities, it is possible to assume that such households represent the most vulnerable cases within that group, probably linked to cases of death of household members due to various reasons, such as HIV/AIDS.

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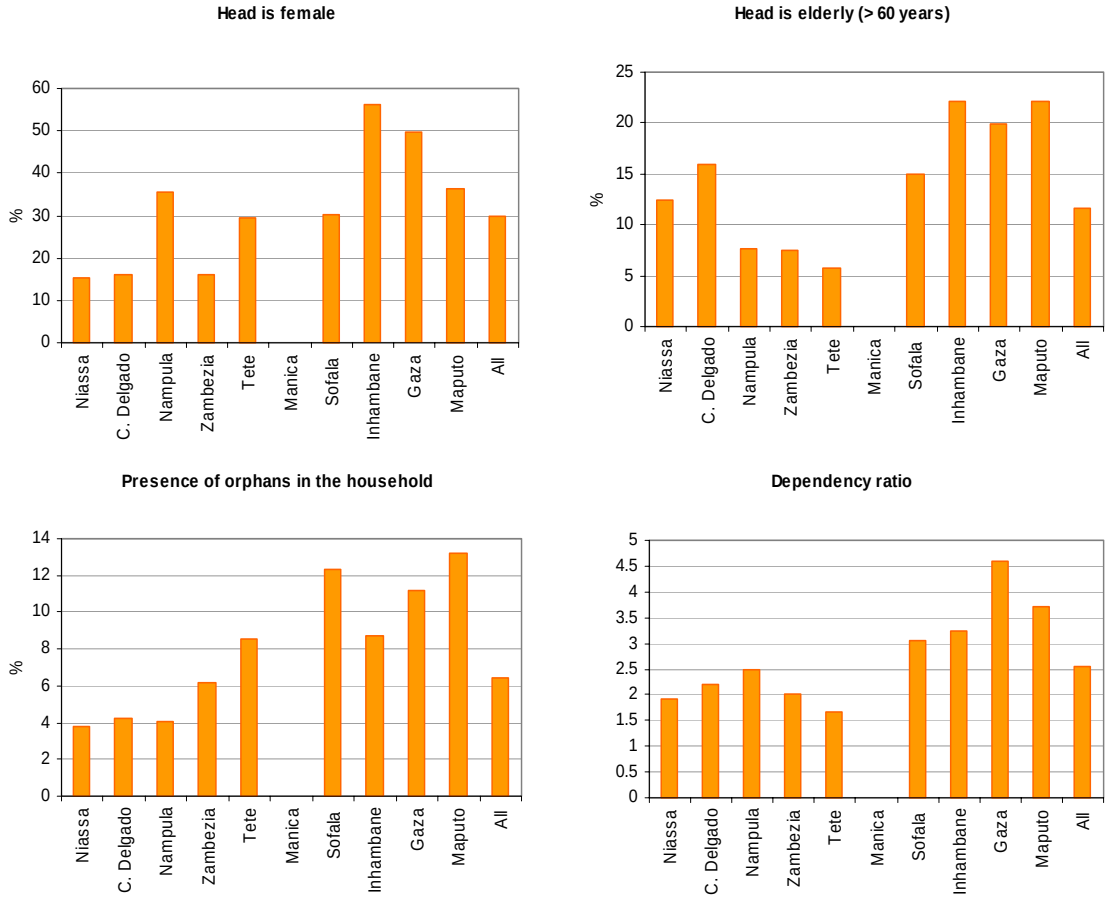
Figure 11 Indicators of household demographics by province



Interesting patterns are also seen at the provincial level. The most remarkable difference includes variation between the northern and southern areas of the country in terms of the characteristics of the head of household. In particular, most of the northern areas of the country, namely Niassa, Cabo Delgado, and Zambezia provinces, have as little as 15% of the heads being female. On the other hand, areas of Nampula, Tete, and Sofala provinces show average proportions of households being headed by women. The southern areas of Inhambane and Gaza provinces show as much as 50% of the households being headed by women, given the traditional migration of labor to South Africa. The southern areas of the country also have the greatest proportion of households being headed by elderly people. Few households were found to be headed by children, with the largest proportion being found in Gaza and Nampula provinces where 5% of households were headed by children younger than 18 years.

As shown in Figure 11, the southern areas of the country also show a higher percentage of households caring for orphans, as is the case for more than 12% of the households in Maputo and Sofala provinces. The effective dependency ratio is also higher in these areas.

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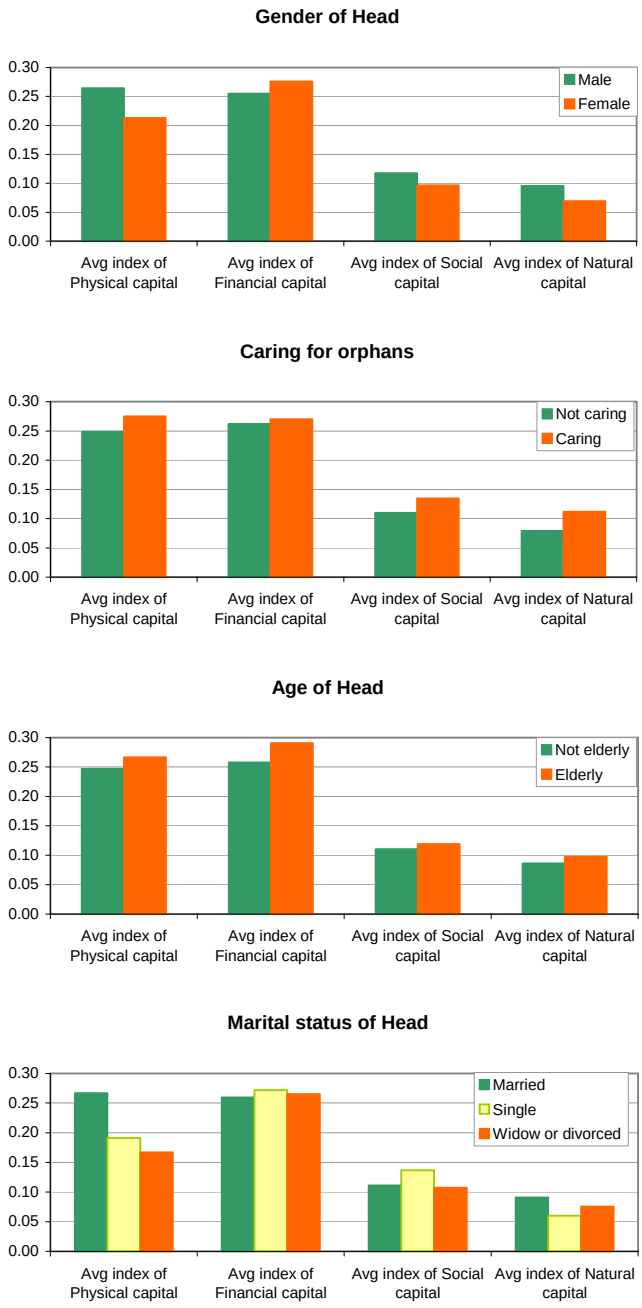
Figure 12 Demography and other capitals[7]



The relationship between demographic indicators and the other four capitals is illustrated in Figure 12. From such graphs, it is possible to note that female-headed households are less likely to hold physical, social, and natural capitals. However, they seem to have better access to financial capital, these being mainly constructed by expenditure patterns and agricultural production. The age of the head of household does not seem to play an important role in defining the access to the four capitals, and, surprisingly, elderly headed households do not show worse indexes. Marital status seems to play a larger role on access to physical capital. Surprisingly, households caring for orphans showed better access to all four capitals.

4.2.2. Education

Households were asked about the level of education of the head of household and his/her spouse. On average, 51% of the heads of households indicated they are able to read and write, and the proportion is the same for spouses. Overall, 43% of the households never attended any type of formal education and Figure 13 presents the educational achievements of the household head presented both from a livelihood group and a provincial perspective.

[7] Indexes for each of the five capitals were developed on the basis of key indicators.

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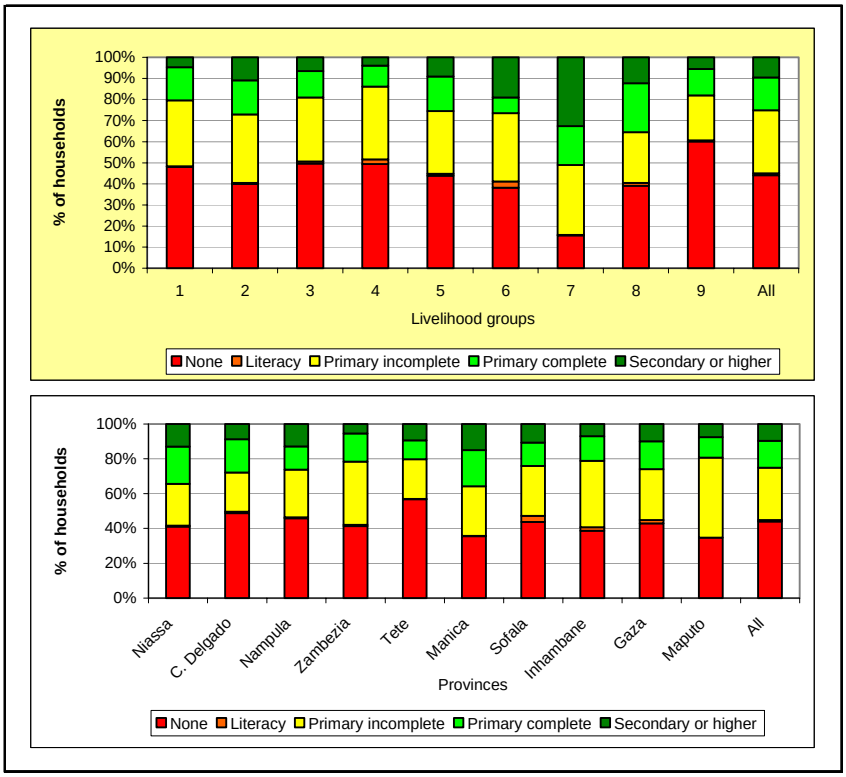
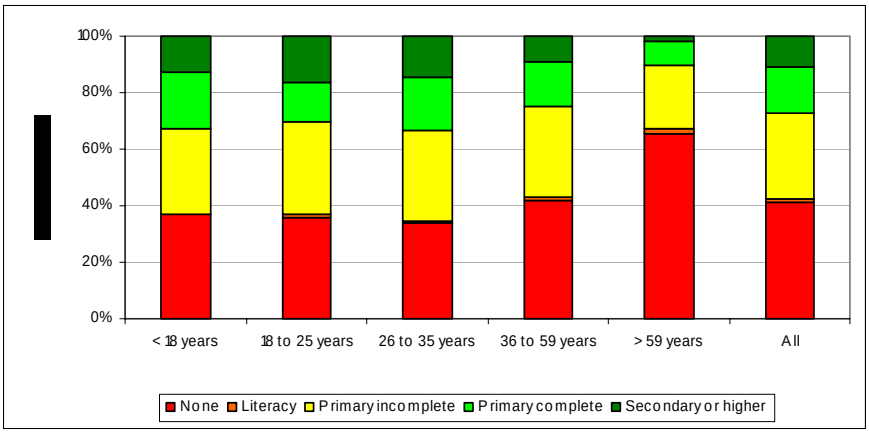
Figure 13 Highest level of education of head of household



When considered from a livelihood group perspective, the results show some remarkable differences among groups. As expected, the proportion of the head of households who can write and read is significantly higher than average in the case of formal employees (Group 7), where less than 20% of the head of households did not attend school (this applies for the spouse as well). As expected, head of households and spouses in Group 9 have a very low capacity to read and write, where only one third of heads –and head's spouse- is capable to read and write and 60% did not attend any school.

Although the distribution of access to education is evenly spread in the country, this proportion increases to almost 60% in Tete Province.

Figure 14 Education of head of household by age



In terms of the educational level of the head of household by age group, although improved access to minimal formal education is seen for heads younger than 59 years, no further improvement is seen among the other groups. This seems to reflect that there has been no improvement to access to primary education during the last few decades.

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The percentage of children 6 to 17 years old attending primary school is 65% in 2006 and 64% in 2005[8]. The province with the least access to formal education seems to be Nampula, where around 50% of the children did not attend school. The provinces with highest access to education are the southern provinces of Inhambane, Gaza, and Maputo. The highest increase in access to education between 2005 and 2006 was reported in Sofala Province[9], while there is no significant difference in terms of school attendance rates between 2005 and 2006 for all the other provinces. Access to formal education seems to have a weaker relation to livelihood groups.

Figure 15 School attendance rates

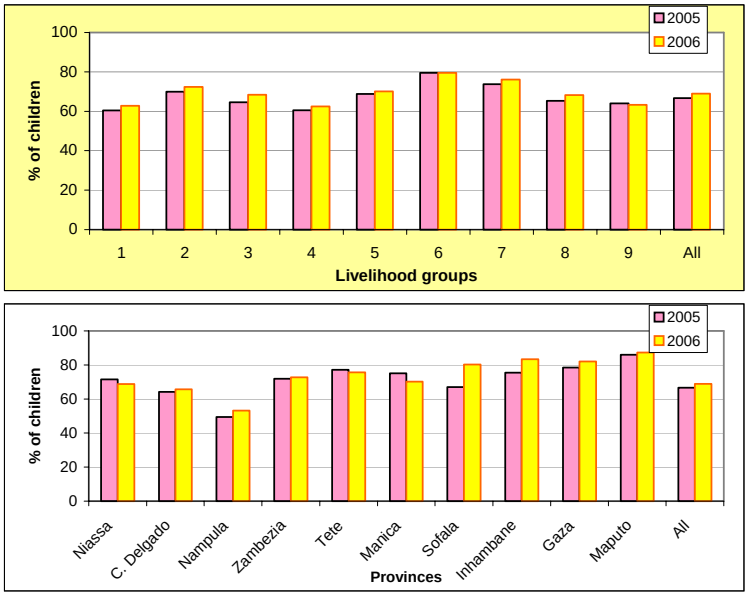
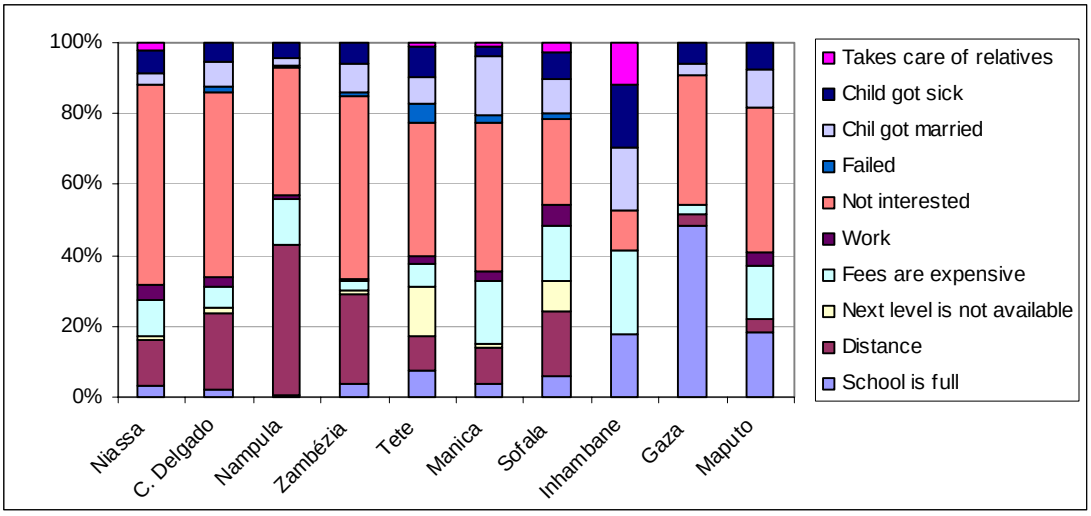


Figure 16 Justification for absenteeism by province



School drop-outs and reseat rates are quite varied in the country. Drop-out rates were higher in Niassa, Cabo Delgado, Tete, and Manica provinces. Failing rates also vary, being highest in Nampula and Inhambane provinces. The cost-related justification is particularly relevant in Inhambane, Manica, Sofala, and Maputo provinces.

[8] Attendance rates for secondary school and higher do not provide significant results.
[9] A 10% increase in school attendance was reported for Sofala.

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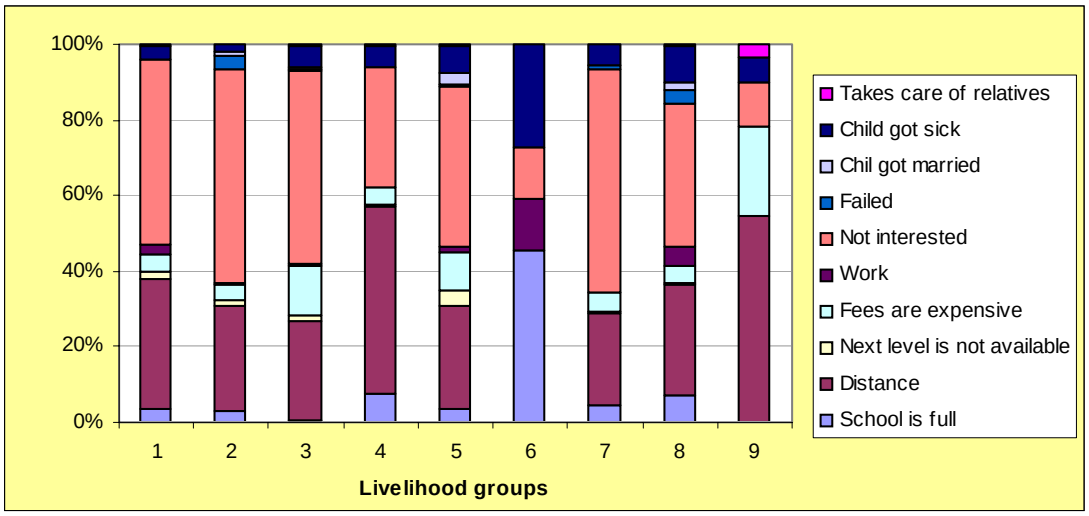
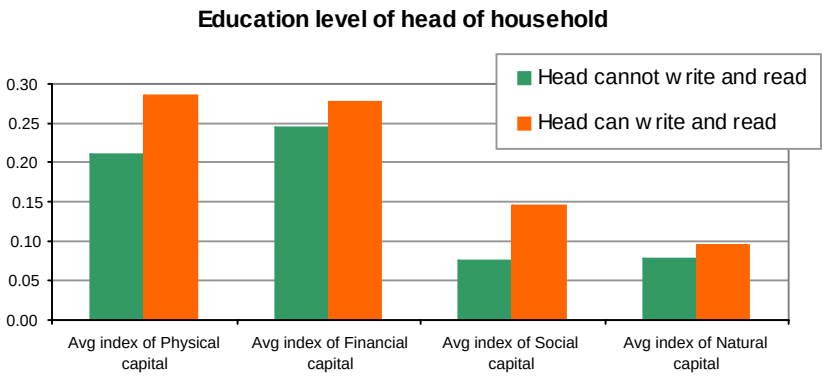
Figure 17 Justification for absenteeism by livelihood group



Although less variation was seen among livelihood groups, it is worth mentioning that major reasons reported for not attending school are lack of interest and distance from school. The cost-related justification is particularly relevant mainly for Group 9 and to a lesser degree for Groups 3 and 5. This confirms the marginal typology of Group 9. In addition, it is worth considering how only in the case of Group 9 "taking care of relatives" becomes a relevant justification and this seems to support the assumption raised earlier about the social nature – probably associated to HIV/AIDS- of the higher share in this group of elder- and child-headed households.

Figure 18 Relationship between education and other capitals



The level of education of the head of household shows stronger correlations with the other four capitals than the demographics patterns. Figure 18 illustrates the main findings where households with heads that know at least how to write and read have significantly higher access to physical, social, financial, and even natural capital.

4.3. Financial capital

Financial capital deals with the activities and sources of income of households, as well as their expenses. This section is arranged accordingly.

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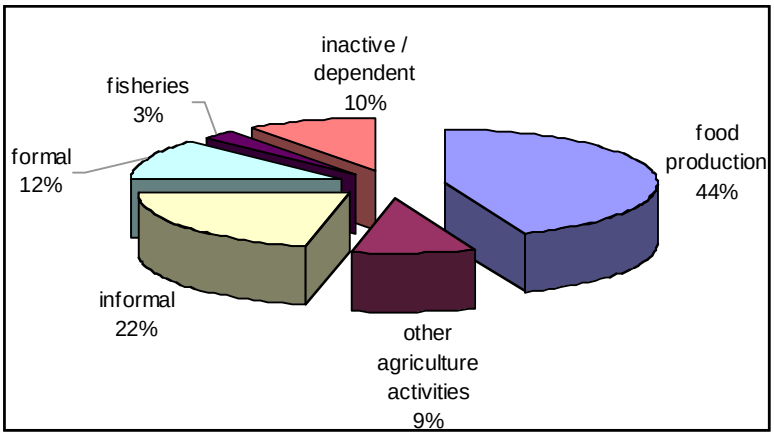
4.3.1. Activities and sources of income

Activities and income sources are an important component of livelihood strategies adopted by households in Mozambique. As such, this element has already been discussed when dealing with livelihood profiling. What follows is a discussion of activities and income sources across the country.

As summarized in Figure 19 below, in the overall sample, 44% of households engage in food crop production as a main activity, 9% in other agricultural activities -being mainly 1) production and sale of cash crops and 2) livestock related activities, 22% are engaged in informal activities, 12% in formal employment, 3% have reported fisheries as a main activity, and finally, 10% are inactive or rely on other sources of income such as pensions and remittances.

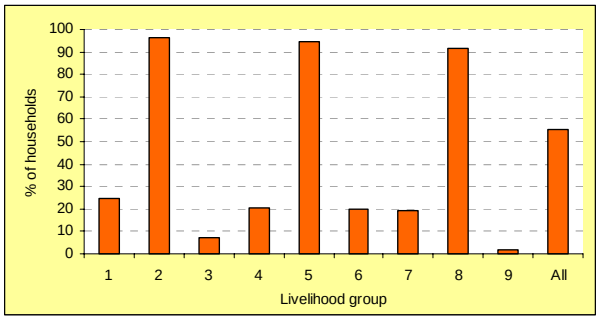
Figure 19 Repartition of households according to main activities

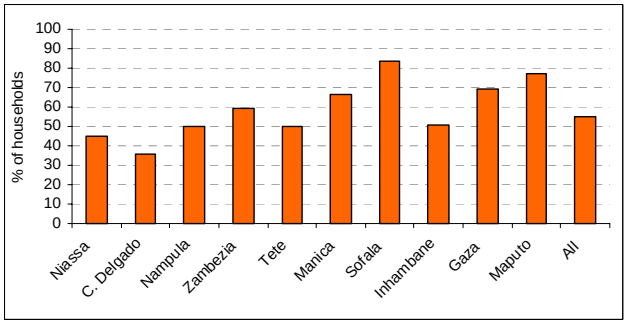


The tendency not to rely only on one source of income is quite common throughout the country. However, a major discrepancy is found when considering this issue from a livelihood group perspective. In fact, while Groups 2, 5, and 8 show a high diversification of sources of income, the share of households with more than one source is very small in all other groups.

As expected, at the extreme, the level of such diversification is minimal for Group 9. Diversification of sources of income is shown in Figure 20.

Figure 20 Share of households having more than one source of income





Although production and sale of food crops remains, on average, the major activity, there are major differences. As shown in Figure 21, its relevance is particularly strong in Zambezia, Manica, and Niassa provinces, while it reaches its minimum levels in Gaza and Maputo provinces. The former mainly due to the low productivity of land and the latter because of both

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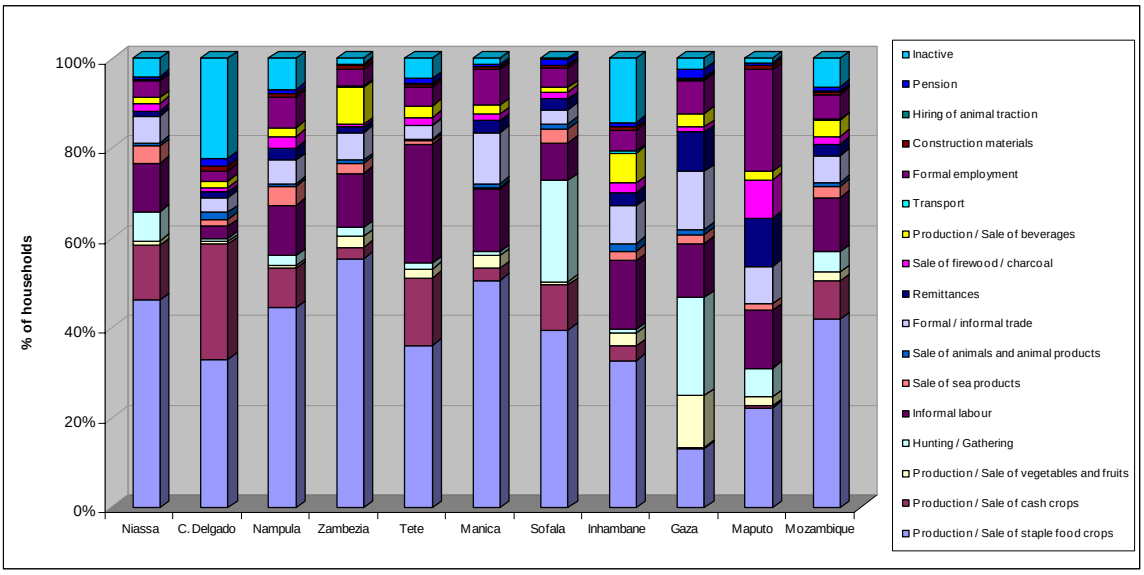
the presence of the capital city and its vicinity to the border with South Africa which increases the share of formal and informal employment and trade activities. In view of such high labor migration to South Africa, in both Maputo and Gaza the role of remittances is higher than in the rest of the country. Informal labor is highest in Tete Province, while hunting and gathering as a major activity is significantly higher than normal in Sofala and Gaza provinces. The highest levels of unemployment are reported in Capo Delgado and Inhambane provinces.

Figure 21 Principal household activity



Since main activities and income sources were used above in determining the livelihood group profiles, significant differences are expected among the different groups. Table 5 shows the major activities within each group.

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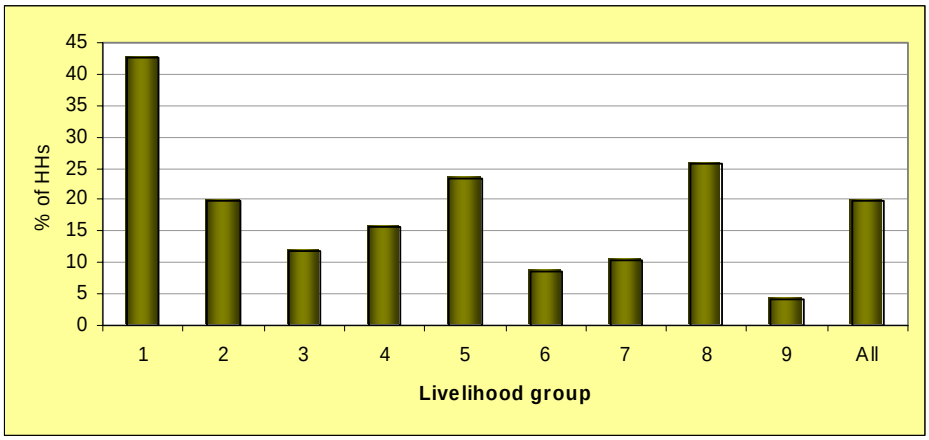
Table 5	Main livelihoods and sources of income by livelihood group			
Group	I	II	III	IV
1	Informal labor			
2	Production and sale of cash crops	Production of food crops, mainly for consumption	Informal labor	
3	Production and sale of food crops			
4	Production and sale of cash crops	Production of food crops, mainly for sale	Informal labor	Remittances
5	Production of food crops, mainly for sale	Production and sale of cash crops	Informal labor	
6	Production and sale of cash crops			
7	Formal employment	Formal and informal trade		
8	A bit of all sectors			
9	No activities			

Figure 22 Percentage of households which worked for payment in-kind



As shown in Figure 22, approximately, one-fifth of households provided labor in exchange for in-kind payment during the previous 12 months. However, there is a wide variation between the groups. The highest involvement is reported by Group 1, with a remarkable share of more than 40% of households having provided labor against payment in kind. The lowest involvement in such type of labor was reported by Group 9.

From a spatial perspective, the highest share of households which worked for payment in kind is in Gaza Province (40%) followed by Maputo Province (28%). The lowest shares were reported in Capo Delgado (8%) and Manica (6%) provinces.

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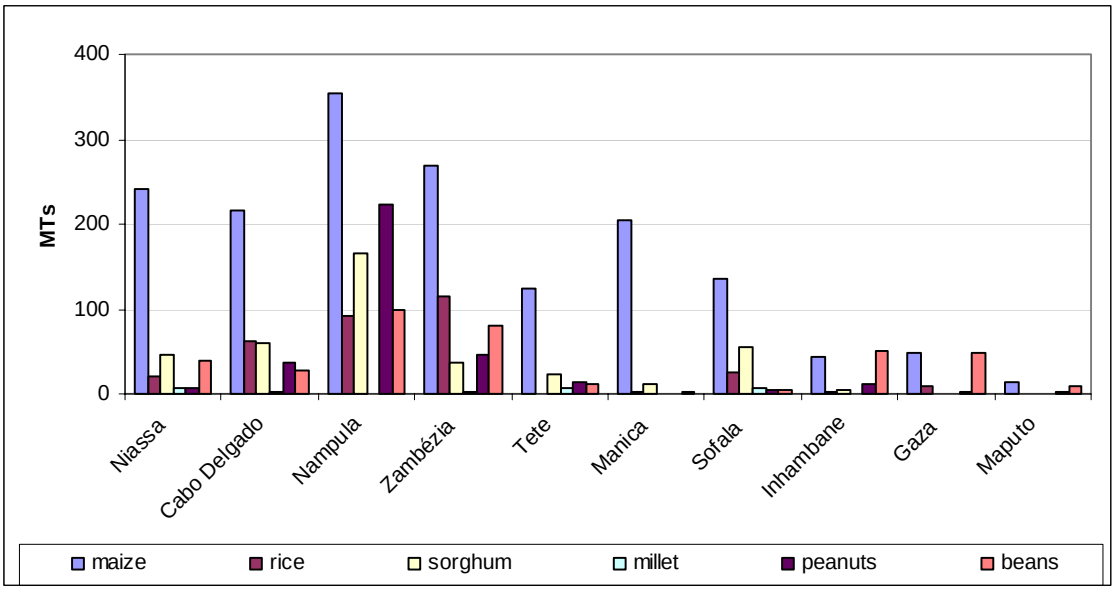
4.3.2. Production

Agricultural production plays a vital role in the food security of households. More than 95% of the households interviewed have access to agricultural land, despite wide differences in terms of productivity of the land.

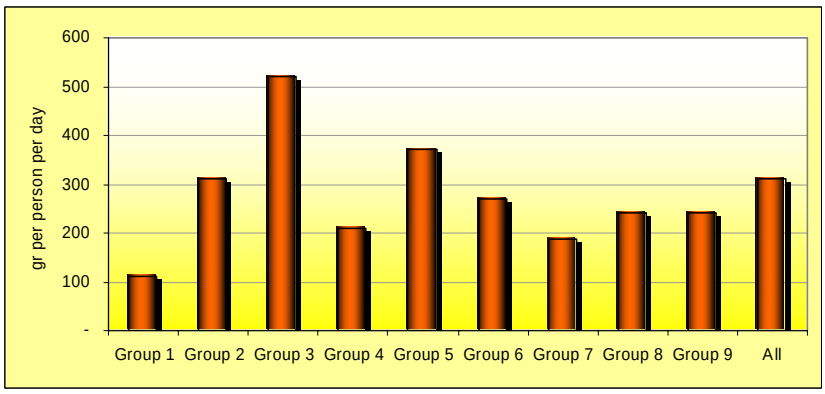
Figure 23 Production of different crops by province



Households were asked to report on the most important food crops cultivated between October 2005 and September 2006.

From a geographical perspective, Figure 23 shows how some provinces may play a more or less relevant role in the production of different crops. In general, a major share of agricultural production is provided by the northern provinces. With the exception of rice, Nampula Province has the highest productions levels. The production of maize as well as most other crops is lowest in the Maputo, Gaza, and Inhambane provinces.

Figure 24 Per capita food production (grams of cereal equivalent per person per day)



In order to facilitate comparisons, crop production has been converted into cereal equivalents. Average production by livelihood groups are reported in Figure 24. It is interesting to consider how the highest per capita food production is achieved by Group 3, followed by Groups 5 and 2. Average production of

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Groups 8 and 9 are very close, while production for Group 1 is significantly below the average.

A major limitation in the analysis presented above is due to the difficulty in accounting for the production of cassava, which is a major crop as well as a staple food. Though an estimation of quantities produced is not feasible on the basis of data available, it is still possible to consider its relevance. As shown in Figure 25, production of cassava is very common: on average almost two-thirds of the household interviewed produce cassava, though normally not as main crop. No major differences are found among livelihood groups, with the exception of Group 6. There is more variability in the relevance of cassava for all provinces. Cassava production is very common in Nampula, Zambezia, Inhambane, and Cabo Delgado provinces, and is almost irrelevant in Tete Province. This last point is in line with the strong density of households from Group 6 in Tete Province.

Figure 25 Share of households which produce cassava

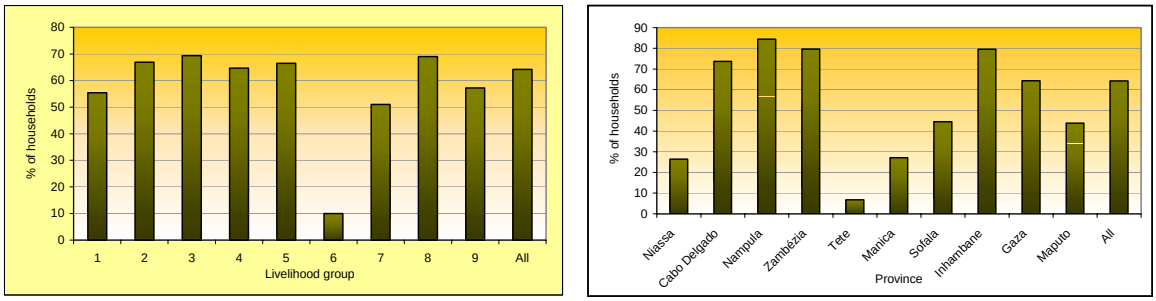
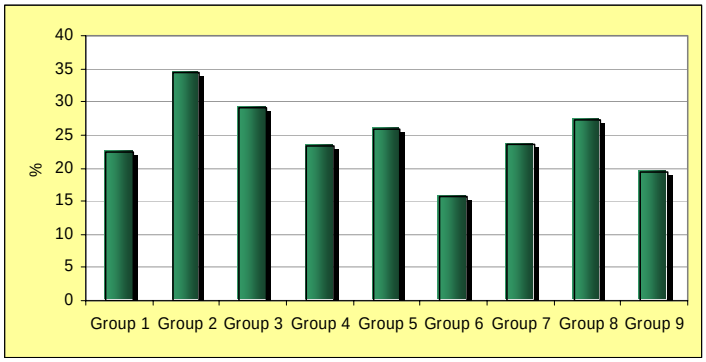


Figure 26 Crop production diversity



The diversity and type of crops produced affect both the availability and access capacity of the household. The diversity of production was assessed on the basis of the number of crops produced. Diversity of production increases household resilience to shocks, and plays a major role in terms of stability of household access to food. Moreover, diversity of production is likely to be associated with a more diversified diet, which in turn leads to better food security and nutrition. On average, the degree of crop diversity among the households from the different livelihood groups is rather low with an average household cultivating 2.01 crops. Only 26% of households grow more than two crops, and, as shown in Figure 26, these households are spread unevenly among the different groups, ranging between 16% and 34%, the former referring to Group 6 and the latter to Group 2.

The information provided through the survey is not sufficient to properly analyze household harvest use. Households were asked the number of months that the harvest has lasted since October 2005. This information is quite limited, since it does not inform on the duration of the harvest itself, but rather of the share of the harvest that has been used for self-consumption without taking into account the quantities sold or exchanged.

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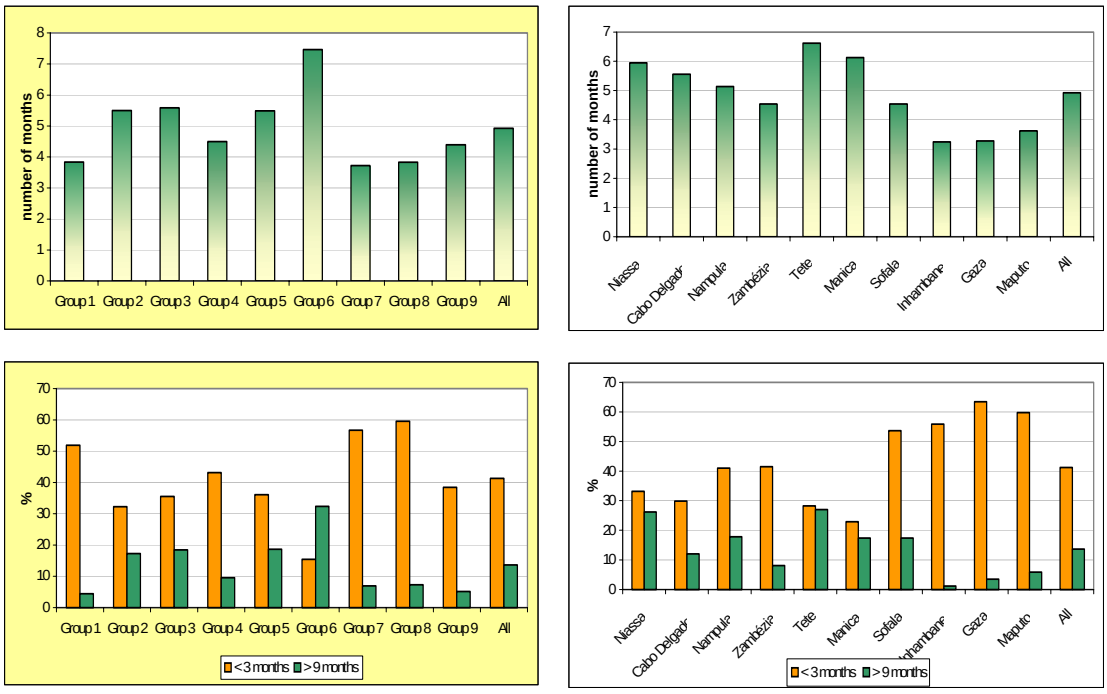
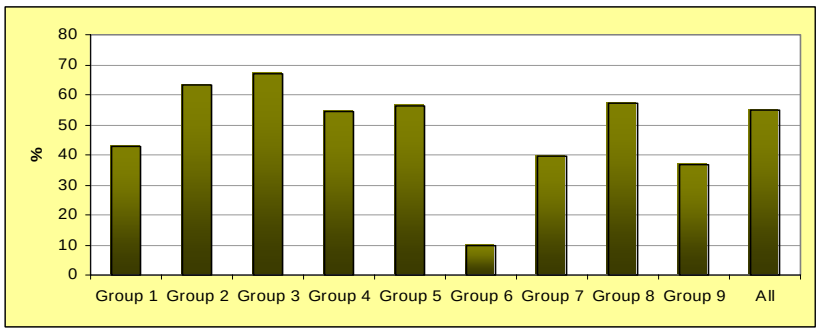
Figure 27 Number of months of household food stocks provided by own harvest



The longest duration of the harvest has been reported by Group 6 (a rather isolated group, not well linked with the market, and mainly reliant on the production of cash crops): at more than seven months. For all the other groups the maximum period covered by the harvest is less than six months (the average being five months and the minimum being just below four months - 3.2 (Inhambane) and 6.6 (Tete). The highest discrepancies in duration are found in Groups 8, 7, and 1. While this is understood for Group 7 due to their level of involvement in agricultural activities, and can be explained for Group 8 on the basis of their practice of selling their harvest and relying on purchases, it is rather alarming that more than 50% of households in Group 1 report the average duration of their harvest being below three months. The southern provinces have the largest variation in number of months of household reliance on own production and at the same time, are achieving the lowest results in terms of average number of months of reliance on own harvest.,

Figure 28 Availability of seeds for next planting season



Households involved in agriculture have reported that the availability of seeds for the following season is one major constraint to production. More than half of households feel confident to have or get seeds for the next planting season. By far, the lowest confidence is with Group 6, although the reliability of the information is of concern. More understandable are the low value reported by

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Group 9, Group 7, and Group 1. Due to their low reliance on agriculture this can be explained for Group 7, however, it is of concern for the other two groups in terms of their capacity to maintain a minimum level of self-reliance.

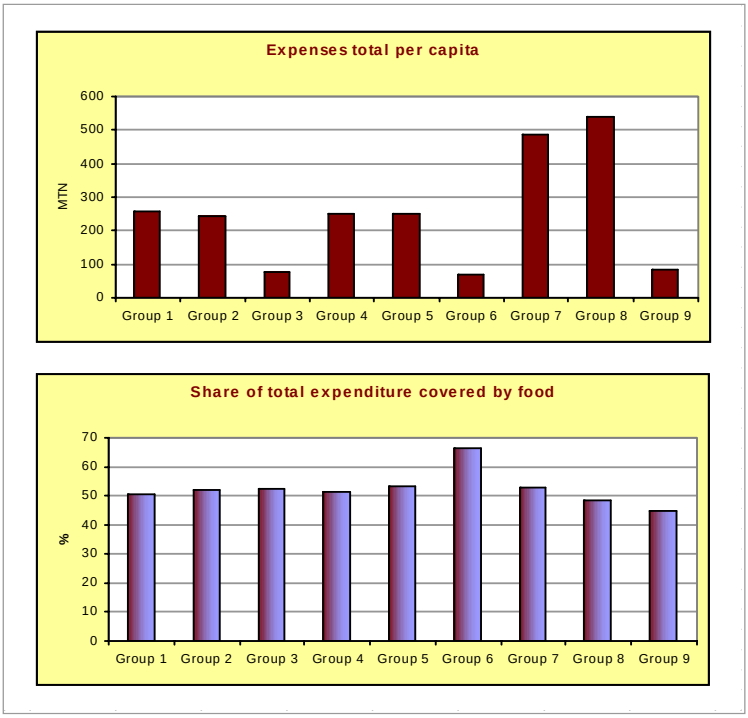
4.3.3. Expenditures

Information on household expenditures, on both food and non-food items (such as education, transport, health), have been collected in order to analyze resource allocation at the household level and as a proxy for household access to food. Only cash expenditures have been considered. Estimation has been based on a one month recall for short-term expenditures and one year recall for infrequent and/or long-term expenditures (school fees, medical care). Both types of expenditures have been analyzed on a monthly basis.

As household expenditures are often under- or over-reported, such data is only to be used as a reference. Furthermore, since the data collection exercise occurred just after the launch of the new currency (*Metical da nova familia* or MTN), a higher than usual risk of error in the data is to be expected.

Finally, caution is required when comparing results among different livelihood groups, since households relying mainly on their own production as a source of food, may have a low proportion of food expenditures, while households relying more on purchase of food and/or consuming mainly expensive food may have a high proportion of total expenditures covered by expenditures on food purchase.

Figure 29 Per capita expenditures



Examining total per capita expenditures, households reported on average a total per capita expenditure of 255 Meticais (MTN) per month as well as an average of 51% of household expenses being for food items.

The amount of total expenses reflects rather well the average purchasing capacity expected in different groups, with Groups 8 and 7 as the highest and Groups 6, 3, and 9 the lowest. The results should be seen in light of average reliance on own production for Groups 6, 3, and 9: in fact, it is necessary to consider that all three groups have high or very high reliance on own production. The total expenditures reported by Group 1 is higher than expected.

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The share of total expenditures covered by purchase of food is in line with expectations, in general decreasing as the amount of total expenditures increases. Remarkable exceptions include Group 9, which reports one of the lowest levels of total expenditures per capita and at the same time the lowest share of expenditures on food. This seems to be in line with the assumption of Group 9 being a marginal group where other basic expenditures -such as to treat chronic diseases- may cover a higher than average share than in other groups.

No significant difference has been found between the share of expenses on food between male and female-headed households.

4.4. Physical capital

4.4.1. Assets

Household assets, both productive and non productive, can provide an important indicator of both household productive capacity and resilience to shocks. Table 6 summarizes the quantity of productive and non productive assets available at household level by different livelihood groups and province. The quantity is expressed both in terms of units independently of the type of asset as well as in terms of diversity of assets available (i.e. number of different types of assets). For simplicity, in all cases each asset is counted as having the same value. While this is an approximation, it is in line with the purpose of establishing availability of assets and household access to them rather than establishing a value of the assets owned by the household. Land is not included, but is considered separately as a natural asset.

Group 8 has the highest number of productive assets, while Group 1 has the lowest. However, it has to be said that this reflects the type of assets considered in the questionnaire and therefore a rather typical rural environment. This helps to explain how Group 7, a rather semi-urban group, is the second lowest in terms of productive assets. On the contrary, when considering the non-productive assets, Group 7 achieves the highest score. In line with previous results, once Group 7 is excluded,Groups 1 and 9 seem to score the worst results in terms of ownership of productive assets, followed by Groups 4 and 6. The degree of diversity of productive assets provides the same results. When shifting to non productive assets, Table 6 provides a different picture: Group 7 scores highest both in terms of total number of assets as well as in terms of assets diversity, while worst scores are achieved by Group 6, Group 3, Group 1, and Group 9, respectively from the bottom.

Niassa and Cabo Delgado provinces show the highest household ownership of productive assets as well as diversity, while lowest levels are reported in Maputo. As above, this may reflect the rural bias in the questionnaire. In terms of non-productive assets, the supremacy in terms of both number of units as well as their diversity has a strong geographical dimension, with the southern provinces achieving the highest results. This is rather easily explained by considering the proximity to the border with South Africa, which reflects both access to better job opportunities and consequently higher purchasing power and at the same time better access, stronger supply, and diversity of products.

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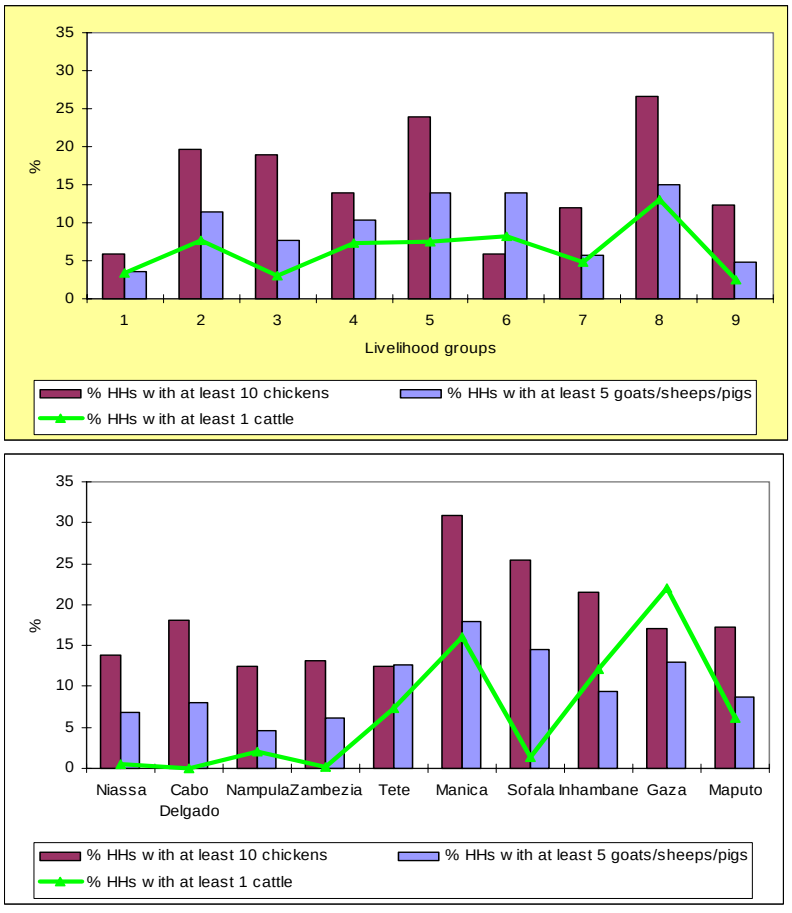
Table 6 Household assets

	Productive		Non productive			Productive		Non productive	
	Number of units	Number of types	Number of units	Number of types		Number of units	Number of types	Number of units	Number of types
Livelihood group					*Province*				
Group 1	4.13	3.16	7.99	2.12	Niassa	7.15	4.32	3.85	1.78
Group 2	6.93	4.19	13.76	2.83	Cabo Delgadc	6.79	4.21	5.31	2.20
Group 3	6.20	4.06	4.79	1.75	Nampula	5.98	4.04	4.04	1.98
Group 4	5.54	3.82	11.74	2.42	Zambézia	6.33	4.04	6.59	2.37
Group 5	6.77	4.15	10.12	2.65	Tete	5.46	3.34	3.31	1.67
Group 6	5.48	3.33	3.30	1.35	Manica	6.41	3.81	8.16	2.61
Group 7	4.79	3.50	26.65	4.63	Sofala	6.66	4.00	6.92	2.56
Group 8	6.96	4.13	18.49	3.42	Inhambane	5.62	3.57	29.32	5.02
Group 9	5.26	3.52	9.63	2.36	Gaza	5.87	3.79	31.28	5.20
All	6.14	6.14	12.13	2.63	Maputo	4.98	3.47	23.26	4.82
					All	6.18	3.93	9.18	2.63

4.4.2. Livestock

Livestock ownership plays a major role both in defining livelihood strategies and household wealth. In addition, it provides an essential source of food and, as such, can significantly affect diet diversification. Despite this, information on livestock ownership is rather generalized, and quantities vary largely even within the same livelihood group. In order to be able to control such concentration, Figure 30 presents livestock ownership in terms of share of households which own at least a minimum number of units. In the overall sample considered, only 19% of households have at least 10 chickens, 11% have at least five units of either goats, sheep, or pigs, and 7% have at least one cow. However, the range of shares among different groups varies widely, with Group 8 achieving the

Figure 30 Livestock ownership



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highest score in terms of livestock ownership, followed by Group 5 and Group 2. In terms of cattle, the lowest share of ownership is recorded by Group 9, while the overall lowest share of livestock ownership is recorded by Group 1.

The highest shares of households which own at least one cattle are found in Gaza and Manica provinces, while the lowest shares are found in Niassa, Cabo Delgado, Zambezia, and Sofala provinces. Manica, Sofala, Tete, and Gaza provinces have the highest concentration of small ruminants.

4.4.3. Living conditions

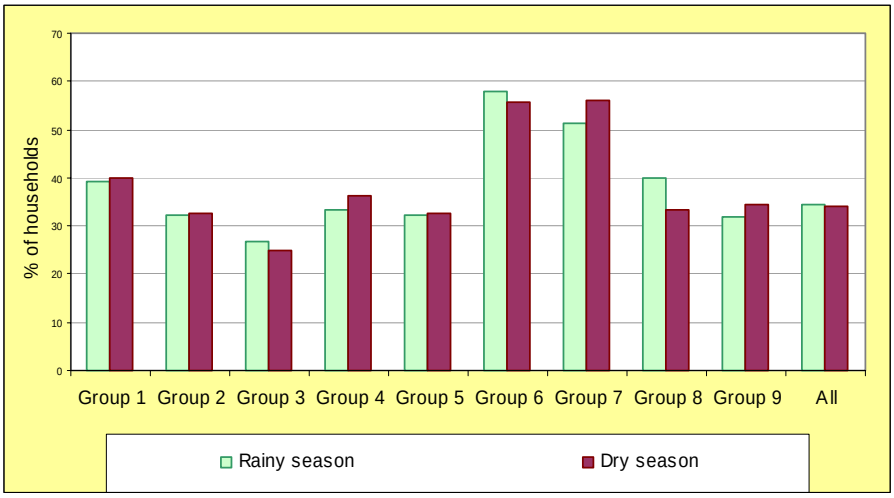
This section focuses on housing material, quality of water consumed, and type of material used for cooking and lighting in the house.

In rural areas there is in general little differentiation in housing construction style and material utilized. Overall, the vast majority of houses has walls made of mud and ceilings made of reed. Only 6% of houses have walls made of cement or bricks, though it is important to notice how such share rises up to 14% in the case of Group 7 (better-off group relying on trade and formal employment living in peri-urban areas).

Overall, firewood is almost the only source of energy utilized for cooking, covering 95% of energy consumption reported. In the case of Group 7, such share gets reduced to around 76% and balanced through an increased use of charcoal (covering 21% of energy use), reflecting this way the higher purchasing capacity of the group. On the contrary, the lowest use of charcoal is reported by Groups 3 and 9, reflecting a low purchasing capacity. However, it is worth noting how Group 3 reports a minimum use of paraffin (less than 0.5%), while Group 9 does not. This may highlight a difference in purchasing capacity at the lowest levels among the livelihood groups considered.

In terms of source of lighting, on average 56% of households make use of oil lamps and 33% rely mainly on firewood.

Figure 31 Access to protected and non-protected water source during the rainy and dry season



Households were asked about their capacity to access water during both the rainy and the dry seasons. On average, 65% of households report access to protected sources during the dry season. Degree of access does not change significantly during the rainy season, with the exception of Group 8, which reports a

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reduction from 46% to 34%.

For slightly more than half of households (54%) the water source is within a 20 minute walk from home, but for 20% the walk to the water source may reach two hours or even more. The longest distance is reported by Group 9, which requires on average 74 minutes. The time required to reach the water source increases by 20% during the dry season.

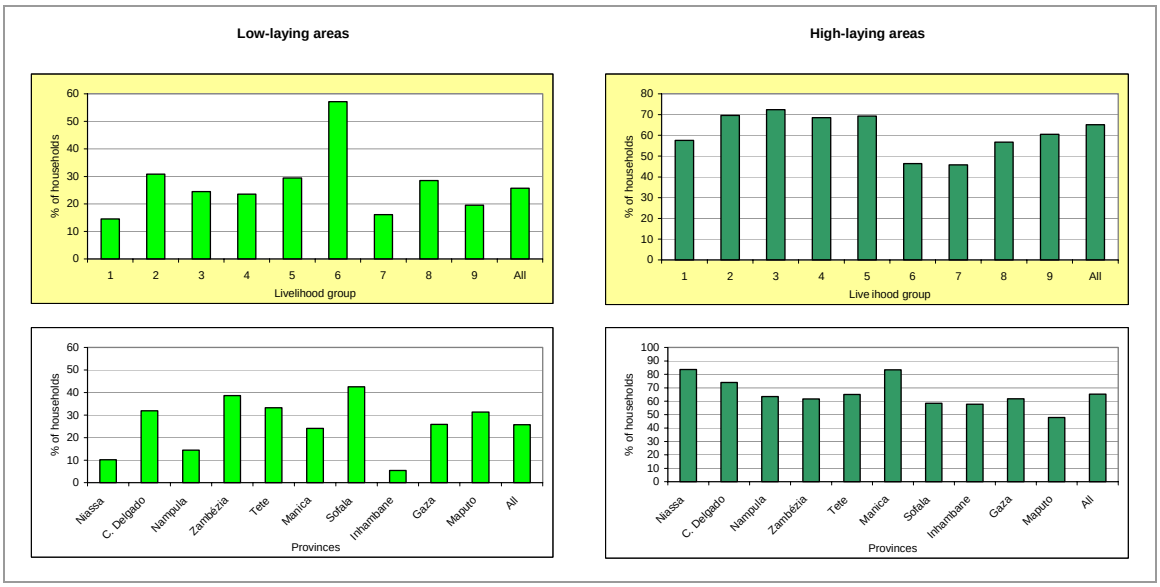
On average, 50% of the households make use of simple latrines, while 46% of households mainly rely on the use of bushes or streams. It is interesting to consider that in this case Group 9 records the highest share among all groups in terms of use of simple latrines. The lowest share is recorded by Group 6.

4.5. Natural capital

4.5.1. Land

On average 95% of households in the sample have access to agricultural land. Group 7 has the lowest access rates, as expected, being a peri-urban group, followed by Group 1 and Group 9. However, there is high diversity in terms of access to different types of land. In order to capture this diversity, Figure 32 provides the share of households with access to a minimum size (at least 0.25 Ha) of land in the low-lying areas[10].

Figure 32 Share of household with more than 0.25 Ha of land



On average, 25% of households have access to more than 0.25 Ha of land in low-lying areas. Group 6 has predominant access to low-lying land which is also consistent with their total reliance on agriculture as source of income. Group 1's access to low-lying land is significantly

[10] Land has been classified here between lowlands and highlands, with the former category assumed to be more productive due to the higher availability of water and lower exposure to weather variability (unless affected by floods).

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lower than the average. From a provincial perspective, access to low-lying land is significantly lower than average in Nampula, Niassa, and Inhambane provinces. More than 60% of households have access to more than 0.25 Ha of land in high-lying areas. This is similar for almost all provinces, with the exception of Niassa and Manica, where the share is significantly higher than average.

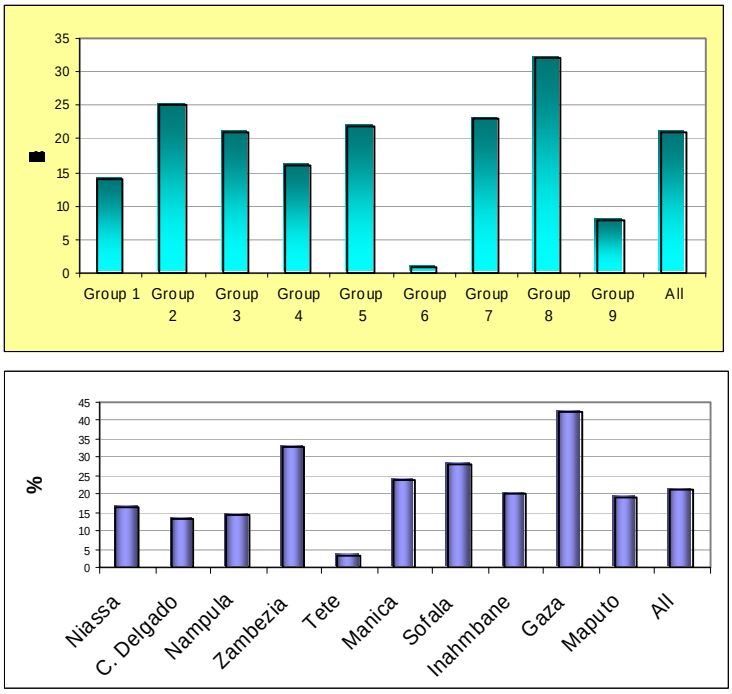
4.6. Social capital

Analysis of social capital is captured through participation in local associations and formal access to credit from banking or lending institution.

4.6.1. Participation in associations

In order to take into account the role of social capital in the analysis, households were asked about their membership and involvement in local associations[11]. Participation in local associations can indicate the level of social cohesion and support. On average, 79% of households reported participation in associations. Group 6 and Group 9 have the lowest level of participation in associations, while the highest participation is in Group 8 and Group 2.

Figure 33 Participation in local associations



The highest degree of participation in associations was reported in Gaza and Zambezia provinces (42% and 33%, respectively), while the lowest degree of participation was reported in Tete Province. This correlates with the lowest participation in associations reported by Group 6, which has a strong concentration in Tete Province.

4.6.2. Access to credit

On average, only 7% of the household in the sample indicated access to loans or credit during the previous 12 months. As expected, the highest access to credit is by Groups 7 and 8 (12% in each case), while the lowest rates were recorded by Group 9 (only 2%). Group 6 is not reported here due to the small size of the group which makes results insignificant; however, it

[11] For the present analysis, all types of associations have been considered (e.g. religious, related to productive sector, aiming at favouring access to formal and informal credit, support to specific cases such as orphans, women, ...).

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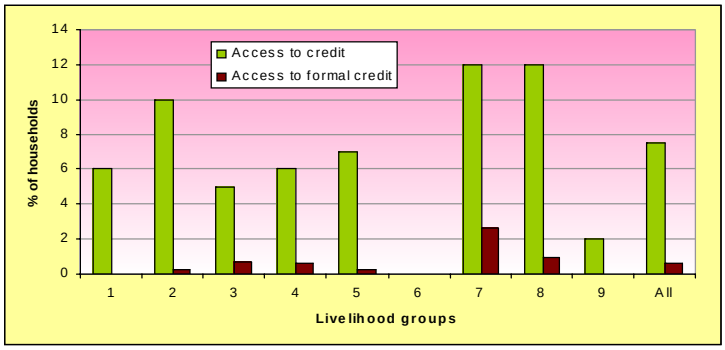
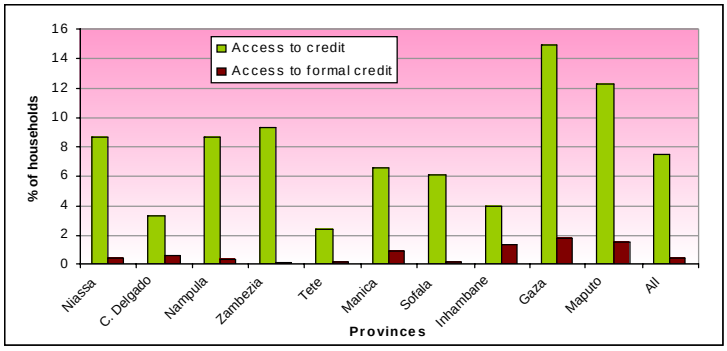
is assumed that, being producers of cash crops, they should receive some kind of credit before the farming season from the companies which promote cash crops. The biggest source of credit was reported to be relatives and friends, while formal credit was reported to be negligible. Only 1% of those households receiving credit had received it from formal institutions. The share of credit used to purchase food ranges between 16% and 67%. While in most cases such a share is around 30%, only Group 9 reported to spend up to two-thirds of credit received on the purchase of food. Having said that, it is necessary to consider how such cases may represent extreme situations within the group.

Figure 34 Access to and use of credit





3.1. Households well being on the basis of the five capitals

On the basis of current estimates, approximately ten million people are considered to live in poverty, which corresponds to approximately 55% of total population. Seventy-three percent of the rural population lives below the poverty line[12]. It is clear that the socio-economic situation of the people plays a key role in vulnerability analysis.

The following section analyzes levels of wellbeing among the various livelihood groups as well as within each livelihood group. This can be useful when considering different outputs, such as food consumption and nutrition.

On the basis of the various types of capital considered and presented above, an index was constructed to determine the level of household well being. The five capitals (natural, physical, human, financial, and social) have been combined per each livelihood group.

[12] World Bank (2005), World Development Indicators. Data refers to 1997.

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Figure 35 shows the results of this. It is possible to arrange the livelihood groups on the basis of the median value of the index. In this way, four categories are identified according to the predominant level of well being within each group: with Group 8 being alone at the top of the scale and Groups 9 and 1 at the bottom, and all the others in between.

Figure 35 Well being by livelihood group

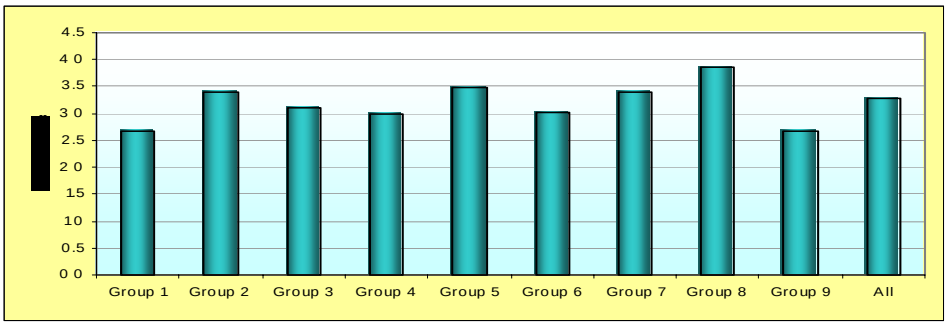


Figure 36 Livelihood groups clustered by predominant level of well being

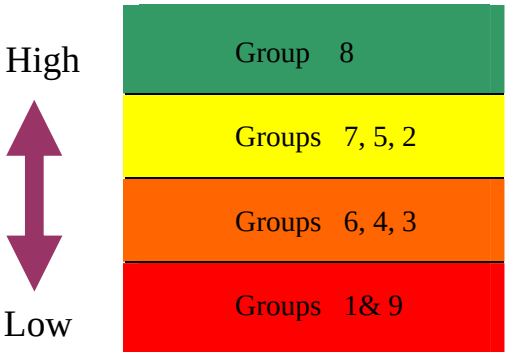
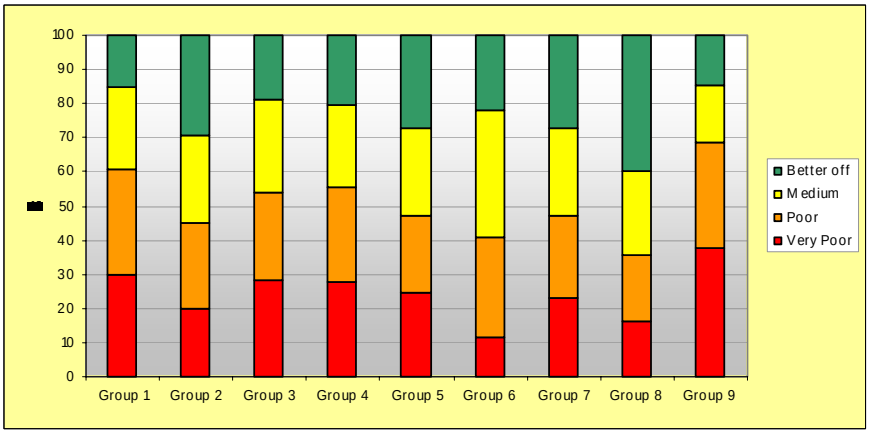


Figure 37 Composition of livelihood groups by well being



Within each group there is presumably certain variation. This is reflected in Figure 37, where four strata have been identified (very poor, poor, medium, and better off). Figure 37 shows the large variation among the groups: while on average around two-thirds of households can be classified as very poor or poor. Less than 40% of Group 8 is very poor or poor and almost 70% of Group 9 is very poor or poor.

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5. Shocks and coping capacity

This section describes the shocks affecting households during the twelve months before the baseline survey. In order to carry out an in-depth analysis of shocks and their impact, four topics will be covered:
1) a brief description of the occurrence of different types of shocks;
2) an analytical discussion focusing on assessing the severity and magnitude of the different shocks;
3) description of the coping strategies carried out by affected households to respond to shocks; and
4) household capacity to respond to shocks will be considered in the light of their food security status trying to focus on the chronic or transitory nature of an eventual condition of food insecurity.

In a later part of the analysis, household coping capacity will be further analyzed through a specific assessment measure of household food security status.

5.1. Methodology

To assess households exposure to shocks, respondents were asked whether they had experienced any shock over the past twelve months and to list up to four shocks. Respondents who indicated they had experienced shocks were requested to assess the impact on household income, assets, and food security status. Then, households were requested to list the coping strategies eventually applied in order to overcome the impact of the shock and whether they had finally recovered.

Box 3 Indices of Shocks: Multiplication of weighted severity of shock and magnitude of recovery from shock

Severity is the sum of the weighted impact of a shock: a shock affecting production is weighted 1, one affecting income sources is weighted 2, and one affecting assets is weighted 3.

Magnitude of recuperation measures the recuperation of the household: total recovery receives a coefficient of 0.33, partial recovery's coefficient is 0.66, and minimal or no recovery's coefficient is 0.99.

In order to assess the impact of shocks, severity and magnitude indices have been developed and are briefly explained in Box 3. Although the severity of shocks is measured as the mean impact of shocks felt by households (including households that did not suffer any shocks and therefore will score a zero in this index), the magnitude scale is only focusing on households that suffered the shocks.

During times of stress, households tend to react by adopting one or more coping strategies in order to offset threats to food availability and economic resources. In general terms, coping strategies can aim either to increase food supply or reduce its consumption. Four categories of coping strategies can be identified:

- Dietary change (e.g. eating less preferred and less expensive food)

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- Increasing short-term access to food (e.g. borrowing, gifts, consuming seed stocks)
- Decreasing number of people to feed (e.g. sending children to better-off relatives, short-term migration)
- Rationing food consumption (e.g. skipping meals, limiting portion size).

Through a weighting process, a Coping Strategy Index (CSI) has been estimated at the household level to measure household capacity to react to a shock as well assess and monitor the severity and evolution of shocks.

Box 4 Coping strategies and weights of severity

coping strategy	weight	coping strategy	weight
Changed diet to cheaper and leds preferred food	1	Borrowed money from relatives or friends	2.5
Borrowed food	1	Reduced expenditures on health	3
Diminuished food quantities for all members	1 5	Sold agricultural materials	3
Adults ate less to spare food for children	1 5	Sold construction material	3
Reduced the number of meals	1 5	Sold small animals	3
Consumed larger quantities of humger food	2	Sold household furniture	3
Spent days without eating	2	Gave land on rent	3
Exchanged agricultural products	2	Changed house	3
Worked for food	2	Sent children to work for other households	3
Worked for more hours / Intensified work	2	Consumed seed reserves	3.5
Harvested crops before time	2	Some household member migrated for more than 6 months	3.5
Purchased food on credit	2 5	Borrowed money from moneylenders	3.5
Some household member migrated temporarily	2 5	Spent savings	3.5
Reduced expenditures on education	2 5	Sold bigger animals	4
Withdrew children from school	2 5		

In this case, weighting is based simply on the degree of severity because no information has been collected on the frequency of adoption of such behavior. Weights were established based on perceptions gathered from the community questionnaire data and through key interviews. The weights adopted for the construction of the CSI are reported in Box 4.

5.2. Occurrence of shocks

Figure 38 shows the share of households which have reported being affected by a shock during the previous twelve months. At the national level, 18% of households reported experiencing at least one shock during the past twelve months. The distribution at the provincial level is between around 6% (as in the case of Tete and Manica provinces) and around 30% (as in the case of Zambezia and Gaza provinces). It is interesting to consider the rather low share of households reporting being affected by a shock. Along the same lines the share of households experiencing two shocks during the previous twelve months gets drastically lower and even much lower in the case of three shocks. Gaza Province results in all cases to be the province recording the highest share of households affected, both in terms of one single type of shock and in cumulative terms by three different types of shocks.

Among livelihood groups, a more even distribution of shocks has been reported. Group 4 reports the highest share of households affected by a shock, and only Groups 4 and 8 report a few cases of households experiencing more than one shock.

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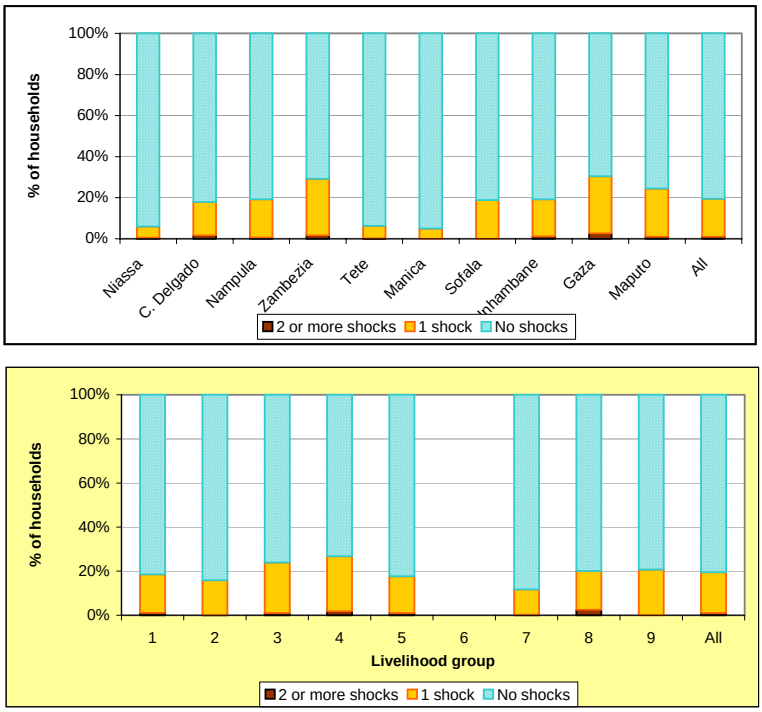
Figure 38 Share of households affected by shocks during last 12 months*

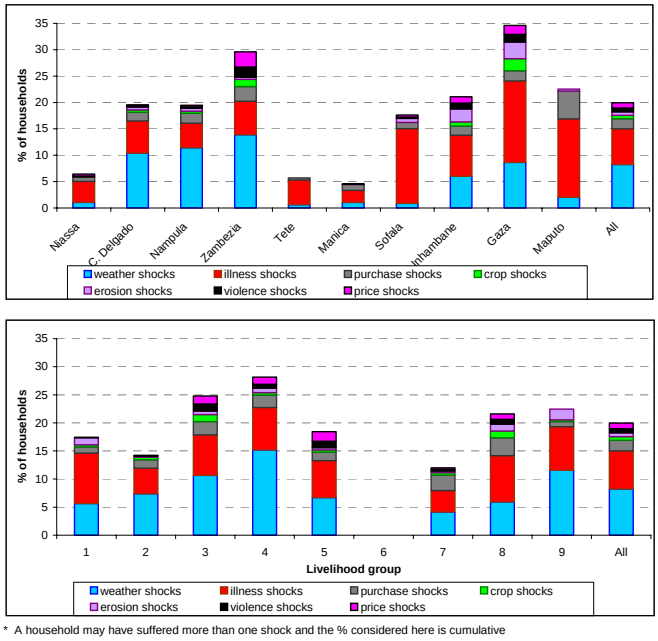


* Groups 6 not included due to small sample size

The most frequently mentioned shock was related to weather, with 8% of all households (corresponding to one quarter of the households which reported shocks) noting it as the main type of shock suffered. At the same time, there is a wide disparity of shocks reported among the provinces: from a minimum of 2% in Maputo Province to more than 10%-15% in Zambezia, Nampula, and Cabo Delgado provinces. of the next most common shock is cases of serious illness and death of a household member.

Three typologies of shocks can be reasonably grouped together (i.e. serious illness, death of a household member, death of the head of the household). In a rather arbitrary way, it seems possible to associate such shocks to a condition of either chronic illness or death within the household, both conditions which, particularly in the southern African context, have been repeatedly associated to –or even assumed as proxies for- the presence of cases of HIV/AIDS within the household. Considering the geographical distribution of shocks, it is interesting to note how in some cases this combination of shocks affects around three quarters of the total population (particularly in Tete, Sofala, Maputo, and Niassa provinces). Also in terms of livelihood groups, the major shocks are weather- and illness-related, with no major differences among the different groups.

Figure 39 Typology of shocks



* A household may have suffered more than one shock and the % considered here is cumulative (i.e. If a household has suffered two shocks, itwill be counted twice for the purposes of this graph)

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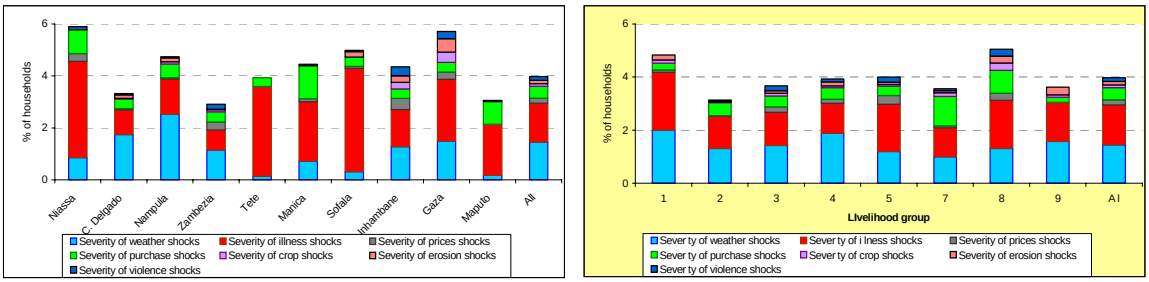
5.3. Severity and magnitude of shocks

Overall, illnesses and weather-related shocks show the greatest severity. Shocks related to illness have a disproportional negative effect in areas like Tete, Sofala, and Niassa, as well as for subsistence farmers as in Group 1. Interestingly, the severity of illness and weather-related shocks for Group 9 does not seem to be different from average. Having said that, it is interesting to note that only Sofala Province showed high rates of illness-related shocks, but, nevertheless, these three areas showed a large severity of the shock whenever it occurred. This is in line with the 'new variant famine' (De Waal, 2002), which notes that chronically vulnerable households will be the worse affected by HIV/AIDS. As will be discussed in the section on vulnerability to food access, it is noted that the northern areas of the country show a relatively higher level of chronic vulnerability.

Figure 40 Severity of shocks



* Applies only to households that suffered at least 1 shock. Magn tude as recovery level is summed for all shocks by typology

In general, the highest severity of shocks was reported by Group 8 and Group 1, which are representative of the two extremes of the socio-economic range: one is a better-off group with good access to various resources and the other is subsistence farmers heavily reliant on casual labor. For the provinces, the highest severity was found in Niassa and Gaza. Weather related shocks were only severe in Nampula Province, being followed by lower severity rates in Zambezia, Cabo Delgado, and Gaza provinces.

Although shocks related to purchasing power (i.e. income and prices) were not common, their severity seems to be disproportional to their occurrence and were most prominent in Niassa, Manica, and Maputo provinces. As expected, the groups normally more reliant on purchases, Groups 7 and 8 (Group 6 is not reported due to its small size), show the highest severity of price-related shocks.

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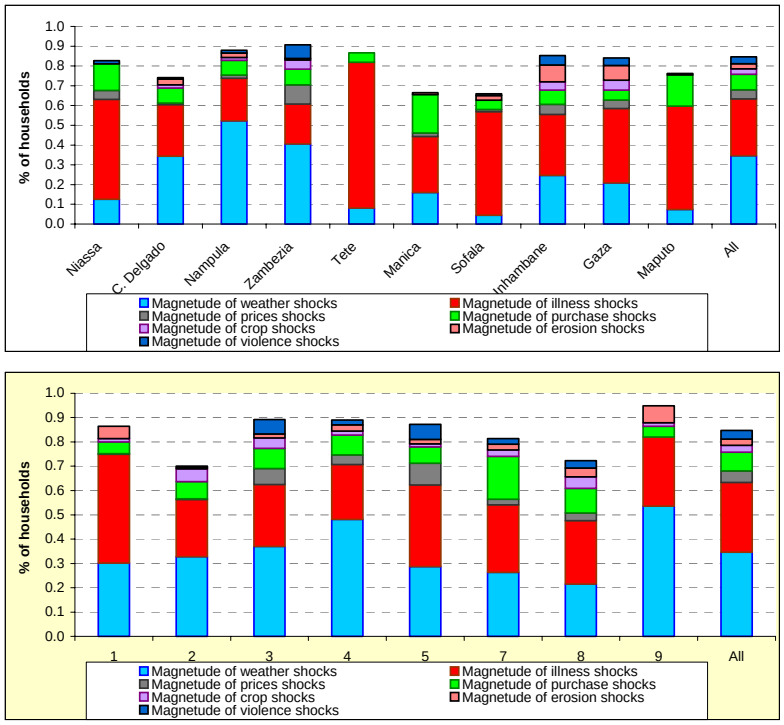
Figure 41 Magnitude of shocks

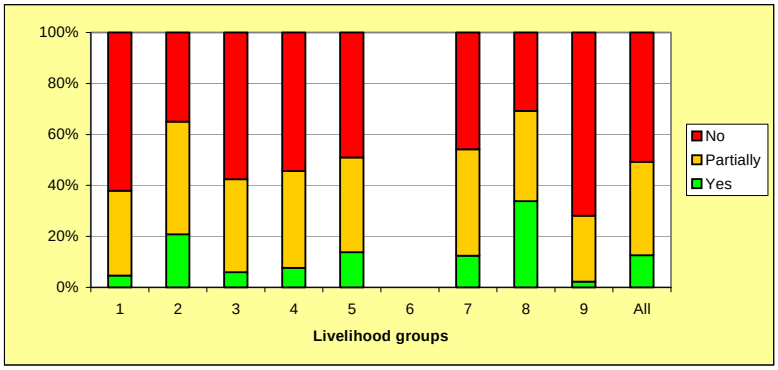


* Applies only for households that suffered at least 1 shock. Magnitude is summed for all shocks by typology

In terms of magnitude of shocks (here seen as the degree of recuperation from the shock by the households), the worst magnitude shocks are either related to illnesses or weather. In Niassa, Tete, Sofala, and Maputo provinces, the magnitude of the shocks related to illness is much higher. In other words, households suffering from illness-related shocks in these areas have not yet recovered. Weather-related shocks showed a high magnitude in Nampula, Cabo Delgado, and Zambezia provinces. Shocks related to commodity prices and loss of income showed highest magnitude in Manica and Maputo provinces.

From a livelihood group perspective, the subsistence farmers of Group 1 seem to have difficulties recovering from illness-related shocks. The households from the marginal Group 9 have problems recovering from drought-related shocks, and, as expected, the formal employees and traders in Group 7 show particular difficulty recovering from purchase-related shocks.

Figure 42 Household capacity to recover from shocks*



* Results for Group 6 are not statistically significant due to small sample size
Applies only for households that suffered at least 1 shock

As shown in Figure 42, households' capacity to recover can vary widely between different groups. On average, 13% of households affected at least by one shock managed to recover fully from the shock, while 51% did not, and the remaining households managed to achieve only a partial recovery. However, when considering these results among the different livelihood groups, the disparities are quite large: the highest capacity to fully recover is achieved by Group 8, while Groups 9 and 1 have the lowest recovery capacity, reaching respectively, more than 70% and 60% of failure to recover even partially.

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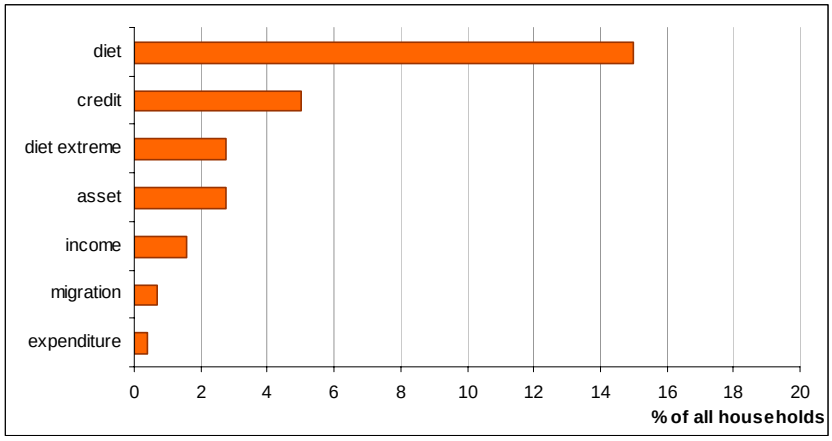
5.4. Household coping strategies

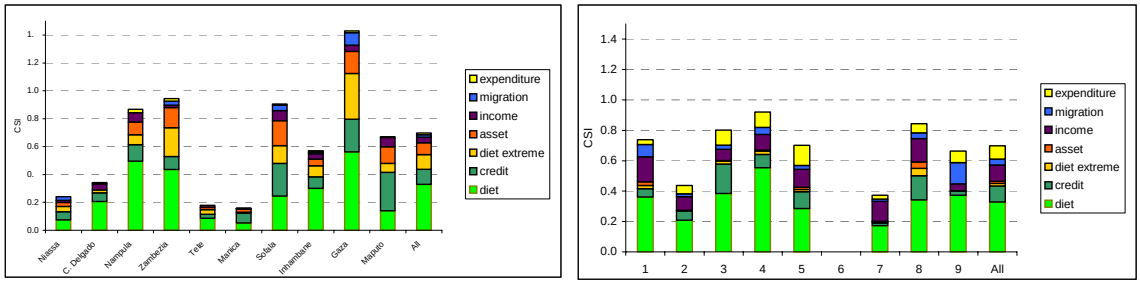
Figure 43 Adoption of different types of coping strategies



The main response strategy households employed when confronted with a shock was to reduce the number of meals. Three of the initial four strategies adopted are rationing strategies. In addition, as a major coping strategy, 12% of households chose to modify their diet increasing the consumption of cheaper and less preferred food. The fifth through eighth most common coping strategies aim to increase food supply, and only the ninth is a type of strategy that places household at greater risk of continued food insecurity (in this case is the sale of animals). The distribution, characterisation, and prevalence of the main coping strategies as well as the gap between the first and second strategies supports the impression that only a mild degree of stress occurred during the previous twelve months.

This is further supported by the consideration that more than half of the households affected by shocks did not adopt a second coping strategy. It is possible that a second coping strategy was not adopted because the first one was sufficient to respond to the shock.

Figure 44 Values of Coping Strategy Index by coping strategy, province, and livelihood group



* Results for Group 6 are not significant due to the small size of the sample considered

Figure 44 describes the distribution of the Coping Strategy Index (CSI) by province and livelihood group as well as by type of strategy adopted by the household. The geographical variation is quite high, contrary to a lower variation of CSI values among livelihood groups. This is understandable in view of the strong geographical dimension of reported shocks. The highest numbers occurred in Gaza Province, while the lowest occurred in Manica, Tete, Niassa, and Cabo Delgado provinces. When examined by livelihood group, Groups 4 and 8 had the highest and Groups 7 and 2 had the lowest.

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In general the most common coping strategy was minor dietary changes. It is interesting to note that Group 8 choose migration more than other groups and Group 9, the marginal group with limited availability of human resources, resorted to measures that aim to increase income.

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6. Sources of food

6.1. Sources of food

Access to food is determined by the household capacity to procure food through own production, purchase, exchange, and assistance. In this case assistance is considered any source external to the household, whether relatives and friends, or local and international organizations. For the purposes of the baseline analysis, households interviewed were asked to indicate the source of the food consumed in order to determine the household reliance on different sources.

As shown in Figure 45, the source of food consumed is quite diversified among the different livelihood groups. Different groups have a different level of self-reliance. For instance, the share of maize consumed which is actually produced by the household is quite high in Groups 3, and is quite low in the case of Group 7 which instead relies mainly on purchase (in this case more than 50% of maize consumed is purchased). Group 6, cash-crop producers, rely on own production of maize, but to a much lesser degree on the own production of cassava, for which a major share comes from purchase.

Figure 45 Sources of maize and cassava consumed by the households

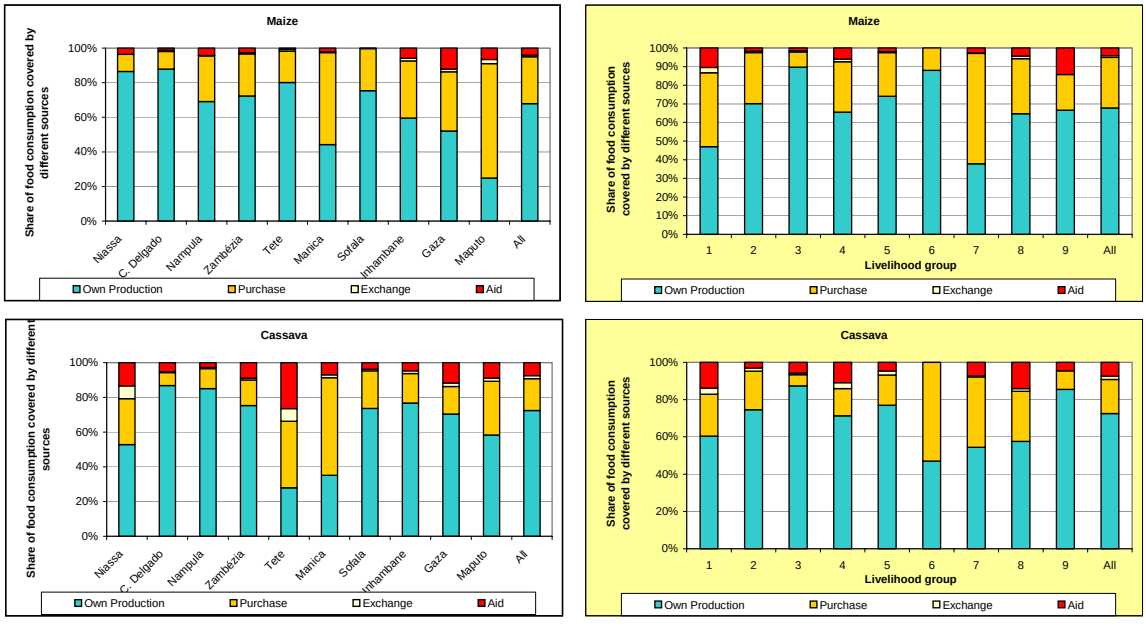

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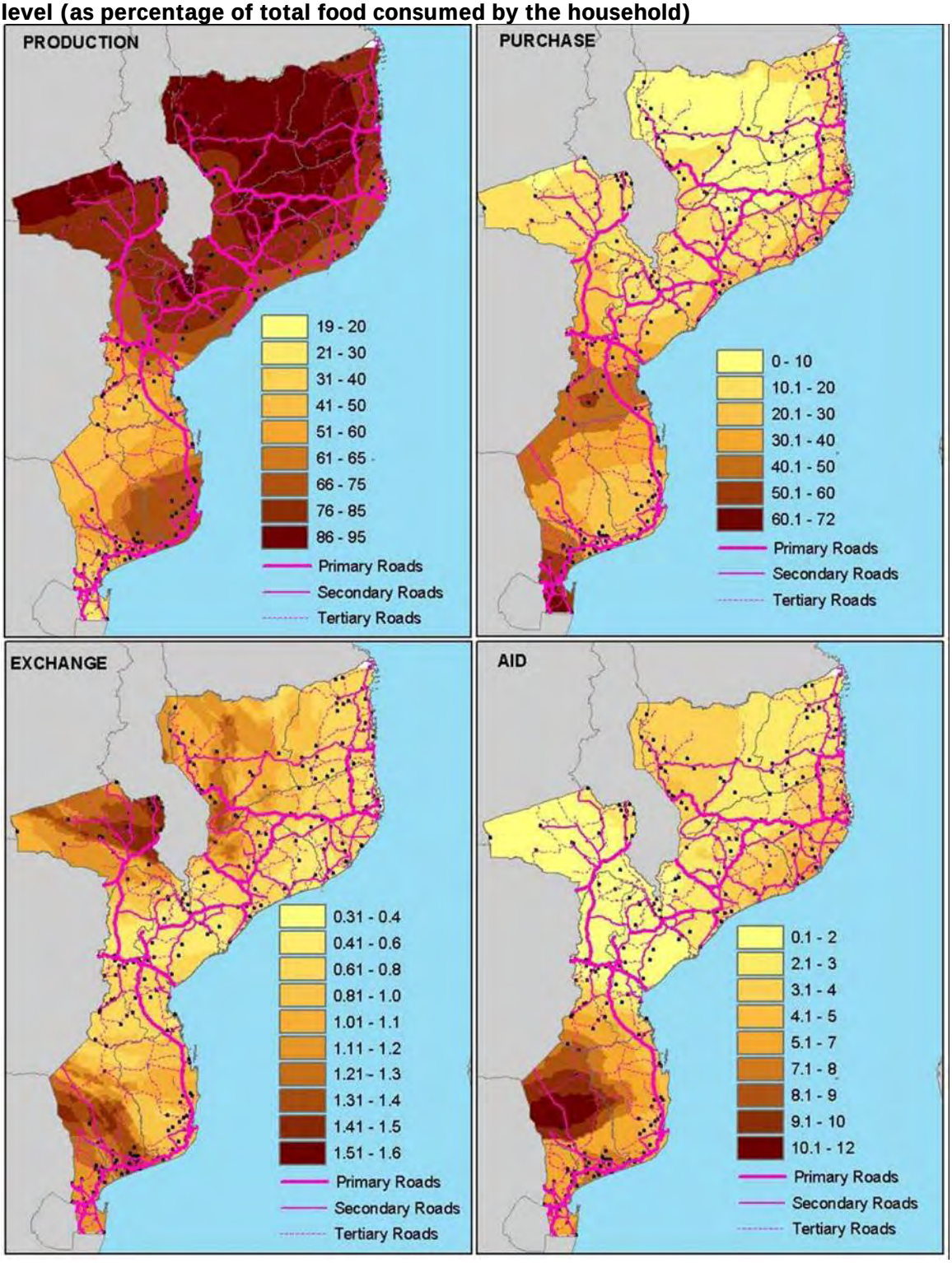
Figure 46 Geographical distribution of sources of food consumed at household level (as percentage of total food consumed by the household)



Reliance on aid as a source of maize is higher than 10% of total maize consumption for Groups 9 and 1, the two groups identified as worse-off, followed by Group 4. It is interesting to note

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how even Group 8 relies on aid as a small source of maize: approximately 5% of maize is received through assistance.

Figure 46 presents the geographical distribution of the different sources of food consumed by households. Reliance on production decreases drastically from the northern to the southern part of the country (i.e. from an average of 87% in Niassa and Cabo Delgado provinces to only 25% in Maputo Province). The bulk of food assistance is concentrated in Gaza Province and surroundings. As expected, the reliance on purchase as source of maize is by far the highest in Maputo Province where two-thirds of maize consumed is purchased -- compared to a national average of 27%. However, this seems to be a specific characteristic of maize, in fact, reliance on purchase as a source of cassava is much lower in Maputo (31% compared a national average of 18%).

6.2. Access to markets

As summarized in Table 7, serious concerns can be raised on the functionality of markets, where they are available. In fact, there are markets in only two-thirds of the villages covered by the survey, whereby 83% lack of basic items. Factors affecting market functionality are accessibility, security in the area, shortage of demand and/or supply, lack of credit, and interference through some form of market control. An index of *effective distance* between the village and the closest market was estimated on the basis of the variables: time required, cost required, availability of transport, and usability of the road to the market throughout the different seasons. Each of these variables has been indexed[13] to generate an average value of effective distance for each village from the closest market.

Table 7	**Market availability and access and factors affecting their functionality**
Share of villages with markets	65%
Share of villages with lack of basic products	83%
Constraints to market functioning	
* Accessibility of market	53%
* Security	25%
* Inadequate supply	32%
* Inadequate demand	32%
* Lack of credit	60%
* Price control	39%
Average number of constraints (0-6)	2.4

[13] The formula used for the construction of the index is: $\frac{X - X_{min}}{X_{max} - X_{min}}$

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Figure 47 Geographic distribution of measures for distance from markets and constraints to effective market functionality

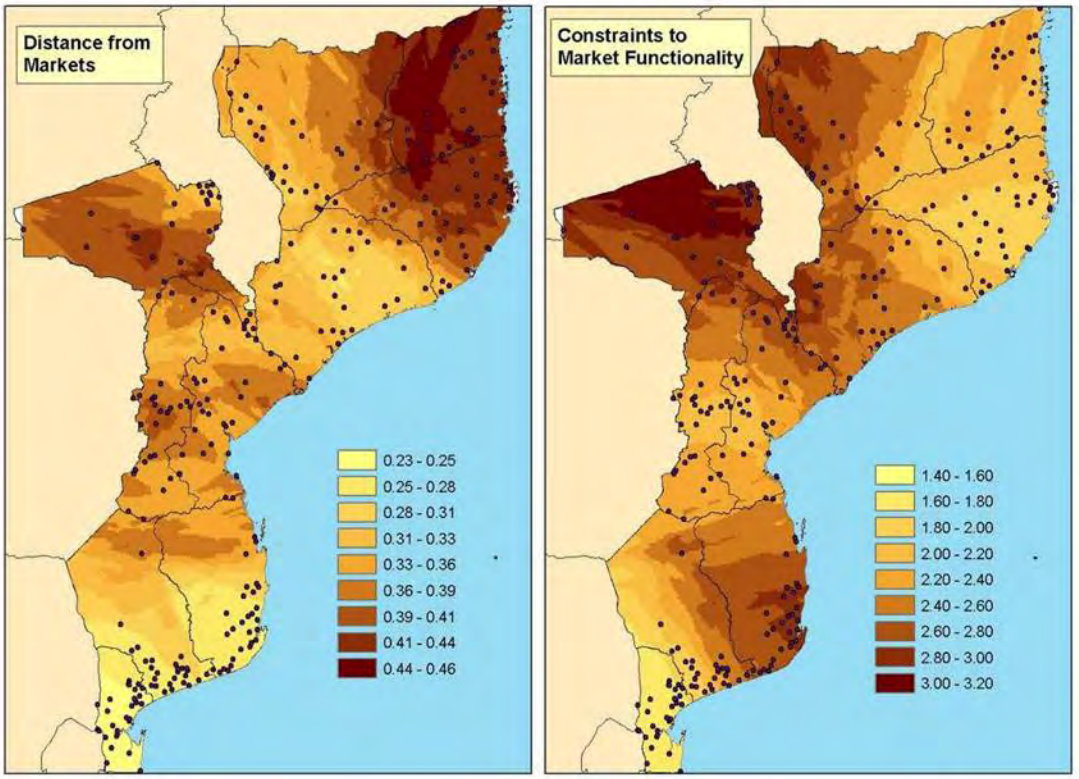

Figure 47 shows the geographical distribution of the index of effective distance from markets as well as the cumulative number of constraints identified preventing proper market functioning.

As expected, the analysis of effective distance shows a drastically divided situation, with the villages in the northern part of the country being much more distant from markets--with the exception of Zambezia Province--compared to the ones in the extreme south and with a type of continuous reduction of effective distance along the route north-south. Notably, the index of effective distance doubles when moving from the extreme south to the extreme north of the country.

At the same time, areas at the extreme northeast of the country–mainly in Cabo Delgado and Nampula provinces–seem to be highly penalized in terms of distances. Other possible constraints, such as shortage of supply and demand or lack of credit, seem to be less relevant. The contrary happens in Zambezia Province and western part of Niassa Province, where these constraints seem to play a much stronger role than solely distance. Manica Province seem to suffer from all problems at the same time, registering the worst values of both effective distance and other constraints to market functionality.

The survey results also seem inconsistent in Inhambane Province: while distance seems to be irrelevant in the southern and central part of the province, the number of constraints to market functionality in this area seem to be among the highest in the country. Counter intuitively, this area seems to be not only strong in terms of transport facilities, but rather dynamic in terms of

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market functionality. As shown in Table 8, the only variable identified as significantly affecting household reliance on market purchase as source of food is the lack of demand which points to a lack of purchasing capacity. In fact, both variables are highly significant and their effect goes in the expected direction. While the coefficient of effective demand is almost five times stronger than the one of constraints in demand. Significantly, the role played by low purchasing capacity and consequent low demand comes out as a serious constraint both in terms of market development and heavily limits household capacity to access food. This analysis will go on to consider how low access to markets affects dietary diversity.

Table 8 Role of effective distance and low demand as determinants of purchase as source of food consumed by households

Model		Adj R^2	Unstandardized coefficient	Significance
1	constant	0.057	37.063	0.00
	DIST		-28.582	0.00
2	constant	0.065	39.176	0.00
	DIST		-28.742	0.00
	Low demand		-6.389	0.05

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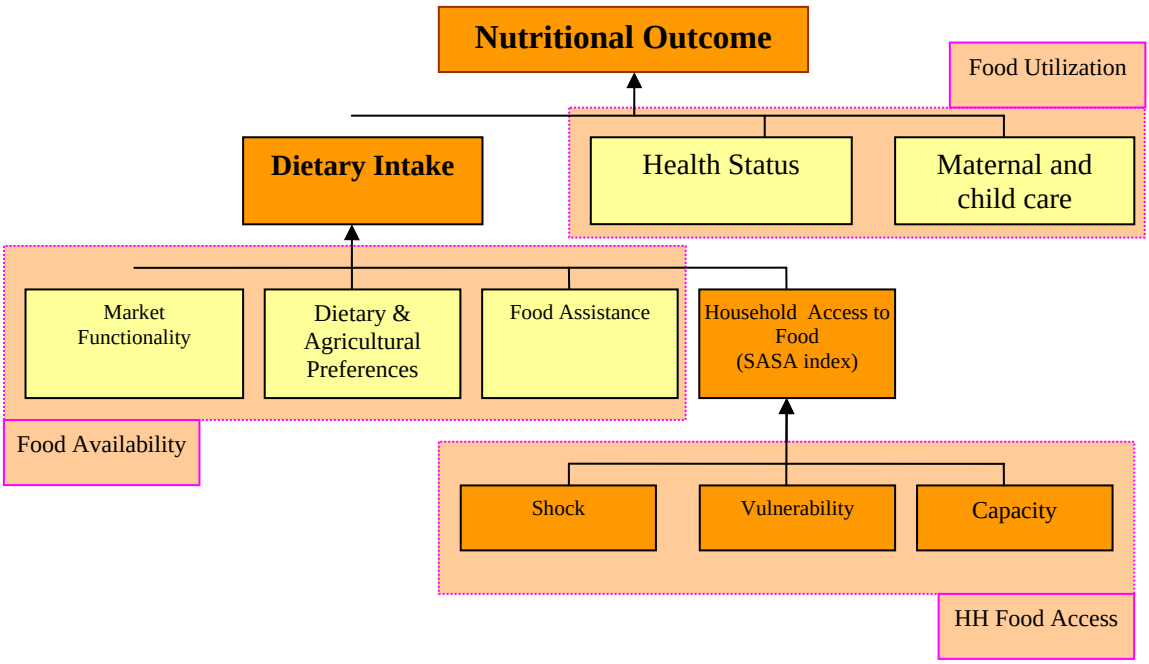
7. Food security

7.1 A tool to measure household food security

In order to analyze the food security situation at household level, the GAV has developed a SASA index (from the Portuguese name *Situaçao Actual de Segurança Alimentar*). SASA fulfils only part of the analytical framework of livelihood-based household food security focusing on issues related to access to food. Figure 48 illustrates where SASA fits in the conceptual framework of the current analysis.

Figure 48 The role of SASA index within the conceptual framework of this analysis



Source: 2006 – Authors (adapted from UNICEF Nutritional Framework)

Although the development of SASA allows for approximation of household food access, it is important to highlight its limitations in taking into the analysis other major information such as market functionality.

In its essence, SASA is the implementation of the well known and agreed concept of risk analysis as illustrated in Box 5.

Box 5

$$\text{Vulnerability to Chronic Food Insecurity} = \frac{\text{Vulnerability to Loss of Livelihood}}{\text{Livelihood Capacity}}$$

$$\text{SASA} = \text{Shock} * \frac{\text{Vulnerability to loss of livelihood}}{\text{Livelihood Capacity}}$$

In order to include the concept of sustainable livelihoods as a way to better understand food security, SASA includes the five capitals into the assessment of household capacity. Moreover, the construction of a

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shock and a vulnerability index allows for SASA to capture the stability dimension of food security while further allowing for the differentiation between chronic and transitory food insecurity. Although risk analysis should be done specifically for each shock, in order to simplify the analysis the index has included all shocks that affect food security and all sources of income that are potentially affected by the various shocks. Nevertheless, typologies of shocks were also included to allow modelling for the different impacts of shocks.

The SASA index has been constructed on the basis of composite indicators of shocks, vulnerability, and capacities of the household. Box 6 illustrates the main characteristics of each of the three indicators utilised. Although many different combinations of proxies could have been done using various methods (such as primary component analysis, clustering, and indexes), the choice reflected here includes the methods and proxies which are at the same time statistically most meaningful as well as most efficient and replicable.

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Box 6 Indexes utilised for the construction of SASA index

Index of Shocks: Multiplication of Weighted[1] Severity of shock and recovery from shock

Where:

Severity is the sum of the weighted type of impact of shock: on production weights 1, on income sources weights 2, on assets weight 3;
Recovery was the recuperation of the household: total recovery receives a coefficient of 0.33, partial recovery's coefficient is 0.66, and minimal or no recovery's coefficient is 0.99.

Index of Income Diversity: Weighted[2] sum of diversity of sources of income

Where:

Stable sources is given weight 3 (it includes stable activities such as formal employment);
Moderately stable sources is given weight 2 (it includes less stable activities such as: business, transport, remittances);
Non stable sources is given weight 1 (it includes unstable activities such as: casual labour, sale of agricultural production).

Index of Livelihood Capacity[3]: Sum of the averages of indexes of the five capitals

Where, as seen above, the five capitals include:

Financial: (i) total expenditure, (ii) %age expenditure on food, (iii) value of agricultural production;
Physical: (i) number of productive assets, (ii) number of non-productive assets, (iii) number of livestock, (iv) type of roof, (v) type of sanitation;
Human: (i) highest level of education (head of household or spouse), (ii) dependency ratio;
Natural: (i) number of fields in low-lying areas, (ii) number of fruit trees;
Social: (i) household participation in association and access to credit?.

[1]Weights were provided on the basis of arbitrary decision on the assumption that the worst types of shocks and associated coping strategies are those that affect the physical assets of households, and therefore this kind of shocks and coping strategies received the maximum weight of 3. In the same fashion, shocks that affect the sources of income are considered to be of moderate impact and therefore received the weight of 2. Finally, shocks that impact on the dietary intake and agricultural production are thought to be the least serious, and therefore received a weight of 1.In addition, since households were asked to report shocks suffered during the previous 12 months, there was need to need to adjust the weighs in order to reflect their current impact. In such perspective it was thought that households that had totally recovered from the shocks would be almost in a normal situation and therefore received the lowest score of 0.3. At the same time, households that had only partially recovered from the shocks received a score of 0.6. Finally, households that did not recover at all from the shocks, were kept with the same score (i.e. the original weight of 1was maintained).

[2]Weights are arbitrary decision based on the assumption that the capacity of households to respond to shocks is partially determined by the stability of their income sources. For this analysis, it was assumed that stable sources of income, such as formal employment, are likely to bring more resilience to shocks, and consequently such activities and sources of income were weighted the maximum value of 3. At the other extreme, rather uncertain sources of income that are prone to change with the occurrence of shocks, such as casual labour and agricultural production, were given a score of 1.

[3]Although it was possible to have an endless combination of indicators for each of the five capitals, the ones listed here are the ones that better represented the capital. The solution to measure the capitals

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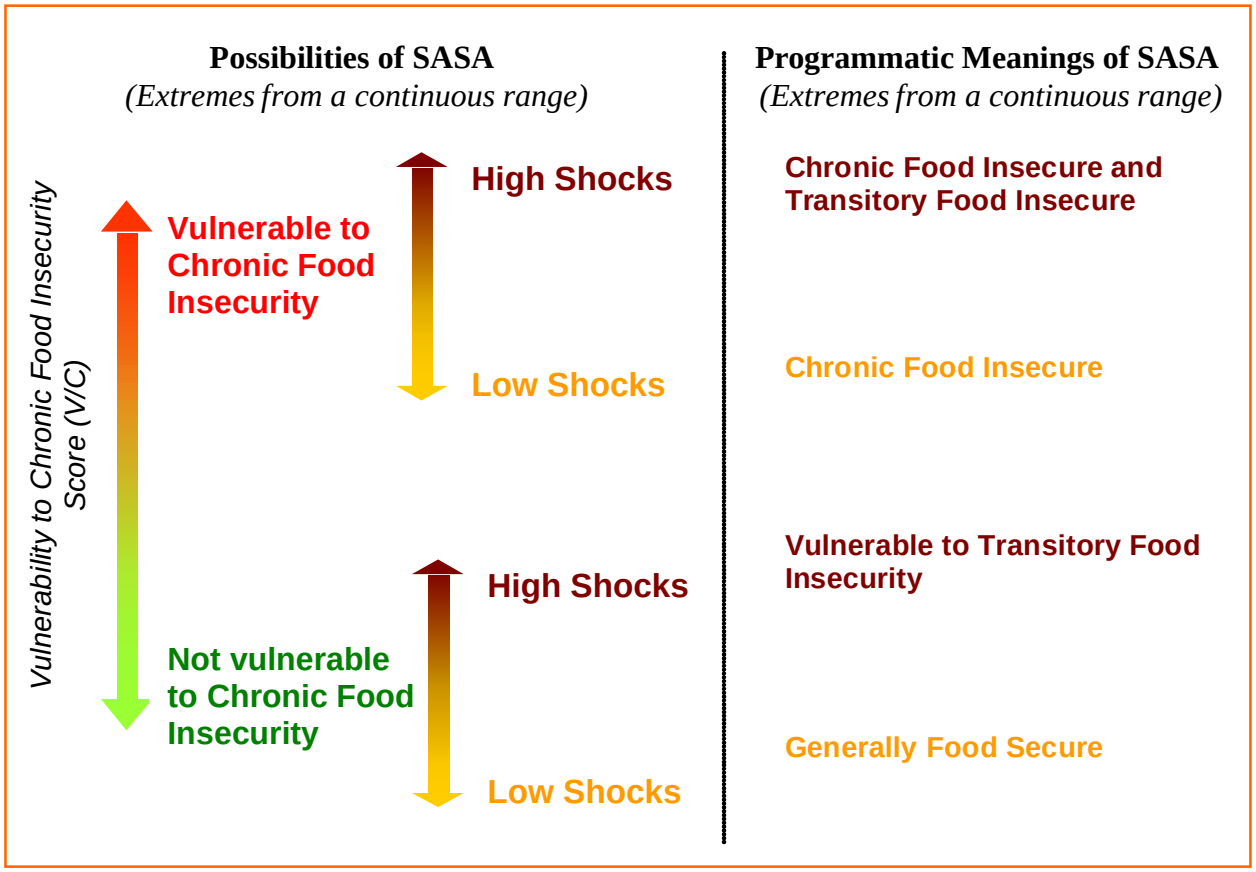
The main advantage of the SASA index is that it allows the user to identify the nature of the current household food security situation, differentiating specifically between its chronic and transitory nature, as shown in Figure 49.

Figure 49 Nature of household food security situation as captured by SASA



In order to allow for a more insightful review of the type of household food insecurity, the SASA index is deconstructed into two parts:

1. **Analysis of Vulnerability to Chronic Lack of Access to Food:** This part analyses household vulnerability to loss of livelihood capacity, allowing for classification in terms of vulnerability to chronic food insecurity.
2. **Analysis of Current Condition of Access to Food:** This part merges the analyses of household vulnerability and capacity together with the analysis of shocks, allowing for categorization of households in terms of chronic or transitory food insecurity.

7.1.1 Analysis of Vulnerability to Chronic Lack of Access to Food

Vulnerability to loss of livelihoods and livelihood capacity

Figure 50 shows the distribution of household capacity and vulnerability by province and livelihood group. This graph shows that households in the southern areas of the country - namely Sofala, Inhambane, Gaza, and Maputo provinces- have the highest endowment with the five capitals. On average, households from Manica and Zambezia provinces have a moderate index, while the other provinces show relatively lower access to the five capitals. Most of the

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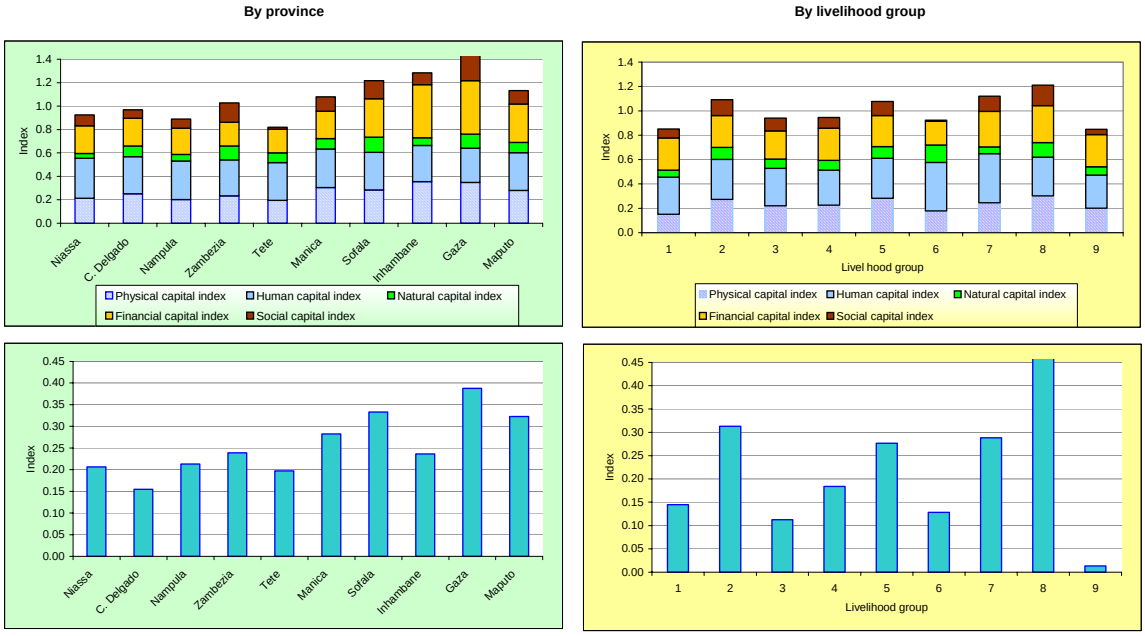
difference in the total index is the product of financial capital, which can be two times larger in the southern areas of the country. The same kind of pattern is seen for the income stability and diversity indexes, which are relatively higher in the southern areas of the country, except for Inhambane Province where they are at average levels.

In terms of livelihood groups, Group 8 shows the highest access to the five capitals, being closely followed by Groups 2, 5, and 7. The access to diverse and stable sources of income among the nine groups follows the same pattern, nevertheless with more drastic differences among the groups. Group 8 shows the highest access to diverse and stable sources of income - this being around two times larger than average and forty-five times higher than the lowest value. Groups 1, 3, and 6 show low levels of income diversity. Group 9 has an extremely low average index, reaching less than 0.01.

Figure 50 Household capacity and vulnerability



Vulnerability to chronic lack of access to food: The relation between Capacity and Vulnerability
It is possible to identify the household vulnerability to chronic food insecurity by relating household vulnerability to loss of livelihood and household capacity to mitigate and respond to shocks. As mentioned above, this is done through:

$$\text{Vulnerability to Chronic Food Insecurity} = \frac{\textbf{Vulnerability to Livelihood Loss}}{\textbf{Livelihood Capacity}}$$

Since 2006 was a normal year and, in accordance with national statistics, about 37.8%[14] [15] of the population lives below USD1.00 a day, the same percentages were approximated by the

[14] World Development Indicators, World Bank 2005. Data refers to 1996
[15] World Development Indicators, World Bank 2005. Data refers to 1997

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categorization of vulnerability to chronic lack of access to food. Table 9 illustrates this categorization.

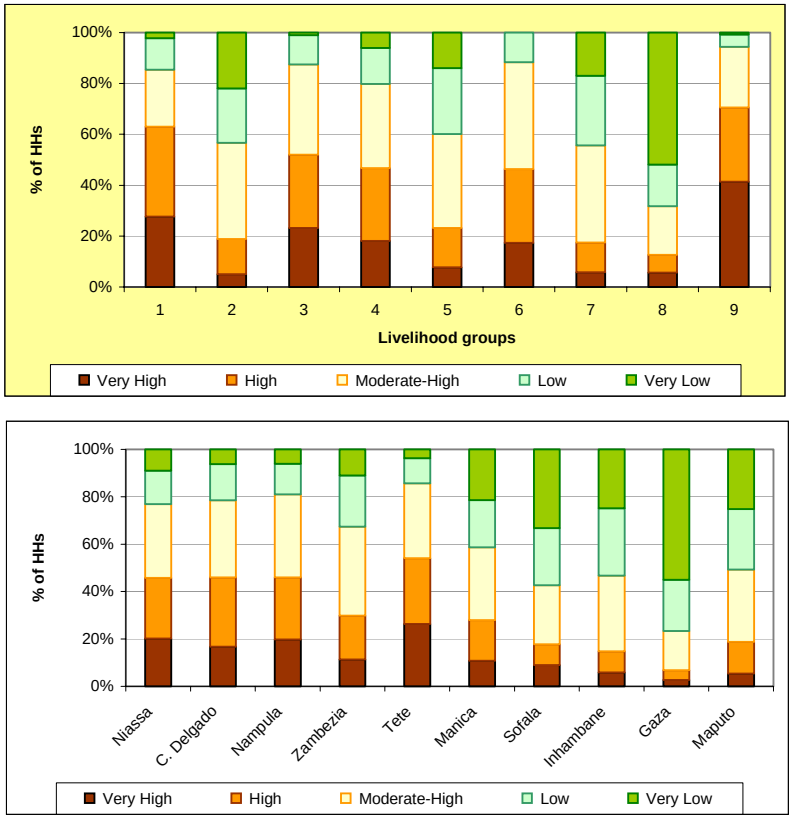
Table 9 Categorization of Vulnerability

Vulnerability to Food Insecurity (N=6,715)	Severity	% of HHs
Low Vulnerability to Food Insecurity	Very Low	14.4
	Low	18.2
	Moderate	32.6
	Total	**65.2**
High Vulnerability to Food Insecurity	High	20.3
	Very High	14.5
	Total	**34.8**

By classifying the continuous variable into ranges, the prevalence of high vulnerability to food insecurity in Mozambique results equivalent to 34.8% of households, where 20.3% are classified as highly vulnerable and 14.5% are classified as very highly vulnerable.

As shown in Figure 51, the number of households which are vulnerable to chronic food insecurity is more prominent in the northern parts of the country, particularly in the Niassa, Cabo Delgado, Nampula, Zambezia, and Tete provinces. Whereas the highest prevalence of non-vulnerable households is found in the southern provinces, especially in Gaza. In fact, although the southern parts of the country are more prone to natural disasters, they show higher levels of access to the five capitals and to stable and diverse sources of income.

Figure 51 Distribution of households according to their vulnerability to chronic food insecurity



When considering vulnerability to chronic food insecurity among livelihood groups, the variability of results increases, reflecting the high homogeneity among households within each group. Group 9 shows the highest presence of severely vulnerable households, where almost 80% of the households are classified as either highly or very highly vulnerable. Groups 1, 3, 4, and 6 also show levels of vulnerability which are higher than average (between 42% and 60% of households are vulnerable to chronic food insecurity). Group 8 shows the lowest rates of vulnerability, followed by Groups 2, 5, and 7.

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7.1.2 Analysis of household current food insecurity

Although households can be classified in terms of vulnerability to food insecurity by using long- and middle-term livelihoods indicators, it is necessary to include the occurrence of shock events to identify the presence of transitory food insecurity. This household survey did not include questions comparing previous years to differentiate chronic and transitory food insecurity. Furthermore, as a baseline is expected to be, no similar data has been found to form a kind of panel study. Therefore, analysis of shocks suffered by households is used as the approach to filter for transitory and chronic food insecurity. The assumptions are displayed in Box 7.

Box 7 The Hypothesis on Shock Analysis

Households suffering high shocks are potentially transitorily food insecure (independent if they are vulnerable to chronic food insecurity)

Households suffering low shocks are not potentially transitorily food insecure (independent if they are vulnerable to chronic food insecurity).

The provincial distribution of vulnerability to chronic and transitory food insecurity is displayed in Figure 52 (note the different scales). Based on these graphs it is possible to note that the provinces of the north and central part of the country, namely Tete, Niassa, Cabo Delgado, and Nampula, have the highest prevalence of high vulnerability to chronic food insecurity. On the other hand, the provinces in the south, namely Sofala, Inhambane, Gaza, and Maputo show significantly lower levels of vulnerability to chronic food insecurity. When analyzing the data on transitory food insecurity, it is possible to note that the situation has a different geographical dispersion, with the southern areas of the country showing a higher proportion of households being transitorily food insecure. The northern provinces of Nampula and Zambezia also show high levels of transitory food insecurity. Furthermore, it is possible to note that these two provinces have high levels of transitory food insecure households among chronically food insecure households.

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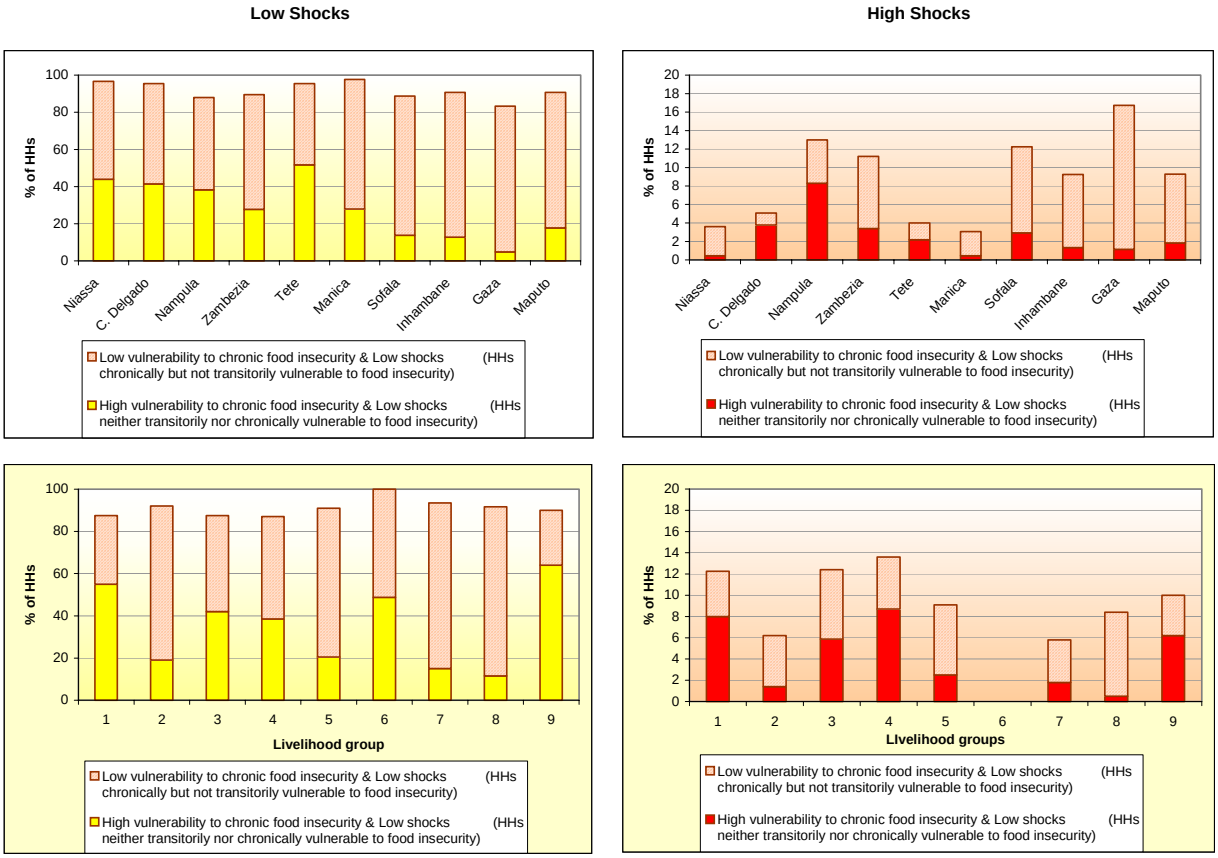
Figure 52 Vulnerability to chronic and transitory food insecurity



An interesting pattern is also seen by livelihood groups, as displayed in Figure 52. Group 9 shows the highest level of chronic vulnerability to food insecurity, with more than 60% of its households being identified as vulnerable to chronic food insecurity. Groups 1, 3, 4, and 6 also show high levels of vulnerability to chronic food insecurity.

In terms of transitory food insecurity, it is interesting to note that Groups 1, 3, 4, and 9 show high levels of vulnerability to transitory food insecurity, including both households that are chronically and not chronically vulnerable to food insecurity. Although Groups 2, 5, 7 and 8 show some level of vulnerability to transitory food insecurity, these are mainly among households that are not vulnerable to chronic food insecurity.

Although the results presented in this section are interesting, it is important to note that there was a low number of shocks during the reference year (2005/2006). Therefore, the differentiation between chronic and transitory food insecurity has been limited to the low occurrence, magnitude, and severity of shocks.

7.1.3 Transitory vulnerability to lack of access to food by different typology of shocks

Although transitory vulnerability to access to food is usually not differentiated by the type of shock, in order to identify programs and to monitor the evolution of the situation it is important

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to be able to identify the cause of the transitory food insecurity. Although this section of the report only describes the occurrence of the different types of transitory vulnerability as a result of lack of food access. Further analysis in the next sections will focus on the different outcomes that each shock is likely to bring about: (i) coping strategies, (ii) dietary intake, (iii) nutrition outcomes.

Most of the shocks have been grouped into three typologies, as described in Box 8. Figure 53 illustrates the occurrence of the types of transitory vulnerability to lack of food access by the typologies of shocks. It is interesting to note that about 10-15% of the households in Cabo Delgado, Nampula, Zambezia, Inhambane, and Gaza provinces have suffered shocks that are likely to impact agriculture and livestock production. Although this type of transitory vulnerability to lack of food access was similar in the northern and southern parts of the country, there was a main difference: while in the north - mainly in Cabo Delgado and Nampula provinces– most of the households that suffered this kind of shock are also chronically vulnerable to poor access to food, the households that suffered this shock in the southern areas were almost all not chronically vulnerable.

Box 8 The three typologies of shocks suffered by households during the previous 12 months

i. Agricultural and livestock shocks included weather related hazards - such as draught, floods, hail rain, cyclones – and pests and plagues to crops and livestock.

ii. Illness and death shocks included both chronic illness, higher indices of acute illness, and any types of deaths.

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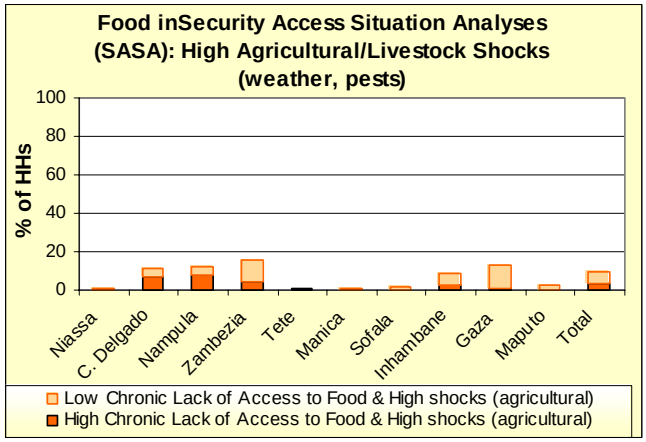
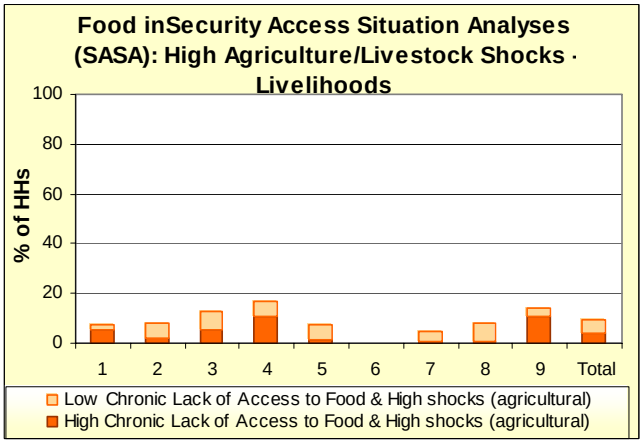
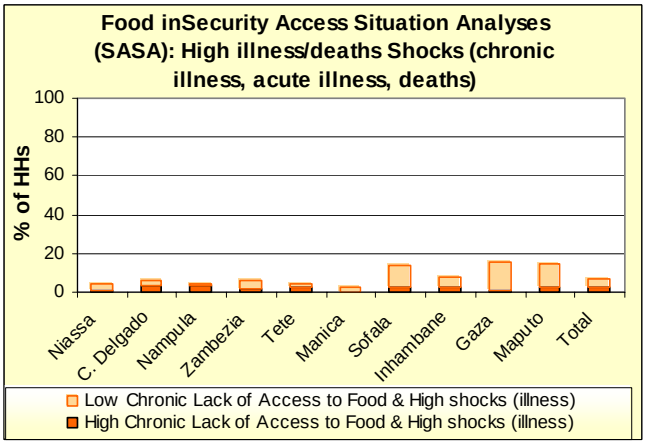
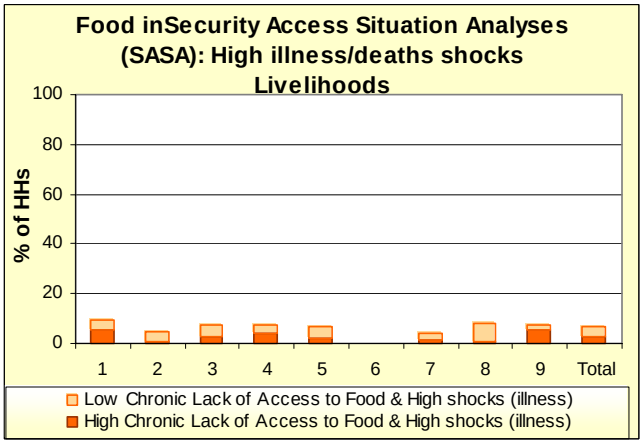
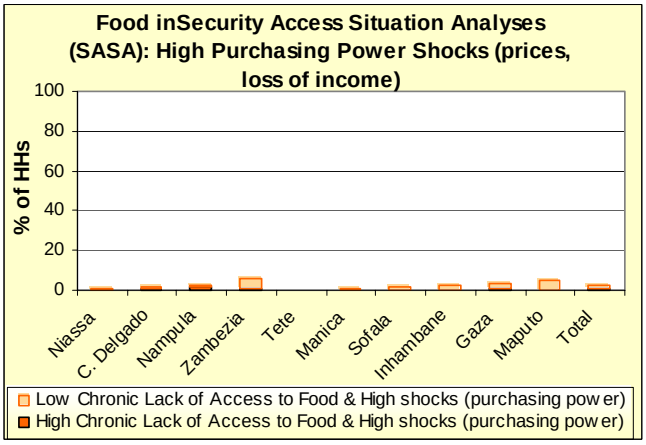
Figure 53 Occurrence of the type of transitory vulnerability to lack of food access by the typologies of shocks

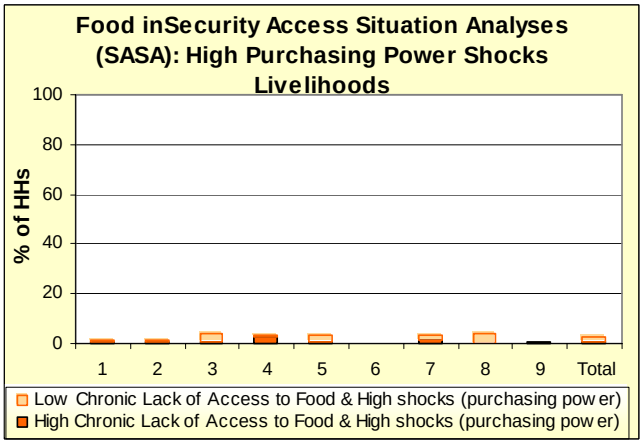












On the other hand, shocks related to illnesses were more common in the southern parts of the country, mainly Sofala, Gaza, and Maputo provinces. Shocks related to purchasing power were not common during 2005-06, with less than 3% of households suffering this kind of shock.

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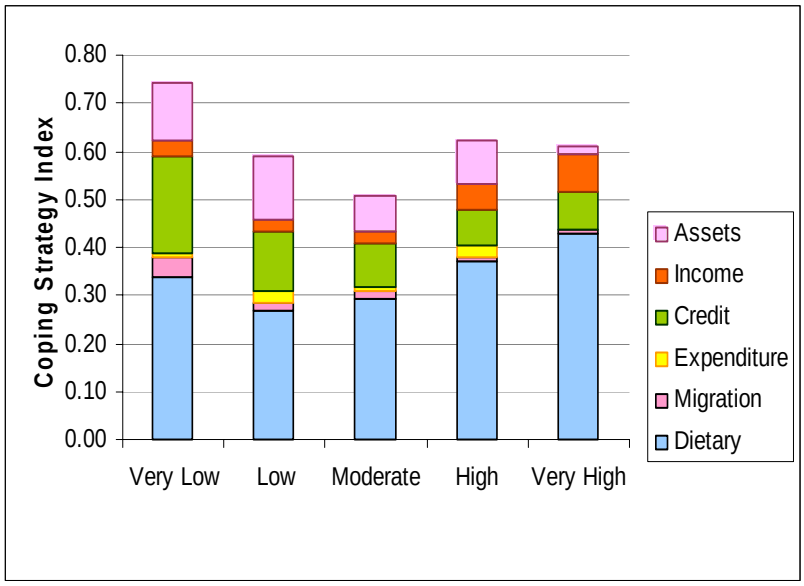
When analysing the patterns of typology of transitory vulnerability to lack of access to food by livelihood groups, less differentiation is seen among the groups. The only difference is seen among Groups 9, 4, and 3, which show a slightly higher rate of shocks related to agriculture and livestock production.

7.1.4 Relationship between SASA index and other food security outcomes: Coping strategies

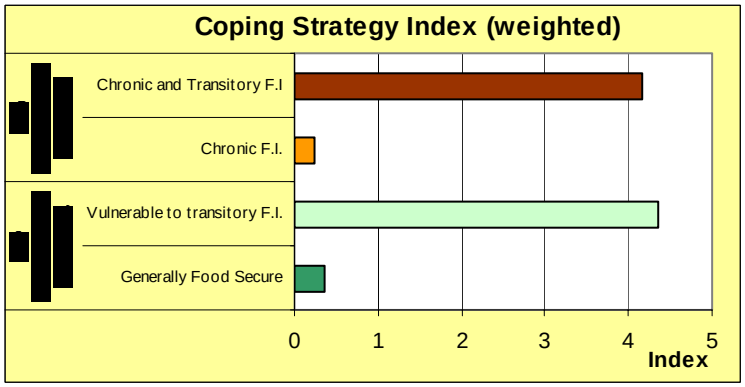
The results from the SASA index analysis can be related to other indicators of food security. In this case, comparison is done with the Coping Strategy Index (CSI) presented earlier on. Later in the report additional comparisons with other measures of food security will be presented.

Figure 54 Coping Strategies by Groups of Vulnerability to Chronic Food Insecurity



The coping strategies have been captured in the household instrument as the response to "*unusual events that prevented the household's capacity to access food, eat, and/or retain their assets during the previous 12 months*." As such, the CSI should be used for the purpose of assessing the impact of shocks and should therefore be related to the presence of transitory food insecurity rather than chronic food insecurity.

Figure 55 The value of CSI for chronic and transitory food insecurity



As shown in Figure 55, although households characterized as having very low vulnerability to chronic food insecurity had the highest average coping strategy index, it was possible to note that the greatest difference was on the practices of strategies related to asset disbursement and access to credit, both which have high depletion values, are related to higher wealth status. On the other hand, households classified as very highly vulnerable had more strategies related to dietary and income changes.

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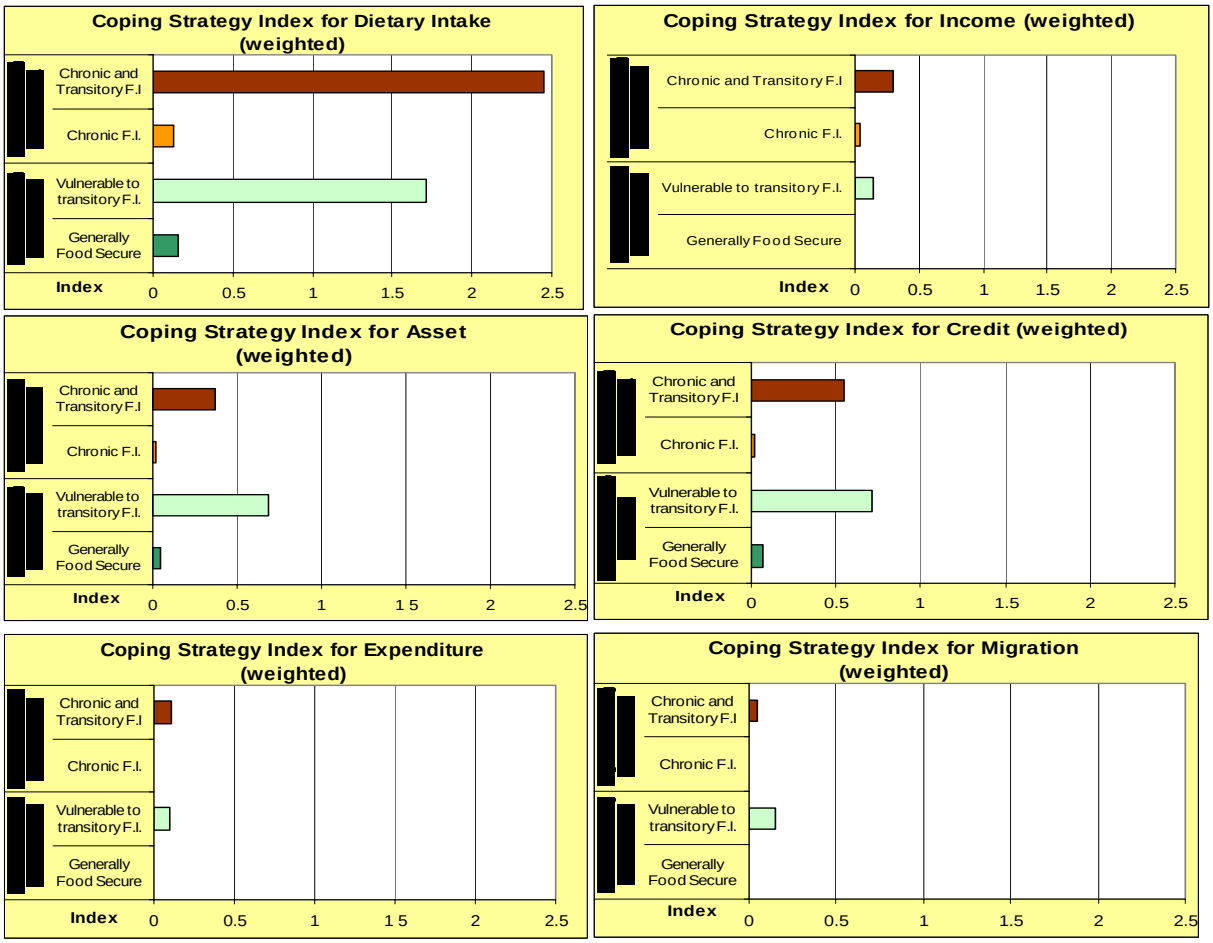
Figure 56 Different types of strategies taken by different types of households



Although there are no significant differences among the coping strategy index for vulnerability to chronic food insecurity, the types of strategies taken vary. Figure 56 shows the different types of strategies taken by different households. Based on these graphs it is possible to note that households that are both chronically and transitorily food insecure tend to have more coping strategies related to dietary changes and changes in income sources. On the other hand, households that are not chronically vulnerable to food insecurity but are suffering from transitory food insecurity, tend to have more strategies related to asset disbursement, credit acquisition, and migration. No significant differences were seen among strategies related to expenditure.

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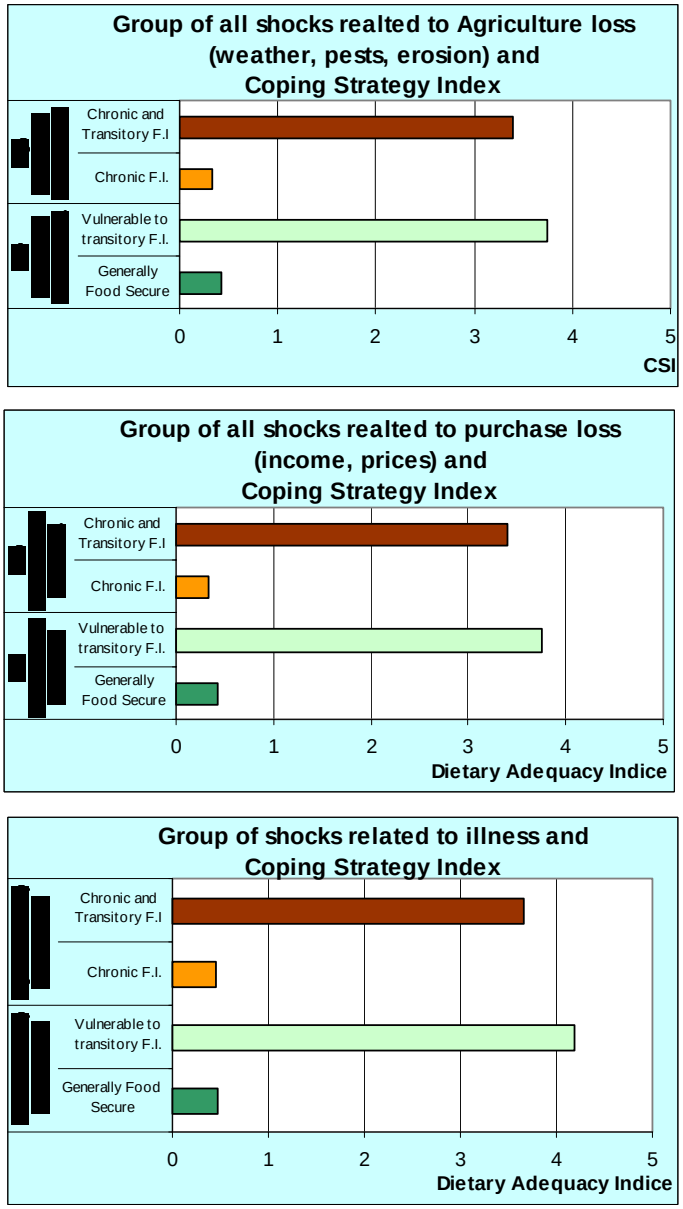
Figure 57 CSI by type of shocks



Although one could expect the CSI to change in terms of the type of shocks suffered, this same phenomenon was not noted with this baseline dataset. The main reason may be that the shocks were not common and severe enough to impact the type of coping strategies. Figure 57 illustrates the value of CSI by type of shock.

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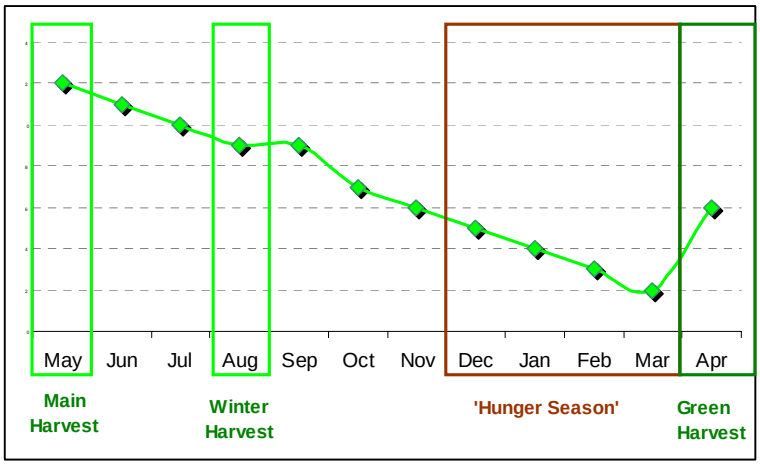
8. Dietary intake

The food security concept presented earlier in this report shows that dietary intake is both an outcome of food security and an underlying cause of malnutrition. This section describes the dietary intake of the Mozambicans living in rural and peri-urban areas during the month of September 2006. This section has been divided in the following parts:

1. The characteristics of dietary intake of Mozambicans by spatial zones in September 2006.
2. The dietary adequacy of Mozambicans by spatial zones and livelihood groups in September 2006.
3. The correlation between dietary adequacy and process indicators, such as food security, access to markets, and food aid.

The reference month for all of the data presented in this section is September.

Figure 58 Likely relationship between dietary intake from own production and agricultural calendar



One may expect that different food consumption patterns would be observed during the lean season or right after the harvest. However, comparison of consumption patterns across the country appears to be in accordance with empirical knowledge.

In accordance with the agricultural calendar, although September is not expected to be the worst month, much of the household production is expected to have run out. Therefore, future comparison to the normal dietary intake should carefully take into account the likely impact that seasonality has on dietary intake. Figure 58 illustrates the likely relationship between dietary intake from own production and the agricultural calendar in Mozambique.

8.1 Methods

This assessment included both 24 hour and seven day recall for the analysis of food consumption. The correlation between the two timeframes was 0.618[16] and the sensitivity[17] of 71.9% and a specificity[18] of 72.7%. Given that the two variables are highly correlated, the

[16] Person correlation 0.618 ($p<0.01$)

[17] Sensitivity relates to true positive being identified correctly (in this case households that scored below median in 7 days recall being also below median in 24 hours recall)

[18] Specificity relates to true negative being identified correctly (in this case households that scored above median in 7 days recall being also above median in 24 hours recall)

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Mozambique GAV has chosen to focus the analyses on the simpler 24 hour recall. The main reason for this choice lies in the need to identify feasible monitoring tools.

There are usually two widely used methods of deriving dietary adequacy score: (i) to count the different food groups eaten to construct a simple dietary diversity count or (ii) to sum the weighted value of the different food groups eaten to construct a weighted dietary diversity count. The two approaches are highly correlated (92.2% correlation)[19] and the Mozambican GAV decided to opt for the weighted dietary intake. The main reason was: (a) the high correlation is likely given by the normality of the diet during this normal year and (b) for future reference the weighted dietary diversity might be more insightful.

Table 10 illustrates the weights given to each food group based on previous study carried out in Mozambique[20].

Table 10 Weighted dietary intake

Food Group	Weight
Red Meats	4
Chickens	4
Pork	4
Liver	4
CSB	3
Beans	3
Pulses	3
Seeds	3
Eggs	3
Fish	3
Cereals	2
Manufactured Cereals	2
Cassava	1.5
English Potato	1.5
Sweet Potato	1.5
Vegetables	1
Leaves	1
Fruit	1
Fats	1
Milk	1
Sugar	1
Wild Foods	1
Salt	0

In order to transform continuous variable of the weighted dietary diversity indices into significant meaning for decision making, it was necessary to develop categories for the diet. Table 11 illustrates the cut-offs for the development of the adequacy ranges.

Table 11 Cut-offs for the development of the adequacy ranges

Categories for 24 hr recall	Sample Size	Percentage of Sample	Cut-off from the continuous range
Didn't eat anything*	66	1.0	0
Very inadequate	1,476	21.8	1 to 5
Inadequate	1,889	27.9	5.01 to 8.5
Adequate	3,333	49.3	8.51 to highest
Total	**6,764**	**100**	**0 to 48**

* As it is not believed that a household would not have eaten anything for a whole day, it was determined that this information was a result of poor field work and were filtered for the dietary analyses.

[19] 0.962 at p<0.01 for 24 hrs recall; 0.958 at p<0.01 for 7 days recall
[20] Rose et al, 2002: Mozambican Dietary Adequacy Tool (MDAT)

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8.2 Results

8.2.1 The characteristics of dietary intake of Mozambicans by spatial zones in September 2006

The dietary intake of households is dependent on cereals (including maize, sorghum, and rice) in the whole country. Cassava is mostly eaten in the northern areas of Cabo Delgado, Nampula, and Zambezia provinces and in the south in Inhambane Province. Surprisingly, less than 5% of households ate cassava in Tete Province. In all other provinces, less than 40% of households ate cassava in the previous 24 hours. Beans are also most eaten in the northern parts of the country, where about 40% to 60% of households have eaten it during the previous 24 hours. Usually, less than 20% of the households ate any type of pulses, except for in Nampula, Gaza, and Maputo provinces, where around 40% of households have eaten it in the previous 24 hours. The consumption of vegetables are moderate in most areas of the country, with areas such as Cabo Delgado, Zambezia, Gaza, and Maputo provinces having 50% or more of the households consuming leaves at this time of the year. In all other provinces, 40% or fewer households consumed leaves. Fruits – all and vitamin A rich in specific – are not widely consumed in the whole country, where in most areas less than 20% of the households consumed any fruits (except Sofala and Niassa provinces). In some provinces, as little as less than 5% of the households consumed any fruits.

Meat consumption was also scant in the whole country, except for the consumption of fish. The consumption of fish was lowest in Inhambane, Gaza, and Maputo provinces. Manica and Tete provinces also presented low rates of fish consumption. In all provinces, the share of households which consumed any type of meat was less than 20%. Animal products were also not regularly consumed, with less than 20% of households in any provinces consuming eggs or milk in the previous 24 hours.

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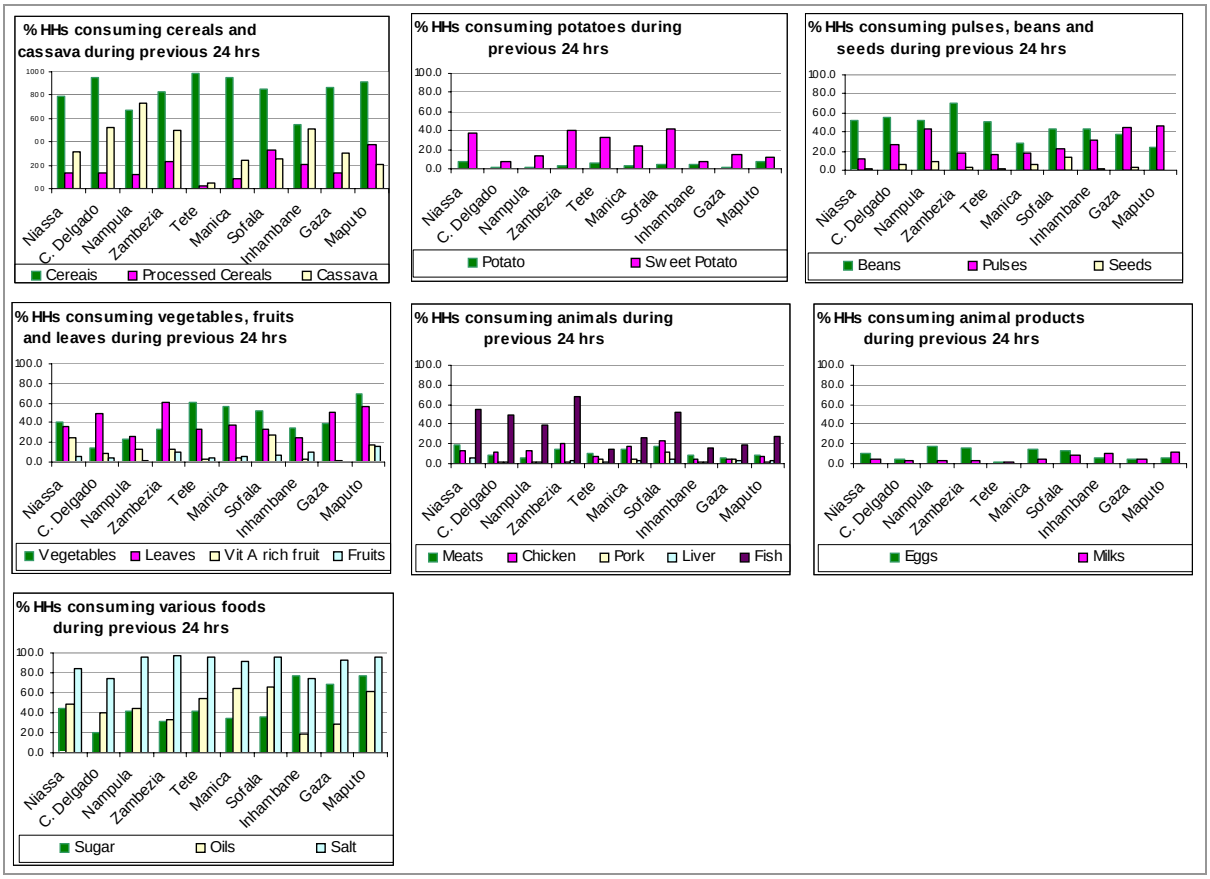
Figure 59 Share of households consuming different types of food



The consumption of sugar was more common in the southern parts of the country, where around 80% of households have consumed some sugar in the previous 24 hours. The intake of oil was surprisingly low in Inhambane and Gaza provinces. Salt was consumed in the whole country. Figure 59 illustrates the intake of each food group eaten during the previous 24 hours.

8.2.2 The dietary adequacy of Mozambicans by spatial zones and livelihood groups in September 2006

As described in the methodological section, the dietary adequacy was calculated based on the weighted diversity of food groups eaten in the previous 24 hours. Figure 60 illustrates the mean adequacy for each province and livelihood group. It is possible to see that the mean adequacy is lower in Inhambane and Tete provinces, and highest in Sofala and Zambezia provinces. The livelihood groups with lowest dietary adequacy are Groups 1 and 9. Group 8 presents the highest average dietary indices.

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Figure 60 Mean dietary adequacy by province and livelihood group

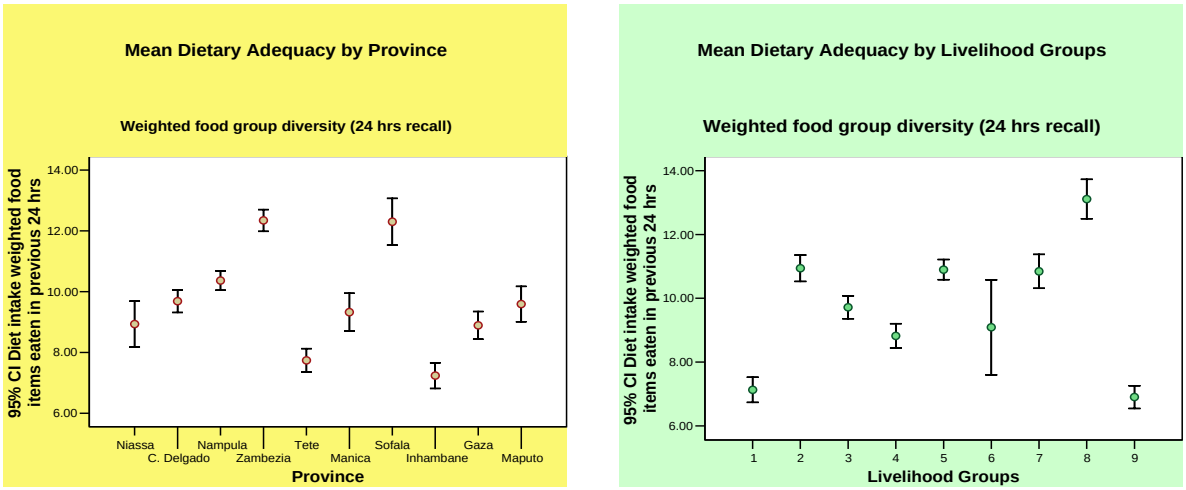
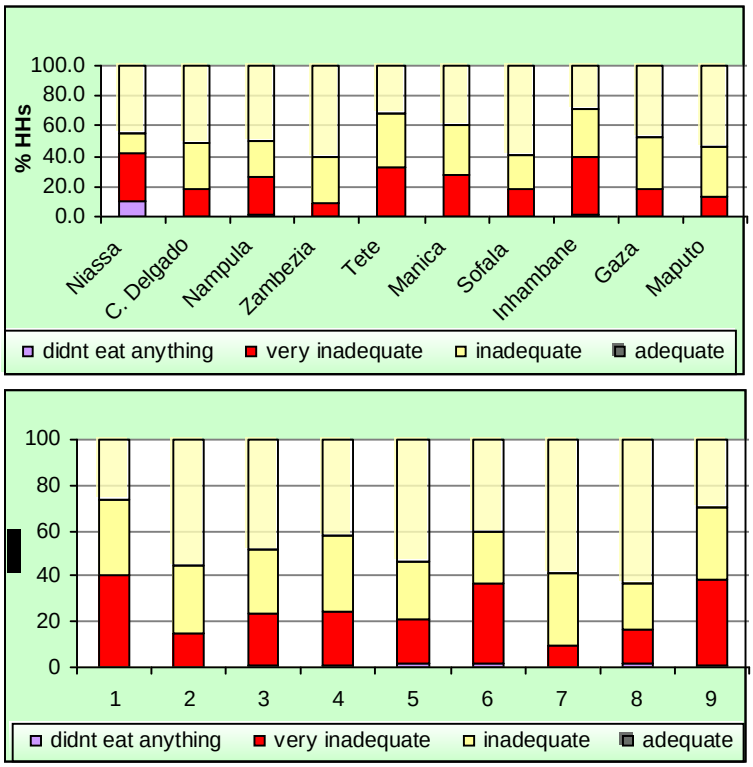


Figure 61 Share of households by dietary adequacy



The weighted dietary diversity shows that Tete, Inhambane, and Manica provinces have the largest percentage of households identified as eating a very inadequate diet (35 to 40%). Zambezia, Sofala, Maputo, and Gaza provinces show the lowest rates of inadequate diets. Figure 61 illustrates findings per province and livelihood group. The groups with highest dietary inadequacy are Groups 1 and 9. Groups 8 and 7 show the best rates of dietary adequacy.

8.3 The correlation between dietary adequacy and process indicators

In order to identify the causes of dietary adequacy, food security outcomes of dietary intake have been correlated with process indicators. The choice of process indicators followed the same conceptual framework used during the course of this report. Following this concept, the process indicators used on the basis of the available data are:

1. Household Access to food
2. Access to Markets
3. Food Aid and Relief Assistance

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8.3.1 Relationship between dietary adequacy and household access to food

As expected, the vulnerability to chronic food insecurity shows an inverse correlation between the level of vulnerability to food insecurity and the dietary adequacy index, measured by an overall correlation of 0.22. As such, it is possible to determine that while only 17% of the households classified as lowest vulnerability have an inadequate dietary adequacy score, almost 50% of the households among the highly vulnerable present an inadequate diet. Table 12 illustrates the difference in dietary intake of five groups of vulnerability.

Table 12 Correlation between Food Security Indicators and Dietary Adequacy

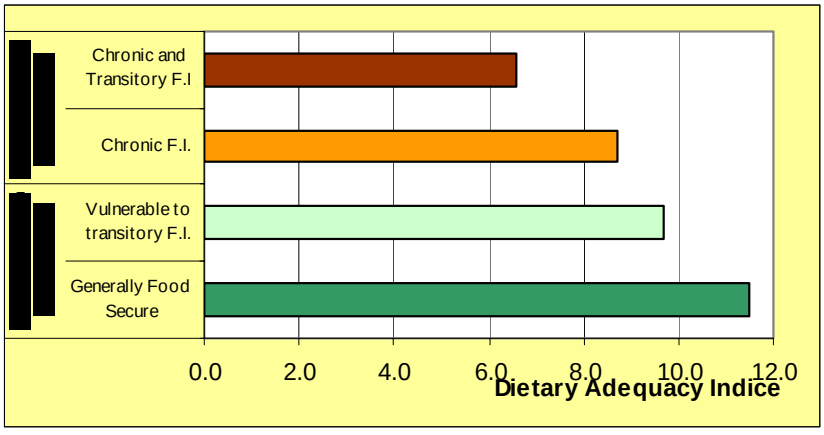
Province	Sample Size (N)	Vulnerability to Food Insecurity (V/C)	
Niassa	391	-0.22	**
C. Delgado	727	-0.20	**
Nampula	1,638	-0.25	**
Zambezia	1,511	-0.22	**
Tete	538	-0.27	**
Manica	361	-0.19	**
Sofala	445	-0.29	**
Inhambane	563	-0.27	**
Gaza	339	-0.26	**
Maputo	202	-0.13	*
Overall	**6,716**	**-0.22**	**

** Significant at 99% confidence (p<0.01)

* Significant at 95% confidence (p<0.05)

When taking into account in the analysis the occurrence of any type of shock, it is possible to note that a significant decrease in diet is reported, independently if the household was classified as chronically vulnerable to lack of food access. Furthermore, it is interesting to note that households only vulnerable to chronic food insecurity (but having not suffered any shocks) had similar mean dietary intake as households vulnerable only to transitory food insecurity. This shows that households that are not vulnerable to chronic food insecurity but suffer severe shocks are also likely to lower their dietary intake. Figure 62 illustrates key findings described here.

Figure 62 Dietary adequacy and SASA index



When analyzing the three main types of shocks (i.e. natural -weather, pests, erosion-, economic -income, prices- and health-related shocks), more specific differences are found. Figure 63 illustrates the mean dietary adequacy for each shock. The most interesting pattern to note is that the only shock that seems to affect households that are not chronically vulnerable to food insecurity are the ones related to loss of purchasing power. This correlates well with previous findings supporting the hypothesis that quality of the diet was positively correlated with higher purchasing power and reliance on markets. On the other hand, all shocks have similar impact among the chronically vulnerable households.

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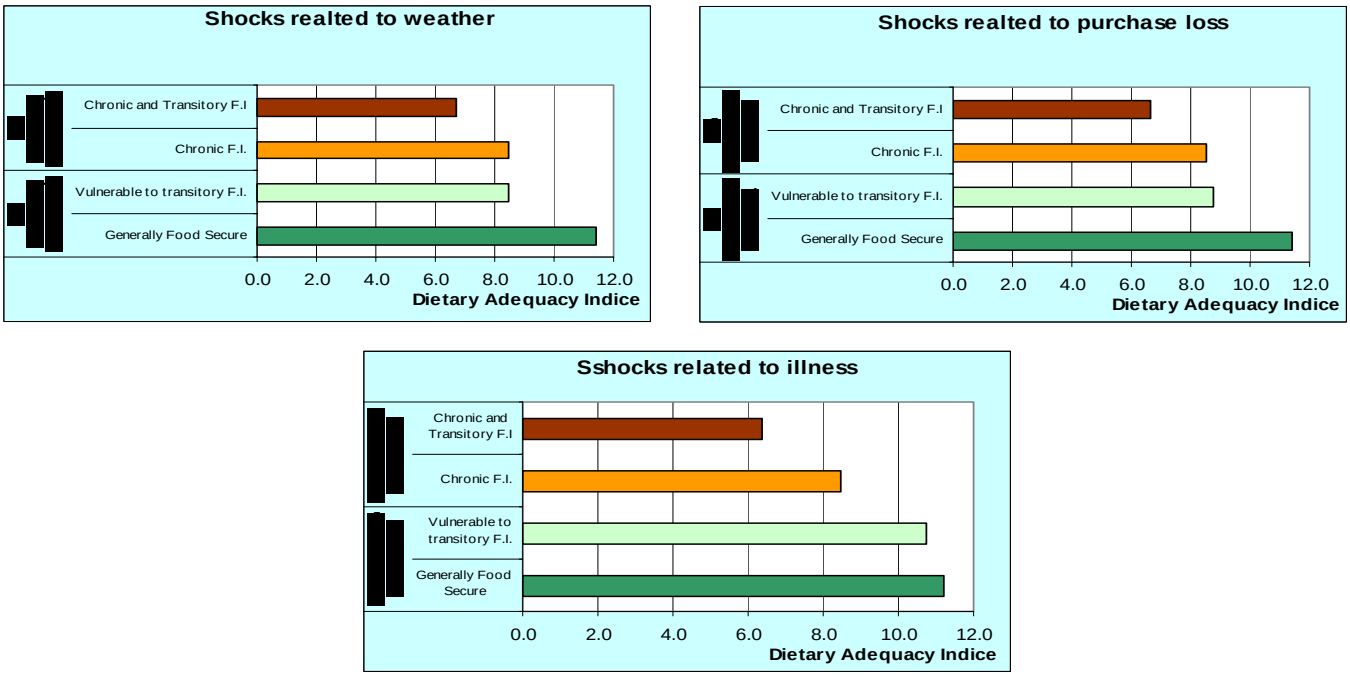
Figure 63 Dietary adequacy related to different types of shocks



8.3.2 Relationship between dietary adequacy and access to markets

For the purposes of this analysis a proxy of source of food consumed by the household in the previous seven days was used to indicate access to markets.

Table 13 Difference of dietary adequacy among groups

Main source of cassava or maize for previous 7 days were purchases (N=6,448)	Dietary Adequacy (24 hrs)**
No	10.49
Yes	10.14
Total	10.40

** No significant difference (p>0.05)

Households were classified in terms of their intake of either cassava or maize procured through purchases. Although the analysis was carried out with this proxy, Table 13 shows that there is no difference in dietary adequacy among groups that had the main source of these staples either from purchases or from other sources. It might mean that the proxy available did not convey accurate information on markets.

8.3.3 Relationship between dietary adequacy and food and non-food assistance

Governmental and non-governmental assistance is also likely to have an impact on the dietary adequacy of households. Although the relationships were expected, it is necessary to mention that the time frame for receipt of assistance used in the questionnaire was 12 months. Given that the dietary adequacy focuses on either seven days or 24 hours, the impact of the assistance may be masked by the time difference.

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Table 14 Household access to community-based programmes

Access to Community-Based Safety Nets (N=6,764)	Presence of Safety Net during previous 12 mo	Dietary Adequancy (24hrs)	% Difference bewteen HHs with indicator as compared to HHs without Indicator	Sig of Difference
Any member received Remittances	no	10.1		
	yes	11.0	8.12	< 0.01
Any member received food from friends or relatives	no	10.3		
	yes	9.3	-10.88	< 0.01
Any member has savings that could be used in emergencies	no	9.1		
	yes	11.7	22.11	< 0.01
Total Average		10.1		

The assistance related to community level safety nets showed a significant difference in the diet of households that can access these safety nets. It is interesting to note that there was a 22% increase on the mean dietary adequacy for households that reported having savings that could be used for emergencies. Furthermore, households that received remittances showed an 8% higher dietary adequacy. Although households that have support from families and relatives should see a temporary improvement in their dietary status, the fact that these households are the poorest may be the reason for their relatively lower dietary adequacy. Furthermore, the time frame of such assistance (i.e. 12 months) may result on not having an impact on the current diet.

Table 15 Household access to credit

Access to Credit by Use (N=6,764)	Access to credit during previous 12 mo	Dietary Adequancy (24hrs)	% Difference bewteen HHs with indicator as compared to HHs without Indicator	Sig of Difference
HH accessed credit to purchase food	no	10.1		
	yes	10.8	6.38	0.212
HH accessed credit to productive aims (animals or agricultural inputs, land,	no	10.1		
	yes	10.9	6.76	0.195
Total Average		10.1		

The relationship between access to credit and dietary intake showed small rates of improvement on the latter of about 6%. Although these differences are not significant, this might be due to the small number of households that managed to have access to credit (2.1% of households received credit to purchase food, and a further 2.0% accessed credit to purchase productive inputs).

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Table 16 Household access to governmental and non-governmental assistance

Access to Governmental and Non-Governmental Assistance by Type (N=6,764)	Presence of Assistance during previous 12 mo	Dietary Adequancy (24hrs)	% Difference bewteen HHs with indicator as compared to HHs without Indicator	Sig of Difference
HH received any type of food assistance (general, subsidio governo)	no	10.2		
	yes	8.5	-19.79	<0.01
HH received any type of agricultural assistance (materials, inputs, animals,	no	10.1		
	yes	11.4	11.51	0.09
HH received any type of cash assistance (NGOs, Gov, employment from NGO, poverty	no	10.1		
	yes	15.9	36.61	<0.01
HH received any type of child assistance (OVC, student,)	no	10.2		
	yes	6.7	-52.37	0.02
HH received any type of sickness related assistance (chronic illness, maternal and	no	10.2		
	yes	10.1	-0.88	0.997
HH received any type of other assistance (clothes, mosquito nets, capacity building)	no	10.2		
	yes	8.7	-16.87	0.159
Total Average		10.1		

The analysis of household access to governmental and non-governmental assistance reveals the existence of a strong relationship between the presence of such assistance and household dietary adequacy. Households receiving these types of assistance showed lower dietary adequacy rates compared to households that did not receive it. The main reason for this discrepancy may be that the most vulnerable households were targeted for assistance. Although food aid is likely to have improved the diet of beneficiaries while stocks lasted, the 12 month time frame of the assistance may mask dietary improvements. Furthermore, the very scattered and unstable nature of food aid delivery in Mozambique during the previous 12 months may also decrease longer term improvement on livelihoods and diets.

On the other hand, households receiving cash assistance showed 36% higher dietary adequacy than households that did not receive such assistance. Although this may lead one to conclude that cash assistance is more sustainable in creating longer term benefits, this must be further researched. While 1.1% of the households identified as not chronically vulnerable to lack of food access received cash assistance, less than 0.2% of the households identified as chronically vulnerable received the same assistance. It is difficult to conclude whether targeting was inappropriate or cash assistance had the power to move households from being chronically vulnerable to being generally food secure.

Households receiving agricultural assistance also presented a 11.5% higher mean dietary adequacy. The same issue with cash assistance was seen with this assistance, where about 3.6% of the chronically food secure households received this assistance, versus less than 0.6% of the chronically food insecure.

To summarize, it seems that access to assistance does positively impact dietary adequacy of beneficiary households. However, more research should be done to better correlate diet quality of beneficiaries pre-assistance and post assistance.

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8.4 Dietary adequacy by livelihood group

Table 17 Dietary adequacy among livelihood groups

HH is part of better livelihood type	Dietary Adequacy (7 days)	Difference between indices (yes – no)	Sig of Difference
No	10.7	34.1	**
Yes	7.0		
Total	10.1		

** Difference is significant atp<0.01 (i.e. 99% sure that difference is valid)

Despite the heterogeneity of livelihood groups in terms of vulnerability, livelihood Groups 1 and 9 tend to have the higher number of vulnerable households. This trend is further confirmed by the comparison of dietary adequacy among households belonging to such groups against households belonging to other groups: a significant positive difference is observed, households being part of any of the other livelihood groups, showed a 34.1% higher dietary adequacy.

8.5 The composite link between dietary adequacy and process indicators

In order to isolate factors and to identify the most important indicators, models of linear regressions were carried out to quantify the importance of each process indicator. Here we focus only on the most powerful model.

The best model is displayed in Table 18**.** Although the R^2 is relatively low (i.e. only explains 13% of the variability of dietary adequacy), it is necessary to highlight that no market functionality and dietary preferences were entered in the model due to the lack of available indicators. Therefore, the food intake in this model only includes indicators on household access to food and assistance. Standard indicators of demographic characteristics of the head (which were not entered in the calculation of capitals) were also included.

From this model, it is possible to note that the five most important indicators that explain dietary intake are (in order of importance):

1. Livelihood Capacities (8.51)
2. Vulnerability to Loss of Livelihoods (-5.57)
3. Receipt of cash assistance (4.84)
4. Presence of savings (1.95)
5. Household being in most vulnerable livelihood groups (-1.95)

Although shocks showed a lower impact on dietary intake (varying from 0.64 to 0.21), it is necessary to highlight the low occurrence of shocks during 2006.

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Table 18 Determinants of dietary adequacy

Model	Variables	R square	Constant	Unstanardized Coefficient	Significance
14	Sum of Avg of 5 capitals clean 5%	0.13	13.23	8 51	0.000
	Vulnerability Loss Livelihood			-5 57	0.000
	Shocks hat affect agriculture (wheather, pests, erosion)			-0.64	0.000
	Shocks hat affect illness			-0 21	0.008
	Shocks hat affect access (prices and labor)			-0 36	0.003
	Any member received food (last 12 months)			-1 37	0.000
	Any member has savings hat can be used in emergency			1 93	0.000
	HH received any type of cash assistance (NGOs, Gov, employment from NGO, poverty certificate			4.84	0.000
	HH purchased either cassava or maize			-0.58	0.002
	HH is part of worse livelihoods (i e. 1 or 9)			-1.95	0.000
	Head is Women			-0.58	0.001
	Head is 60 or older			-0.68	0.007

In other words, dietary adequacy, considered in this study as an interesting food security proxy, is positively correlated with livelihood capacities (based on the 5 livelihood capitals) and negatively correlated to loss of livelihoods.

It's important also to underline how dietary adequacy correlated with level and type of assistance received. In particular, assistance received as cash rather than as food aid seems to have a stronger role in improving dietary adequacy. Having said that, more should be done to better understand this positive correlation and properly use the dietary adequacy proxy for an impact study.

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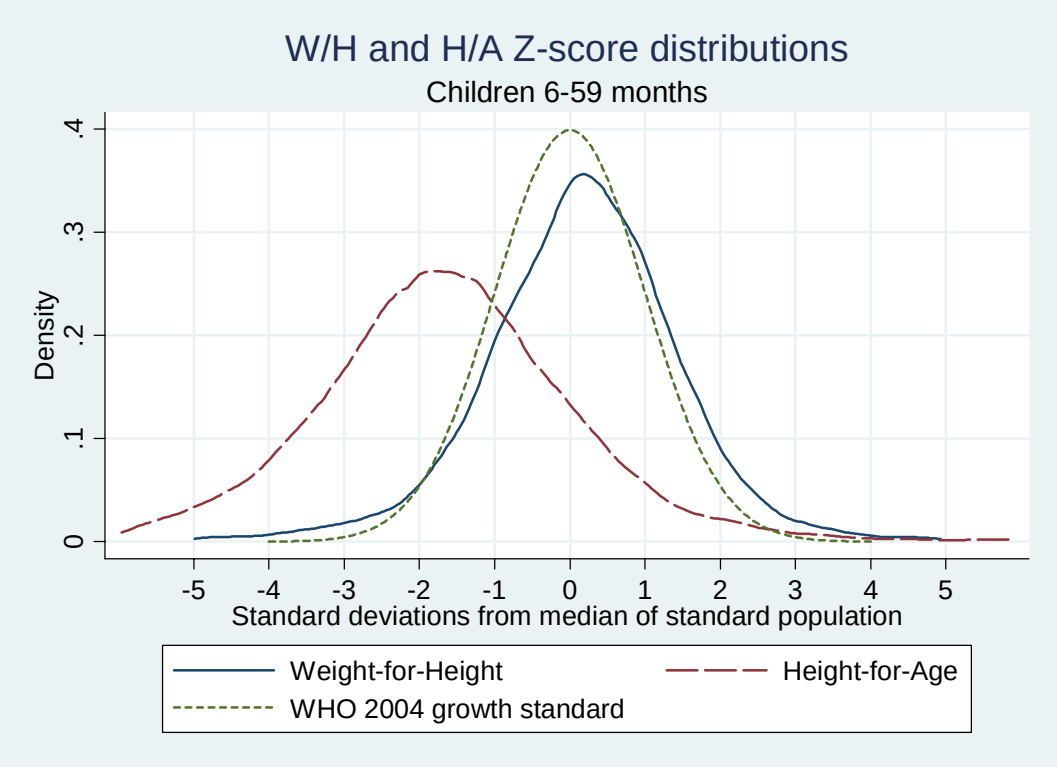
9. Health and Nutrition

This section analyses the health and nutritional information collected through the survey including an analysis of nutritional data for children and their mothers and analysis of health data, which is followed by special analysis of HIV/AIDS and its implications on food security and nutrition. Finally, this section concludes with an analysis of determinants of malnutrition.

9.1 Nutritional status of children

Figure 64 Distribution of Weight-for-height (W/H) and height-for-age (H/A) z-score compared to the WHO 2004 growth standards



kernel density graph

Figure 64 presents the weight-for-height (W/H) and height-for-age (H/A) distribution curves of the studied population, in comparison with the international standard. The graph shows that the W/H distribution is close in both space and shape to the reference population but with a slight deviation to the right, indicating that the study population as a whole is actually slightly better off than the standard population in terms of W/H. The unadjusted mean of the W/H z-scores (whz) is +0.16, with a standard deviation of 1.29. The H/A distribution, however, is displaced towards the left and flatter than the reference curve. The unadjusted mean of the H/A z-scores (haz) is –1.63, with a standard deviation of 1.67. A detailed discussion by indicator follows.

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9.1.1 Wasting

Information on weight and/or height was missing only for 0.2% of the children. Likewise, only 1.5% of the wasting results were flagged which suggests that, while the height measurements were not as precise as desirable, there were few large errors in recording weight or height. The presence of oedema in the child was taken as an indication of acute and severe malnutrition whatever the W/H value. However, this criterion was not applied in the case of Inhambane and Zambezia as these two provinces reported unlikely high numbers of oedema cases, probably due to misdiagnosis.

The prevalence of wasting in children 6-59 months is 4.5% overall and 1.6% in the case of severe wasting. This classifies the target population as having an acceptable level of wasting. However, the statistics by age group show that children 6-11 months suffer from serious levels of wasting (10.7%) and those 12-23 months have poor levels (5.2%). In comparison, the Demographic Health Survey 2003 (DHS 2003) found 4.3% of under-five rural children with wasting, with a general (i.e. urban and rural) prevalence of 3.3% in children 6-9 months, 7.4% in children 10-11 months, and 7.3% in children 12-23 months. This makes for an approximate mean of 5.4% for the 6-11 month age group, about half of what was estimated in the current survey, however, different reference populations were used.

Tete and Cabo Delgado provinces show the highest levels of wasting (8.3% and 8.2% respectively) but their mean z-scores are well within normal which suggests that the bulk of the child population is not significantly affected. All other provinces except Zambezia (5.2%) are below 5%. In the DHS 2003, two provinces had prevalence of wasting in under-five above 5%, Gaza (6.7%) and Nampula (6.0%). It is also worthy of note that the prevalence of wasting in Nampula Province passes 5.4% when the data from the second round of interviews are taken into consideration, and the sample size for that provinces passes from 286 to 419 children.

For purpose of comparison the same statistics have been estimated using the old CDC/WHO 1997 growth reference curves. The new standard gives slightly higher wasting prevalence levels in this case (4.5% as compared to 4.0%). The major differences are seen in the younger age group, 6-11 months, where the new standard gives a prevalence of 10.7% and the old reference a prevalence of 7.0%. This is understandable once we realise that the new standard has been measured on children growing up under favorable conditions (breastfeeding, good hygiene, non-smoking mothers, etc.) over five continents, while the old reference was based on general United States child population data during a period when breastfeeding was not as recommended as it is today.

The prevalence of wasting for various vulnerability groups related to orphans, children living away from their parents, incidence of illnesses during the two week period preceding the survey, breastfeeding status, vitamin A supplementation status, and retention of health card was also calculated. While the prevalence figures between those who were not sick in the previous two weeks and those who had diarrhoea do not differ significantly from each other (5.9% versus 3.7% respectively), the z-score values (-0.18 versus 0.20 respectively) do present a difference that is statistically significant, supporting the already well established association between diarrhoeal diseases and wasting, as was found, for example, in the GAV 2003.

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Table 19 Percentage of children moderately and severely wasted (low whz) and mean z-score (WHO 2004 standard)				
Children 6-59m de[1] ≈ 1.8 srr: 98%, orr: 69%	**n**	**Wasting (low whz), WHO 2004 standard**		
		Moderate+severe (whz < -2SD[2]) [95% CI[2]]	**Severe (whz < -3SD) [95% CI]**	**Mean z-score [95% CI]**
Overall	4514	**4.5%** [3.7 - 5.4]	**1.6%** [1.2 - 2.2]	**0.13** [0.06 to 0.19]
06-11 months	446	**10.7%** [7.2 - 15.7]	**3.1%** [1.2 - 7.9]	**-0.35** [-0.56 to -0.13]
12-23 months	1030	**5.2%** [3.7 - 7.3]	**2.0%** [1.2 - 3.2]	**-0.03** [-0.16 to 0.09]
24-35 months	968	**3.7%** [2.4 - 5.6]	**1.7%** [0.9 - 3.2]	**0.19** [0.07 to 0.3]
36-47 months	978	**3.1%** [2.0 - 4.7]	**1.2%** [0.6 - 2.4]	**0.36** [0.25 to 0.46]
48-59 months	1091	**3.2%** [1.9 - 5.1]	**1.0%** [0.5 - 2.4]	**0.23** [0.1 to 0.36]
Niassa	220	**2.5%** [0.7 - 8.6]	**2.3%** [0.6 - 9.0]	**0.26** [0.08 to 0.43]
Cabo Delgado	466	**8.2%** [5.8 - 11.6]	**2.9%** [1.6 - 5.2]	**-0.11** [-0.29 to 0.08]
Nampula	286	**2.6%** [1.3 - 5.3]	**0.7%** [0.2 - 2.5]	**0.15** [-0.01 to 0.3]
Zambézia	639	**5.2%** [3.6 - 7.3]	**2.4%** [1.4 - 4.3]	**0.00** [-0.16 to 0.15]
Tete	552	**8.3%** [4.9 - 13.7]	**2.2%** [0.8 - 5.6]	**0.05** [-0.17 to 0.27]
Manica	1005	**3.2%** [2.2 - 4.6]	**1.0%** [0.6 - 1.7]	**0.22** [0.11 to 0.33]
Sofala	317	**4.8%** [3.2 - 7.1]	**2.2%** [1.1 - 4.4]	**-0.04** [-0.17 to 0.08]
Inhambane	416	**3.9%** [2.0 - 7.6]	**0.9%** [0.3 - 2.7]	**0.47** [0.3 to 0.62]
Gaza	332	**1.9%** [0.8 - 4.5]	**0.1%** [0.0 - 0.6]	**0.35** [0.19 to 0.49]
Maputo province	281	**1.6%** [0.6 - 4.1]	**0.4%** [0.1 - 2.5]	**0.58** [0.43 to 0.72]

[1]de = design effect, srr = specific response rate (among surveyed households), orr = overall response rate (among selected households). Design effect and response rates are in relation to the topmost and leftmost cell of data.
[2]SD = standard deviation; CI = confidence interval.

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9.1.2 Stunting

Information on height and/or age was missing only for 0.2% of the children. Overall 2.6% of the stunting results were flagged and were removed from the analysis as they suggested large errors in recording age or height.

The prevalence of stunting in children 6-59 months is 46.2% overall and 24.0% in the case of severe stunting. This classifies the target population as having a very high level of stunting. In comparison, the DHS 2003 found 45.7% of under-five rural children with stunting, with a general (i.e. urban and rural) prevalence of 26.2% in children 6-9 months, 33.6% in the 10-11 months and 47.9% in the 12-23 months.

The statistics by age group show that stunting is lower in children 6-11 months but is already established at high levels right from the second year of life and remains so afterward. Nampula Province shows the highest prevalence at 63.1%. Gaza and Inhambane are the only provinces below 40% (30.6% and 31.7% respectively). Z-scores are generally in agreement with the prevalence figures. In the DHS 2003, Cabo Delgado Province had the highest level of stunting in under-fives (55.6%).

For purpose of comparison the same statistics presented in Table 20 have been estimated using the old CDC/WHO 1997 growth reference curves. As in the case of wasting, the new standard gives slightly higher stunting prevalence levels (46.2% as compared to 41.5%). However, in this case the higher prevalence values are seen across all age groups.

The prevalence of stunting for various groups related to orphans, children living away from their parents, incidence of illnesses during the two week period preceding the survey, breastfeeding status, vitamin A supplementation status, and retention of health card was also calculated. Of note is the higher prevalence of stunting in children who recently had diarrhoea (52.6%) than in those who were not sick during the two weeks preceding the survey (44.9%). The difference between those with and without diarrhoea is borderline significant (p=0.04). Obviously, an acute episode of diarrhoea does not provoke stunting per se, but stunted children could be more susceptible to diarrhoea, and certainly children with repeated episodes of diarrhoea and other illnesses can have their growth process negatively affected.

Lastly, children who did not receive vitamin A supplementation during the six months preceding the survey have significantly higher levels of stunting (50.9%) than those who did (38.8%). While vitamin A is not known to directly combat malnutrition, its protective effect against a number of infectious diseases might well result in better nutrition levels in children benefiting from this form of supplementation.

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Table 20 Percentage of children moderately and severely stunted (low haz) and mean z-score (WHO 2004 standard)				
Children 6-59m de[1] ≈ 3.3 srr: 97%, orr: 68%	**n**	**Stunting (low haz), WHO 2004 standard**		
		Moderate+severe (haz < -2SD[2]) [95% CI[2]]	**Severe (haz < -3SD) [95% CI]**	**Mean z-score [95% CI]**
Overall	4466	**46.2%** [43.4 - 49.1]	**24.0%** [21.3 - 27.0]	**-1.84** [-1.95 to -1.73]
06-11 months	445	**30.1%** [23.8 - 37.2]	**13.6%** [9.3 - 19.3]	**-1.32** [-1.54 to -1.09]
12-23 months	1020	**47.2%** [42.4 - 52.0]	**23.9%** [19.0 - 29.5]	**-1.75** [-1.89 to -1.59]
24-35 months	953	**50.3%** [45.4 - 55.2]	**26.4%** [21.7 - 31.6]	**-1.93** [-2.1 to -1.74]
36-47 months	966	**50.5%** [45.4 - 55.7]	**28.4%** [23.5 - 33.7]	**-2.05** [-2.24 to -1.85]
48-59 months	1082	**44.3%** [38.9 - 49.9]	**22.4%** [17.1 - 28.7]	**-1.90** [-2.09 to -1.7]
Niassa	214	**46.7%** [33.2 - 60.7]	**26.4%** [18.4 - 36.3]	**-1.94** [-2.41 to -1.45]
Cabo Delgado	461	**43.6%** [38.0 - 49.3]	**20.4%** [15.6 - 26.3]	**-1.76** [-1.99 to -1.53]
Nampula	282	**63.1%** [53.5 - 71.7]	**38.6%** [28.3 - 50.0]	**-2.52** [-2.87 to -2.16]
Zambézia	629	**43.6%** [37.9 - 49.4]	**23.6%** [18.6 - 29.4]	**-1.76** [-1.99 to -1.52]
Tete	538	**50.5%** [41.8 - 59.1]	**25.3%** [19.3 - 32.4]	**-1.93** [-2.27 to -1.59]
Manica	996	**41.8%** [35.8 - 48.2]	**18.7%** [15.8 - 22.1]	**-1.58** [-1.78 to -1.38]
Sofala	316	**43.1%** [34.1 - 52.5]	**18.1%** [12.0 - 26.2]	**-1.66** [-1.99 to -1.33]
Inhambane	416	**31.7%** [26.2 - 37.8]	**12.7%** [9.2 - 17.3]	**-1.30** [-1.5 to -1.08]
Gaza	331	**30.6%** [24.7 - 37.2]	**11.3%** [7.5 - 16.8]	**-1.31** [-1.5 to -1.12]
Maputo province	283	**42.6%** [33.4 - 52.3]	**17.6%** [10.0 - 29.2]	**-1.54** [-1.91 to -1.16]

[1]de = design effect, srr = specific response rate (among surveyed households), orr = overall response rate (among selected households). Design effect and response rates are in relation to the topmost and leftmost cell of data.
[2]SD = standard deviation; CI = confidence interval.

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9.1.3 Underweight

Information on weight and/or height was missing only for 0.1% of the children. Likewise, only 0.3% of the underweight results were flagged which suggests that, while the age measurements were not as precise as desirable, there were few large errors in recording weight or age.

The presence of oedema in the child was taken as an indication of severe underweight whatever the W/A value. However, this criterion was not applied in the case of Inhambane and Zambezia as these two provinces reported unlikely high numbers of oedema cases, probably due to misdiagnosis, as previously seen.

The prevalence of underweight in children 6-59 months is 20.5% overall and 6.7% in the case of severe underweight, as presented in Table 21. This classifies the target population as having a high level of underweight. In comparison, the DHS 2003 found 27.1% of under-five rural children with underweight, with a general (i.e. urban and rural) prevalence of 19.7% in children 6-9 month, 36.9% in the 10-11 month, and 34.5% in the 12-23 month.

In terms of geographical distribution, Nampula has the highest prevalence (31.1%) and is the only province in the 'very' high range of underweight. However, caution must be taken in interpreting this result as the confidence interval is wide, partly the result of the small sample size. In the DHS 2003, Cabo Delgado Province had the highest prevalence of underweight at 34.2%. Maputo (8.2%) and Inhambane (8.3%) provinces presented the lowest prevalence figures, being the only two provinces with their point estimate in the 'normal' range of underweight. Gaza also has a relatively low prevalence of 11.2%.

For purpose of comparison the same statistics presented in Table 21 have been estimated using the old CDC/WHO 1997 growth reference curves. As in the previous cases, the new standard gives higher underweight prevalence levels (25.5% as compared to 20.5%), affecting infants less than the higher age groups.

The prevalence of underweight for various groups such as orphans, children living away from their parents, incidence of illnesses during the two week period preceding the survey, breastfeeding status, vitamin A supplementation status, and retention of health card was calculated. Diarrhoeal diseases once again show a significant effect, with 28.2% underweight in children who recently had diarrhoea and 18.0% in those who were not sick. Likewise, breastfeeding children continue to show higher prevalence figures (22.5% vs 16.0%), significantly so if z-scores are taken into consideration. This is now consistent for the three malnutrition indices. Children who did not receive vitamin A supplementation during the six months preceding the survey also show significantly higher levels of underweight (23.5%) than those who did (15.3%), as was the case for stunting.

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Table 21 Percentage of children moderately and severely underweight (low waz) and mean z-score (WHO 2004 standard)				
Children 6-59m de[1] ≈ 4.1 srr: 100%, orr: 70%	**N**	**Underweight (low waz), WHO 2004 standard**		
		Moderate+severe (waz < -2SD[2]) [95% CI[2]]	**Severe (waz < -3SD) [95% CI]**	**Mean z-score [95% CI]**
Overall	4568	**20.5%** [17.9 - 23.4]	**6.7%** [5.3 - 8.5]	**-0.99** [-1.07 to -0.9]
06-11 months	454	**22.2%** [16.4 - 29.3]	**7.8%** [4.4 - 13.7]	**-1.05** [-1.23 to -0.85]
12-23 months	1043	**21.4%** [17.7 - 25.7]	**6.3%** [4.4 - 8.9]	**-0.93** [-1.04 to -0.82]
24-35 months	980	**20.5%** [16.6 - 25.0]	**6.4%** [4.4 - 9.2]	**-0.91** [-1.04 to -0.77]
36-47 months	990	**20.3%** [15.6 - 26.0]	**6.6%** [4.0 - 10.8]	**-1.02** [-1.15 to -0.88]
48-59 months	1101	**19.0%** [13.1 - 26.8]	**7.1%** [3.6 - 13.5]	**-1.08** [-1.28 to -0.87]
Niassa	225	**19.1%** [11.2 - 30.5]	**8.8%** [5.0 - 14.8]	**-0.95** [-1.24 to -0.66]
Cabo Delgado	474	**23.7%** [19.1 - 29.1]	**7.7%** [5.1 - 11.4]	**-1.11** [-1.29 to -0.92]
Nampula	290	**31.1%** [21.7 - 42.3]	**12.4%** [7.4 - 20.2]	**-1.42** [-1.68 to -1.15]
Zambézia	641	**22.6%** [17.3 - 28.9]	**6.7%** [3.9 - 11.1]	**-1.02** [-1.22 to -0.8]
Tete	561	**17.4%** [12.7 - 23.4]	**5.9%** [3.5 - 9.8]	**-1.11** [-1.28 to -0.93]
Manica	1009	**15.8%** [12.9 - 19.2]	**4.2%** [3.0 - 5.9]	**-0.77** [-0.87 to -0.66]
Sofala	328	**17.2%** [12.4 - 23.2]	**3.3%** [1.5 - 7.2]	**-0.97** [-1.19 to -0.73]
Inhambane	420	**8.3%** [5.8 - 11.6]	**2.4%** [1.3 - 4.7]	**-0.43** [-0.55 to -0.3]
Gaza	335	**11.2%** [7.1 - 17.4]	**1.3%** [0.4 - 4.3]	**-0.48** [-0.65 to -0.3]
Maputo province	285	**8.2%** [5.5 - 12.1]	**3.1%** [1.5 - 6.3]	**-0.54** [-0.72 to -0.36]

[1]de = design effect, srr = specific response rate (among surveyed households), orr = overall response rate (among selected households). Design effect and response rates are in relation to the topmost and leftmost cell of data.
[2]SD = standard deviation; CI = confidence interval.

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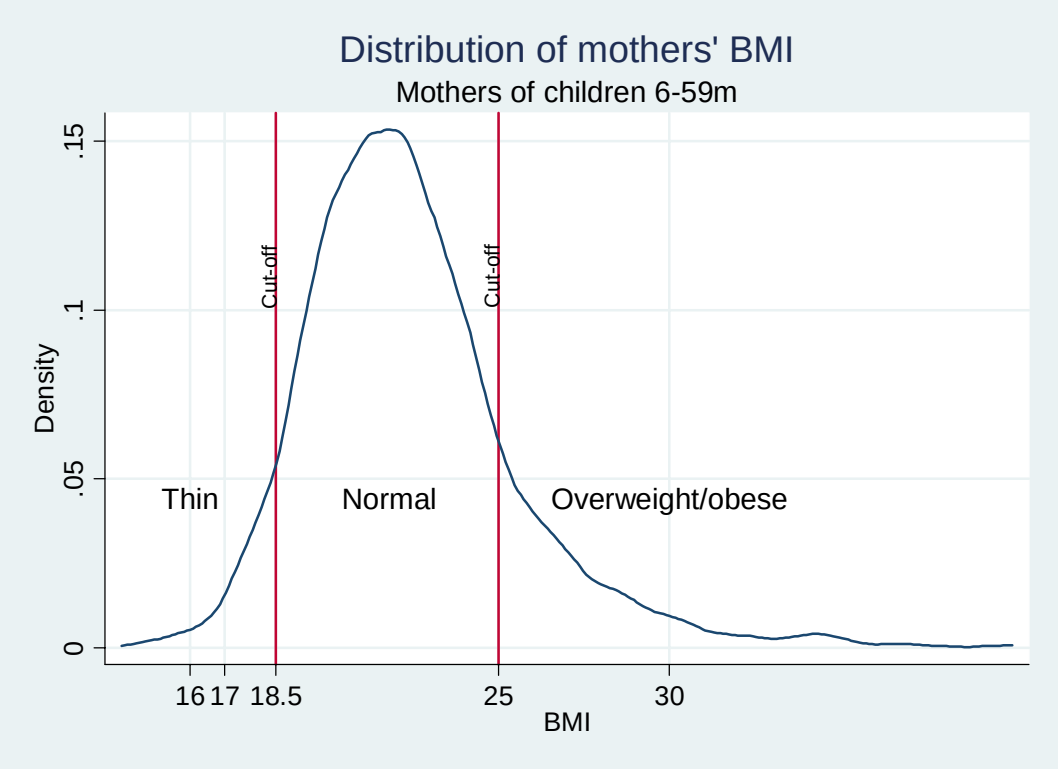
9.2 Nutritional status of mothers

The mothers of under-five children were weighed and measured, allowing us to calculate the Body Mass Index (BMI), a measure of their nutritional status. BMI is defined as the weight in kilograms divided by the square of the height in meters. The distribution is shown in Figure 65 together with the usual cut-off points.

Figure 65 Distribution of the Body Mass Index (BMI) of mothers of children 6-59m.



Kernel density graph.

The mean BMI is 22.3, comparable to the 21.4 of the DHS 2003 for rural women. The distribution between 'thin' (6.2%), 'normal' (79.9%), and 'overweight/obese' (13.9%) mothers suggests less thinness and more overweight than the DHS results for rural women (10.0%, 81.9%, and 8.1% respectively). That could possibly relate to the relatively good agricultural season of the current year.

Mothers 40 years old and more appear to be more thin (12.7%) than the younger ones. The two provinces with the highest prevalence of thinness are Cabo Delgado (10.4%) and Tete (10.3%). The four provinces with the lowest prevalence are Inhambane (1.5%), Gaza (1.7%), Niassa (2.1%), and Maputo provinces (2.2%). On the other hand, overweight/obesity appears to affect predominantly Gaza (55.5%) and Maputo provinces (40.6%). These results vary markedly with those of the DHS which show only 12.8% overweight/obesity in Gaza and should be interpreted with caution due to the difficulties some teams experienced with the measuring equipment. Niassa Province has the highest proportion of mothers with normal BMI (88.1%). This was also the case for the DHS 2003 (85.2%).

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9.3 Breastfeeding

Overall, 34.7% of children 6-59 months are currently breastfeeding according to the statement of the interviewed mothers. The breastfeeding prevalence is 92.9% in children 6-11 months and 78.3% in children 12-23 months, with a sharp decrease afterwards, as expected. This is consistent with the DHS 2003 results that show a median breastfeeding time of 22.9 months in rural areas. The differences between the provinces are relatively small.

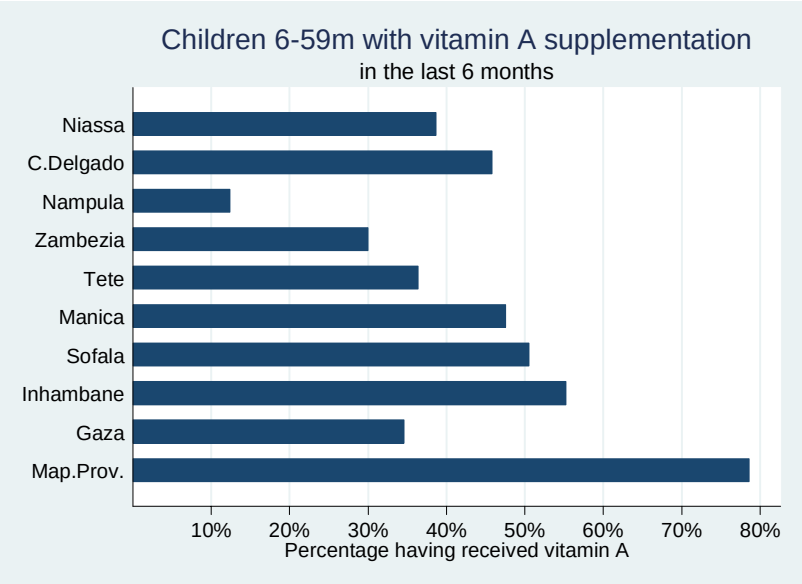
9.4 Health care

A few aspects of health care were addressed in the survey, including vitamin A supplementation and the possession of a health card.

9.4.1 Vitamin A supplementation

Children 6 to 59 months are being targeted for the administration of a dose of vitamin A every six months. This public health programme is still weak in Mozambique, with only 35.2% of children 6-59 months having received a dose of vitamin A during the six months preceding the survey in the study population.

Figure 66 Children 6-59m having received vitamin A supplementation in the last six months



While national campaigns have been implemented in the past (e.g. September 2005) and are useful, a strong on-going routine programme is the only way to ensure constant high levels of coverage.

The programme is somewhat more efficient in reaching children below two years of age but even then does not reach the 50% mark. Maputo Province is the most successful with 78.6% coverage, followed by Inhambane (55.2%) and Sofala (50.5%). Coverage appears to be very low in Nampula (12.4%).

In terms of comparison, the DHS 2003 shows a 43.4% vitamin A supplementation coverage for children 6-59 months in rural areas (49.5% at national level), with an overall (i.e. urban and rural) coverage of 77% for Maputo Province and 46.7% for Nampula Province. One should remember when comparing the results of this survey with others, that the current sample, as mentioned in the methodology section of this report, covers only rural and semi-urban areas (the provincial capitals were not included in the sampling).

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9.4.2 Health card

The possession of a health card is one of the measures of access to health services. Overall, 70.1% of the children 6-59 months possessed a health card at the time of the survey, with higher retention rates in children below three years of age. Maputo Province has the highest retention rate (92.6%), followed by Inhambane (90.1%). Zambézia (59.8%), and Nampula (62.0%). In terms of comparison, the DHS 2003 gives a card retention rate of 74.5% for the rural areas, with 90.7% for Maputo Province, 51.6% for Zambézia Province, and 81.4% for Nampula Province.

9.4.3 Common child illnesses

The common child illnesses that were investigated included fever, diarrhoeal diseases, and acute respiratory infections.

Fever

Overall, 31.3% of children 6-59 months had fever during the two weeks preceding the survey. Younger children had, as expected, a higher prevalence than older children. There is a large variation between the provinces, from 15.2% in Manica to 44.6% in Gaza. These variations should however be interpreted taking into consideration the fact that outbreaks of fever-producing illnesses are frequent and vary over time.

Diarrhoeal diseases

The period prevalence of diarrhoea was also estimated. Overall, 15.0% of children 6-59 months suffered from diarrhoea during the two weeks preceding the survey. As expected, the prevalence was higher in younger children (23.4% in 6-11 months) then in older ones (8.8% in 48-59 months).

The provinces with the highest prevalence rates were Gaza (23.7%) and Sofala (22.1%). The one with the lowest prevalence was Manica (6.4%). In terms of comparison, the DHS 2003 found a national period prevalence of 13.4% for the rural areas. Once again, it is necessary to interpret these results with caution since diarrhoeal diseases tend to come in the form of outbreaks and prevalence can be expected to vary largely over time and space.

Acute respiratory infections

One of the questions asked to the parents was if the child had had cough or accelerated/short breathing during the two weeks preceding the survey. A positive answer was considered indicative of an acute respiratory infection episode (ARI).

Overall 23.6% of the children 6-59 months reported having an acute respiratory infection during the two weeks preceding the survey. Girls had a somewhat higher prevalence of ARI than boys (26.3% vs 20.8%, p=0.006). The highest prevalence was found in Gaza Province (62.5%) and the lowest in Cabo Delgado Province (9.7%). Once again, it is necessary to interpret these results with caution since ARIs tend to come in the form of outbreaks and prevalence can be expected to vary largely over time and space.

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For the purpose of comparison, the DHS 2003 found a prevalence of 8.8% of ARI in rural areas, the overall (i.e. urban and rural) prevalence varying from as low as 4.7% in Tete Province up to 26.1% in Maputo city.

9.4.5. Use of health services when sick

Overall, 55.6% of the children that were sick during the two weeks preceding the survey were said to have been taken to the hospital or health clinic. Small children below one year of age, as expected, were given more attention as 78.5% of those who were sick were taken to a hospital. It appears that fever, diarrhoea, and cough received approximately the same level of attention from the parents. Traditional practitioners were said to have been consulted 9.9% of the time, and self medication only was said to have been used in 9.0% of the cases. Overall 23.6% said that they did nothing when the child was sick, but this reduces to 5.9% for children 6-11 months of age. Use of health services according to provinces range from 44.9% (Zambézia) to 71.4% (Inhambane) but this would be best considered with respect to distance from health services rather than provinces as a whole. Nampula Province has a noticeably high proportion of 'Did nothing' (40.9%).

9.4.4 Mortality rates

The number of reported deaths over the six-month period preceding the survey was recorded, together with their age (at death), sex, and if they had been sick for three months or more before death. Inspection of the data on the distribution of household members in Manica Province indicates that they are unreliable and were removed from the analysis.

The annual crude mortality is estimated at 32.7/1000 inhabitants. This is similar to a previous estimate of 30.6 from the 2003 GAV, while the crude mortality rate reported on the basis of the 1997 Census is 21.2. In our study, Gaza shows the highest rate at 78.2, followed by Sofala at 43.7. The wide confidence interval for the Gaza estimates should lead to caution in the interpretation of this result. According to the results of the 2003 GAV, Sofala had the highest rate at 51.3 and Gaza had a rate of 28.4. One should also remember that the 2003 GAV was not national but focused on vulnerable populations.

Under-five mortality is estimated at 60.3/1000. It decreases sharply to 6.2 for the 5-19 year age group, then rises again rapidly to 45.8 for the 20-39 year age group. The 40-59 year age group presents a rate of 24.6, lower than the previous group. Finally, the older age group shows, as expected, a higher rate of 86.2. The DHS 2003 found an under-five mortality rate of 135/1000 in the rural areas (for the 10 years preceding the survey) which is more than twice the one arrived at in this study. This suggests that a significant number of deaths, especially infant deaths, were not captured during our study. Regardless of the difficulties in interpreting the mortality results, the higher rate found in the 20-39 year age group in relation to the 40-59 year group, the opposite of what would be expected in a world not affected by HIV/AIDS, may well be attributed to the impact of the pandemic on the young adult population.

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9.5 HIV and AIDS

This section covers two main aspects of AIDS in Mozambique. The first relates to the status of the epidemic in specific areas of the country, treatment, and assistance given to date. The second section will analyse the relationship between the potential impacts of AIDS and the status of food security of households.

9.5.1. The status of the epidemic

The major source of information for HIV/AIDS rates in Mozambique comes from sentinel sites testing pregnant women. According to the DHS 2003, about 85% of all Mozambicans visited pre-natal care during the last pregnancy. This suggests good coverage of pregnant women. However, the number of sentinel sites and the frequency of information analysis are not sufficient to allow accurate and up-to-date information. The last report on *"HIV/AIDS impact on demography"* was issued in 2004, reporting on the 2002 epidemiological year.

Table 22 HIV Seroprevalence

Province	Prevalence Rate 2000	Prevalence Rate 2002
Maputo	14.0%	17.40%
Gaza	16.0%	16.40%
Inhambane	10.0%	8.60%
Sofala	19.0%	26.50%
Manica	21.0%	19.00%
Tete	20.0%	14.20%
Zambezia	13.0%	12.50%
Nampula	6.0%	8.10%
Niassa	5.0%	11.10%
Cabo Delgado	7.0%	7.50%

MISAU – Demographic Impact of HIV/AIDS on Mozambique

The data refers to 36 sites covering 36 out of 144 districts in Mozambique. For the 108 districts where no sentinel sites were present, extrapolation for all people from 15 to 49 years old was based on the prevalence rates of the most similar district that had a sentinel site. Extrapolated rates were weighted against district population and a provincial prevalence was derived. The previous weakness of large sampling on urban centers was adjusted and by 2002 there were 17 sites in urban areas and 19 in rural areas.

The results from the 2002 surveillance suggest an average seroprevalence of 13.6% among the total population, which was 1.6% higher as compared to 2000 results. The provinces with the highest prevalence levels were Manica, Sofala, Maputo, and Gaza, where the seroprevalence ranged from 17% to 26.5%. Tete, which had the second highest prevalence in the country (20%) in 2000 reflected a 14.2% level in 2002. The cluster of south-central provinces with highest prevalences is only broken by Inhambane, which has one of the lowest prevalence rates (8.6%) (From World Vision GWISER InfoFlash).

Given the impossibility and the non-desirability of identifying households turned vulnerable as a result of HIV/AIDS through direct questioning and given the fact that no testing was done either, we must depend on indirect evidence in order to identify the households that are likely to be affected by the disease. As previously mentioned, whenever a death was reported by a household the question was asked if the deceased had been sick for three months or more before passing away. While many people, especially older ones, die after a prolong illness, within the context of the pandemic this can be taken as suggestive of HIV/AIDS.

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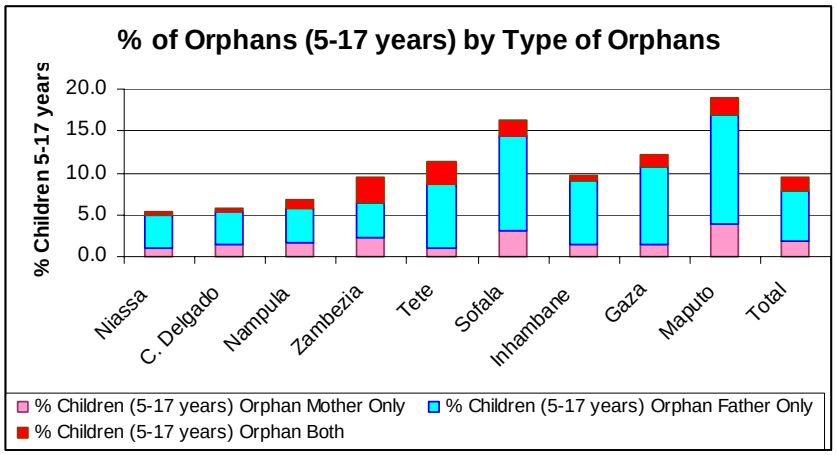
The proportion of deaths that were said to have been preceded by a chronic illness is 53.5%. Gaza Province reports 83.7% of the death to have been preceded by a chronic illness, followed by Sofala (63.0%) and Maputo provinces (61.5%). These numbers are high and it is not clear to what extent this indicator could be useful to assess the impact of HIV/AIDS. The problem of identifying households affected by HIV/AIDS and the limitations of using chronic illness as a proxy indicator have been an on-going challenge as shown in other studies e.g. the GAV of 2004.

The statistics by age groups show proportions in the 30% range for those below 20 years of age rising afterward to the 60% and 70%. While this suggests a strong impact from HIV/AIDS in the sexually active age groups, the indicator remains high afterward for the older adults as they enter a phase of life in which a significant proportion of individuals are subject to various chronic illnesses such as cancer and cardio-vascular diseases.

The percentage of household members 18 to 59 years of age that were declared to have been ill for three or more months is 3.8% but with a significantly higher percentage in males (6.1%) than in females (1.9%). This trend is verified for all provinces, although some present larger differences between the sexes than others. Gaza and Maputo provinces show the highest rates, 12.7% and 12.2% respectively with correspondingly higher rates in males of 18.6% and 18.5% respectively.

As shown in Figure 67, the largest part of the orphans in the age group 5 to 17 years is represented by those who have lost their father. Zambézia and Tete provinces also have a notably large proportion of double orphans.

Figure 67 Type of orphans aged between 5 and 17 years by province



9.5.2. The relationship between the potential impact of HIV/AIDS and food security

This section aims at understanding how individuals, households and communities are impacted so that responses can be planned adequately. Although best use is made of the data, a few assumptions and limitations are inevitable when using proxies to identify AIDS-affected households. Key assumptions and limitations are discussed in the box on the right.

Figure 68 shows how the socioeconomic status of the households relate to a number of AIDS proxies. Very poor households have the highest proportion of productive members that are chronically ill. On the other hand, the percentage of adult deaths, including after a chronic illness, appear to be gradually increasing as we progress from lowest to highest socioeconomic status.

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Figure 68 Socioeconomic status of the households for several AIDS proxies

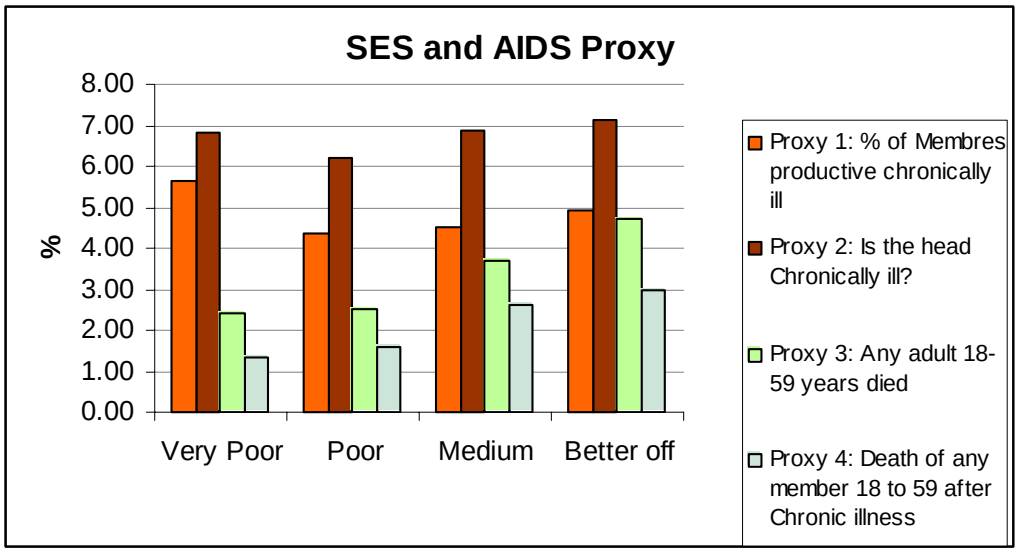

Figure 69 shows that the percentage of household members that are dependent tends to be highest in the poorest households and becomes gradually less as the socioeconomic status improves. This percentage is calculated as the number of individuals below the age of 18, plus those 60 years and older, divided by the total number of household members. The percentage of household members that are dependent will consequently be high in families with a large number of children, as can be the case when children whose parents are sick or have died need to be taken care of by relatives. The percentage of dependents will even be higher when elderly people, who are themselves counted among the dependent, have to take charge of children for similar reasons.

Figure 69 Percentage of household members that are dependent, by socioeconomic status

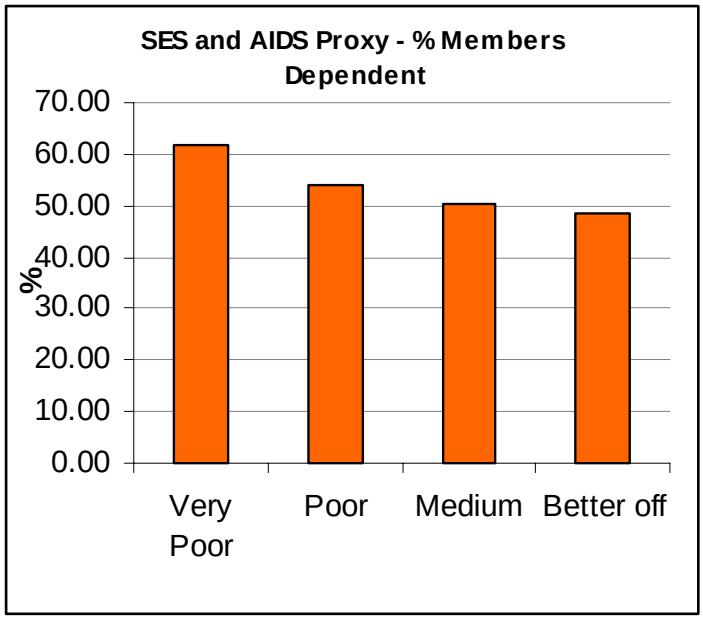

Figure 70 presents the percentage of orphans and double orphans by household characteristics. Elderly and female-headed households are those that are mostly responsible for the orphans, and orphans are found in higher proportions in households in which the head is uninformed about HIV/AIDS.

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Figure 70 Percentage of orphans and double orphans by household characteristics

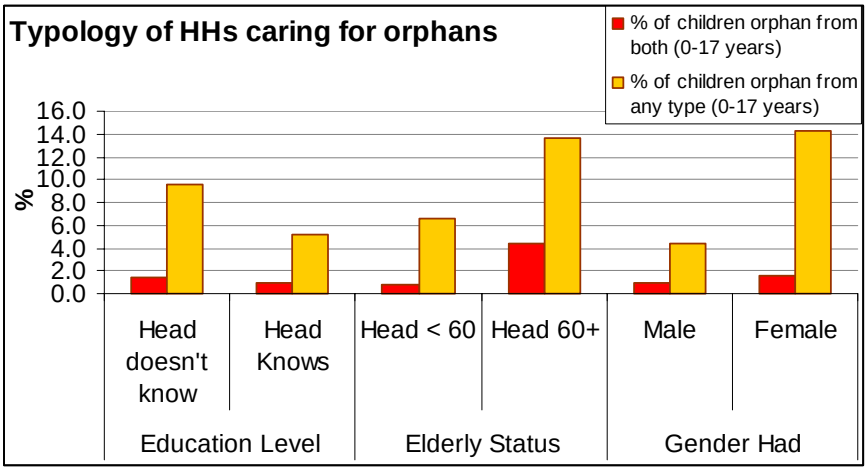

Figure 71 shows that for most households positive for one of the AIDS proxies, the caloric equivalent of the production of cereals and beans is lower than for the households that are negative for the same indicator. The only exception is in relation to households caring for orphans in which the production is higher.

Figure 71 Caloric equivalent from production of cereals and beans for various HIV/AIDS proxies

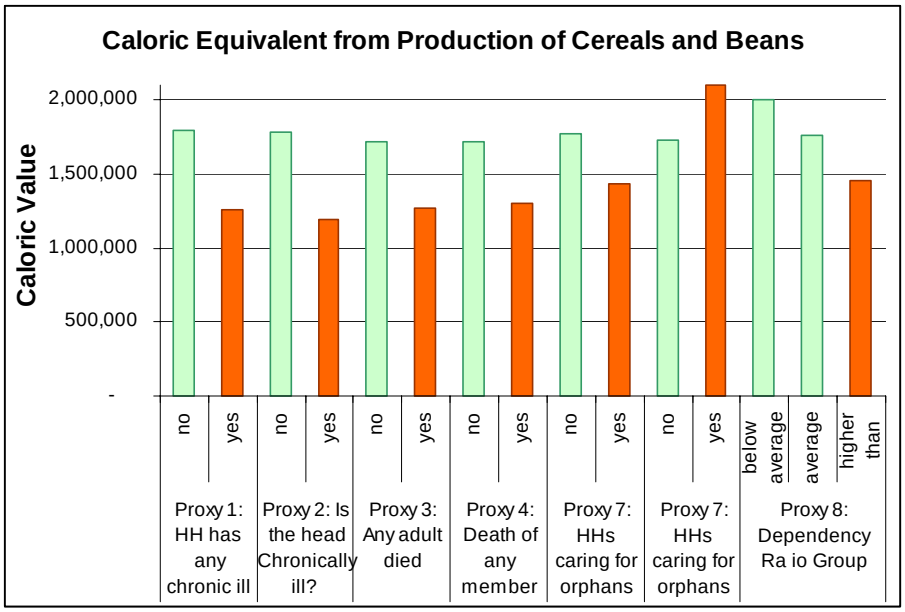

Figure 72 shows the mean level of the food consumption index according to the seven day recall for various AIDS proxies.

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Figure 72 Dietary adequacy (7 day recall) for various HIV/AIDS proxies

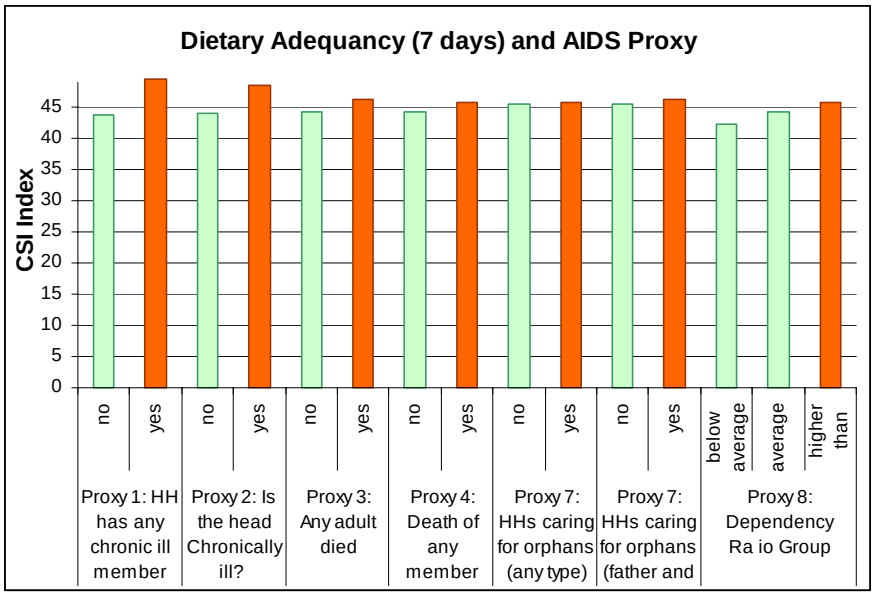
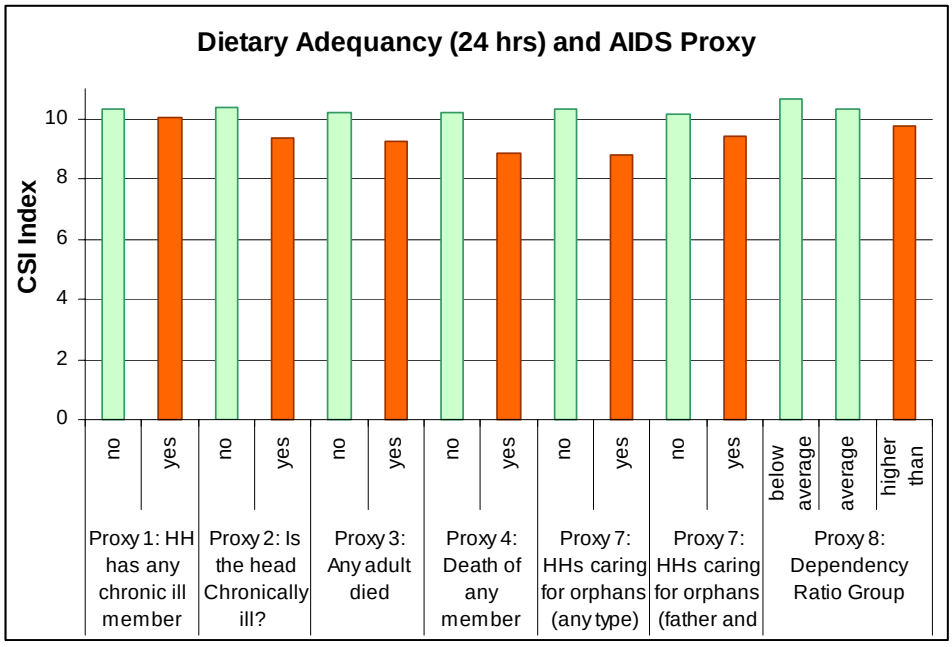


Figure 73 presents a similar information according to the 24 hour recall. While the variations are generally small for the seven day recall, the 24 hour recall is more consistent in showing a lower consumption in households positive for the AIDS proxies, more particularly those related to deaths and to orphans.

Figure 73 Dietary adequacy (24 hour recall) for various HIV/AIDS proxies



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9.6 Analysis of the main predictors of the nutritional status of children

After consultation with the technical team, it was decided to use weight-for-age z-score in children 6-59 months as the main outcome variable for the overall analysis of the main predictors of malnutrition. Weight-for-age combines aspects of both weight-for-height and height-for-age. It is also recognised as one of the key indicators in the PARPA (*Plano de Acção para a Redução da Pobreza Absoluta*). Please note that Manica Province was removed from all the analyses presented in this section of the report as it had only 10 linked children over eight different clusters.

Several variables were tested first through simple linear regression. Only four of the explanatory variables show a statistically significant effect: vitamin A supplementation in the last six months, physical capital, financial capital, and the income diversity index. After having controlled for confounding between all the variables of Table 23, vitamin A continued having a significant positive effect weight-for-age z-score as well as the financial capital index. The effect of the physical capital index found in the simple linear regression proved to have been positively confounded by the financial capital index and became insignificant once controlled for the latter. This is understandable since the physical capital is obviously strongly correlated with the financial capital. The same phenomenon was evidenced for the income diversity index which was consequently removed from the model. Once again, it is clear that income diversity is correlated with the financial capital and there was no benefit in maintaining the former variable in the model. On the other hand, negative confounding was evidenced in the case of episodes of diarrhoeal diseases during the two weeks preceding the survey. When controlling for both the financial capital and vitamin A, diarrhoeal diseases showed a statistically significant (p=0.01) negative effect on weight-for-age z-score.

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Table 23 Simple linear regression of several explanatory variables on weight-for-age z-score in children 6-59m (excludes Manica)					
Weight-for-age of children 6-59m Explanatory variables srr[1]: 32%, orr: 23%	**n**	**Correl. coeff. squared (r^2)**	**Regression coefficient (b)**	**95% confidence interval of (b)**	**P-value** [2]
Sex (female/male)	1476	+0.001	+0.100	-0.185 to +0.385	0.49
Age (5 groups)	1476	-0.001	-0.023	-0.139 to +0.092	0.69
Breastfeeding (6-23m only)	495	-0.010	-0.401	-1.082 to +0.280	0.25
Vitamin A supplem. (last 6m)	1379	+0.056	+0.677	+0.448 to +0.907	<0.001
Fever (last 2 weeks)	1384	-0.009	-0.267	-0.642 to +0.109	0.16
Diarrhoea (last 2 weeks)	1383	-0.007	-0.298	-0.695 to +0.099	0.14
Cough (last 2 weeks)	1360	+0.001	+0.084	-0.255 to +0.424	0.63
Orphan	1405	-0.001	-0.173	-1.048 to +0.701	0.70
Orphan of mother	1409	+0.002	+0.437	-0.24 to +1.114	0.21
Orphan of father	1405	-0.002	-0.356	-1.524 to +0.813	0.55
Double orphan	1405	+0.003	+1.499	-1.213 to +4.210	0.28
Lives away from either parent	1405	+0.003	+0.179	-0.088 to +0.446	0.19
Lives away from mother	1409	+0.000	+0.136	-0.289 to +0.560	0.53
Lives away from father	1405	+0.004	+0.201	-0.072 to +0.474	0.15
Lives away from both parents	1405	+0.001	+0.274	-0.258 to 0.806	0.31
Physical capital index	1476	+0.010	+0.684	+0.254 to +1.113	0.002
Human capital index	1476	+0.002	+0.465	-0.276 to +1.207	0.22
Natural capital index	1476	-0.001	-0.405	-1.68 to +0.869	0.53
Financial capital index	1465	+0.041	+1.836	+1.175 to +2.498	<0.001
Social capital index	1476	+0.000	+0.031	-0.541 to +0.603	0.92
Coping strategy index	1476	+0.000	+0.008	-0.049 to +0.065	0.79

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Income diversity index	1476	+0.007	+0.075	+0.001 to +0.148	0.05
Food consumption index (7d)	1475	+0.004	+0.013	-0.004 to +0.030	0.13

[1]srr = specific response rate (among surveyed households), orr = overall response rate (among selected households). Response rates are calculated in relation to the topmost and leftmost cell of data.
[2]The p-value tests the probability of the regression coefficient taking the same value or a more extreme one if there is no association between the explanatory variable and weight-for-age z-score in children 6-59m, using the same sampling and analysis methods repeatedly.

The final model for children 6-59 months, using the relevant variables available in this study, is consequently the following:

waz = 1.090v + 2.584f - 2.064vf - 0.575d + 0.610vd - 1.891

where: waz= weight-for-age z-score
v= vitamin A supplementation in last 6 months (1=yes, 0=no)
f= financial capital index (range 0 to 1)
d= diarrhoea in last 2 weeks (1=yes, 0=no)

However, the r-squared value indicates that only 11.2% of the variation in weight-for-age z-score is explained by the variables included in the model. This is low and implies a relatively large amount of variation around the fitted values. It also suggests that some important factors associated with underweight have not been captured in the survey or the analysis, or else, have not been measured with sufficient precision (issues of study design, effective sample size, measurement error, etc.).

The association of the financial capital and diarrhoeal diseases with vitamin A proved to be complex. Both these variables show evidence of interaction with vitamin A, i.e. the effect of financial capital and of diarrhoeal disease on underweight is different between children who received vitamin A supplementation during the six months preceding the survey and those who did not, hence the two interaction factors that had to be introduced in the model.

One explanation that has been proposed for the strong effects of vitamin A in this model is that vitamin A could act here as a proxy for access to health services. There were no Vitamin A campaigns in Mozambique in the last six months. Consequently, any child having received a dose of vitamin A during that period would have had to have been taken to a health unit in order to get it. While it is very possible that vitamin A reduces the prevalence of underweight in an indirect way by protecting the children against complications from certain infectious diseases (e.g. respiratory illnesses and measles), such an effect has not been documented in relation to diarrhoeal diseases.

9.7 Analysis of the main predictors of the nutritional status of mothers

An analysis similar to the one done on weight-for-age was also implemented on the BMI of the mothers and is now presented. Manica Province has been excluded here from the analysis, as in the previous section, due to the small number of linked mothers.

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Table 24 Simple linear regression of several explanatory variables on the body mass index (BMI) of mothers of children 6-59m (excludes Manica)					
Reciprocal of BMI of mothers Explanatory variables[1] srr[2]: 30%, orr: 21%	**n**	**Correl. coeff. squared (r^2)**	**Regression coefficient (b)**	**95% confidence interval of (b)**	**P-value**[2]
Age (3 groups)	1459	+0.001	+0.0002	-0.001 to +0.001	0.68
Physical capital index	1469	-0.020	-0.004	-0.007 to -0.002	0.001
Human capital index	1469	-0.003	-0.002	-0.007 to +0.002	0.26
Natural capital index	1469	+0.001	+0.002	-0.005 to +0.009	0.55
Financial capital index	1469	-0.062	-0.011	-0.016 to -0.006	<0.001
Social capital index	1469	-0.002	-0.001	-0.005 to +0.002	0.40
Coping strategy index	1469	-0.000	-0.000	-0.000 to +0.000	0.70
Income diversity index	1469	-0.004	-0.000	-0.001 to +0.000	0.11
Food consumption index (7d)	1475	-0.003	-0.000	-0.000 to +0.000	0.11

[1]Values shown as 0.000 are closer to zero than 0.0005.
[2]srr = specific response rate (among surveyed households), orr = overall response rate (among selected households). Response rates are calculated in relation to the topmost and leftmost cell of data.
[3]The p-value tests the probability of the regression coefficient taking the same value or a more extreme one if there is no association between the explanatory variable and the BMI of mothers of children 6-59m, using the same sampling and analysis methods repeatedly.

Table 24 presents the results of the simple linear regression on the reciprocal of the BMI of the mothers for a number of variables likely to be related to the nutritional status of the mother. As can be seen, only two of the explanatory variables show a statistically significant effect: the physical capital and the financial capitals.

After having controlled for confounding between all the variables listed in Table 24, only the financial capital continued having a significant positive effect on the BMI of the mothers (negative on the reciprocal of the BMI). As in the case of the children, the effect of the physical capital index found in the simple linear regression proved to have been positively confounded by the financial capital index and became insignificant once controlled for the latter. This is understandable since the physical capital is obviously strongly correlated with the financial capital.

The final model for the mothers of children 6-59 months, using the relevant variables available in this study, is consequently the following:

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$$BMI^{-1} = 0.049 - 0.011f$$

where: BMI= body mass index of the mothers
f= financial capital index (range 0 to 1)

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10. Conclusions and Recommendations

The primary objective of this baseline was to improve current knowledge and understanding of food security and vulnerability conditions among rural households in Mozambique. The conceptual framework used in this baseline helped to build an analysis to better understand different types of households. As a baseline, recommendations for interventions made are of a different nature from those that may be advocating during an emergency or a period of stress.

On the basis of the difficulties encountered in establishing this baseline with relation to the method of data collection, it would be worth considering that future analysis reduce the scope of their studies in order to provide more control over the quality of the process. Studies could be more focused geographically and/or sectorally.

10.1. Prevalence and causes of food insecurity

The prevalence of high vulnerability to food insecurity in Mozambique is 34.8% of households, where 20.3% are classified as highly vulnerable and 14.5% are classified as very highly vulnerable. Poor infrastructure, general isolation, and low purchasing capacity severely limits household level access to food and other basic services. Both physical distance and the lack of demand due to poor purchasing capacity creates further constraints for market development.

It would be appropriate to better understand the characteristics and limitations of household access to food. Building on the different livelihood groups identified through this study, it would be advisable to focus on a few groups possibly at the extremes of the socio-economic, well being, and food security scales. The objective would be to determine major changes among different livelihood groups in terms of reacting to changes in their purchasing capacity.

At the same time, there is high need to investigate the capacity of the market system to react properly to changes in purchasing capacity and demand. While some analysis of market integration is currently on-going, it would be recommendable to focus additional analysis on the traders as key operators: Who are they? What is their capacity? What are the main determinants of their decision-making process? How would they react to changes in major factors such as prices and transport costs?

Food access problems could be addressed through poverty-reduction programs and livelihood-enhancement strategies, coupled with targeted assistance to provide access to sufficient food during periods of higher difficulty. This may involve food, cash and/or other non-food transfers, and measures to protect, restore or enhance households' productive assets or (re)create an environment in which production, employment and the demand for goods are stimulated. Although initiatives aimed at increasing demand via. cash transfers may be more harmful then good in situations of poor trading and weak supply capacity.

Agricultural programs should focus on improving agricultural methods and improving access to agricultural inputs, as well as provide better information on commodity markets and finally contribute to increased access to markets.

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10.2. Vulnerability to chronic food insecurity

Vulnerability to chronic food insecurity is more prominent in the northern parts of the country, particularly in Niassa, Cabo Delgado, Nampula, Zambezia, and Tete provinces. On the contrary, the highest prevalence of non-vulnerable households is found in the southern provinces, especially in Gaza. In fact, although the southern parts of the country are more prone to natural disasters, they show higher levels of access to the five capitals and to stable and diverse sources of income.

When considering vulnerability to chronic food insecurity among livelihood groups, the variability of results increases, reflecting the high homogeneity among households within each group. Group 9 shows the highest presence of highly vulnerable households, where almost 80% of the households are classified as either with highly or very highly vulnerable. Groups 1, 3, 4, and 6 also show levels of vulnerability which are higher than average, with ranges between 42% and 60% of households being vulnerable to chronic food insecurity. Group 8 shows the lowest rates of vulnerability, followed by Groups 2, 5, and 7.

10.3. Transitory versus Chronic food insecurity and dietary adequacy

While the provinces of the north and central parts of the country, have the highest prevalence of high vulnerability to chronic food insecurity, the provinces in the south of the country, namely Sofala, Inhambane, Gaza, and Maputo, show significantly lower levels of vulnerability to chronic food insecurity.

When analyzing the data on the transitorily food insecure, it is possible to note that the situation has a different geographical dispersion, with the southern areas of the country showing a higher proportion of households being transitorily food insecure. The northern provinces of Nampula and Zambezia also show high levels of transitorily food insecurity. Furthermore, it is possible to note that these two provinces have high levels of transitory food insecure among chronically food insecure households.

In terms of transitory food insecurity, it is interesting to note that Groups 1, 3, 4, and 9 show high levels of vulnerability to transitory food insecurity including both households that are chronically and not chronically vulnerable to food insecurity. Although Groups 2, 5, 7, and 8 show some level of vulnerability to transitory food insecurity, these are mainly among households that are not vulnerable to chronic food insecurity.
The worst diets are found among households vulnerable to both chronically and transitory food insecurity. Households only vulnerable to chronic food insecurity had the same mean dietary intake as households vulnerable only to transitory food insecurity. This shows that households that are not vulnerable to chronic food insecurity but suffer from severe shocks are likely to lower their dietary intake.

Tete and Inhambane provinces have the largest percentage of households identified as having a very inadequate diet (38% to 40%). Zambezia, Sofala, Maputo, and Gaza provinces show the lowest rates of very inadequate diet. More pronounced differences are found among the nine livelihood groups, with Groups 1 and 9 reporting the worst scores.

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10.4. Dietary diversity and assistance

The analysis of household access to governmental and non-governmental assistance reveals the existence of a strong relationship between the presence of such assistance and household dietary adequacy. First of all, it is interesting to consider how households receiving either food assistance or child-related assistance showed lower dietary adequacy rates compared to households that did not receive such type of assistance. The main reason for this discrepancy may lie in the fact that the most vulnerable households have been targeted for assistance. Although food aid is likely to have improved the diet of beneficiaries while stocks lasted, the 12 months time frame of the assistance may mask dietary improvements for the time where stocks lasted. Furthermore, the scattered and unstable nature of food aid delivery in Mozambique during the previous 12 months may also decrease longer term improvement on livelihoods and diets.

On the other hand, households receiving cash assistance showed a 36% higher dietary adequacy than households that did not receive such assistance. Although this may lead one to conclude that cash assistance is more sustainable in creating longer term benefits, one must further research the target of these benefits. A simple description of receivers of cash assistance showed that while 1.1% of the households identified as not chronically vulnerable to lack of food access received this assistance, less than 0.2% of the households identified as chronically vulnerable received the same assistance. It is difficult to conclude whether target was inappropriate or cash assistance had the power to move households from being chronic vulnerable to being generally food secure.

Households receiving agricultural assistance also presented a 11.5% higher mean dietary adequacy. The same issue with cash assistance was seen with this assistance, whereabout 3.6% of the chronically food secure households received this assistance, versus less than 0.6% of the chronically food insecure.

To summarize, access to different types of assistance have a different impact on the dietary adequacy of beneficiary households. Having said that, more research should be done to better correlate previous diet quality of beneficiaries and real impact of type of assistance at household level.

10.5. Nutrition

Stunting affects a large share of the children throughout the country (46.2% overall, 24.0% in the case of severe stunting). This classifies the target population as having a very high level of stunting. The prevalence of underweight in children is 20.5% overall and 6.7% in the case of severe underweight. This classifies the target population as having a high level of underweight. In terms of geographical distribution, Nampula Province has the highest prevalence of both stunting and underweight, while Inhambane, Gaza, and Maputo provinces have the lowest. The prevalence of wasting (4.5% overall, 1.6% severe) can be classified as acceptable.

Provision of vitamin A has been identified as major factor in preventing malnutrition. Having said that, the vitamin A programme is shown to be functioning at a very low level except in Maputo Province. This public health programme is still weak in Mozambique, with only 35.2% of the children having received a dose of vitamin A during the six months preceding the survey in

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the study population. Given the enormous benefits that vitamin A supplementation can bring, as shown in numerous international studies and as also confirmed in the present one, it is strongly recommended that the Ministry of Health (MISAU) scale up its efforts in order to help the supplementation programme reach the majority of the under-five population on a continuous basis. While campaigns can be helpful and should be considered whenever necessary, a strong routine delivery system is the only way to ensure success on the long term.

The results of this study point to high prevalence of overweight and obesity in Gaza and Maputo provinces. While the findings for Gaza are at variance with those of the DHS 2003, which showed a much lower prevalence for that province, the present results confirm that women in Maputo Province are at high risk of overweight and obesity and of the chronic diseases, cardio-vascular and others, associated with this condition. It is recommended that MISAU put in place a strategy to increase knowledge of the risks of obesity among women and the population in general and promote a healthy life style and diet with this particular concern into mind.

For most households positive for one of the AIDS proxies, the caloric equivalent of the production of cereals and beans is lower than for the households that are negative for the same indicator. In addition, lower consumption is reported in households positive for the AIDS proxies.

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In collaboration with:

Annexes

A. Quality of dietary intake diversified according to household access to food (measured by index SASA) and to different typology of shocks

B. Linear Regression Models used to identify the determinants of dietary intake

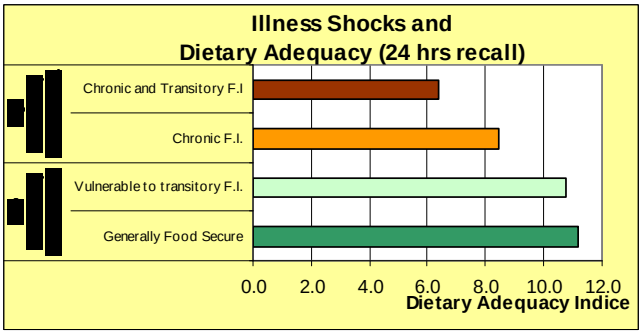
C. Summary data - Provinces

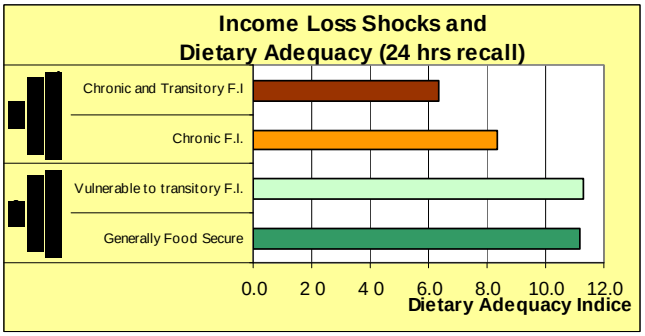
D. Summary data - Livelihood Groups

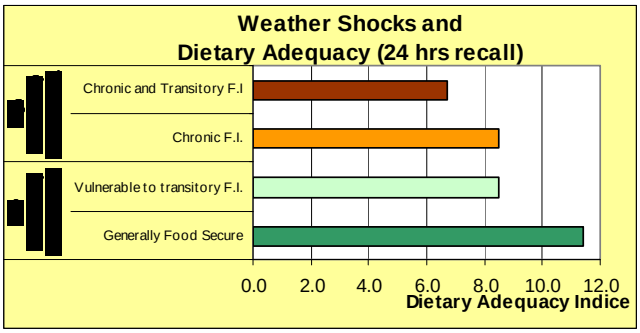
E. Questionnaire - Household

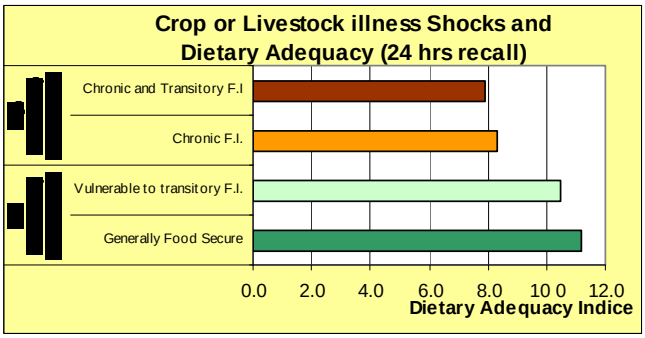
F. Questionnaire - Community

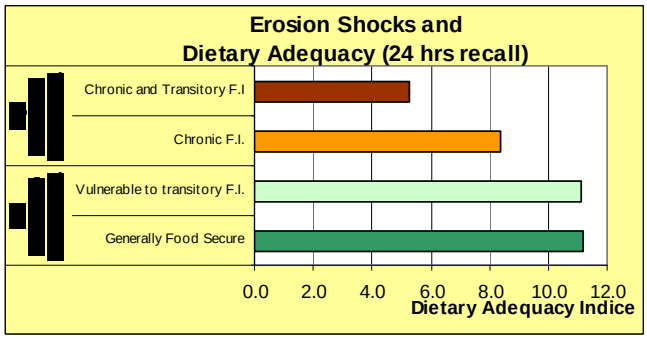
A) Quality of dietary intake diversified according to household access to food (measured by index SASA) and to different typology of shocks

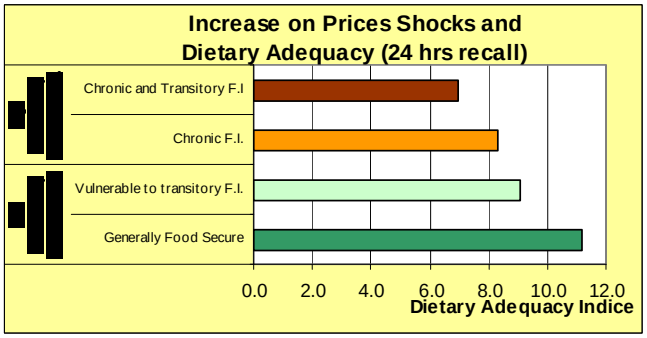


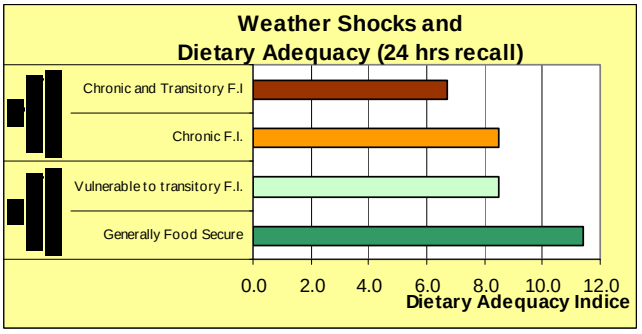


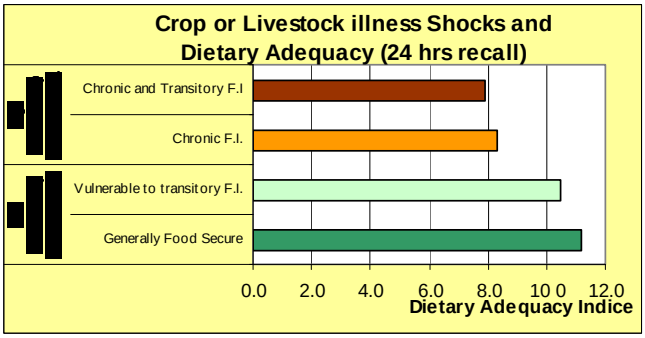


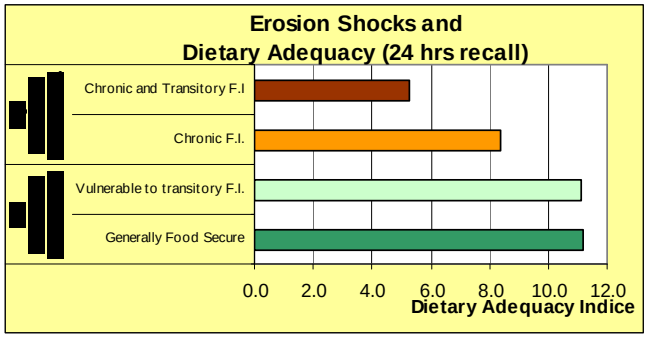


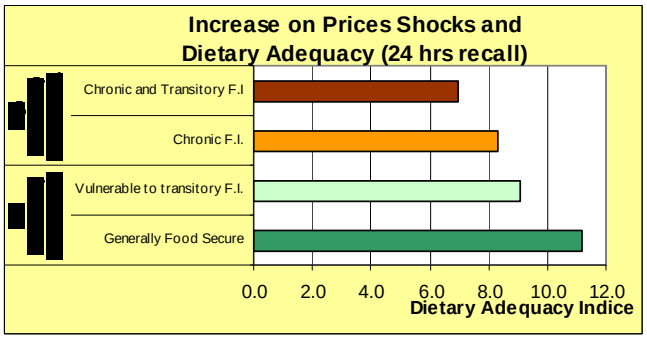









Erosion Shocks and
Dietary Adequacy (24 hrs recall)
Chronic and Transitory F.I
Chronic F.I.
Vulnerable to transitory F.I.
Generally Food Secure
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Dietary Adequacy Indice


Increase on Prices Shocks and
Dietary Adequacy (24 hrs recall)
Chronic and Transitory F.I
Chronic F.I.
Vulnerable to transitory F.I.
Generally Food Secure
0.0
2.0
4.0
6.0
8.0
10.0
12.0
Dietary Adequacy Indice

B) Linear Regression Models used to identify the determinants of Dietary Intake

Table X9

Model	Variables	R square	Constant	Unstanardized Coefficient	Significance
1	Sum of Avg of 5 capitals clean 5%	0.04	7.19	14.55	0.000
2	Sum of Avg of 5 capitals clean 5%	0.07	13.81	10.65	0.000
	1/Diversity			-7.63	0.000
3	Sum of Avg of 5 capitals clean 5%	0.08	13.78	10.75	0.000
	1/Diversity			-7.39	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.70	0.000
4	Sum of Avg of 5 capitals clean 5%	0.08	13.85	10.80	0.000
	1/Diversity			-7.40	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.67	0.000
	Shocks that affect illness			-0.33	0.000
5	Sum of Avg of 5 capitals clean 5%	0.08	13.88	10.84	0.000
	1/Diversity			-7.41	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.67	0.000
	Shocks that affect illness			-0.33	0.000
	Shocks that affect access (prices and labor)			-0.32	0.008
6	Sum of Avg of 5 capitals clean 5%	0.08	13.86	10.83	0.000
	1/Diversity			-7.39	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.67	0.000
	Shocks that affect illness			-0.33	0.000
	Shocks that affect access (prices and labor)			-0.32	0.008
	Any member received remmitance			0.08	0.761
7	Sum of Avg of 5 capitals clean 5%	0.09	14.08	11.08	0.000
	1/Diversity			-7.52	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.65	0.000
	Shocks that affect illness			-0.30	0.000
	Shocks that affect access (prices and labor)			-0.28	0.021
	Any member received food (last 12 months)			-1.19	0.000
8	Sum of Avg of 5 capitals clean 5%	0.11	13.40	9.42	0.000
	1/Diversity			-7.32	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.62	0.000
	Shocks that affect illness			-0.25	0.001
	Shocks that affect access (prices and labor)			-0.29	0.015
	Any member received food (last 12 months)			-1.16	0.000
	Any member has savings that can be used in emergency			2.06	0.000
9	Sum of Avg of 5 capitals clean 5%	0.11	13.40	9.44	0.000
	1/Diversity			-7.32	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.62	0.000
	Shocks that affect illness			-0.25	0.001
	Shocks that affect access (prices and labor)			-0.29	0.015
	Any member received food (last 12 months)			-1.16	0.000
	Any member has savings that can be used in emergency			2.06	0.000
	HH received any type of agricultural assistance (materials, i			-0.09	0.849

10	Sum of Avg of 5 capitals clean 5%	0.11	13.34	9.09	0.000
	Vulnerability Loss Livelihood			-7.18	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.62	0.000
	Shocks that affect illness			-0.25	0.001
	Shocks that affect access (prices and labor)			-0.30	0.012
	Any member received food (last 12 months)			-1.14	0.000
	Any member has savings that can be used in emergency			2.06	0.000
	HH received any type of cash assistance (NGOs, Gov, employment from NGO, poverty certificate			3.67	0.000
11	Sum of Avg of 5 capitals clean 5%	0.11	13.56	9.09	0.000
	Vulnerability Loss Livelihood			-7.34	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.62	0.000
	Shocks that affect illness			-0.25	0.001
	Shocks that affect access (prices and labor)			-0.30	0.014
	Any member received food (last 12 months)			-1.16	0.000
	Any member has savings that can be used in emergency			2.05	0.000
	HH received any type of cash assistance (NGOs, Gov, employment from NGO, poverty certificate			3.68	0.000
	HH purchased either cassava or maize			-0.38	0.033
12	Sum of Avg of 5 capitals clean 5%	0.12	12.65	8.76	0.000
	Vulnerability Loss Livelihood			-5.70	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.60	0.000
	Shocks that affect illness			-0.23	0.002
	Shocks that affect access (prices and labor)			-0.33	0.006
	Any member received food (last 12 months)			-1.17	0.000
	Any member has savings that can be used in emergency			1.95	0.000
	HH received any type of cash assistance (NGOs, Gov, employment from NGO, poverty certificate			3.76	0.000
	HH purchased either cassava or maize			-0.25	0.163
	HH is part of worse livelihoods (i.e. 1 or 9)			-1.90	0.000
13	Sum of Avg of 5 capitals clean 5%	0.12	12.82	7.74	0.000
	Vulnerability Loss Livelihood			-5.59	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.63	0.000
	Shocks that affect illness			-0.22	0.003
	Shocks that affect access (prices and labor)			-0.35	0.004
	Any member has savings that can be used in emergency			1.95	0.000
	HH received any type of cash assistance (NGOs, Gov, employment from NGO, poverty certificate			4.09	0.000
	HH is part of worse livelihoods (i.e. 1 or 9)			-1.88	0.000
	Head is Women			-0.70	0.000
	Head is 60 or older			-0.76	0.002
14	Sum of Avg of 5 capitals clean 5%	0.13	13.23	8.51	0.000
	Vulnerability Loss Livelihood			-5.57	0.000
	Shocks that affect agriculture (wheather, pests, erosion)			-0.64	0.000
	Shocks that affect illness			-0.21	0.008
	Shocks that affect access (prices and labor)			-0.36	0.003
	Any member received food (last 12 months)			-1.37	0.000
	Any member has savings that can be used in emergency			1.93	0.000
	HH received any type of cash assistance (NGOs, Gov, employment from NGO, poverty certificate			4.84	0.000
	HH purchased either cassava or maize			-0.58	0.002
	HH is part of worse livelihoods (i.e. 1 or 9)			-1.95	0.000
	Head is Women			-0.58	0.001
	Head is 60 or older			-0.68	0.007

C) Summary data - Provinces

Demographics

	Sex of HH head (%)		
	HH Size	Male	Female
Niassa	4.3	84.6	15.4
Cabo Delgado	4.4	84.0	16.0
Nampula	4.1	64.6	35.4
Zambézia	4.6	84.1	15.9
Tete	4.3	70.6	29.4
Manica	-	51.9	48.1
Sofala	4.9	69.8	30.2
Inhambane	4.9	43.9	56.1
Gaza	5.7	50.4	49.6
Maputo	4.5	63.7	36.3
Total	**4.5**	**70.1**	**29.9**

	Head's Age of the HH (%)		
	0 - 17	18 - 59	60 or +
Niassa	0.0	87.5	12.5
Cabo Delgado	0.4	83.6	16.0
Nampula	4.8	87.7	7.6
Zambézia	0.4	92.1	7.5
Tete	0.6	93.7	5.7
Manica	-	-	-
Sofala	1.3	83.7	15.0
Inhambane	1.2	76.7	22.1
Gaza	5.3	74.9	19.9
Maputo	0.5	77.3	22.2
Total	**6.3**	**82.7**	**11.1**

	Dependency Ratio
	Mean
Niassa	1.9
Cabo Delgado	2.2
Nampula	2.5
Zambézia	2.0
Tete	1.7
Manica	
Sofala	3.1
Inhambane	3.2
Gaza	3.2
Maputo	3.9
Total	**2.6**

	Cronical sick people in the HH (%)			
	0	1	2	3
Niassa	93.28	6.47	0.25	0.00
Cabo Delgado	90.51	9.21	0.27	0.00
Nampula	93.22	6.78	0.00	0.00
Zambézia	92.77	7.16	0.07	0.00
Tete	98.15	1.85	0.00	0.00
Manica	89.81	9.87	0.32	0.00
Sofala	86.55	13.23	0.22	0.00
Inhambane	92.82	7.18	0.00	0.00
Gaza	62.46	34.02	3.23	0.29
Maputo	75.00	23.53	1.47	0.00
Total	**90.47**	**9.22**	**0.30**	**0.01**

	HH with disabled members (%)		**Child is orphan of mother (0 to 17 years) (%)**	**Child is orphan of father (0 to 17 years) (%)**	**Child is orphan of both (0 to 17 years) (%)**
	Yes	No			
Niassa	13.9	86.1	0.7	4.3	0.1
Cabo Delgado	6.4	93.6	0.9	4.1	0.5
Nampula	7.3	92.7	1.6	5.6	1.6
Zambézia	6.7	93.3	2.7	5.3	3.8
Tete	4.6	95.4	0.7	8.1	2.4
Manica	5.8	94.2	1.5	12.1	2.2
Sofala	11.0	89.0	4.4	14.1	2.1
Inhambane	7.7	92.3	2.1	7.5	2.7
Gaza	10.2	89.8	1.5	11.5	1.1
Maputo	10.8	89.2	3.8	14.5	2.1
Total	**7.7**	**92.3**	**2.0**	**7.1**	**2.2**

Education

	Educational achievement of head of household (%)							Head of HH can read and write (%)	
	No school	alfabe ization level	primary incomplete	completed primary	secondary incomplete	completed secondary or higher	doesn't know	Yes	No
Niassa	41.1	0.5	23.9	21.4	7.7	5.0	0.2	50.5	49.5
Cabo Delgado	48.6	0.8	22.4	19.1	7.3	1.4	0.4	48.2	51.8
Nampula	45.8	0.5	27.3	13.4	5.6	7.3	0.1	47.6	52.4
Zambézia	41.3	0.7	36.1	16.1	4.9	0.6	0.3	52.7	47.3
Tete	55.6	0.2	22.4	10.5	8.3	0.9	2.0	41.2	58.8
Manica	35.2	0.3	28.3	20.5	10.5	4.4	0.8	57.7	42.3
Sofala	41.9	3.4	27.8	12.8	6.3	4.0	3.8	53.2	46.8
Inhambane	37.8	1.9	37.3	13.8	4.7	2.1	2.3	57.1	42.9
Gaza	39.2	1.8	26.3	14.6	7.0	2.0	9.1	52.6	47.4
Maputo	32.0	0.0	42.4	10.8	5.4	1.5	7.9	53.7	46.3
Total	**43.4**	**0.9**	**29.5**	**15.2**	**6.3**	**3.2**	**1.5**	**50.6**	**49.4**

	Children 6 to 17 that went to school in 2005 (%)	Children 6 to 17 that went to school in 2006 (%)	Children 6 to 17 that Failed in 2005 (%)	Children 6 to 17 that Gave up school in 2006 (%)
Niassa	61.6	59.6	5.2	4.7
Cabo Delgado	64.0	68.5	6.6	4.6
Nampula	47.1	51.3	7.5	0.6
Zambézia	65.4	68.0	5.1	3.9
Tete	67.6	68.5	5.8	6.0
Manica	71.8	60.7	3.5	13.9
Sofala	67.5	76.3	6.2	2.0
Inhambane	79.8	84.2	9.2	1.5
Gaza	76.9	81.2	2.4	1.9
Maputo	84.6	84.2	6.0	3.8
Total	**64.1**	**66.6**	**6.1**	**3.6**

Reasons for Not Being Enrolled in School (Age Group 5 - 17) (%)

	Shortage of vacancies	The school is very distant	Following level does not exist	Very expensive/ lack of money	Works	Lack of interest	Failed	Got married/ Pregnancy	Sick/ with incapacity	Takes cares of relatives
Niassa	3.2	12.8	1.1	10.6	4.3	56.4		3.2	6.4	2.1
Cabo Delgado	2.2	21.5	1.5	5.9	3.0	51.9	1.5	7.4	5.2	
Nampula	0.6	42.1	0.5	12.8	0.9	35.9	0.5	2.3	4.4	
Zambézia	3.6	25.4	1.0	2.6	0.5	51.8	1.3	7.8	6.0	
Tete	7.5	9.7	14.0	6.5	2.2	37.6	5.4	7.5	8.6	1.1
Manica	3.8	10.1	1.3	17.7	2.5	41.8	2.5	16.5	2.5	1.3
Sofala	5.7	18.6	8.6	15.7	5.7	24.3	1.4	10.0	7.1	2.9
Inhambane	17.6			23.5		11.8		17.6	17.6	11.8
Gaza	48.5	3.0		3.0		36.4	0.0	3.0	6.1	
Maputo	18.5	3.7		14.8	3.7	40.7		11.1	7.4	0.0
Total	**3.9**	**28.0**	**1.9**	**9.5**	**1.6**	**42.1**	**1.1**	**5.8**	**5.5**	**0.5**

Agriculture

Fields cultivated on high ground (%)

	0	1	2	3	4	5	6 or more
Niassa	4.0	69.7	21.1	4.7	0.5	0.0	0.0
Cabo Delgado	20.6	35.9	26.7	14.8	2.0	0.0	0.0
Nampula	5.8	44.6	35.0	10.1	3.6	0.5	0.5
Zambézia	14.2	30.7	34.2	15.1	3.9	0.7	1.3
Tete	15.7	60.4	16.9	5.6	1.3	0.0	0.2
Manica	9.1	58.4	23.5	5.8	2.2	0.6	0.3
Sofala	31.1	42.5	18.1	6.9	0.9	0.0	0.4
Inhambane	14.0	37.5	32.0	10.9	3.9	0.4	1.4
Gaza	23.2	34.1	22.9	12.9	3.8	0.9	2.1
Maputo	39.4	34.0	16.7	6.4	2.5	1.0	0.0
Total	**14.4**	**42.4**	**28.5**	**10.7**	**2.9**	**0.4**	**0.7**

Hectares fields on high ground (%)

	0	< 0 25 ha	0 26 to 1 ha	1.1 to 2 ha	2.1 to 5 ha	5.1 to 10 ha	more than 50 ha	> 0.25 ha on high ground areas
Niassa	4.0	12.5	42.6	28.7	10.7	1.5	0.0	83.54
Cabo Delgado	20.6	5.4	37.2	22.8	13.4	0.4	0.1	73.95
Nampula	5.8	30.8	39.1	21.2	3.1	0.0	0.0	63.43
Zambézia	14.1	24.2	30.4	23.5	7 8	0.0	0.0	61.67
Tete	15.7	19.3	24.8	26.5	11.3	2.2	0.2	65.00
Manica	9.1	7.5	31.0	34.9	14.7	2.2	0.6	83.38
Sofala	31.2	10.3	28.1	17.1	12.1	1.1	0.0	58.43
Inhambane	14.0	28.2	37.5	13.7	5.1	1.2	0.4	57.79
Gaza	23.1	15.2	37.4	15.8	5.6	2.3	0.6	61.70
Maputo	39.0	13.2	28.8	12.7	5.4	0.5	0.5	47.80
Total	**14.4**	**20.4**	**34.3**	**22.1**	**7.9**	**0.7**	**0.1**	**65.20**

Fields cultivated on low lying land (%)

	0	1	2	3	4	5	6 or more
Niassa	72.2	24.1	3.0	0.7	0.0	0.0	0.0
Cabo Delgado	57.3	31.8	7.2	2.6	0.9	0.3	0.0
Nampula	69.3	29.2	1.5	0.0	0.0	0.0	0.0
Zambézia	34.4	47.5	13.3	4.1	0.5	0.0	0.2
Tete	50.7	43.5	4.8	0.9	0.0	0.0	0.0
Manica	57.5	35.0	5.6	1.7	0.3	0.0	0.0
Sofala	38.6	39.2	13.7	6.1	1.8	0.4	0.2
Inhambane	82.3	12.9	3.0	1.0	0.3	0.0	0.3
Gaza	59.8	23.6	11.4	2.3	1.7	0.6	0.6
Maputo	58.8	24.0	10.3	3.9	2.0	0.5	0.5
Total	**56.5**	**33.6**	**7.0**	**2.1**	**0.5**	**0.1**	**0.1**

Hectares fields on low lying land (%)

	0	< 0.25 ha	0.26 to 1 ha	1.1 to 2 ha	2.1 to 5 ha	5.1 to 10 ha	more than 50 ha	> 0.25 ha in low-lying areas
Niassa	72.4	17.4	7 2	1.7	1.2	0.0	0.0	10.2
Cabo Delgado	57.3	10.9	18.9	9.6	3.1	0.3	0.0	31.9
Nampula	69.3	16.3	12.9	1.3	0.2	0.0	0.0	14.4
Zambézia	34.4	26.9	31.2	6.0	1.2	0.2	0.0	38.6
Tete	50.6	16.1	25.9	5.7	1.7	0.0	0.0	33.3
Manica	57.3	18.6	16.9	4.7	1.9	0.3	0.3	24.1
Sofala	38.5	19.0	26.0	11.6	4.3	0.7	0.0	42.5
Inhambane	82.5	12.1	4.7	0.7	0.0	0.0	0.0	5.4
Gaza	59.6	14.5	14.2	7.6	2.6	0.9	0.6	25.9
Maputo	58.8	9.8	18.6	11.3	1.0	0.5	0.0	31.4
Total	**56.5**	**17.8**	**19.0**	**5.1**	**1.4**	**0.2**	**0.0**	**25.7**

Mean Production in Kg (%)

	Maize	Rice	Sorghum	Millet	Large peanuts	Small peanuts	Beans	Cowpeas	Bambara nuts	Piegeon Pe	Oloko beans	Green beans
Niassa	624.8	50.7	117.8	16.1	7.3	8.5	57.9	16.8	5.9	9.7	8.7	0.8
Cabo Delgado	294.0	85.4	80.8	3.7	42.6	8.4	0.2	27.4	2.2	5.9	0.2	0.7
Nampula	221.1	58.1	103.0	0.6	67.2	71.5	1.5	51.1	3.3	2.7	3.4	0.0
Zambézia	177.4	75.7	24.0	2.2	3.8	26.1	9.4	7.2	1.4	34.6	0.1	0.2
Tete	231.5	1.6	41.2	13.7	21.7	4.5	10.4	10.5	0.9	1.6	0.2	0.1
Manica	616.8	4.9	33.6	1.4	1.6	0.2	2.7	2.1	0.0	0.0	0.1	4.4
Sofala	316.6	56.5	127.9	18.0	8.9	3.1	2.0	5.4	1.8	2.3	0.0	0.0
Inhambane	89.3	3.4	9.5	0.9	1.2	20.8	1.7	97.1	1.4	0.0	0.0	0.1
Gaza	146.8	27.3	0.5	0.7	4.5	3.0	47.8	93.9	0.7	4.9	0.8	1.5
Maputo	73.6	6.2	0.0	0.0	0.1	14.3	2.5	50.2	0.1	0.0	0.0	1.3
Total	**252.4**	**50.3**	**61.0**	**4.5**	**25.3**	**27.7**	**9.7**	**33.1**	**2.1**	**10.4**	**1.5**	**0.5**

Months that harvest has lasted since October 2005 (%)

	Less than 1 month	Up to 2 mon hs	Up to 3 months	Up to 4 months	Up to 5 months	Up to 6 months	Up to 7 months	Up to 8 months	Up to 9 months	Up to 10 months	Up to 11 months	12 or more months
Niassa	14.5	10.0	8.7	7.0	8.7	9.2	5.2	5.5	5.0	15.2	1.0	10.0
Cabo Delgado	8.1	8.0	13.8	10.2	11.8	13.0	10.0	6.9	6.1	5.8	0.5	5.7
Nampula	13.2	15.5	12.2	12.5	9.3	5.7	3.2	3.5	7.0	11.5	1.1	5.2
Zambézia	8.9	11.7	20.9	21.2	10.3	10.1	3.6	3.5	1.8	1.6	0.0	6.4
Tete	10.9	7.0	10.4	5.5	6.7	6.8	7.9	9.2	8.5	8.7	2.2	16.1
Manica	6.6	5.8	10.5	10.5	9.9	10.5	8.3	11.3	9.1	14.9	0.6	1.9
Sofala	32.0	15.4	6.3	5.1	4.5	11.4	3.1	2.5	2.2	2.5	4.7	10.3
Inhambane	19.8	15.9	20.1	26.3	9.1	4.4	2.6	0.4	0.2	0.9	0.4	0.0
Gaza	26.0	23.4	14.0	12.6	7.3	7.0	3.2	1.5	1.5	2.3	0.3	0.9
Maputo	37.3	14.2	8.3	5.4	8.3	9.8	3.4	3.4	3.9	3.9	0.0	2.0
Total	**14.4**	**12.7**	**14.1**	**13.7**	**9.1**	**8.5**	**4.7**	**4.4**	**4.6**	**6.7**	**0.9**	**6.1**

	Livestock ownership		
	% HHs with at least 10 chickens	% HHs with at least 5 goats/sheeps/pigs	% HHs with at least 1 cattle
Niassa	13.9	6.7	0.5
Cabo Delgado	18.0	8.1	0.0
Nampula	12.5	4.6	2.0
Zambézia	13.1	6.2	0.2
Tete	12.4	12.8	7.4
Manica	30.9	18.0	16.0
Sofala	25.6	14.4	1.3
Inhambane	21.4	9.5	12.3
Gaza	17.2	12.8	22.2
Maputo	17.2	8.8	6.4
Total	**16.3**	**8.5**	**4.4**

	Ceiling material (%)							
	cement/ bricks	clay	reed	plastic	tile	iron sheets	stone	kiln brick
Niassa	2.0	0.0	81.3	0.2	0.0	3.5	0.0	12.9
Cabo Delgado	0.3	0.7	92.0	0.1	0.0	6.8	0.1	0.0
Nampula	0.1	0.2	92.4	1.6	1.2	4.5	0.0	0.0
Zambézia	0.2	0.5	93.6	0.1	0.3	5.3	0.0	0.1
Tete	0.0	0.4	90.2	1.7	0.4	7.4	0.0	0.0
Manica	0.0	0.0	74.8	6.1	1.1	17.2	0.0	0.8
Sofala	0.2	1.3	81.2	4.5	1.8	11.0	0.0	0.0
Inhambane	0.4	0.0	38.5	0.2	13.7	47.1	0.2	0.0
Gaza	0.3	0.0	21.1	0.6	3.8	74.0	0.3	0.0
Maputo	0.5	0.0	15.8	1.0	3.0	79.8	0.0	0.0
Total	**0.3**	**0.4**	**79.7**	**1.3**	**2.0**	**15.6**	**0.0**	**0.8**

	Wall material (%)							
	cement/ bricks	clay	reed	plastic	tile	iron sheets	stone	kiln brick
Niassa	1.0	12.9	17.9	0.0	0.0	1.5	0.0	66.7
Cabo Delgado	0.9	85.6	3.1	0.0	0.0	0.0	1.9	8.4
Nampula	2.4	60.2	2.4	0.0	0.0	0.0	1.8	33.2
Zambézia	1.4	37.9	12.2	0.0	0.0	0.3	0.6	47.5
Tete	6.1	84.1	1.5	0.0	0.0	0.0	0.0	8.3
Manica	6.6	63.5	2.2	0.3	0.3	0.0	0.3	26.8
Sofala	6.3	78.9	10.6	0.2	0.0	0.4	1.3	2.2
Inhambane	10.0	11.8	63.4	0.5	7.4	4.6	2.3	0.0
Gaza	26.3	23.4	47.7	0.0	0.0	0.9	1.5	0.3
Maputo	30.5	11.8	50.2	1.0	0.0	2.5	2.5	1.5
Total	**5.4**	**51.1**	**14.9**	**0.1**	**0.6**	**0.7**	**1.2**	**25.9**

	Cooking fuel (%)					
	Electricity	Firewood	Charcoal	Gas	Paraffin	Manure
Niassa	0.0	96.8	2.0	0 0	1.2	0.0
Cabo Delgado	0.3	97.6	2.0	0 0	0.1	0.0
Nampula	0.0	95.5	4.5	0 0	0.0	0.0
Zambézia	0.5	94.7	4.7	0 0	0.2	0.0

Tete	1.1	96.5	2.4	0 0	0.0	0.0
Manica	0.6	94.8	4.7	0 0	0.0	0.0
Sofala	0.0	91.3	8.7	0 0	0.0	0.0
Inhambane	0.0	99.1	0.9	0 0	0.0	0.0
Gaza	0.3	89.8	3.8	0 3	0.0	5.8
Maputo	1.5	85.7	11.8	1 0	0.0	0.0
Total	**0.3**	**95.1**	**4.1**	**0.0**	**0.1**	**0.3**

	Source of lighting (%)					
	Electricity	Oil lamp	Firewood	Candle	Generator	Solar panel
Niassa	2.0	36.3	48.8	8 0	0.0	5.0
Cabo Delgado	0.5	48.8	48.8	0.4	0.3	1.1
Nampula	1.2	69.6	28.8	0 2	0.2	0.0
Zambézia	2.3	45.2	34.6	6 8	0.0	11.0
Tete	3.0	44.3	41.9	4.4	0.4	6.1
Manica	4.2	47.6	44.0	3.6	0.3	0.3
Sofala	1.1	56.3	40.4	1 8	0.2	0.2
Inhambane	4.7	79.6	5.4	6 3	1.1	2.8
Gaza	9.9	59.4	8.8	16.1	0.0	5.8
Maputo	16.7	63.2	2.9	13.7	0.0	3.4
Total	**2.9**	**55.9**	**32.4**	**4.5**	**0.2**	**4.1**

Water and Sanitation

	Main source of water during rainy season (%)								
	Piped water	Public tap	Borehole with water pump	Protected well	Rain water	Unprotected well	River, lake	Vendor	Spring
Niassa	0.7	3 2	12.0	17.7	0.0	17.2	49.1	0.0	0.0
Cabo Delgado	1.8	8 8	0.3	6.3	6.8	37.1	39.0	0.0	0.3
Nampula	0.0	20.2	3.9	8.0	0.7	36.0	30.4	0.8	0.0
Zambézia	0.7	7 9	8.2	10.4	1.6	51.3	19.8	0.1	0.5
Tete	0.9	15.3	4.4	21.3	0.2	32.5	24.8	0.6	0.0
Manica	0.6	8 0	37.4	5.2	0.0	21.0	27.9	0.0	4.3
Sofala	0.2	10.8	35.7	5.2	0.9	29.8	15.5	2.0	0.2
Inhambane	1.1	7 5	13.0	9.5	14.5	46.9	0.5	7.0	0.0
Gaza	6.7	18.7	5.6	6.1	14.3	13.7	12.0	22.8	0.0
Maputo	7.5	27.5	6.0	5.5	6.5	29.0	15.0	3.0	1.5
Total	**1.2**	**12.6**	**9.7**	**9.6**	**3.5**	**36.6**	**24.6**	**2.2**	**0.4**

	Main source of water during dry season (%)								
	Piped water	Public tap	Borehole with water pump	Protected well	Rain water	Unprotected well	River, lake	Vendor	Spring
Niassa	0.5	3.7	11.4	17.1	0.0	14.4	52.9	0.0	0.0
Cabo Delgado	0.8	8.8	0.8	6.4	0.3	33.4	48.9	0.0	0.5
Nampula	0.0	20.6	5.1	7.5	0.0	39.8	26.3	0.8	0.0
Zambézia	0.7	8.2	8.0	10.7	0.0	49.2	22.9	0.0	0.5
Tete	0.9	15.5	4.3	21.1	0.0	30.5	27.2	0.6	0.0
Manica	0.8	6.4	35.1	4.4	0.0	16.0	34.5	0.0	2.8
Sofala	0.0	11.9	28.4	4.5	0.2	34.2	20.6	0.0	0.2
Inhambane	1.1	9.1	17.0	14.0	0.7	53.4	2.8	1.9	0.0
Gaza	5.5	22.7	2.0	9.3	3.8	28.0	23.9	4.7	0.0
Maputo	7.4	28.2	5.9	5.4	0.0	30.7	17.8	3.0	1.5
Total	**1.0**	**13.1**	**9.6**	**10.0**	**0.3**	**37.6**	**27.3**	**0.7**	**0.4**

Who fetched water during the past month (%)

	children	women and children	women, children, and men	women	women and men	men
Niassa	2.5	25.4	2.0	68.1	1.5	0.5
Cabo Delgado	3.0	31.1	5.7	52.6	6.1	1.5
Nampula	5.3	36.1	5.3	45.6	6.0	1.8
Zambézia	2.6	29.8	1.7	60.5	4.1	1.4
Tete	1.5	23.3	2.8	70.4	2.0	0.0
Manica	2.8	19.1	0.8	72.9	1.9	2.5
Sofala	2.0	21.3	1.6	71.1	2.0	2.0
Inhambane	4.4	40.7	3.5	46.5	2.1	2.8
Gaza	8.8	26.0	8.2	54.7	0.9	1.5
Maputo	6.9	21.2	6.9	55.2	2.0	7.9
Total	**3.8**	**30.0**	**3.7**	**57.0**	**3.8**	**1.7**

How many times per week do you fetch water? (%)

	1	2	3	4 - 6	Everyday	Everyday, more than once
Niassa	1.2	11.7	14.1	8.2	49.6	15.1
Cabo Delgado	1.6	12.7	9.6	10.0	38.3	27.6
Nampula	0.9	2.4	6.7	15.5	40.2	34.4
Zambézia	1.8	8.3	6.1	3.6	64.6	15.5
Tete	1.1	18.9	13.1	5.2	33.9	27.8
Manica	0.8	5.2	3.0	5.5	53.6	31.8
Sofala	2.0	3.8	6.1	2.9	49.7	35.5
Inhambane	2.5	9.1	22.8	16.3	33.3	16.0
Gaza	5.0	12.3	14.1	11.1	47.2	10.3
Maputo	3.4	8.8	10.3	7.8	33.8	35.8
Total	**1.7**	**8.3**	**9.5**	**9.2**	**46.6**	**25.0**

Time required (min) to fetch water during rainy season (%)

	0	1 - 5	6 - 10	11 - 20	21 - 60	61 - 120	> 120
Niassa	1.2	15.5	24.4	28.2	27.9	2.5	0.2
Cabo Delgado	0.7	13.1	12.2	18.8	40.9	10.0	4.3
Nampula	6.3	16.8	18.7	12.6	10.9	1.7	33.0
Zambézia	0.3	23.1	28.7	19.5	27.7	0.5	0.3
Tete	0.4	10.0	10.4	14.8	37.3	1.1	26.1
Manica	0.0	6.6	15.5	13.9	30.5	4.2	29.4
Sofala	0.7	17.5	20.0	15.2	26.0	2.7	17.9
Inhambane	13.0	8.6	8.4	13.7	30.4	7.0	18.9
Gaza	9.0	7.0	6.1	7.0	12.2	3.2	55.5
Maputo	13.2	8.8	9.8	15.2	40.7	9.8	2.5
Total	**3.8**	**15.3**	**18.0**	**16.0**	**25.7**	**3.3**	**17.9**

Time required (min) to fetch water during dry season (%)

	0	1 - 5	6 - 10	11 - 20	21 - 60	61 - 120	> 120
Niassa	1.2	5.5	19.4	25.6	38.2	8.7	1.5
Cabo Delgado	0.3	5.4	5.2	8.1	38.9	30.8	11.3
Nampula	6.0	9.2	4.1	14.1	26.9	6.3	33.4

Zambézia	0.1	16.4	27.4	18.8	34.2	1.7	1.3
Tete	0.4	9.4	9.8	13.5	37.9	2.8	26.2
Manica	0.0	5.3	13.6	11.6	28.3	4.2	37.1
Sofala	0.7	16.3	12.8	11.0	36.5	4.9	17.9
Inhambane	4.6	4.9	6.8	13.0	30.6	10.9	29.2
Gaza	3.8	6.4	6.1	7.3	15.8	5.3	55.3
Maputo	5.9	5.4	11.4	16.3	43.6	14.4	3.0
Total	**2.4**	**9.8**	**12.5**	**14.4**	**32.4**	**8.2**	**20.3**

	Type of sanitation facility (%)				
	Latrine	Septic tank	Improved latrine	None / bush	Sewerage
Niassa	88.5	0.7	1.2	9.5	0.0
Cabo Delgado	78.9	0.0	1.4	19.6	0.1
Nampula	54.2	0.0	1.2	44.3	0.2
Zambézia	23.9	0.4	1.3	74.3	0.1
Tete	45.1	1.8	5.4	47.7	0.0
Manica	35.4	0.6	5.5	57.5	1.1
Sofala	15.7	0.0	3.1	80.9	0.2
Inhambane	68.5	0.7	10.2	20.3	0.4
Gaza	65.2	2.3	13.5	19.0	0.0
Maputo	63.9	4.4	7.3	24.4	0.0
Total	**49.9**	**0.6**	**3.5**	**45.8**	**0.2**

Household Income

Main income source of the household (%)

	Production/ Sale of staple food crops	Production/Sale of crash crops	Production /Sale of horticultural products	Production/Sale of fruit	Prod. Of harvest / hun ing / reed	Informal labour/ Ganho - Ganho	Fishing (Sale of fish)	Sale of animals/ Animal products	Informal/ Formal trade	Remittances	Sale of firewood/ charcoal	Production/ Sale of beverages	Transport	Formal employment	Construction materials	Hiring of animal traction	Monthly pension (Old age)	Hasn't got
Niassa	46.1	12.3	0.8	0 3	6.5	10.8	3.8	0 8	6.0	1.0	1.8	1.3	0.0	3.8	0.3	0.0	0.8	4.0
Cabo Delg.	33.1	25.6	0.0	0 5	0.8	2.6	1.6	1 5	3.3	1.4	1.0	1.4	0.0	2.3	1.1	0.0	1.8	22.2
Namp.	44.5	8.7	0.3	0 2	2.4	11.1	4.3	0 5	5.2	2.8	2.5	2.0	0.0	6.8	0.6	0.0	1.0	6.9
Zamb.	55.4	2.6	0.7	1.6	2.0	12.0	2.3	0.7	6.1	1.2	0.6	8.3	0.2	3.9	0.8	0.0	0.3	1.2
Tete	36.1	15.0	2.0	0 0	1.3	26.5	0.7	0.4	3.0	0.2	1.7	2.6	0.0	4.3	0.6	0.2	1.1	4.4
Manica	50.6	2.8	1.9	0 8	0.8	14.1	0.3	0 8	11.3	2.8	1.4	1.9	0.0	8.0	0.6	0.0	0.6	1.4
Sofala	39.5	10.1	0.2	0.4	22.6	8.3	3.1	1.1	3.1	2.5	1.6	0.9	0.0	4.5	0.4	0.0	1.3	0.2
Inhamb	32.6	3.3	0.5	2 3	0.9	15.3	2.1	1 8	8.4	3.0	2.1	6.7	0.4	4.7	0.7	0.0	1.1	14.2
Gaza	13.2	0.3	6.7	4.7	21.9	12.0	2.0	1 2	12.9	8.8	1.2	2.9	0.0	7.3	0.3	0.3	2.0	2.3
Maputo	22.2	0.5	1.5	0 5	6.4	12.8	1.5	0 0	8.4	10.8	8.4	2.0	0.0	22.7	1.0	0.0	0.5	1.0
Total	**41.9**	**8.5**	**1.0**	**1.0**	**4.5**	**12.0**	**2.6**	**0.9**	**6.0**	**2.5**	**1.7**	**3.7**	**0.1**	**5.5**	**0.7**	**0.0**	**1.0**	**6.4**

The main manager of the family money (%)

	Man	Woman	Both
Niassa	53.7	27.4	18.9
Cabo Delgado	63.2	25.4	11.4
Nampula	62.1	24.7	13.2
Zambézia	48.9	25.8	25.3
Tete	53.2	34.8	12.0
Manica	52.9	37.7	9.4
Sofala	50.8	39.1	10.1
Inhambane	13.9	56.1	30.0
Gaza	24.3	71.6	4.1
Maputo	33.8	52.5	13.7
Total	**50.0**	**33.5**	**16.5**

Partcipation in local organization

	Any member of the HH is part of an association or group? (%)	
	Yes	No
Niassa	16.2	83.8
Cabo Delgado	13.4	86.6
Nampula	14.3	85.7
Zambézia	32.6	67.4
Tete	3.3	96.7
Manica	24.0	76.0
Sofala	28.0	72.0
Inhambane	20.0	80.0
Gaza	42.3	57.7
Maputo	19.2	80.8
Total	**21.0**	**79.0**

Participations in associations or groups (%)

	Agricultu re	Commerci al	Communit y Developm ent	Women	Formal Credit	Informal Credit	Religious (Church)	Cultura l	Assoc. of Parents in Educa io n	Schools	Health	Water/ Sanitatio n	Youth	Sports	OVC (Orphan ed and vulnerab le children)	Food committ ees
Niassa	43.8	1.6	7.8	9.4	0.0	0.0	23.4	7.8	3.1	1.6	1.6	0.0	0.0	0.0	0.0	0.0
Cabo Delgado	35.1	1.0	5.2	3.1	4.1	1.0	42.3	1.0	2.1	1.0	0.0	1.0	1.0	2.1	0.0	0.0
Nampula	14.0	0.0	23.0	11.5	3.4	6.4	31.9	3.8	0.0	0.0	0.0	0.0	0.0	0.9	5.1	0.0
Zambézia	7.3	2.2	5.7	3.0	1.2	0.6	68.5	2.6	4.6	0.4	2.2	0.0	0.0	0.6	0.0	1.0
Tete	22.2	0.0	11.1	11.1	0.0	0.0	38.9	5.6	5.6	5.6	0.0	0.0	0.0	0.0	0.0	0.0
Manica	4.6	1.1	5.7	1.1	0.0	0.0	81.6	4.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sofala	12.8	0.8	3.2	5.6	1.6	3.2	61.6	0.0	2.4	0.0	6.4	0.0	0.8	0.0	0.0	1.6
Inhambane	7.9	0.9	2.6	4.4	0.0	1.8	74.6	1.8	1.8	0.9	0.0	0.0	1.8	0.0	0.0	1.8
Gaza	27.1	1.4	36.1	6.3	1.4	0.7	22.9	0.7	1.4	1.4	0.7	0.0	0.0	0.0	0.0	0.0
Maputo	30.8	2.6	20.5	5.1	2.6	0.0	33.3	0.0	2.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0
Total	**15.2**	**1.3**	**11.7**	**5.4**	**1.6**	**1.8**	**53.3**	**2.5**	**2.6**	**0.6**	**1.5**	**0.1**	**0.3**	**0.5**	**0.8**	**0.6**

Shocks and Strategies

Main Shocks (%)

	Drought/ Lack of rains/ Irregular rains	Inundation/ Floods	Erosion	Levels above normal of pests or disease in the farm	Epidemics in animals	Acute illness in people	Food price rises	Price increase for agricultural products	Loss or reduction of employment of HH members	Loss or reduction of money of HH members	Chronic and serious illness of member(s)	Death of the head of the HH	Death oh a household member	Theft or loss of goods and resources	Insecurity/ Violence	Ice rain
Niassa	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	24.0	12.0	32.0	8.0	4.0	0.0
Cabo Delgado	54.1	0.8	0.0	0.0	2.3	3.0	0.0	0.0	0.0	0.0	18.8	2.3	8.3	10.5	0.0	0.0
Nampula	58.5	1.3	0.9	2.2	0.0	2.8	1.3	0.3	0.0	1.3	13.3	3.5	4.4	8.2	1.9	0.0
Zambézia	45.6	1.3	0.9	0.0	6.3	1.3	7.9	4.0	0.4	2.7	10.1	4.3	8.3	5.2	1.6	0.0
Tete	0.0	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	25.0	34.4	21.9	3.1	3.1	0.0
Manica	22.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	27.8	0.0	16.7	16.7	5.6	5.6
Sofala	7.1	0.0	1.2	0.0	0.0	3.5	1.2	1.2	1.2	1.2	38.8	10.6	25.9	4.7	3.5	0.0
Inhambane	30.3	1.8	0.0	0.9	2.8	12.8	5.5	1.8	0.0	4.6	14.7	2.8	14.7	2.8	1.8	2.8
Gaza	16.0	11.3	0.0	0.9	5.7	9.4	4.7	0.9	0.9	1.9	7.5	6.6	29.2	3.8	0.9	0.0
Maputo	2.0	6.0	0.0	0.0	0.0	2.0	0.0	0.0	6.0	6.0	30.0	6.0	30.0	12.0	0.0	0.0
Total	**39.8**	**2.4**	**0.6**	**0.7**	**3.0**	**3.6**	**3.9**	**1.7**	**0.7**	**2.1**	**15.4**	**5.2**	**12.4**	**6.5**	**1.7**	**0.3**

Second Main Shock (%)

	Did not suffered second shock	Drought/ Lack of rains/ Irregular rains	Inundation/ Floods	Erosion	Epidemics in animals	Acute illness in people	Food price rises	Loss or reduc ion of employment of HH members	Loss or reduction of money of HH members	Chronic and serious illness of member(s)	Death of the head of the HH	Death oh a household member	Theft or loss of goods and resources	Insecurity/ Violence	Ice rain
Niassa	88.0	4.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	4.0	0.0
Cabo Delgado	90.2	3.0	0.0	0.0	0.0	0 0	1.5	0.0	0.0	3.8	0.0	1.5	0.0	0.0	0.0
Nampula	96.2	2.8	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0
Zambézia	94.6	0.7	1.1	0.0	0.0	0 0	0.0	0.7	0.7	0.0	0.9	0.7	0.7	0.0	0.0
Tete	97.1	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0
Manica	100.0	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sofala	100.0	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inhambane	93.6	1.8	0.0	0.0	0.9	0 0	0.0	0.0	0.9	0.0	0.0	0.0	0.9	0.0	1.8
Gaza	90.5	1.0	1.9	0.0	1.9	1 0	1.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0
Maputo	98.0	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Total	**94.6**	**1.5**	**0.5**	**0.0**	**0.2**	**0.1**	**0.2**	**0.2**	**0.3**	**0.5**	**0.3**	**0.9**	**0.3**	**0.1**	**0.2**

	Third Main Shock (%)		
	Did not suffered third Shock	Food price rises	Death oh a household member
Niassa	95.8	4.2	0.0
Cabo Delgado	100.0	0.0	0.0
Nampula	100.0	0.0	0.0
Zambézia	100.0	0.0	0.0
Tete	100.0	0.0	0.0
Manica	100.0	0.0	0.0
Sofala	100.0	0.0	0.0
Inhambane	100.0	0.0	0.0
Gaza	99.0	0.0	1.0
Maputo	100.0	0.0	0.0
Total	**99.8**	**0.1**	**0.1**

	The main shock caused a decrease/ loss of revenue in cash or kind? (%)		The main shock caused a decrease/ loss of belongings? (%)		The main shock caused a decrease of food production? (%)	
	Yes	No	Yes	No	Yes	No
Niassa	88.0	12.0	80.0	20.0	80.0	20.0
Cabo Delgado	54.1	45.9	32.0	68.0	83.3	16.7
Nampula	67.4	32.6	71.8	28.2	90.8	9.2
Zambézia	43.4	56.6	33.4	66.6	71.2	28.8
Tete	78.8	21.2	59.4	40.6	69.7	30.3
Manica	83.3	16.7	77.8	22.2	73.7	26.3
Sofala	91.7	8.3	75.0	25.0	75.0	25.0
Inhambane	70.6	29.4	45.3	54.7	67.9	32.1
Gaza	75.0	25.0	73.1	26.9	79.6	20.4
Maputo	75.5	24.5	32.7	67.3	44.0	56.0
Total	**61.6**	**38.4**	**51.6**	**48.4**	**76.9**	**23.1**

Main mechanism the HH used to minimize the impact of the shock (%) (continued)

	Changed diet to cheaper food products	Borrowed food	Purchased food on credit	Consumed larger quantity of wild fruits/hunger food	Consumed seed reserves for the following season	Diminished a quantity of food for all members	Adults ate less to spare food for children	Reduced the number of meals	Had days without eating anything	Some members migrated temporarily	Diminished expeditures on education	Withdrew child from school	Diminished expeditur e on heal h	Borrowed money from relatives or friends	Took money on credit from pawnbrokers	Sold agricultural materials	Sold construction materials	Sold more young animals	Sold more adult animals	Sold belongings / furniture of the HH
Nias	4.2	12.5	0.0	0.0	4.2	25.0	4.2	33.3	0.0	8.3	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0
Cab Dlg	39.6	1.5	1.5	0.0	0.7	3.7	1.5	23.9	1.5	2.2	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
Namp	0.6	6.0	3.2	6.6	4.1	10.7	0.9	25.2	29.7	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	4.7	0.0	0.0
Zamb.	8.6	2.0	2.0	0.5	6.3	13.1	1.8	46.0	1.6	0.7	0.7	0.0	0.7	1.4	0.0	1.1	0.0	5.9	0.0	0.9
Tete	48.6	2.9	2.9	0.0	2.9	11.4	2.9	5.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0
Manic	11.1	0.0	5.6	0.0	5.6	11.1	0.0	11.1	11.1	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	5.6	0.0	5.6
Sofala	12.9	8.2	2.4	0.0	8.2	5.9	2.4	20.0	8.2	3.5	0.0	2.4	0.0	1.2	1.2	0.0	0.0	1.2	2.4	2.4
Inham	13.5	3.6	2.7	0.0	2.7	7.2	5.4	38.7	6.3	1.8	0.0	0.0	1.8	4.5	1.8	0.0	0.9	0.0	0.0	1.8
Gaza	2.9	12.7	4.9	1.0	5.9	5.9	1.0	31.4	18.6	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	2.0	1.0	1.0
Map	8.3	2.1	2.1	0.0	6.3	10.4	2.1	2.1	4.2	0.0	0.0	0.0	0.0	14.6	0.0	0.0	0.0	6.3	2.1	2.1
Total	**11.1**	**4.5**	**2.6**	**1.8**	**4.9**	**10.1**	**1.9**	**32.0**	**10.8**	**1.1**	**0.2**	**0.2**	**0.4**	**1.9**	**0.2**	**0.7**	**0.1**	**3.7**	**0.3**	**0.8**

Main mechanism the HH used to minimize the impact of the shock (%)

	Exchange agricultural products	Gave away land	Worked for food	Worked for more hours/b intensified work	Changed house	Sent children to work for others HH	Spent savings	Harvested crops before time	Did not have other strategy
Niassa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0
Cabo Delgado	0.0	0.0	3.7	0.0	3.0	0.7	3.0	2.2	9.7
Nampula	0.9	0.0	1.6	0.3	2.5	0.0	0.9	0.6	0.0
Zambézia	2.7	0.0	0.2	0.0	0.7	0.0	2.5	0.5	0.2
Tete	2.9	0.0	5.7	0.0	0.0	0.0	2.9	2.9	0.0
Manica	5.6	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.0
Sofala	2.4	1.2	1.2	1.2	2.4	0.0	7.1	1.2	1.2
Inhambane	0.0	0.0	0.9	4.5	0.0	0.0	0.9	0.9	0.0
Gaza	0.0	0.0	2.9	2.0	0.0	0.0	2.9	0.0	0.0
Maputo	0.0	0.0	4.2	8.3	0.0	0.0	14.6	0.0	10.4
Total	**1.4**	**0.1**	**1.5**	**1.0**	**1.3**	**0.1**	**3.0**	**0.8**	**1.5**

	Has the HH recovered from the losses? (%)		
	Yes	Parcially	No
Niassa	36.0	16.0	48.0
Cabo Delgado	25.8	54.5	19.7
Nampula	3.8	36.7	59.5
Zambézia	9.9	28.5	59.1
Tete	8.8	20.6	70.6
Manica	27.8	27.8	44.4
Sofala	23.8	42.9	28.6
Inhambane	1.8	69.1	22.7
Gaza	37.9	12.6	45.6
Maputo	18.0	38.0	42.0
Total	**13.4**	**36.1**	**48.4**

Credit

	Did the HH borrow money or received any type of credit? (%)		Has the HH access to the formal credit? (%)	
	Yes	No	Yes	No
Niassa	8.7	91.3	2.5	97.5
Cabo Delgado	3.3	96.7	1.1	98.9
Nampula	8.7	91.3	1.2	98.8
Zambézia	9.3	90.7	0.4	99.6
Tete	2.4	97.6	0.0	100.0
Manica	6.6	93.4	0.6	99.4
Sofala	6.1	93.9	2.9	97.1
Inhambane	4.0	96.0	0.4	99.6
Gaza	14.9	85.1	2.9	97.1
Maputo	12.3	87.7	3.4	96.6
Total	**7.5**	**92.5**	**1.2**	**98.8**

D) Summary data - Livelihood Groups

Demographics

	HH Size	Sex of HH head (%)	
		Male	Female
Grupo 1	4.4	66.0	34.0
Grupo 2	4.6	77.1	22.9
Grupo 3	4.0	71.7	28.3
Grupo 4	4.4	68.5	31.5
Grupo 5	4.3	69.7	30.3
Grupo 6	3.8	75.4	24.6
Grupo 7	4.4	67.2	32.8
Grupo 8	4.9	72.5	27.5
Grupo 9	4.4	59.1	40.9
Total	**4.4**	**70.1**	**29.9**

	Head's Age of the HH (%)		
	0 - 17	18 - 59	60 or +
Group 1	4.5	88.9	6.6
Group 2	5.5	87.2	7.2
Group 3	6.2	81.1	12.7
Group 4	2.5	79.9	17.6
Group 5	8.0	82.9	9.0
Group 6	0.0	91.4	8.6
Group 7	12.2	82.9	4.9
Group 8	7.2	81.5	11.3
Group 9	2.3	73.8	23.8
Total	**6.3**	**82.7**	**11.1**

	Dependency Ratio
	Mean
Group 1	2.2
Group 2	2.2
Group 3	2.5
Group 4	3.2
Group 5	2.3
Group 6	1.3
Group 7	2.3
Group 8	2.7
Group 9	3.4
Total	**2.5**

	Cronical sick people in the HH (%)			
	0	1	2	3
Group 1	94.4	5.5	0.2	0.0
Group 2	88.8	11.1	0.1	0.0
Group 3	93.3	6.5	0.2	0.0
Group 4	90.3	9.3	0.4	0.0
Group 5	90.5	9.2	0.3	0.0
Group 6	95.7	4.3	0.0	0.0
Group 7	91.4	8.6	0.0	0.0
Group 8	83.6	15.5	0.8	0.0
Group 9	91.4	7.9	0.5	0.2
Total	**90.5**	**9.2**	**0.3**	**0.1**

	HH with disabled members (%)		Child is orphan of mother (0 to 17 years) (%)	Child is orphan of father (0 to 17 years) (%)	Child is orphan of both (0 to 17 years) (%)
	Yes	No			
Group 1	5.8	94.2	3.2	7.5	1.3
Group 2	5.5	94.5	3.6	7.2	2.2
Group 3	5.6	94.4	0.8	6.6	2.6
Group 4	8.6	91.4	1.8	6.9	1.6
Group 5	8.8	91.2	1.7	8.1	2.2
Group 6	0.0	100.0	1.2	5.9	5.5
Group 7	5.5	94.5	1.5	4.4	1.4
Group 8	12.5	87.5	2.7	5.4	2.5
Group 9	8.9	91.1	0.7	11.5	3.7
Total	**7.7**	**92.3**	**2.0**	**7.1**	**2.2**

Education

Educational achievement of head of household (%)							Head of HH can read and write (%)	
No school	alfabetization level	primary incomplete	completed primary	secondary incomplete	completed secondary or higher	doesn't know	Yes	No

Group 1	46.9	0.2	30.6	15.4	4.1	0.7	2.0	44.5	55.5
Group 2	39.2	0.5	31.9	15.9	7.0	3.7	1.8	57.1	42.9
Group 3	49.4	1.0	30.3	12.4	4.8	1.6	0.5	43.6	56.4
Group 4	48.5	2.2	33.9	9.8	3.3	0.5	1.8	45.0	55.0
Group 5	43.3	0.8	29.4	16.1	6.3	2.6	1.4	50.3	49.7
Group 6	37.1	2.9	31.4	7.1	7.1	18.6	2.9	52.9	47.1
Group 7	15.1	0.2	32.2	18.0	12.7	19.0	2.6	79.1	20.9
Group 8	38.6	1.4	23.7	22.9	9.1	3.1	1.2	58.9	41.1
Group 9	59.1	0.5	20.9	12.3	2.8	2.6	1.9	33.3	66.7
Total	**43.3**	**0.9**	**29.5**	**15.3**	**6.2**	**3.3**	**1.5**	**50.7**	**49.3**

	Children 6 to 17 that went to school in 2005 (%)	Children 6 to 17 that went to school in 2006 (%)	Children 6 to 17 that Failed in 2005 (%)	Children 6 to 17 that Gave up school in 2006 (%)
Group 1	61.7	63.7	6.1	4.8
Group 2	65.0	68.2	6 3	2.7
Group 3	62.0	65.1	6 2	3.0
Group 4	56.6	60.0	5 8	1.9
Group 5	65.0	66.9	5 3	4.8
Group 6	75.0	70.4	20.0	3.4
Group 7	70.5	73.7	6.7	1.8
Group 8	66.2	68.1	3.7	4.2
Group 9	66.0	70.0	10.7	3.3
Total	**64.1**	**66.6**	**6.1**	**3.6**

Reasons for Not Being Enrolled in School (Age Group 5 - 17) (%)

	Shortage of vacancies	The school is very distant	Following level does not exist	Very expensive/ lack of money	Works	Lack of interest	Failed	Got married/ Pregnancy	Sick/ with incapacity	Takes cares of relatives
Group 1	3.4	27.2	1.4	4.1	2.7	46.9	0.7	10.2	2.7	0.7
Group 2	3.9	25.7	1.9	6.8	1.0	51.9	3.4	3.4	1.9	
Group 3	0.5	21.7	1.4	12.4	0.5	54.4	0.5	2.8	5.5	0.5
Group 4	7.0	46.2	0.5	5.0		30.2		6.0	5.0	0.0
Group 5	3.4	24.7	3.6	10.2	1.5	41.3	0.6	7.9	6.4	0.4
Group 6	33.3				22.2	11.1		11.1	22.2	
Group 7	3.4	18.0	1.1	14.6	2.2	48.3	1.1	6.7	4.5	
Group 8	7.0	26.6	0.0	5.1	5.1	39.2	3.2	3.2	10.1	0.6
Group 9		43.2		32.4	0.0	12.2		4.1	5.4	2.7
Total	**3.9**	**27.9**	**1.8**	**9.6**	**1.7**	**42.3**	**1.1**	**5.9**	**5.5**	**0.4**

Agriculture

Fields cultivated on high ground (%)

	0	1	2	3	4	5	6 or more
Group 1	21.00	47.21	26.39	3.35	2.04	0.00	0.00
Group 2	14.68	40.10	26.97	13.25	4.77	0.00	0.24
Group 3	9.27	41.13	28.80	14.76	3.87	0.90	1.26
Group 4	15.94	42.92	27.66	11.31	1.50	0.54	0.14
Group 5	9.11	46.27	30.86	10.06	2.49	0.42	0.79
Group 6	50.00	34.29	11.43	4.29	0.00	0.00	0.00
Group 7	30.12	42.41	18.31	7.23	1.69	0.24	0.00
Group 8	13.40	35.86	31.94	12.18	4.06	0.81	1.76
Group 9	20.19	39.44	30.39	7.89	1.62	0.00	0.46
Total	**14.40**	**42.44**	**28.46**	**10.69**	**2.90**	**0.43**	**0.69**

Hectares fields on high ground (%)

	0	< 0.25 ha	0.26 to 1 ha	1.1 to 2 ha	2.1 to 5 ha	5.1 to 10 ha	more than 50 ha	> 0.25 ha on high ground areas
Group 1	21.0	21.5	34.5	20.0	2.6	0.4	0.0	57.5
Group 2	14.7	15.7	35.2	23.1	10.3	1.0	0.1	69.6
Group 3	9.3	18.3	29.8	31.4	10.4	0.6	0.2	72.4
Group 4	15.9	15.5	39.0	21.0	8.0	0.4	0.1	68.5
Group 5	9.1	21.7	35.4	23.2	9.6	0.7	0.3	69.2
Group 6	50.7	2.9	21.7	11.6	10.1	2.9	0.0	46.4
Group 7	30.1	24.1	28.2	13.7	3.4	0.5	0.0	45.8
Group 8	13.4	29.9	34.6	14.8	5.6	1.6	0.1	56.7
Group 9	20.2	19.3	38.6	17.2	4.2	0.5	0.0	60.5
Total	**14.4**	**20.4**	**34.3**	**22.0**	**7.9**	**0.8**	**0.1**	**65.2**

Fields cultivated on low lying land (%)

	0	1	2	3	4	5	6 or more
Group 1	70.0	24.4	4.3	0.7	0.6	0.0	0.0
Group 2	49.9	37.9	9.9	1.3	0.8	0.1	0.0
Group 3	57.2	36.0	4.8	1.9	0.1	0.1	0.0
Group 4	63.3	27.8	5.9	2.3	0.5	0.1	0.0
Group 5	53.2	35.3	7.8	2.9	0.7	0.1	0.1
Group 6	26.8	60.6	11.3	1.4	0.0	0.0	0.0
Group 7	71.6	23.8	3.8	0.0	0.2	0.0	0.5
Group 8	41.1	43.4	10.0	4.2	0.4	0.1	0.7
Group 9	70.2	20.9	6.3	1.9	0.7	0.0	0.0
Total	**56.5**	**33.6**	**7.0**	**2.2**	**0.5**	**0.1**	**0.1**

Hectares fields on low lying land (%)

	0	< 0.25 ha	0.26 to 1 ha	1.1 to 2 ha	2.1 to 5 ha	5.1 to 10 ha	more than 50 ha	> 0.25 ha in low-lying areas
Group 1	70.0	15.5	12.3	1.7	0.6	0.0	0.0	14.5
Group 2	50.0	19.2	22.3	6.9	1.4	0.1	0.0	30.8
Group 3	57.2	18.3	21.3	2.2	0.9	0.0	0.0	24.5
Group 4	63.2	13.2	16.9	5.3	1.2	0.1	0.0	23.6
Group 5	53.1	17.4	20.7	6.6	1.6	0.4	0.1	29.4
Group 6	27.1	15.7	31.4	17.1	8.6	0.0	0.0	57.1
Group 7	71.6	12.3	12.5	2.6	1.0	0.0	0.0	16.1
Group 8	41.1	30.4	20.6	5.0	2.3	0.4	0.1	28.5
Group 9	70.2	10.2	12.6	6.0	0.9	0.0	0.0	19.5
Total	**56.5**	**17.8**	**19.0**	**5.1**	**1.4**	**0.2**	**0.0**	**25.7**

Mean Production in Kg (%)

	Maize	Rice	Sorghum	Millet	Large peanuts	Small peanuts	Beans	Cowpeas	Bambara nuts	Piegeon Pe	Oloko beans	Green beans
Group 1	85.1	12.9	10.9	4.0	11.5	10.8	1.9	23.4	2.2	5.8	1.2	0.1
Group 2	230.4	57.9	87.7	3.4	16.4	40.3	11.3	35.1	1.1	5.9	1.6	0.5
Group 3	370.5	60.3	104.1	2.1	38.1	56.9	12.0	36.9	1.7	26.7	1.0	0.0
Group 4	185.3	30.8	27.8	2.3	10.7	11.6	15.2	38.3	2.2	2.7	1.5	0.6
Group 5	304.6	63.9	66.3	7.5	35.9	25.4	6.2	33.4	2.3	10.4	1.8	1.0
Group 6	215.9	7.0	109.1	7.0	4.9	10.7	7.5	4.5	0.0	0.4	0.0	0.0
Group 7	154.7	50.6	10.5	0.8	15.8	15.1	3.9	23.0	3.2	4.6	1.3	0.1
Group 8	203.5	43.2	56.2	5.9	20.2	16.4	19.5	43.8	1.6	10.5	1.5	0.9
Group 9	235.7	43.7	28.2	4.2	22.9	15.9	3.9	13.9	3.3	1.3	1.9	0.0
Total	**252.4**	**50.3**	**61.0**	**4.5**	**25.3**	**27.7**	**9.7**	**33.1**	**2.1**	**10.4**	**1.5**	**0.5**

Months that harvest has lasted since October 2005 (%)

	Less than 1 month	Up to 2 months	Up to 3 months	Up to 4 months	Up to 5 months	Up to 6 months	Up to 7 months	Up to 8 months	Up to 9 months	Up to 10 months	Up to 11 months	12 or more months
Group 1	21.1	16.4	14.4	17.2	8.0	8.6	3.5	3.2	3.2	2.2	1.1	1.1
Group 2	10.1	8.8	13.2	14.6	11.2	9.1	5.1	6.1	4.4	8.8	1.2	7.3
Group 3	6.7	10.9	17.9	14.0	7.7	8.1	6.2	4.0	6.1	8.7	0.6	9.1
Group 4	18.6	13.0	11.6	16.9	9.2	8.1	4.6	4.4	4.1	4.9	0.7	4.0
Group 5	10.3	11.2	14.7	11.9	8.9	9.9	4.8	5.2	4.5	8.6	1.5	8.6
Group 6	5.6	4.2	5.6	2.8	12.7	11.3	9.9	12.7	2.8	4.2	2.8	25.4
Group 7	33.3	13.9	9.6	11.0	9.3	5.3	3.1	2.2	5.5	5.3	0.5	1.2
Group 8	20.4	23.3	15.8	11.1	6.4	6.2	3.0	3.2	3.2	4.1	0.3	3.0
Group 9	18.4	8.9	11.2	18.4	14.5	9.6	5.4	3.5	5.1	3.3	0.0	1.9
Total	**14.4**	**12.7**	**14.2**	**13.7**	**9.1**	**8.5**	**4.7**	**4.4**	**4.6**	**6.7**	**0.9**	**6.1**

	Livestock ownership		
	% HHs with at least 10 chickens	% HHs with at least 5 goats/sheeps/pigs	% HHs with at least 1 cattle
Group 1	5 88	3.49	3.31
Group 2	19.67	11.49	7.70
Group 3	18.87	7.64	2.96
Group 4	13.96	10.28	7.36
Group 5	23.96	13.95	7.58
Group 6	5 81	13.95	8.14
Group 7	12.03	5.72	4.73
Group 8	26.62	14.96	12.96
Group 9	12.32	4.76	2.52
Total	**18.79**	**10.64**	**6.87**

House materials and welfare

	Ceiling material (%)							
	cement/ bricks	clay	reed	plastic	tile	iron sheets	stone	kiln brick
Group 1	0.2	0.9	80.9	0.9	3.0	13.4	0.0	0.7
Group 2	0.5	0.0	79.4	1.0	0.4	17.0	0.1	1.7
Group 3	0.1	0.2	92.2	0.9	1.5	4.3	0.0	0.8
Group 4	0.3	0.8	77.2	1.1	2.7	16.8	0.0	1.1
Group 5	0.2	0.2	82.4	1.9	0.9	13.7	0.0	0.7
Group 6	0.0	0.0	87.1	0.0	0.0	10.0	0.0	2.9
Group 7	0.0	0.5	59.5	1.2	6.0	32.0	0.2	0.5
Group 8	1.1	0.7	66.8	1.6	1.2	27.9	0.3	0.4
Group 9	0.5	0.2	77.9	0.5	6.5	14.2	0.0	0.2
Total	**0.3**	**0.4**	**79.6**	**1.3**	**2.0**	**15.6**	**0.1**	**0.8**

	Wall material (%)							
	cement/ bricks	clay	reed	plastic	tile	iron sheets	stone	kiln brick
Group 1	3.7	58.9	18.6	0.0	2.0	0.4	0.7	15.6
Group 2	7.0	53.3	14.4	0.0	0.0	0.7	3.5	21.0
Group 3	1.3	40.4	10.4	0.0	0.3	0.6	0.8	46.2
Group 4	4.9	62.0	19.5	0.3	0.4	1.1	0.5	11.4
Group 5	4.8	49.7	13.1	0.1	0.3	0.3	0.7	31.1
Group 6	5.7	84.3	4.3	0.0	0.0	0.0	0.0	4.3
Group 7	14.0	37.8	15.4	0.2	0.5	0.7	1.9	29.6
Group 8	9.8	48.2	19.5	0.1	0.0	1.9	1.6	18.8
Group 9	3.7	64.0	16.7	0.5	4.4	0.7	0.7	9.5
Total	**5.5**	**51.1**	**14.9**	**0.1**	**0.6**	**0.7**	**1.2**	**25.9**

	Cooking fuel (%)					
	Electricity	Firewood	Charcoal	Gas	Paraffin	Manure
Group 1	0.0	96.3	3.5	0.0	0.0	0.2
Group 2	0.0	96.7	3.2	0.0	0.0	0.1
Group 3	0.0	97.9	1.7	0.0	0.4	0.0

Group 4	0.3	95.4	3.4	0.0	0.0	1.0
Group 5	0.5	96.3	2.8	0.1	0.1	0.3
Group 6	0.0	100.0	0.0	0.0	0.0	0.0
Group 7	1.0	76.4	20.9	0.5	0.7	0.5
Group 8	0.7	93.9	5.0	0.0	0.0	0.4
Group 9	0.0	97.4	2.6	0.0	0.0	0.0
Total	**0.3**	**95.1**	**4.1**	**0.0**	**0.1**	**0.3**

	Source of lighting (%)					
	Electricity	Oil lamp	Firewood	Candle	Generator	Solar panel
Group 1	2.4	58.7	28.4	4.3	0.0	6.1
Group 2	3.5	59.0	27.3	4.4	0.1	5.7
Group 3	0.5	50.7	40.5	0.9	0.2	7.2
Group 4	1.8	51.6	39.9	3.7	0.1	3.0
Group 5	1.7	58.3	32.0	4.6	0.4	3.0
Group 6	1.4	29.0	56.5	10.1	0.0	2.9
Group 7	13.3	70.6	8.9	5.3	1.0	1.0
Group 8	4.2	51.8	30.0	12.3	0.1	1.5
Group 9	3.7	53.1	38.1	0.5	0.5	4.2
Total	**2.9**	**55.9**	**32.4**	**4.5**	**0.3**	**4.1**

Water and Sanitation

	Main source of water during rainy season (%)								
	Piped water	Public tap	Borehole with water pump	Protected well	Rain water	Unprotected well	River, lake	Vendor	Spring
Group 1	0.6	19.2	9.7	9.3	5.0	34.3	20.9	1.1	0.0
Group 2	1.0	8.2	12.4	10.3	3.8	39.1	24.3	0.6	0.2
Group 3	0.3	8.6	7.1	9.9	1.1	43.2	28.4	0.4	1.1
Group 4	0.8	14.3	8.2	9.5	6.1	37.1	22.8	1.1	0.1
Group 5	0.6	12.2	10.6	8.2	2.9	36.0	28.0	1.0	0.5
Group 6	0.0	30.4	4.3	23.2	0.0	7.2	34.8	0.0	0.0
Group 7	5.0	19.5	12.0	13.0	7.5	25.5	13.7	2.9	1.0
Group 8	2.3	11.2	12.7	8.1	1.6	31.8	21.0	11.1	0.0
Group 9	2.1	13.9	3.5	10.7	5.1	39.7	21.6	3.2	0.2
Total	**1.2**	**12.6**	**9.7**	**9.6**	**3.5**	**36.4**	**24.5**	**2.2**	**0.4**

	Main source of water during dry season (%)								
	Piped water	Public tap	Borehole with water pump	Protected well	Rain water	Unprotected well	River, lake	Vendor	Spring
Group 1	0.6	19.6	9.3	10.4	0.0	40.4	19.4	0.4	0.0
Group 2	0.8	8.8	11.3	11.5	0.0	36.4	30.7	0.2	0.2
Group 3	0.2	8.6	7.0	8.7	0.1	42.3	32.2	0.3	0.6
Group 4	0.7	15.3	10.8	9.1	0.3	40.2	23.0	0.5	0.3
Group 5	0.6	12.3	10.3	9.1	0.1	37.7	29.5	0.3	0.3
Group 6	0.0	30.4	2.9	23.2	0.0	7.2	37.7	0.0	0.0
Group 7	4.6	21.2	12.7	15.6	0.5	26.0	15.4	2.6	1.2
Group 8	1.6	13.0	9.5	8.0	1.8	37.9	25.9	2.2	0.1
Group 9	1.4	15.1	6.7	10.4	0.2	35.5	29.0	1.2	0.2
Total	**1.0**	**13.1**	**9.6**	**9.9**	**0.3**	**37.6**	**27.4**	**0.7**	**0.4**

Who fetched water during the past month (%)

	children	women and children	women, children, and men	women	women and men	men
Group 1	2.6	24.2	1.7	68.9	1.9	0.7
Group 2	3.2	30.1	5.0	54.0	6.4	1.2
Group 3	1.7	31.2	5.0	56.9	3.6	1.5
Group 4	4.9	29.1	3.4	54.6	4.5	3.5
Group 5	3.7	32.5	3.3	54.7	3.9	1.9
Group 6	7.0	15.5	1.4	71.8	2.8	1.4
Group 7	2.4	32.1	3.1	54.9	4.8	2.6
Group 8	5.6	27.3	5.2	57.9	3.1	0.9
Group 9	7.7	29.3	0.7	60.0	0.9	1.4
Total	**3.8**	**30.0**	**3.7**	**57.0**	**3.8**	**1.7**

How many times per week do you fetch water? (%)

Group 1	1	2	3	4 - 6	Everyday	Everyday, more than once
Group 2	1.5	5.6	8.1	9.4	47.9	27.4
Group 3	1.3	8.6	9.5	8.2	52.4	19.9
Group 4	1.5	6.0	8.3	8.2	49.3	26.7
Group 5	1.4	7.5	10.4	10.8	48.3	21.7
Group 6	4.3	11.4	1.4	0.0	7.1	75.7
Group 7	1.0	7.2	8.2	12.0	44.1	27.6
Group 8	3.0	10.7	11.9	10.4	35.0	28.9
Group 9	1.9	11.6	8.1	10.9	40.2	27.2
Total	**1.7**	**8.3**	**9.4**	**9.2**	**46.4**	**24.9**

Time required (min) to fetch water during rainy season (%)

	0	1 - 5	6 - 10	11 - 20	21 - 60	61 - 120	> 120
Group 1	1 5	16.5	14.1	12.3	29.6	4.8	21.2
Group 2	3 2	15.7	17.6	17.9	28.7	3.3	13.6
Group 3	6.7	14.1	18.6	19.8	27.6	2.2	11.0
Group 4	2 3	15.1	13.4	18.5	23.6	5.9	21.3
Group 5	2 5	16.1	21.1	16.4	27.8	3.1	12.9
Group 6	0 0	20.3	21.7	11.6	13.0	0.0	33.3
Group 7	6 5	16.8	15.6	14.4	17.5	2.4	26.7
Group 8	3 8	17.1	19.1	12.3	19.9	2.0	25.7
Group 9	5 8	6.7	16.7	10.5	24.2	4.0	32.1
Total	**3.8**	**15.3**	**18.0**	**16.0**	**25.7**	**3.3**	**17.9**

Time required (min) to fetch water during dry season (%)

	0	1 - 5	6 - 10	11 - 20	21 - 60	61 - 120	> 120
Group 1	0.4	5.6	8.2	13.4	40.4	6.5	25.6
Group 2	1 9	10.0	10.5	13.8	38.7	8.8	16.2
Group 3	6 2	10.1	12.6	16.7	35.4	6.7	12.3
Group 4	1 2	7.5	9.9	11.2	29.6	15.7	24.9
Group 5	0 8	10.6	15.9	17.0	33.5	7.3	14.8
Group 6	0 0	21.4	18.6	11.4	12.9	0.0	35.7
Group 7	5 0	11.3	10.6	13.5	23.1	6.3	30.3
Group 8	2.4	14.5	15.2	12.3	25.6	3.8	26.2
Group 9	3 0	3.5	6.3	10.5	25.8	14.7	36.3
Total	**2.4**	**9.8**	**12.4**	**14.5**	**32.4**	**8.2**	**20.3**

	Type of sanitation facility (%)				
	Latrine	Septic tank	Improved latrine	None / bush	Sewerage
Group 1	49.1	0.9	5.4	44.6	0.0
Group 2	48.4	0.2	2.3	49.0	0.1
Group 3	49.1	0.2	0.8	49.9	0.1
Group 4	49.9	1.0	3.3	45.8	0.1
Group 5	48.5	0.4	2.6	47.9	0.5
Group 6	20.3	0.0	0.0	79.7	0.0
Group 7	62.5	2.6	10.3	24.5	0.0
Group 8	44.7	0.5	5.5	49.1	0.1
Group 9	63.6	0.5	5.4	30.5	0.0
Total	**49.9**	**0.6**	**3.5**	**45.8**	**0.2**

Household Income

Main income source of the household (%)

Group	Production/Sale of staple food crops	Production/Sale of crash crops	Production/Sale of horticultural products	Production/Sale of fruit	Prod. Of harvest/ hunting/ reed	Informal labour/ Ganho-Ganho	Fishing (Sale of fish)	Sale of animals/ Animal products	Informal/ Formal trade	Remittances	Sale of firewood/ charcoal	Production/ Sale of beverages	Transport	Formal employment	Construction materials	Hiring of animal traction	Monthly pension (Old age)	Hasn't got
1	0.0	0.0	0.0	0.0	0 0	97.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	3.0	0.0	0 0	0.0
2	4.1	25.9	1.4	0.6	3 8	17.3	3.9	1.3	16.2	3 3	2.0	9.4	0.4	6.8	2.0	0.0	1.1	0.4
3	100.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0 0	0.0
4	0.0	28.5	2.6	2.9	11.5	0.0	10.1	3.8	0.0	9 8	10.1	14.8	0.1	0.0	0.0	0.1	5.7	0.0
5	78.1	2.0	0.8	0.9	6 8	1.5	2.8	0.4	1.3	0 9	0.7	1.9	0.1	1.2	0.3	0.0	0 3	0.0
6	5.7	91.4	0.0	0.0	1.4	0.0	0.0	0.0	1.4	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0 0	0.0
7	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	42.8	0 0	0.0	0.0	0.0	57.2	0.0	0.0	0 0	0.0
8	27.6	6.7	2.6	3.5	8 0	16.0	2.0	1.5	9.1	7 2	1.9	3.7	0.1	7.5	0.8	0.1	1 5	0.1
9	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0 0	100
Total	**41.8**	**8.5**	**1.0**	**1.0**	**4.5**	**12.0**	**2.6**	**0.8**	**6.0**	**2.5**	**1.8**	**3.7**	**0.1**	**5.5**	**0.7**	**0.0**	**1.0**	**6.4**

Partcipation in local organization

	Any member of the HH is part of an association or group? (%)	
	Yes	No
Group 1	14.1	85.9
Group 2	24.9	75.1
Group 3	20.7	79.3
Group 4	16.1	83.9
Group 5	22.4	77.6
Group 6	1.4	98.6
Group 7	22.8	77.2
Group 8	32.1	67.9
Group 9	8.1	91.9
Total	**21.0**	**79.0**

Participations in associations or groups (%)

	Agriculture	Commercial	Community Development	Women	Formal Credit	Informal Credit	Religious (Church)	Cultural	Assoc. of Parents in Educa ion	Schools	Health	Water/ Sanita ion	Youth	Sports	OVC (Orphaned and vulnerable children)	Food committees
Group 1	5.2	0.0	24.7	7.8	0.0	0.0	54.5	1.3	2.6	0.0	2.6	0.0	0.0	0.0	0.0	1.3
Group 2	20.1	1.4	8.1	7.7	2.4	2.4	53.6	0.5	0.5	0.0	1.0	0.0	0.5	1.9	0.0	0.0
Group 3	14.4	0.4	10.0	4.4	0.0	0.4	62.4	0.4	4.8	0.9	0.4	0.4	0.0	0.0	0.0	0.9
Group 4	14.8	0.0	23.5	7.8	2.6	11.3	33.0	5.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group 5	12.1	2.4	11.6	5.0	0.7	0.7	58.7	2.6	1.9	0.5	1.9	0.0	0.2	0.0	0.0	1.7
Group 6	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group 7	9.6	2.1	11.7	5.3	1.1	3.2	43.6	1.1	2.1	0.0	4.3	0.0	0.0	3.2	12.8	0.0
Group 8	22.7	1.3	7.6	3.4	4.2	0.4	47.5	5.9	4.2	1.7	1.3	0.0	0.0	0.0	0.0	0.0
Group 9	16.7	0.0	8.3	5.6	0.0	0.0	55.6	0.0	2.8	0.0	5.6	0.0	5.6	0.0	0.0	0.0
Total	**15.2**	**1.3**	**11.8**	**5.4**	**1.6**	**1.8**	**53.2**	**2.5**	**2.6**	**0.6**	**1.5**	**0.1**	**0.3**	**0.5**	**0.8**	**0.7**

Shocks and Strategies

Main Shocks (%)

	Drought/ Lack of rains/ Irregular rains	Inundation/ Floods	Erosion	Levels above normal of pests or disease in the farm	Epidemics in animals	Acute illness in people	Food price rises	Price increase for agricultural products	Loss or reduction of employment of HH members	Loss or reduction of money of HH members	Chronic and serious illness of member(s)	Death of the head of the HH	Death oh a household member	Theft or loss of goods and resources	Insecurity/ Violence	Ice rain
Grupo1	31.0	2.0	0 0	2.0	0.0	7.0	0.0	2.0	1.0	3.0	29.0	7.0	13.0	2.0	1.0	0.0
Grupo2	46.6	0.8	2 3	0.0	6.8	1.5	0.0	0.0	0.8	0.8	18.0	3.8	11.3	7.5	0.0	0.0
Grupo3	45.3	0.0	0 0	0.0	6.4	2.6	7.1	1.5	1.1	2.2	10.5	7.9	8.2	4.5	2.6	0.0
Grupo4	55.8	2.0	0 5	1.5	0.5	3.0	1.5	1.5	0.0	1.0	15.7	1.5	7.6	6.6	1.0	0.0
Grupo5	31.5	4.7	1 2	0.9	1.5	2.1	6.5	3.6	0.6	1.2	16.0	5.9	16.0	6.2	1.5	0.6
Grupo7	32.7	4.1	0 0	0.0	2.0	2.0	2.0	0.0	2.0	10.2	14.3	6.1	12.2	12.2	0.0	0.0
Grupo8	20.3	3.4	0 0	0.7	4.1	6.1	4.1	0.7	0.0	4.7	12.2	5.4	20.3	11.5	5.4	1.4
Grupo9	53.3	2.2	0 0	0.0	1.1	8.9	0.0	0.0	0.0	0.0	13.3	4.4	12.2	4.4	0.0	0.0
Total	**39.7**	**2.4**	**0.6**	**0.7**	**3.0**	**3.6**	**3.9**	**1.7**	**0.6**	**2.1**	**15.4**	**5.4**	**12.6**	**6.4**	**1.7**	**0.3**

Second Main Shock (%)

	Did not suffered second shock	Drought/ Lack of rains/ Irregular rains	Inundation/ Floods	Erosion	Epidemics in animals	Acute illness in people	Food price rises	Loss or reduction of employment of HH members	Loss or reduction of money of HH members	Chronic and serious illness of member(s)	Death of the head of the HH	Death oh a household member	Theft or loss of goods and resources	Insecurity/ Violence	Ice rain
Grupo1	94.0	5.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 0	0.0	0 0	0.0	1.0
Grupo2	99.2	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 0	0.0	0 0	0.8	0.0
Grupo3	95.9	0.0	0 0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	0 0	0.8	0 0	0.0	0.0
Grupo4	92.9	4.1	0 0	0.0	0.0	0.0	1.0	0.0	0.0	1.5	0 0	0.5	0 0	0.0	0.0
Grupo5	94.3	1.2	0 3	0.0	0.3	0.3	0.0	0.0	0.3	0.0	0 9	2.1	0 3	0.0	0.0
Grupo7	98.0	0.0	0 0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0 0	0.0	0 0	0.0	0.0
Grupo8	88.4	2.0	4.1	0.0	0.7	0.0	0.7	0.0	0.0	0.0	0.7	0.7	2 0	0.0	0.7
Grupo9	100.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0 0	0.0	0 0	0.0	0.0
Total	**94.8**	**1.5**	**0.5**	**0.0**	**0.2**	**0.1**	**0.2**	**0.2**	**0.3**	**0.5**	**0.3**	**0.8**	**0.3**	**0.1**	**0.2**

Third Main Shock (%)

	Did not suffered third shock	Price increase for agricultural products
Grupo1	100.0	0.0
Grupo2	100.0	0.0
Grupo3	100.0	0.0
Grupo4	99.5	0.5
Grupo5	100.0	0.0
Grupo7	100.0	0.0
Grupo8	100.0	0.0
Grupo9	100.0	0.0
Total	**99.9**	**0.1**

	The main shock caused a decrease/ loss of revenue in cash or kind? (%)		The main shock caused a decrease/ loss of belongings? (%)		The main shock caused a decrease of food production? (%)	
	Yes	No	Yes	No	Yes	No
Grupo1	84.0	16.0	62.6	37.4	79.6	20.4
Grupo2	61.7	38.3	37.7	62.3	75.9	24.1
Grupo3	56.0	44.0	49.4	50.6	72.9	27.1
Grupo4	58.5	41.5	45.6	54.4	86.3	13.7
Grupo5	59.5	40.5	55.6	44.4	77.3	22.7
Grupo7	57.1	42.9	54.3	45.7	65.3	34.7
Grupo8	70.7	29.3	61.2	38.8	68.0	32.0
Grupo9	55.1	44.9	47.2	52.8	84.4	15.6
Total	**61.6**	**38.4**	**51.6**	**48.4**	**76.8**	**23.2**

Main mechanism the HH used to minimize the impact of the shock (%) (continued)

Group	Changed diet to cheaper food products	Borrowed food	Purchased food on credit	Consumed larger quantity of wild fruits/hunger food	Consumed seed reserves for the following season	Diminished a quantity of food for all members	Adults ate less to spare food for childrен	Reduced the number of meals	Had days without eating anything	Some members migrated temporarily	Diminished expeditures on education	Withdrew child from school	Diminished expediture on health	Borrowed money from relatives or friends	Took money on credit from pawnbrokers	Sold agricultural materials	Sold construction materials	Sold more young animals	Sold more adult animals	Sold belongings/ furniture of the HH
1	10.0	4 0	5 0	0.0	4 0	12.0	2.0	29.0	15.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	1.0	0.0	0.0	2 0
2	7.5	7 5	0.7	0.0	2 2	20.9	6.0	24.6	6.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	4.5	0.7	1 5
3	16.1	2.6	0 0	0.0	6.4	7.9	0.4	43.8	6.4	1.5	0.0	0.0	0.0	1.1	0.7	0.0	0.0	5.2	0.0	0.4
4	13.7	2 5	1 5	5.6	3.6	6.1	0.0	37.1	12.7	2.0	0.0	0.0	1.0	2.0	0.0	0.0	0.5	3.6	0.0	0 5
5	11.0	3 3	3 9	3.3	7.1	10.4	1.2	26.5	9.5	1.2	0.0	0.3	0.0	2.4	0.3	3.0	0.0	4.5	0.9	0 9
7	18.4	0 0	4.1	0.0	4.1	8.2	14.3	28.6	8.2	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0 0
8	5.4	11.4	7.4	0.0	6 0	10.1	1.3	30.9	8.1	2.0	2.0	0.7	2.0	1.3	0.0	0.0	0.0	0.7	0.0	0.7
9	1.1	3.4	0 0	1.1	0 0	6.9	2.3	23.0	34.5	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	5.7	0.0	1.1
Total	**11.0**	**4.3**	**2.7**	**1.7**	**5.0**	**10.1**	**2.0**	**31.9**	**10.8**	**1.2**	**0.2**	**0.2**	**0.4**	**1.9**	**0.2**	**0.8**	**0.2**	**3.6**	**0.3**	**0.8**

Main mechanism the HH used to minimize the impact of the shock (%)

	Exchange agricultural products	Gave away land	Worked for food	Worked for more hours/b intensified work	Changed house	Sent children to work for others HH	Spent savings	Harvested crops before time	Did not have other strategy
Group 1	0.0	0.0	5.0	2.0	1.0	0.0	5 0	0.0	1 0
Group 2	0.7	0.0	1.5	0.7	0.0	0.0	6 0	0.7	6 0
Group 3	1.1	0.0	0.7	0.7	1.5	0.4	1 9	0.7	0.4
Group 4	0.0	0.5	1.5	1.0	0.0	0.0	1 0	1.5	2 0
Group 5	3.0	0.0	0.9	0.9	0.3	0.0	3 9	0.9	0.6
Group 7	0.0	0.0	0.0	0.0	0.0	0.0	8 2	0.0	2 0
Group 8	3.4	0.0	0.0	0.7	4.7	0.0	1 3	0.0	0 0
Group 9	0.0	0.0	6.9	2.3	5.7	0.0	0 0	1.1	2 3
Total	**1.4**	**0.1**	**1.6**	**1.0**	**1.4**	**0.1**	**3.0**	**0.8**	**1.4**

	Has the HH recovered from the losses? (%)		
	Yes	Parcially	No
Group 1	6.3	35.8	57.9
Group 2	21.8	43.6	34.6
Group 3	6.2	35.8	58.0
Group 4	9.2	39.8	51.0
Group 5	14.2	37.8	48.0
Group 7	12.5	41.7	45.8
Group 8	37.1	32.9	30.1
Group 9	2.2	25.8	71.9
Total	**13.7**	**36.9**	**49.4**

Credit

	Did the HH borrow money or received any type of credit? (%)		Has the HH access to the formal credit? (%)	
	Yes	No	Yes	No
Group 1	6.1	93.9	0.6	99.4
Group 2	10.2	89.8	2.5	97.5
Group 3	4.8	95.2	0.5	99.5
Group 4	6.3	93.7	1.4	98.6
Group 5	7.4	92.6	1.1	98.9
Group 6	0.0	100.0	0.0	100.0
Group 7	12.4	87.6	2.4	97.6
Group 8	11.8	88.2	2.9	97.1
Group 9	2.2	97.8	0.6	99.4
Total	**7.8**	**92.2**	**1.5**	**98.5**

In collaboration with: