

**FOOD VULNERABILITY OF HOUSEHOLDS IN THE SO-AVA COMMUNITY (Benin,
West Africa)**

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ABSTRACT

This study is a contribution to the analysis of food vulnerability of households in the Lake town of Sô - Ava. To achieve this, a socio - economic investigation was conducted using a questionnaire with two hundred and forty (240) households obtained by random sampling method. Data on the population, the main foodstuffs, and socio-economic situation of households were collected. These data were subject of processing using two food vulnerability assessment tools such as: food diversity score and the level of food insecurity at the level of households which are methods developed by FAO and the FANTA (Food And Nutrition Technical Assistance) project. The used food diversity includes fourteen (14) food groups. A point was awarded by consumed food group in the 24 hours preceding the survey by the household referent. The score and the category of household food insecurity were defined by the FANTA and FAO method.

The results showed that the food diversity is low enough in Sô-Ava (6.58 consumed food groups on daily average out of 14 groups) and that a significant proportion of the population is in food insecurity (nearly 70% in low, average and severe insecurity). Furthermore, the diet is based on cereals and the added fat vegetables and fish. The food diversity is improving when the economic level increases and is higher when the consumed soup is cooked at home.

Keywords: Food vulnerability, food diversity, food insecurity, Sô - Ava.

INTRODUCTION

According to FAO (2008), a household has reached food security when it has access to the food necessary for the healthy life of all its members adequate in terms of quality, quantity and safety, culturally acceptable and when it does not. There is no abnormal risk of losing this access. But while agriculture produces enough food for 12 to 14 billion people, about 850 million people, one-eighth of the world's population, are chronically hungry (FAO, 2013b).

Sub-Saharan Africa is the region with the most serious food problems. It accounts for 24% of the total number of undernourished people in the world (Konlani, 2011). It concentrates the vast majority of hungry people in the world where the prevalence of under nutrition is estimated at 14.3% (FAO, IFAD and WFP, 2013). The main driver of this situation is the demographic growth which induces increasing food demands and constitutes a challenge in terms of food security (Tabutioin, shoumaler, 2004). The main cause of hunger and malnutrition is not the lack of food

but the inability to buy it. In 2010, more than a third of rural people in developing countries were "extremely poor" (FAO, 2013b).

In Benin, 12% of households, or about 972,000 people are food insecure (WFP, 2008). In addition, 1,048,000 people are considered at risk of food insecurity. The proportion of people estimated to be food insecure in rural areas (15.33% or about 710,000 people) is twice that of urban areas (7.9% or 210,000 people) according to AGVSAN (2008).

The municipality of Sô-Ava, classified among the most isolated of the country remains dominated by the activity of fishing. Despite its importance in food, the agricultural sector in the region is struggling to develop due to physical constraints (Bokonon-Ganta, 1987). Located in the lower valley of Ouémé, it is known for its lacustrine status and for its fragile ecosystems. It is a risk zone where food insecurity reigns (PROGEL, 2008). This heavy dependence on agriculture predisposes the Commune to a high level of food vulnerability due to the weakness of production. In addition, the strong population growth (3.99% per annum) experienced by the Commune increases land pressure, resulting in a continuous fragmentation of farms and the expansion of crops on marginal lands with decreasing returns.

Faced with this unconvincing trend, it seems wise to conduct research on safety over time, in order to understand the level of availability, accessibility and use of food in this municipality. This dynamic aspect of food is referred to as the notion of household food vulnerability, which depends on two factors: the degree of exposure of households to risks / shocks, on the one hand, and their ability to adapt to food. Somewhere else.

2. Presentation of the research environment

Covering an area of 218 km², the municipality of Sô - Ava is one of the lakeside communes of Benin. Located between 6 ° 24 'and 6 ° 38' north latitude and 2 ° 21 'and 2 ° 30' east longitude, the Commune of Sô-Ava is located in the Atlantic Department (Figure 1).

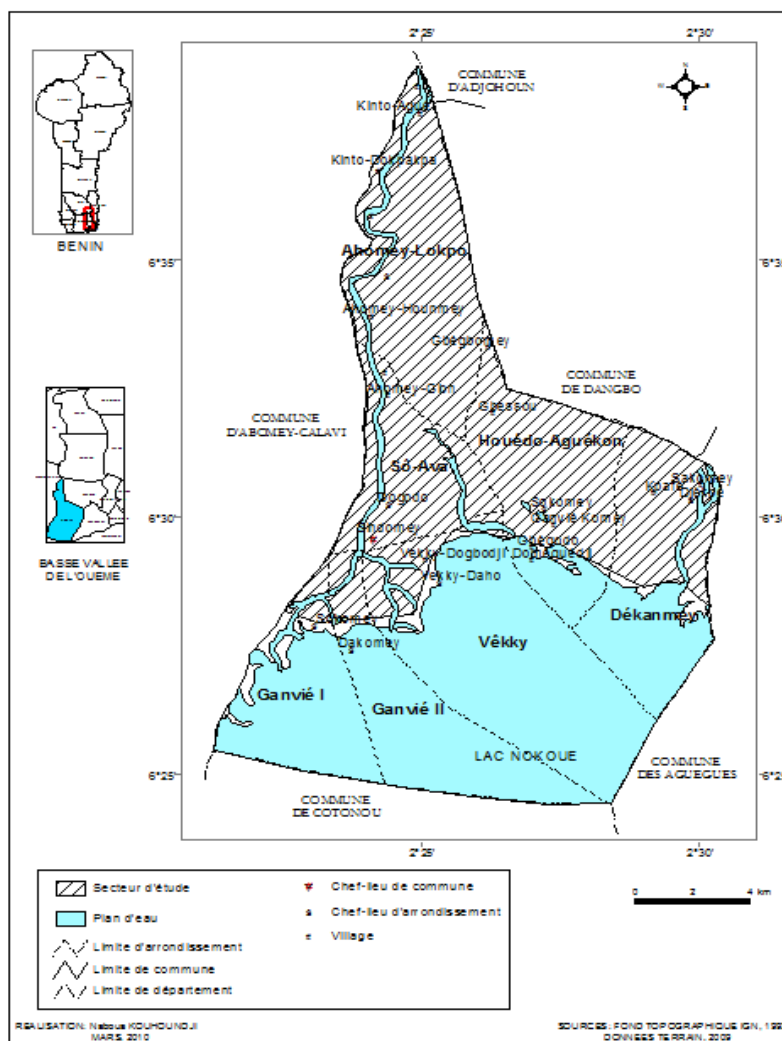


Figure 1: Administrative situation of the Municipality of Sô-Ava

The Commune of Sô-Ava is limited to the North by Adjohoun Commune, to the south by the coastal department and Aguégoués Commune, to the West by the Commune of Abomey-Calavi and to the East by Commune from Dangbo. It has a population of 118547 including 58527 women (RGPH4) distributed in seven (07) districts namely: Ahomey-Lokpo, So-Ava, Vekky, Ganvie 1, Ganvie 2, Dékanmey and Houèdo Aguékou.

3. Methodological approach

The methodological approach used revolves around data collection, processing and analysis of results.

3.1. Collection of data

Several types of data were useful for this research, namely:- household food consumption data: in the context of this study, 14 types of food products covering most of the dietary habits of the Commune's populations were selected; households were asked about the number of meals taken per day on the one hand, and the frequency and diversity of food consumption on the other hand;- demographic data: they were obtained in the documentation service of the National Institute of Statistics and Economic Analysis (INSAE) and the CARDER Atlantic. This is the total population of the Municipality of Sô-Ava and the agricultural one;- socio-economic data: they are collected on the basis of a simple questionnaire concerning the access to water and electricity, the current consumer goods owned by the household (motorized boat, ordinary boats, bicycles, motorcycles , vehicles, TV, refrigerators, fish holes, animals ...), habitat quality (building materials for walls, ceilings, floors) and household farming tools.

3.2- Data collection tools and techniques

The collection tools for this research mainly concern:-the questionnaire was sent to the heads of households to assess their food situation;-the interview guide was developed and sent to resource persons (staff of specialized agencies such as SCDA, ONASA, NGO).- R software for the statistical processing of data.

The collection techniques used are focused on desk research and fieldwork. The desk review collected information from the APRM, FAO, ONASA and INSAE documentation centers. This information was supplemented by data from socio-anthropological investigations. Individual interviews were conducted to collect information from 231 households and 10 resource persons with a good knowledge of agricultural production and food security in the research community.

3.3. Data processing techniques

The level of household food security was assessed using three tools: a household-level food insecurity scale, a dietary diversity score, and an estimate of the household's economic level.

3.3.1. Measuring dietary diversity

A dietary diversity score was constructed based on a questionnaire on a list of 14 food groups. For each group considered, one point was awarded if the group had been consumed the day before by the subject in the order of preference (a mother of a child under 5, a mother, an adult woman, or failing a male).

The diversity score is the sum of the points awarded to the 14 groups considered. The diversity score used is the individual diversity score proposed by FAO and FANTA. It takes into account the following food groups:

1. Cereals

2. Vegetables and tubers rich in vitamin A
3. White tubers
4. Dark green leafy vegetables
5. Other vegetables
6. Fruits rich in vitamins A
7. Other fruits
8. Offal (rich in iron)
9. Meats
10. eggs
11. Fish
12. Vegetables, nuts and seeds
13. Milk and dairy products
14. Oil and grease (red palm oil if appropriate)

The dietary diversity score ranges from 0 to 14, 14 indicating maximum diversity (at least one food from each group was consumed the day before), 0 indicating that the person did not eat at all the day before.

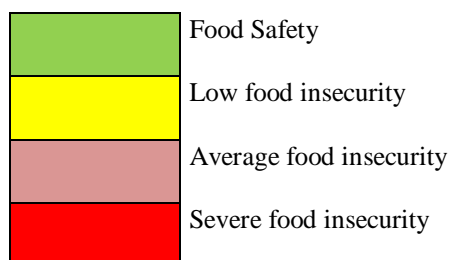
3.3.2. Measuring food insecurity at the household level

The measure of household-level food insecurity is done according to the method advocated by Food and Nutrition Technical Assistance (FANTA), which is based on a nine-item questionnaire on the lack of food and household responses to food insecurity. that. For each item, the answer is graduated from "0" to "3" depending on the severity or frequency of the situation. The accumulation of responses for each item determines a score on a scale of food insecurity ranging from 0 to 27 points, the score of 27 corresponding to maximum food insecurity. The answer "0" corresponds to the case where the answer to the question on the corresponding nine items is "no". The score from 0 to 27 is only the sum of the frequency of occurrence during the last four weeks of food insecurity and is calculated by summing the responses to the frequency of occurrence questions. For each answer, a score is assigned according to the frequency with which the corresponding event was lived by the household. 0 (never); 1 (rarely); 2 (sometimes) 3 (often). The category of food insecurity for each household is assigned according to the grid proposed by FANTA (Table I).

Table I: Classification of Food Insecurity Using the FANTA Method

	0. Jamais	1. Rarement	2. Parfois	3. Souvent
Concern about the diet				
Favorite foods not consumed				
Daily monotony				
Food consumption avoided				
Decrease in quantities				
Decrease in the number of meals				
Go hungry				
Nothing to eat in the house				
Fast all day				

Source: FANTA, 2007



The category in which a household is classified corresponds to the most precarious category identified by at least one answer to one of the questions. In other words, a household is classified as "food security" if all responses are in green boxes; it is classified as "low food insecurity" if at least one answer is in a yellow box with none in an orange or red box, and so on.

3.3.3. Estimation of the economic level of the household

An economic score was constructed at the household level using multiple correspondence analysis (MCA) based on the following variables: number of single boats, motorized boats,

bicycles, motorcycles, vehicle, acajas, furniture, building, refrigerator, television, access to water and electricity, animals, type of housing, nature of the roof, wall, household farming tools ...

The coordinates of each of the modalities on the first axis of the ACM were used as weights which allowed classifying the households with respect to each other according to all the economic characteristics. The information collected from the resource persons made it possible to compare the information collected from households.

4. Results

4.4.1. Food diversity

The average number of meals taken per day by households in Sô-Ava commune is 2.5 for children and 2 for adults during the normal period of life. But these relatively satisfactory figures are not constant. Thus, during the lean season, the average number of meals per household is reduced to 1.2 for all children due to the scarcity and high cost of food. Household food consumption is analyzed according to the diversity and frequency of consumption of food products and their mode of acquisition, ie own production, purchase, donation, food aid, etc ...).

All households surveyed consumed more cereals and tubers, fish, oil and sugar, during 6.7, 5.9, 6.8 and 4.9 days per week, respectively. Pulses / oleaginous crops, fruits and milk are the least consumed products with a weekly frequency of 2.1, 1.3 and 0.8 days, respectively (Figure 2).

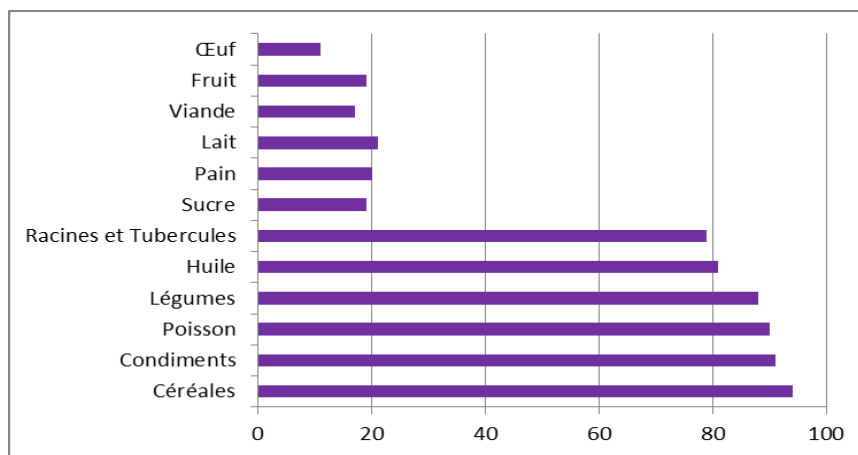


Figure 2. Proportion of households that consumed the food group the day before the survey

Figure 2 shows dietary diversity in the municipality of Sô-Ava. Thus, cereals, vegetables, fish and condiments were consumed by more than 90% of the households surveyed. Fruits, meat, milk, bread and sugar come in a small proportion (less than 20%).

4.4.2. Source of food consumed

The food consumed by households in the Commune of Sô-Ava is of various origins (Figure 3).

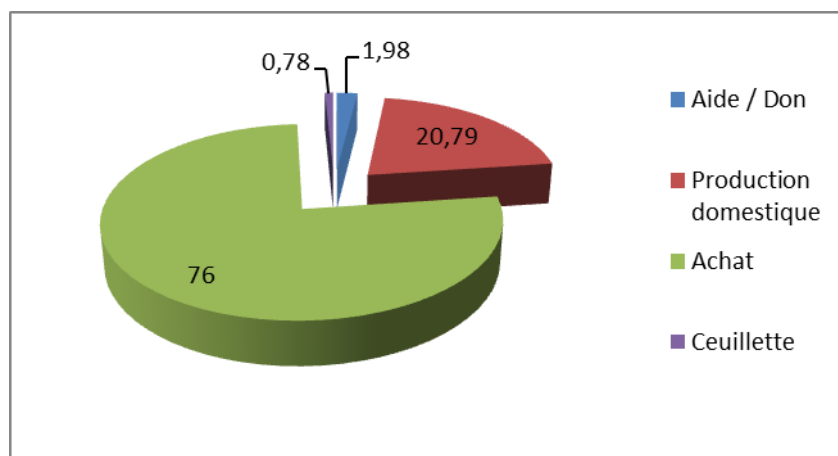


Figure 3: Main sources of food consumed

As can be seen from Figure 3, more than three-quarters of households purchase food per purchase. But it should be noted here that sometimes, the commodities are not available or when they are, the prices are not accessible to all. As a result, 20.79% of households consume self-produced food, and collection and donations contribute less than 1%, or 0.78% and 0.98% of food consumed by others. Donations are seasonal and usually relate to floods or floods. This figure therefore poses the problem of availability from local agricultural production. The environment being lacustrine, the development of agricultural activity is slowed down by natural conditions.

4.4.3. Food diversity and economic levels

From the socioeconomic data collected, five levels of economic dependence were constructed; this is the very low, low, medium, high and very high economic level. The regression between dietary diversity and economic level shows a strong correlation ($p < 0.0001$). There is therefore a strong relationship between the economic level and dietary diversity. Diversity by household economic level (Figure 4).

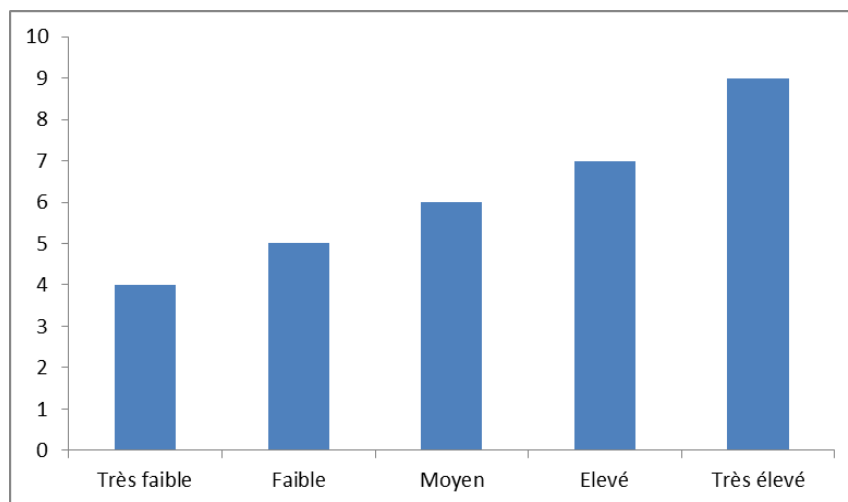


Figure 4: Evolution of the dietary diversity score according to the economic level

Figure 4 shows that the dietary diversity index at Sô-Ava ranges from 4 to 9. This index increases as the economic level of households improves. Thus, it is 4 with households with very low economic capacity; 5 for those with low capacity; 6 and 7 for those with medium and high economic capacity and 9 for households with very high economic capacity. It follows that food diversity improves when the economic level increases.

4.4.4. Diversity and eating behavior

The regression analysis between sources of supply and dietary diversity shows that the model is globally significant at the 5% level; which means that there is a strong correlation between the two variables (Figure 5).

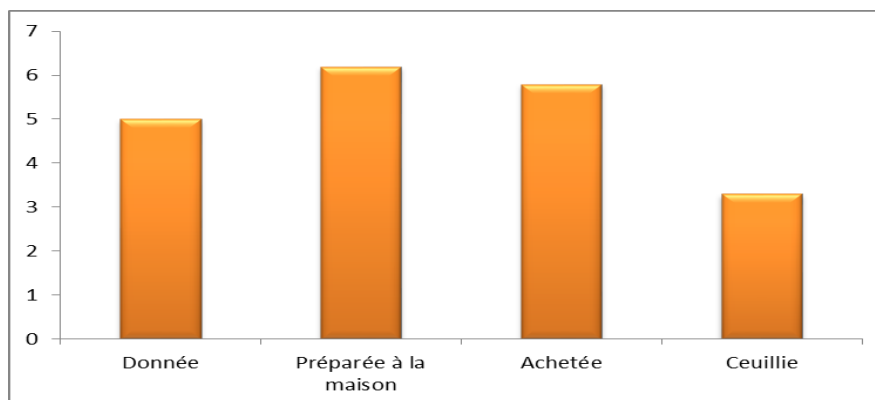


Figure 5: Food Source Based on Dietary Diversity Score

The reading of Figure 5 shows that diversity is higher when food is prepared at home without having a large variation when it is given or purchased. Indeed, the diversity index turns around 5 for the purchase and the donation and slightly exceeds 6 for the food prepared at home. In addition, it is lower when food should be sought in nature and revolves around 3. Ultimately, the dietary diversity is barely higher when the dishes consumed are prepared in the household. It is lower when the household uses picking.

4.4.5. Degrees of food insecurity

Households in Sô-Ava commune face food insecurity to varying degrees (Figure 6).

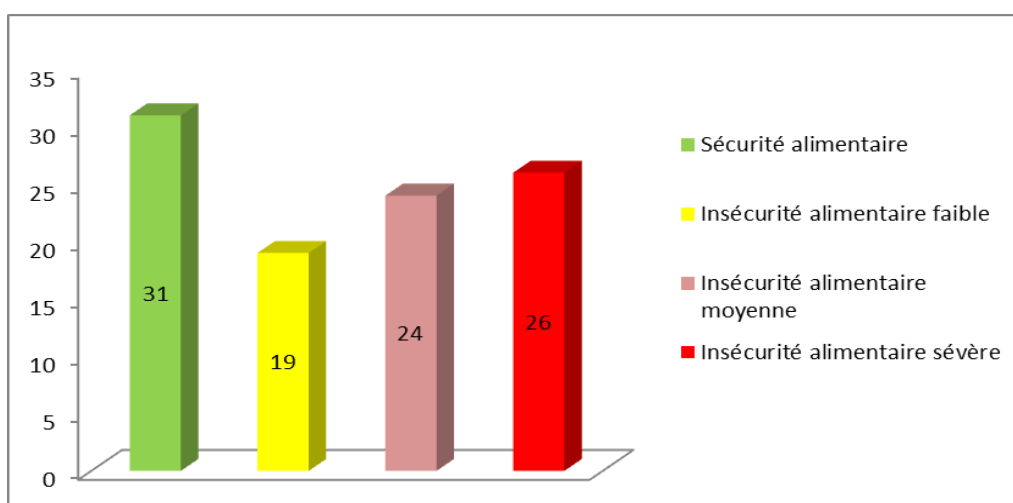


Figure 6: Levels of Food Security

The analysis in Figure 6 shows that in the Commune of Sô-Ava, less than 50% of the population are food insecure. About one-quarter of the population is severely food insecure while 19 and 24 percent are low and medium food insecurity respectively. Indeed, the situation of food insecurity is strongly linked to the economic level. Thus, the average score of food insecurity decreases as the economic level increases.

CONCLUSION

Food vulnerability is a complex concept of which no one-dimensional measure is universally recognized. Both tools tested in this study appear simultaneously linked to a set of indicators that measure the multiple dimensions of vulnerability. The diversity score and the food insecurity scale therefore measure each dimension of food insecurity and complement each other.

In addition, these tools show that in the Commune of Sô-Ava, food insecurity is gaining importance while dietary diversity, which contributes a large part to the quality of food is low. Food products with a high micronutrient density (fruits, meat, dairy products, eggs) with a high nutritional value are less and less consumed. Whatever the economic level reached by households, the proportion in food security hardly reaches 50%.

In sum, the food security situation in Sô-Ava is linked to the physical and socio-economic environment. Physical nature does not favor agricultural production. The deficit nature of agricultural production remains one of the main causes of food security. The agricultural sector is characterized by the absence of storage structures necessary for the preservation of food with a view to prolonging their use until the lean season. Added to this is the difficulty of selling food products due to the isolation of the town.

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