Report on use of the Household Food Insecurity Access Scale and Household Dietary Diversity Score in two survey rounds in Manica and Sofala Provinces, Mozambique, 2006-2007.

FAO food security project GCP/MOZ/079/BEL.

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Executive Summary

The Food and Agriculture Organization of the United Nations (FAO) leads a project in Central Mozambique, funded by the Belgian Survival Fund, to improve food security and nutrition in communities affected by HIV/AIDS (GCP/MOZ/079/BEL). A baseline survey of 4 districts was conducted in December 2006 during the pre-harvest period, one of the last months before the harvest when food stores are normally lowest. A follow-up survey was conducted in two of the original districts, Chibabava and Gondola, in July 2007, during the post harvest period when food stores are normally good. The purpose of the paper is to compare access to food, and thus food security of households in the two periods, using the Household Food Insecurity Access Scale (HFIAS) and the Household Dietary Diversity Score (HDDS). Both are simple tools that provide information on household's diets in relation to their ability to access food.

The HFIAS tool is composed of nine questions that ask about modifications households make in their diet or food consumption patterns when having limited resources to acquire food. The tool elicits whether in the previous month households experienced anxiety about the household food supply, and if they reduced the quality or quantity of food consumed. The HDDS is a measure of the total number of different food groups eaten in the previous 24 hours. This tool reflects both food availability and in particular food access, on the premise that households consume a variety of foods when they have the means to acquire them.

Overall, households in Chibabava District were less food secure than Gondola at both time periods, as measured by the HFIAS. While there was very little change in food access/food security in Chibabava over time, there was a significant improvement in Gondola from the first to the second survey. The proportion of households with low dietary diversity (consuming < 4 different food groups in a day) was unchanged in Gondola at the two time periods (approximately 34%), but increased from 40% to 72% in Chibabava. Possibly due to a series of shocks that Chibabava underwent in the first half of 2007, legume and fish consumption, two important protein sources, declined considerably in the second time period. This was noted to be greater in the households measured as food insecure by the HFIAS.

Both the HFIAS and the HDDS were strongly related to a socio-economic status indicator (SES), showing that food access, as measured by both tools, increased with higher SES. The tools were also found to identify vulnerable groups, such as women-headed households and households in which the adult women had had no schooling. This analysis provides evidence that HFIAS and HDDS can be used to assess household access to food within a food security context and that, given their strong association with SES, either one can be provide valid information for assessing food security when information on income or other household characteristics is not available. Additionally, each tool separately provides contextual information useful in understanding the consequences of poor access to food; more complete information is obtained when the tools are used together. The HFIAS and HDDS are simple to use and analyze and are appropriate for monitoring of populations to assess changes in food access and dietary consumption, to plan interventions for development or following shocks, and for monitoring and evaluation of food security and nutrition policies and programmes. Mozambique is in the process of integrating the HDDS into the Inquérito Nacional aos Agregados Familiares Sobre As Condições de Vida (Living Conditions Household Survey) to monitor the Food Security and Nutrition Strategy and international initiatives such as the Poverty Reduction Strategy Papers (PARPA). Refer to the interview with Marcela Libombo, National Coordinator of the Technical Secretariat for Food Security and Nutrition (SETSAN), Ministry of Agriculture, about this process: http://www.foodsec.org/news_06_26.htm

Introduction

The Food and Agriculture Organization of the United Nations (FAO) leads a project in Central Mozambique, funded by the Belgian Survival Fund, to improve food security and nutrition in communities affected by HIV/AIDS (GCP/MOZ/079/BEL). A project baseline survey was carried out during the pre-harvest period, December 2006, in four districts of two provinces: Nhamatanda and Chibabava in Sofala Province and Gondola and Tambara in Manica province (Selvester, 2007). The survey was repeated in July 2007, during the post-harvest period, in two of the original districts – Gondola, located on the Beira Corridor, and Chibabava, located in the interior. In both surveys, the Household Food Insecurity Access Scale (FANTA, 2007) and the Household Dietary Diversity Score (FANTA, 2006; Hoddinott, 2002) were used to measure access to food within the Food Security Framework (FAO, 2006). These two tools, developed by the Food and Nutrition Technical Assistance Programme, have the advantage of being simple and rapid to use, have a quick turnover time for analysis and provide valid data on food access. Having collected data on these indicators over two time periods provided an opportunity to assess their sensitivity to seasonal change. Because the follow-up survey was carried out in the post-harvest period, it was expected that food access, as measured by the HFIAS and HDDS, would have improved over the period between the two surveys.

The main purpose of this paper is to compare food security status as measured by the Household Food Insecurity Access Scale (HFIAS) and the Household Dietary Diversity Score (HDDS) at two time periods, in order to verify the expectation that improvements will have been observed at the time of the 2nd survey. This may be one of the first instances in which these indicators have been collected across seasons in a practical field setting and there is thus a need to know the extent to which the indicators are responsive to change. A second purpose is to evaluate the association between the two indicators and household characteristics that may affect vulnerability to food insecurity, such as socio-economic status, sex of head of household, women's nutritional status and women's education.

Methods

The Nutrition and Food Security Association of Mozambique (ANSA) carried out both surveys. Prior to the baseline survey, a field adaptation was carried out by ANSA in collaboration with FAO in Sofala and Manica provinces to translate the questionnaires into Portuguese, to refine the wording of the questions for comprehension by respondents and to pre-test the revised questionnaires. At the start of both surveys, a three-day training session of enumerators was carried out by ANSA.

A two stage cluster sample design was used in each district. Clusters were selected by the probability-proportional-to size method from a sampling frame of towns and villages in each district. The second stage was done by selecting the starting point using the Expanded Program for Immunization method (Magnani, 1997), which entails going to a central location in the cluster and selecting a travel direction at random by spinning a bottle, moving in a straight line in that direction and counting all of the households until the edge of the cluster is reached, and randomly choosing a number between 1 and the number of households counted as the starting point for the survey. In both surveys, eight clusters of 15 households each (N=120) were sampled in Chibabava, the smaller district with a population of 66, 884, and 12 clusters of 15 households were sampled in Gondola (N=180), with a population of 71,871. A new selection of households from the same clusters was employed for the 2nd survey.

The questionnaire, used in both surveys, was designed to measure food access through the use of HFIAS and HDDS and to assess women's nutritional status by collecting data on the weight and height of non pregnant, non lactating women 15-49 years. The questionnaire also collected data on household demographics, income sources, land holding and possessions. The tools used to assess household food security status and women's nutritional status are described below.

The HFIAS is a tool to assess whether households have experienced problems in food access in the preceding 30 days. Annex 2 shows the Portuguese version adapted and translated from the English that was used in these surveys, while Annex 3 is the generic English version before field adaptation. The tool is composed of nine questions that ask about modifications households made in their diet or food consumption patterns due to limited resources to acquire food. Three themes are covered by the tool: 1) experiencing anxiety and uncertainty about the household food supply; 2) altering quality of the diet; and 3) reducing quantity of food consumed. The respondent is ideally the person in charge of food preparation or the head of household who answers on behalf of all household members. Based on the response to the nine questions and frequency of occurrence over the past 30 days, households are assigned a score that ranges from 0 to 27. A higher HFIAS score is indicative of poorer access to food and greater household food insecurity. For this analysis, households were classified into terciles based on overall distribution of the HFIAS for the two districts combined using data from the first survey. The same categories were maintained for analysis of the two districts in the second round: most food secure tercile = scores of 0-11; medium food secure = 12-16; and least food secure = 17 or more. A dichotomous indicator for household food insecurity score of 17 or more) was also created.

The HDDS is a measure of the total number of different food groups eaten in the previous 24 hours by any household member at home, including food prepared at home but eaten outside, such as a sack lunch. Annex 4 shows the Portuguese version adapted and translated from the English that was used in these surveys, while Annex 5 is the generic English version before field adaptation. This type of measure is a reflection both of food availability and in particular of food access, on the premise that households consume a variety of foods when they have the means to acquire them. The food groups covered by the HDDS are meant to reflect a range from foods, from those that do not contribute to a nutritious diet but require resources to acquire, such as sugar, sweets, beverages and condiments, to foods that contribute to the quality of the diet in terms of essential nutrients. These latter foods include staples, fruits and vegetables, fats and oils, vegetable and animal source of protein. Respondents were asked to recall all foods consumed by any household member in the previous 24 h. The tool inquired about 16 food groups which are then aggregated to twelve for analysis. The score is a simple sum of food groups consumed by any household member from the total of twelve (FAO 2007). Households were classified into terciles based on the overall distribution of the dietary diversity (DD) score for the two districts combined using data from the first survey. The same categories were maintained for analysis of the two districts in the second round: low DD = 3 or fewer food groups; medium = 4; and high = 5 or more. A dichotomous indicator for poor dietary diversity (< 4 food groups) was also created.

BMI is an indicator of the nutritional status of adults reflecting chronic energy deficiency (Shetty and James, 1994). BMI is assessed by calculating an individual's weight (kg) over height squared (m^2). In this study, a BMI < 18.5 for non pregnant, non lactating women 15-49 years was categorized as underweight or chronic energy deficiency. If a household contained more than one eligible woman, a random selection was made for measurement. Households without eligible women were not excluded from the overall sample. The educational level (none vs. some formal education) was recorded for the women who were measured for BMI.

An index of socio-economic status (SES), with a possible range from 0- 11, was created by combining information on the household's main source of income, possessions, land holdings, animal holdings and quality of residential structure. A higher score is indicative of a higher SES status. Households were classified into terciles based on overall distribution of the SES index score for the two districts combined using data from the first survey . The terciles created were; score of 0 or 1 = lowest SES, 2-3 = middle SES, 4 or more = highest SES. The same categories were maintained for analysis of the two districts in the second round.

In the analysis of data from both surveys, the HFIAS, HDDS, and BMI indicators were assessed as continuous variables (means, standard error of the means and 95% confidence intervals) and were also used as dichotomous and categorical variables (frequency in each category and 95% confidence intervals). All analyses were performed using the complex sample design module in SPSS version 15 to account for design effect from the cluster sampling procedure. For aggregated analyses combining samples from each district, data were weighted by the district's population size. For continuous outcomes, statistical significance was assessed using ANOVA. For categorical and dichotomous outcomes, Chi Square tests were used to assess statistical significance.

Results

Comparison of district-level samples at time 1 and time 2

The following table described the sample composition by survey and time period:

Table 1: Sample size by district and survey time		
	Survey 1	**Survey 2**
Households interviewed	N=300 Chibabava: 120 Gondola: 180	N=300 Chibabava: 120 Gondola: 180
Number (%) of households with women's BMI measurement and educational level	Chibabava: 110 (92%) Gondola: 137 (74%)	Chibabava: 100 (83%) Gondola: 134 (74%)

In Gondola there were fewer eligible women aged 15-49 for anthropometric measurement in interviewed households at both survey times.

Comparison of food security and nutrition variables by district at 2 time periods

Chibabava District is semi-arid with an average rainfall of 500-800 mm and one planting season per year. Water shortages are common, and the district is prone to shocks, including both floods and droughts. Gondola district has a greater rainfall than Chibabava (1000-1500 mm per year). There are two planting and harvesting seasons which makes the district less vulnerable to shocks. Access to markets are greater in Gondola and there is more NGO activity, which increases access to information and educational opportunities.

The first survey was conducted in December 2006, which is one of the last months before the harvest, when food stores are normally lowest. The second survey took place in July 2007 after the harvest. Central Mozambique was hit by drought and floods in the early part of 2007, and was also struck by cyclone Favio just prior to harvest time, all of which served to dash the hopes for the good harvest that had been predicted. Many persons were displaced as a result of these natural catastrophes. Chibabava was apparently more affected by the shocks than Gondola.

The SES index was stable at the two time periods for both districts. Out of a total of 11 points, the mean score for Chibabava at times 1 and 2 was 2.08 and 2.32, and for Gondola, 3.20 and 3.42. Both districts registered a slight improvement in the mean score over the two time periods but the changes were not statistically significant. The proportion of households in the lowest category (worst off) in Chibabava District was 43% at survey 1 and 46% at survey 2, while in Gondola District it was 23% at survey 1 and 20% at survey 2. Overall, socio-economic status higher in Gondola compared to Chibabava at both times.

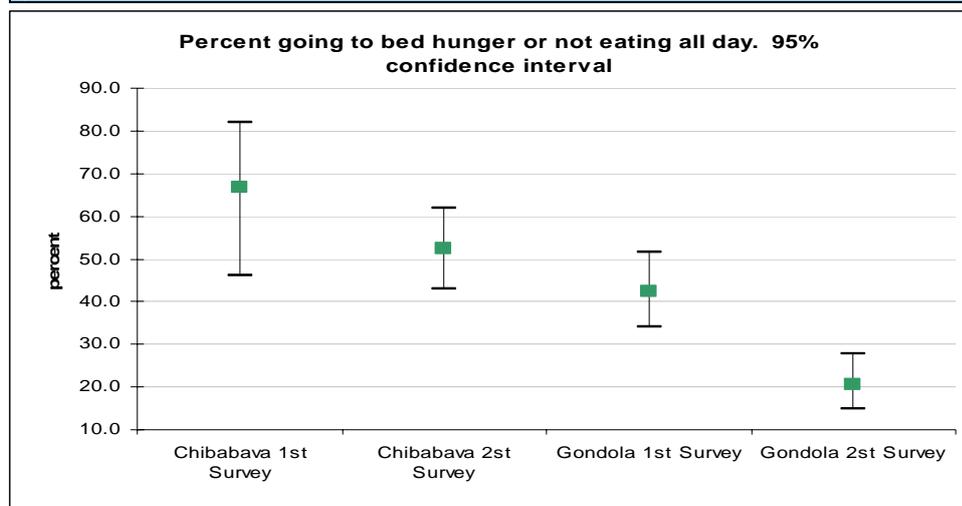<u>Measuring food access using the Household Food Insecurity Access Scale</u>

Combining both districts, there appeared to be better food access at the second time period, as indicated by a lower mean score of the HFIAS, as shown in table 2. Chibabava District was less food secure than Gondola in both time periods. Households in Gondola District became significantly more food secure at the time of the 2nd survey compared to the first (p-value = 0.00). while there was no improvement in food access in Chibabava in the post-harvest season.

Table 2: Comparing levels of food access using the HFIAS by district at 2 time periods		
	Mean HFIAS $\pm$ **standard error of the mean**	**95% confidence interval**
Survey 1, December 2006, Districts combined	14.5 $\pm$ 0.58	13.2 – 15.7
Survey 1, July 2007, Districts combined	13.0 $\pm$ 0.68	11.6 – 14.4
Chibabava survey 1	15.2 $\pm$ 1.02	13.0 – 17.3
Chibabava survey 2	15.3 $\pm$ 0.65	13.5 – 17.1
Gondola survey 1	13.9 $\pm$ 0.70	12.4 – 15.3
Gondola survey 2	10.9 $\pm$ 0.23	10.3 – 11.5

It is possible to look at combinations of the HFIAS questions to focus on experiences of real hunger. The percent of households who responded that sometimes or often someone went to bed hungry or went a whole day without eating was compared by district and over the two survey periods. In Chibabava, while the mean HFIAS score did not change over the two time periods (table 1), there was a decline in the percent of households experiencing hunger, from 67% to 53%, as shown in Figure 1. In Gondola, the decline was even greater, from 42% to 20%, consistent with the overall decline in the mean score.

Figure 1: Comparing hunger levels using the HFIAS by district at 2 time periods

Measuring food access using the Household Dietary Diversity Score

Contrary to what was expected, the diversity of the diet in Chibabava worsened over the two time periods while it remained relatively stable in Gondola (Table 3).

Table 3: Comparing Household Dietary Diversity (HDDS) by district at 2 time periods

	Mean HDDS ± standard error of the mean	95% confidence interval
Survey 1, December 2006, Districts combined	4.1 ± 0.11	3.9 – 4.3
Survey 2, July 2007, Districts combined	3.8 ± 0.02	3.7 – 3.9
Chibabava survey 1	4.0 ± 0.10	3.7 – 4.2
Chibabava survey 2 *	3.2 ± 0.11	2.9 – 3.4
Gondola survey 1	4.1 ± 0.16	3.8 – 4.5
Gondola survey 2	4.3 ± 0.20	3.9 – 4.7

* Difference between time periods for Chibabava statistically significant (p-value = 0.00)

Gondola District had a higher mean score for dietary diversity than Chibabava in both time periods although the difference between the two districts was minimal at the first survey. The mean HDDS showed an unexpected and significant decrease in Chibabava and a modest increase in Gondola at the time of the second survey. The prevalence of poor household food access as measured by the HDDS (< 4 food groups) was significantly increased in Chibabava at the second survey compared to the first survey, while in Gondola there was very little change. The following figure shows the prevalence of low household dietary diversity at the two time periods.

Figure 2: Prevalence of household low dietary diversity by district at 2 time periods

Prevalence of low HDDS (< 4 food groups) by survey and districts
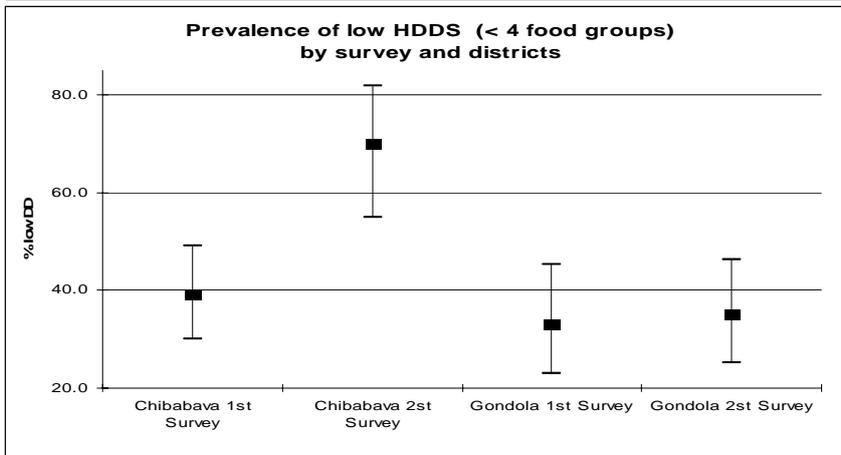
* Difference between time periods for Chibabava District statistically significant (p-value = 0.003)

In an effort to understand changes in dietary patterns over the two periods, an analysis and comparison of consumptions patterns derived from the dietary diversity tool was carried out for both districts. Cereal consumption was nearly universal and the majority of households consumed vegetables in both districts at both time periods. There was a notable difference in fruit consumption over the two time periods. Nearly all households ate fruit at the first survey time, which corresponded with mango season. At the second survey time, there was a sharp drop in consumption of fruit for both districts, reflecting seasonal availability. The stability of the dietary diversity score in Gondola may be due to substitution of fruits or another seasonally available foods such as tubers.

The following figures show the changes in consumption of principal food groups over the two time periods in Chibabava and Gondola Districts. Milk products and eggs are not shown as consumption was very low at all times.

Figure 3: Consumption of different food groups by district at 2 time periods
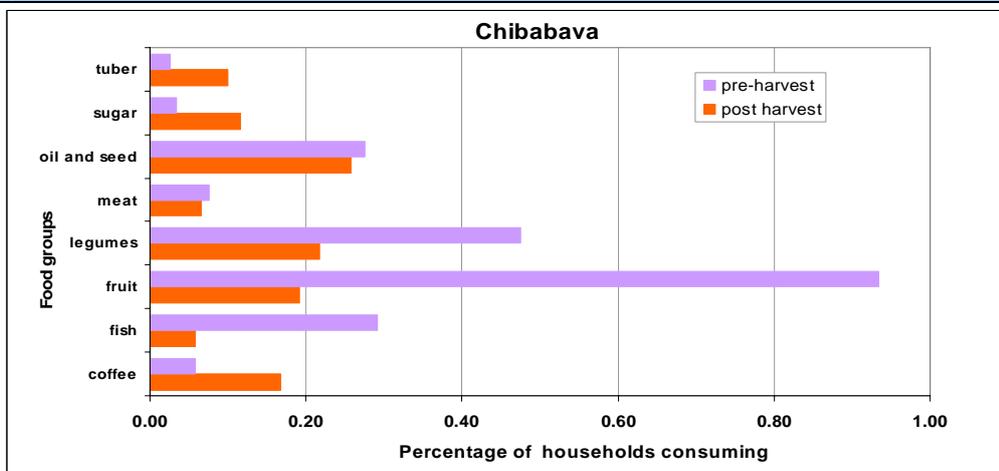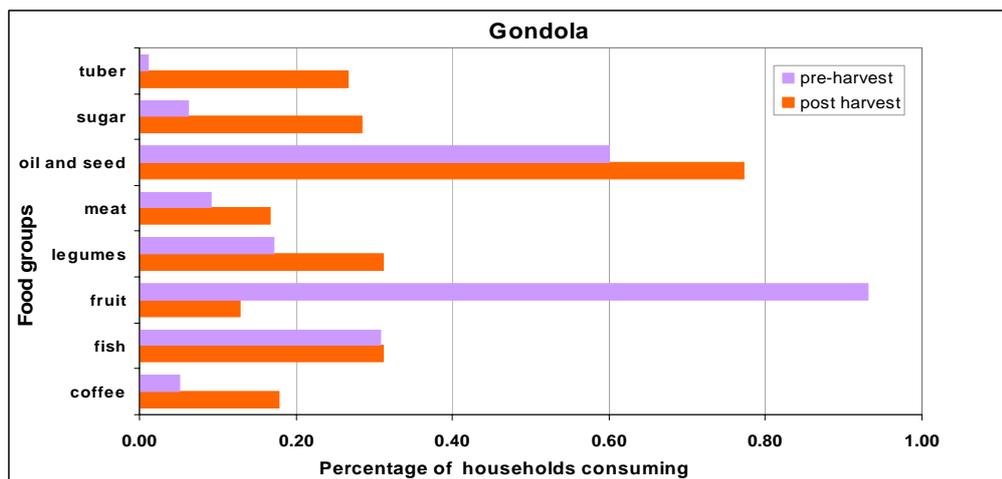
Chibabava

Gondola

In Gondola, with the exception of fruit, consumption increased for all food groups, while in Chibabava a large drop in consumption of fish and legumes was noted. Additionally, the increase in tuber consumption over the two time periods was greater in Gondola than in Chibabava. Anecdotal information from informed persons in Mozambique provided some clues to these unexpected patterns. The cyclone, floods and drought in Chibabava had serious impact on cultivation and harvest of sweet potatoes, cassava and pulses. Fish availability was also affected due to both drought and flooding with damage to fish ponds (SETSAN 2007) (personal communication with Clara Bowley and Filipa Gouveia, FAO, Lourdes Fidalgo, ANSA, and Olanda Bata, FEWSNET.). To better understand if these changes in availability of legumes and fish affected all households equally or only the less food secure households, indicating a problem with access, an analysis was done of consumption of these two foods across food security categories, using the HFIAS (highest tercile of score, i.e. most food insecure households compared to all other households). The following figures show household consumption of these food groups by food security status.

Figure 4: Consumption of legumes and fish by food security status at both time periods, Chibabava District

Fish consumption over two time periods by food security status - Chibabava
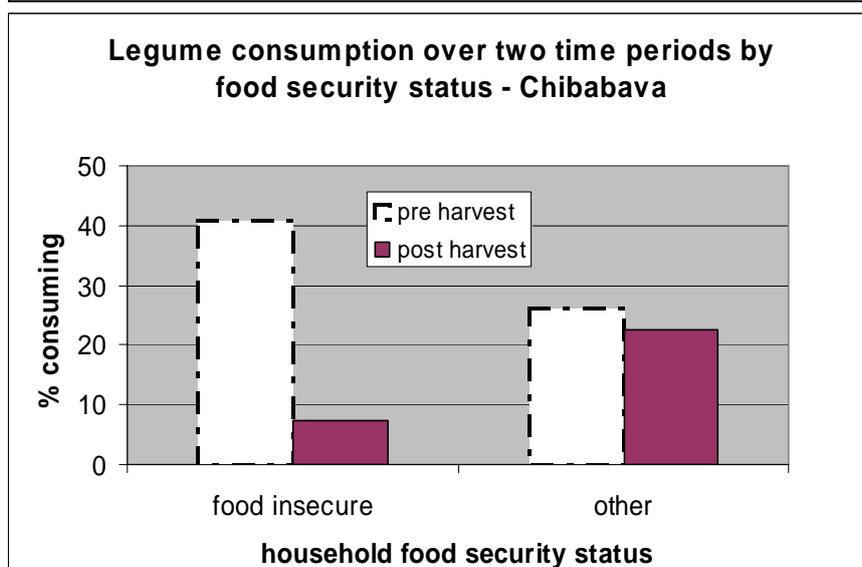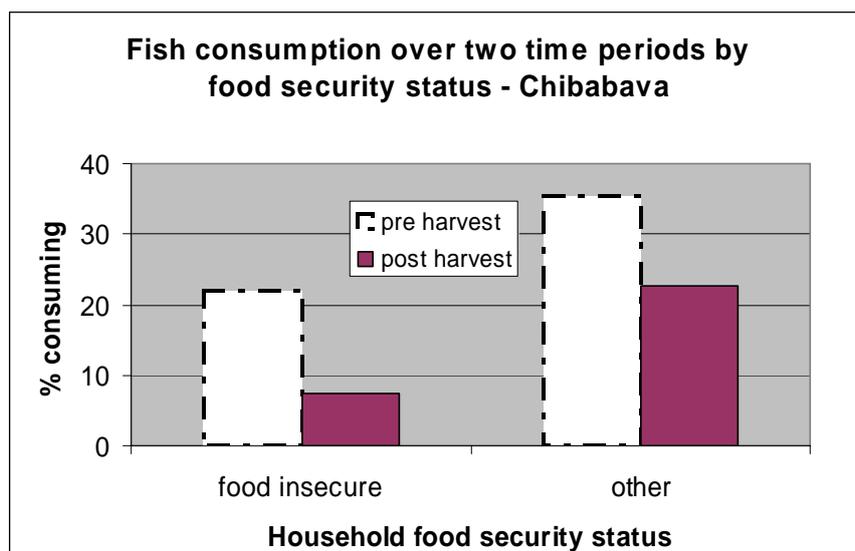
At the first time period, legume consumption was higher in the food insecure households compared to others. At the 2nd period the food insecure households experienced an 80% decline in consumption, six times the decline experienced by the other households (13%). This indicates that reduced access to legumes was most likely the cause of decline in overall consumption and particularly for food insecure households. With respect to fish consumption, the food insecure households had lower levels of consumption than the others at both times. In the post-harvest time period, they experienced a 66% reduction in fish consumption but even the other households reduced their fish consumption by 36%. This suggests that while access to fish was a factor for the food insecure households, also lack of fish availability was an important explanation of overall lower levels of consumption at the second time period.

Measuring women's nutritional status using the Body Mass Index

Over the two time periods, there were no statistically significant changes in women's BMI but the proportion of women showing Chronic Energy Deficit (BMI<18.5) decreased in both Districts and in Gondola, and the proportion of women considered overweight (BMI > 25.0) increased from 7% to 18%.

Table 4: Chronic Energy Deficit in adult women by district at two time periods

	Percent with BMI < 18.5	95% confidence interval
Chibabava Survey 1	10.9	5.6 - 20.2
Chibabava Survey 2	7.3	3.7 - 13.8
Gondola Survey 1	10.9	5.7 - 20.0
Gondola Survey 2	5.2	1.6 - 15.6

Exploration of associations between the major food security and nutrition variables

In this section of the paper, we address the secondary objective of the study which was to explore how the HDDS and HFIAS are related to each other and to indicators of vulnerability: wealth, women's education, women's nutritional status and gender of head of household. The

analysis shown below was done with data from the 1st survey as the results were very similar to those performed on the 2nd survey dataset.

In these surveys, the HFIAS and HDDS tools have been used as indicators of access to food within the food security framework, which means that they should be able to distinguish households with different levels of vulnerability. It was expected that the two tools would work in similar ways to identify groups with poor access to food across variables representing household characteristics of vulnerability to food insecurity.

It was found that household food access as measured by the HFIAS was low among households with low dietary diversity and high in those with greater dietary diversity. The same relationship holds true for the HDDS indicator across HFIAS categories. This is shown in figure 6, where the mean of one indicator is plotted across three categories of the other. Both of these relationships were statistically significant with p-values of 0.026. These figures demonstrate that there is a strong relationship between the two indicators.

Figure 5: Associations between HFIAS and DD categories
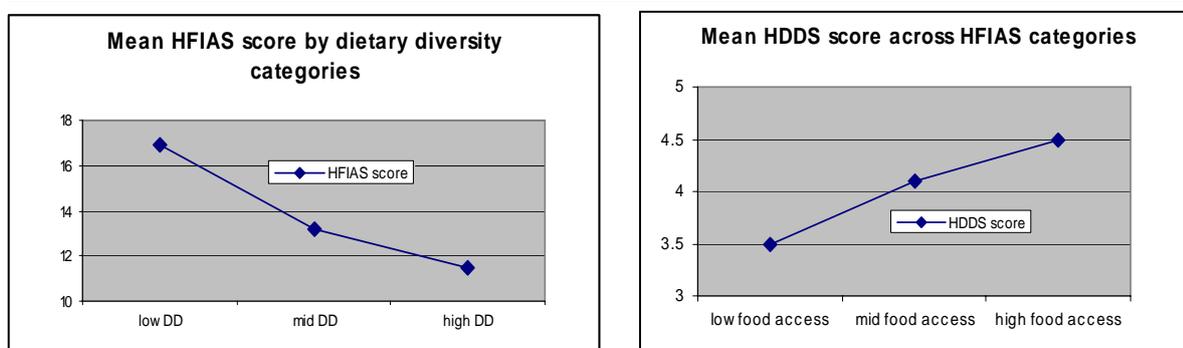
Associations were further analyzed between the HFIAS and HDDS respectively and household characteristics: SES, education level of the adult woman, sex of the head of household, and women's nutritional status. In all cases, the more food insecure households as identified by the HFIAS were those with the lowest SES, with women having had no education and female headed households. Performing the same analyses using the HDDS showed similar associations as the HFIAS for SES and women's education. The following table shows that the households with low dietary diversity and poorer access to food as measured by the HFIAS are more likely to be among those in the lowest socio-economic status group.

Table 5: Association of socio-economic status with low dietary diversity and low access to food as measured by the HDDS and HFIAS		
	% low dietary diversity within SES group (95% confidence interval)	**% low food access (HFIAS) within SES group (95% confidence interval)**
Lowest SES	43 (35-52)	44 (35-53)
Middle and highest SES	22 (15-31)	26 (17-37)
P-value	0.001	0.000

Female headed households were no more likely than households with male heads to have lower or higher dietary diversity. While not statistically significant, exploration of BMI and HDDS showed that there were fewer women with chronic energy deficit in the highest DD category and fewer overweight women in the lowest DD categories. Similar trends were seen across HFIAS categories.

Discussion

This paper has explored the sensitivity of the HFIAS and HDDS to detect changes in food insecurity over time. The first section described the trends in household food access as measured by the HFIAS and dietary diversity in two districts at two time periods: the traditional period of food shortage (December) and the traditional period of plenty (July). The analysis showed that changes in both indicators over the two time periods were not seen equally in the two districts. Rather, Gondola District showed improved food access but no change in dietary diversity, while Chibabava District showed no change in food access but a decline in dietary diversity.

The unexpected and marked decline in the average number of food groups consumed by households in Chibabava District could be explained in part by climatic shocks that occurred in the interim period. Detailed examination of consumption of single food groups in the district showed that food insecure households were more likely than more food secure households to experience a decline in consumption of legumes and fish, resulting in poorer access to protein-rich foods. Reduced access in this period of time could have been due to loss of income from crop damages, increased food prices due to lower availability, or a combination of the two. A different situation was seen in Gondola District with respect to dietary diversity at the two time periods. In this District, the average household dietary diversity score remained stable over the two periods; a decrease in consumption of fruit was compensated by an increase in tuber consumption, in line with the agricultural calendar. One limitation of the HDD tool is the inability to clarify whether Gondola's level of dietary diversity should normally have increased above the pre-harvest value, or whether the stable level of approximately four food groups per day, albeit composed of different foods at the two times, is actually adequate from a food security and nutrition point of view. There are no internationally accepted cut points and thresholds below those cut points to assist in making judgments on whether households below a certain HDDS score have low dietary diversity or not.

Food access, as measured by the HFIAS, remained low and unchanged in Chibabava District over the two time periods, most likely due, in part, by the climatic shocks, whereas great improvement was seen in Gondola in July 2007 compared to December 2006. In Chibabava, however, there was an improvement in the proportion of households experiencing hunger, as shown in Figure 1.

It was shown that in general, the HFIAS and HDDS were strongly associated with each other, i.e., higher dietary diversity is associated with greater food access as measured by the HFIAS. Because the tools were both related to SES, they may both be considered as reasonable proxies for food access. However they are not perfectly related to each other as shown by the pattern of change of the indicator results in the two districts at different times. Individually the two tools provide different kinds contextual information useful in understanding the consequences of poor access to food. The HFIAS identifies consumption patterns that household employ in relation to access to food and can provide information on severe reactions such as going to bed hungry or passing a whole day without food. The HDDS allows analyses on the kinds of foods that different vulnerable groups consume and how consumption of particular foods changes under different conditions. This information has implications for mitigating deleterious changes

in diet that can occur with shocks, as occurred in Chibabava where the main protein source for food insecure households, legumes, was no longer accessible after a series of natural disasters.

The paper also investigated associations between the indicators and wealth, women's educational status and gender of head of household. Women's BMI has been used in Africa as an indicator of food security (Savy M et al., 2006). In the current study, there was a non-statistically significant trend of women with chronic energy deficit living in food insecure households (as measured by HFIAS and HDDS), but the association was not strong. However, cross sectional associations may not be an appropriate way to measure changes in adult nutritional status in relation to food security. One possible reason for the lack of association between BMI and DD is that only the diet of the previous day is considered while an adult's body weight is reflective of a longer time period. A better way to use BMI in the food security context might be to conduct a longitudinal cohort study where the same women are followed over time, thus enhancing the validity of comparing nutritional status with food security indicators.

In conclusion, this analysis provides evidence that HFIAS and HDDS can be used to assess household access to food within a food security context and that, given their strong association with socio-economic status, they provide valid information for assessing food security when information on income or other household characteristics is not available. Traditionally, food access is measured in a number of ways but some of these approaches are time consuming and require sophisticated analytic methods, such as quantitative food consumption surveys or income and expenditure analyses. The HDDS and the HFIAS have been developed to address the need to have simpler tools as proxy measures of food access (Webb et al, 2006, Swindale and Bilinsky, 2006). They are easy to use and rapid for data collection, have a quick turnover time for analysis and provide valid data on food access even for users without many resources. For all of these reasons, HFIAS and HDDS are appropriate for monitoring of populations to assess changes in food access and dietary consumption, to plan interventions for development or following shocks, and for monitoring and evaluation of food security and nutrition policies and programmes. It is recommended that the two tools be used together in food security and nutrition assessments, thus enriching the breadth of information available to identify food insecure groups and understand the consequences of poor food access on food consumption. [1]

The HFIAS and HDDS have been used in recent years in survey work for food security and nutrition baseline or monitoring or in wide-scale household budget and agricultural surveys. Mozambique is in the process of integrating the HDDS into the Inquérito Nacional aos Agregados Familiares Sobre As Condições de Vida (National Household Living Conditions Survey) to monitor the Food Security and Nutrition Strategy and international initiatives such as the PRSP. Refer to the interview with Marcela Libombo, National Coordinator of the

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[1] A word of caution is necessary to advise against using HFIAS and HDDS to target individual beneficiary households for programmes or interventions. These tools are interpretable at population level only.

Technical Secretariat for Food Security and Nutrition (SETSAN), Ministry of Agriculture, about this process: http://www.foodsec.org/news_06_26.htm

Annex 1: References

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Annex 2: Household Food Insecurity Access Scale tool in Portuguese

ÍNDICE DE INSEGURANÇA ALIMENTAR A NÍVEL DO AGREGADO FAMILIAR.

Para cada uma das seguintes perguntas considere o que aconteceu nos últimos 30 dias. Queira por favor mencionar se nos últimos 30 dias, Nunca, Raramente (uma ou duas vezes), As vezes (3-10 vezes), ou Frequentemente (mais de 10 vezes) viveu as seguintes si

N°	PERGUNTA	OPÇÕES DE RESPOSTA
1	Nos últimos 30 dias, alguma vez ficou com receio de que o seu agregado familiar não fosse ter comida suficiente?	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)
2	Nos últimos 30 dias, a sra/o sr. ou algum membro do seu agregado familiar não comeu os seus alimentos preferidos devido a falta de recursos?	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)
3	Nos ultimos 30 dias a sra o sr ou algum membro da familia tinha que limitar a variedade de alimentos consumidos devido a falta de recursos ?	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)
4	Nos últimos 30 dias, a sra/o sr. ou algum membro do seu agregado familiar comeu alimentos que não fosse da sua preferência, devido a falta de recurso para obter outro tipo de alimentos?	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)
5	Nos últimos 30 dias, a sra/o sr. ou algum membro do seu agregado familiar teve uma refeição menor do que aquilo que necessita, por não ter alimentos suficientes?	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)

6	Nos últimos 30 dias, a sra/o sr. ou algum membro do seu agregado familiar diminuiu o número de refeições durante algum dia, por não haver alimentos suficientes?	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)
7	Nos últimos 30 dias, alguma vez ficaram sem nenhuma comida em casa por não terem recursos para adquirir alimentos? (isto quer disser que não tinha nada em casa ou dinheiro para comprar mas pode ter adquiridos alimentos através de familiares etc .. não si	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)
	Se sim pedir o inquirido a decrever em mais detalhes (informação para confirmação e não para processar)	
8	Nos últimos 30 dias, a sra/o sr. ou algum membro do seu agregado familiar dormiu com fome por não haver comida suficiente?	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)
	Se sim pedir o inquirido a decrever em mais detalhes (informação para confirmação e não para processar)	
9	Nos últimos 30 dias, sra/o sr. ou algum membro do seu agregado familiar passou um dia inteiro sem comer nada por não haver comida suficiente?	**0** = Nao **1** = Raramente (1-2 vezes) **2** = As vezes (3 -10 vezes) **3** = Frequentemente (Mais de 10 vezes)
	Se sim pedir o inquirido a decrever em mais detalhes (informação para confirmação e não para processar)	

Annex 3: Household Food Insecurity Access Scale tool in English (Generic version)

READ TO RESPONDENT:
"For each of the following questions, consider whether this has happened in the past [30 days, month or 4 weeks using country specific terminology]. If the answer is yes to a question, please indicate how often this happened."

Instructions for interviewer: Options for soliciting the frequency responses depend on the method defined from preliminary work for questionnaire adaptation. Examples:
  a) exact number or range of times it happened in the past [4 weeks]
  *b) indication that it happened **rarely** (once or twice), **sometimes** (3-10 times), or **often** (more than 10 times) in the past [4 weeks].*

NO.	QUESTION	Response Options. *Assign code according to the following answers:*	CODE
		(0) No = it did not happen in the past [4 weeks] (1) Rarely = once or twice in the past [4 weeks] (2) Sometimes = three to ten times in the past [4 weeks] (3) Often = more than 10 times in the past [4 weeks] *Or locally-defined terms of frequency corresponding to these ranges*	
1.	In the past [4 weeks], did you worry that your household would not have enough food?	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	….|___|
2.	In the past [4 weeks], did it happen that you or any household member were not able to eat the kinds of foods you would have preferred to eat because of lack of resources?	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	….|___|
3.	In the past [4 weeks], did it happen that you or any household member had to eat a limited variety of foods because of lack of resources?	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	….|___|
4.	In the past [4 weeks] did it happen that you or any household member had to eat some foods that you really did not want to eat because of lack of resources?	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	….|___|
5.	In the past [4 weeks] did it happen that you or any household member had to eat a smaller meal than you felt you needed because there was not enough food?	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	….|___|

6.	In the past [4 weeks] did it happen that you or any household member had to eat fewer meals in a day because there was not enough food?	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	….|___|
7.	In the past [4 weeks] did it happen that there was no food to eat of any kind in your house, because of lack of resources to get food?	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times) *If yes, ask respondent to describe the event [not for data entry purposes but for verification of the answer]:*	….|___|
8.	In the past [4 weeks] did it happen that you or any household member went to sleep at night hungry because there was not enough food?	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times) *If yes, ask respondent to describe [not for data entry purposes but for verification of the answer]:*	….|___|
9.	"In the past [4 weeks] did it happen that you or any household member went a whole day and night without eating anything at all because there was not enough food?"	0 = No *If yes: ask respondent* "how often did this happen?" 1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times) *If yes, ask respondent to describe [not for data entry purposes but for verification of the answer]:*	….|___|

DIVERSIFICAÇÃO DA DIETA AO NÍVEL DO AGREGADO FAMILIAR

Agora gostaria de perguntar-lhe sobre os tipos de alimentos que você ou outro membro da familia consumiu durante o dia e a noite de ontem [nota para o entrevistador: excluindo alimentos ou bebidas obtidos e ingeridos fora de casa]

Faz favor descrever todos os alimentos que foram consumidos ontem, incuindo lanches:
[nota para o entrevistador: sublinhar o alimento mentionado nos grupo de alimentos e indica 1 na caixa. Deve-se continuar de perguntar sobre os outros grupos de alimentos consumidos onde não houve resposta].

		1. Sim **2. Não**
1	Qualquer, massa/Xhima, papas, pão, massa esparguete, bolachas, biscoitos ou outros alimentos feitos à base de milho, mexoeira, mapira, farinha de milho, arroz, trigo.	
2	Qualquer um destes: Abóbora, cenoura, batata doce de polpa alaranjada?	
3	Batata reno, inhame (madumbe), mandioca, ou outro alimento preparado através de raízes ou tubérculos?	
4	Quaisquer verduras (folhas verdes escuras) como e o caso de folhas de mandioca, abóbora, feijão nhemba, Amarante, pimenta , etc.	
5	Qualquer outro tipo de hortaliças?	
6	Mangas e papaias maduras?	
7	Qualquer tipo de frutas, incluindo frutas silvestres (não mencionados anteriormente)	
8	Qualquer tipo de carne (vaca, porco, ovelha, cabrito, coelho), carne de caça, galinha, pato ou outras aves, insectos, fígado, rins, tripas, dobrada, coração ou outros órgãos?	
9	Qualquer tipo de ovos?	

10 Peixe e ou mariscos, frescos ou secos? ⌴

11 Qualquer alimento feito de feijão, ervilha, lentilha, amendoim, castanha de caju ou soja? ⌴

12 Qualquer sementes (como abóbora, gergelim, girassol, pepino) foram utilizados na comida? ⌴

13 Leite, queijo, iogurte, ou qualquer derivado do leite? ⌴

14 Utilizou óleo, coco, banha, margarina, manteiga para cozinhar algo que consumiu? ⌴

15 Açúcar, cana doce, mel, refresco, sumos, chocolates ou doces? ⌴

16 Café, chá, chá de folhas, ou bebidas alcoólicas ? ⌴

Annex 5: Household Dietary Diversity Score Tool in English (Generic)

HOUSEHOLD DIETARY DIVERSITY SCORE

I would like to ask you about the foods and drinks you OR ANYONE ELSE IN THE HOUSEHOLD ate or drank yesterday during the day and at night IN THE HOME

*[note for enumerator: **excluding** foods eaten outside of the home]*

Did you or anyone in the household drink or eat:

Question number	Food group	Examples	YES (1)	NO (0)
1	CEREALS	bread, noodles, biscuits, cookies or any other foods made from millet, sorghum, maize, rice, wheat + *insert local foods e.g. ugali, nshima, porridge or pastes or other locally available grains*		
2	VITAMIN A RICH VEGETABLES AND TUBERS	pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside + *other locally available vitamin-A rich vegetables*		
3	WHITE TUBERS AND ROOTS	white potatoes, white yams, cassava, or foods made from roots.		
4	DARK GREEN LEAFY VEGETABLES	sweet pepper, dark green/leafy vegetables, including wild ones + *locally available vitamin-A rich leaves such as cassava leaves etc.*		
5	OTHER VEGETABLES	other vegetables, including wild vegetables		
6	VITAMIN A RICH FRUITS	ripe mangoes, papayas, *other locally available vitamin A-rich fruits*		
7	OTHER FRUITS	other fruits, including wild fruits		
8	MEAT	beef, pork, lamb, goat, rabbit, wild game, chicken, duck, or other birds, liver, kidney, heart or other organ meats or blood-based foods		
9	EGGS			
10	FISH	fresh or dried fish or shellfish		
11	LEGUMES, NUTS AND SEEDS	beans, peas, lentils, nuts, seeds or foods made from these		
12	MILK AND MILK PRODUCTS	milk, cheese, yogurt or other milk products		
13	OILS AND FATS	oil, fats or butter added to food or used for cooking		
14	SWEETS	sugar, honey, sweetened soda or sugary foods such as chocolates, sweets or candies		
15	SPICES AND CAFFEINE OR ALCOHOLIC BEVERAGES	spices, coffee, tea, alcoholic beverages OR *local examples*		
			YES (1)	NO (0)
A.		Did you or anyone in your household eat anything (meal or snack) OUTSIDE of the home yesterday?		

[1] *Adapted September 2006 by FAO/Nutrition and Consumer Protection Division from the FANTA Household Dietary Diversity Score. Please acknowledge FAO in any documents pertaining to use of this questionnaire.*