# Rapid post-earthquake emergency food security assessment

# HAITI

Coordination Nationale de la Sécurité Alimentaire (CNSA)

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Data collected in February 2010

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## List of abbreviations and acronyms

| | |
|---|---|
| ACF | ACF International (Action Against Hunger) |
| CET | Cereal-Equivalent Tons |
| CFSVA | Comprehensive Food Security and Vulnerability Analysis |
| CNSA | Coordination Nationale de la Sécurité Alimentaire (National Food Security Coordination Unit) |
| CPI | Consumer Price Index |
| CSI | Coping Strategy Index |
| EFSA | Emergency Food Security Assessment |
| EMMA | Emergency Market Mapping Analysis |
| FAO | Food and Agriculture Organisation |
| FCG | Food Consumption Group |
| FCS | Food Consumption Score |
| FEWS NET | Famine Early Warning System Network |
| GDP | Gross Domestic Product |
| GPS | Global Positioning System |
| IDB | Interamerican Development Bank |
| IFPRI | International Food Policy Research Institute |
| IGA | Income Generating Activities |
| IOM | International Organisation for Migration |
| LS | Listing Section |
| MUAC | Mid-Upper Arm Circumference |
| OSASE | Observatoire de la Sécurité Alimentaire du Sud-Est (Food Security Observatory in the South-East) |
| ROC | Receiver Operating Characteristics |
| UNDP | United Nations Development Programme |
| WFP | World Food Programme |
| WHO | World Health Organisation |

# 1 Introduction

On January 12, 2010 an earthquake measuring 7 on the Richter scale hit Haiti. The quake epicentre was located 17 km away from the capital, Port-au-Prince (approx. 2 million people). About 3.5 million people live in the quake-stricken area. This is the most important quake ever reported in Haiti, a country already facing, for a number of years, an important humanitarian crisis and natural catastrophes, in particular a series of hurricanes and tropical storms in 2008.

The lack of information on the food and socio-economic situation of the victims of this earthquake made it difficult to target them and implement short and mid-term intervention strategies. In light of this situation and given the information on the deterioration of the food security situation, a decision was made with partners to undertake an assessment of the food security situation in the most affected areas.

Thus the Coordination Nationale de la Sécurité Alimentaire (CNSA) in collaboration with other partners (FAO, WFP, ACF, FEWS NET, OXFAM) organized a field survey in the Port-au-Prince metropolitan area and the communes of Jacmel, Léogâne, Grand Goâve, Petit Goâve and Gressier. Focus groups were organized in rural settings and in some areas of concentrated displaced people.

This report first presents the study as well as the pre-earthquake food and socio-economic conditions. Then, it covers the analysis and interpretation of data collected on food security and socio-economic conditions, the nutritional situation of children aged 6 to 59 months, the coping strategies, current and future household priorities and other data. The penultimate part of the document deals with items related to food security and vulnerability. Finally, conclusions and recommendations are found in the last part of the report.

# *2 Survey Presentation*

## 2.1 Objectives

The objective of a rapid emergency food security assessment is to assess living conditions, food and income sources, current food consumption modes, coping strategies and perspectives for the next 3-6 months for the population affected by the earthquake, in order to provide information for the design and implementation of quick relief and recovery operations.

## 2.2 Data collection tools

Four data collection tools were used : Questionnaire for household surveys, interviews with key informants, focus groups with community groups and a control sheet.

**Household surveys :** data collected in the household survey questionnaire include information on their means of livelihood, agriculture, shocks, coping strategies, food consumption, assets, income, expenses and migration. Data collected from each member of the household provide information on demographics, mortality and chronic illnesses. The Mid-Upper Arm Circumference (MUAC) was used to thoroughly screen malnutrition in children between 6 and 59 months old. Age, gender, morbidity and the presence of oedema were also recorded for these children. Heads of household answered the questionnaire. Household members in charge of food preparation answered the questions on food consumption.

**Interviews with key informants :** provide information on the on-site demographics, life habits, food access, vulnerability of the population, means of livelihood, perception of food aid and community priorities. Interviews were conducted with community leaders or any other person with a comprehensive understanding of the socio-economic situation prevailing in the community. Several key informants were interviewed in order to cross-check the information.

**Discussions with community groups :** these are interviews with people from all levels of the community. Men and women were interviewed, in composite groups or separately. The questionnaire was similar to the key informants' questionnaire, but also included information related to humanitarian assistance. Nine community groups specifically discussed protection issues.

**The control sheet :** is used to verify the conformity of filled-in questionnaires. Each team leader had to complete one for each site he was surveying. This tool helps better understand the difficulties encountered and provides additional information.

## 2.3 Sampling

The survey methodology is a two-stage random sample using Enumeration Areas (EA) as a primary unit and surveyed households as a secondary unit.

Data from the 2003 Census were used as basic survey data to primarily select Enumeration Areas (EA), with a probability proportional to the size. For the second stage, eight households were selected in each EA. The expected sample size was 960. The final size was 933 households.

Camp selection was made based on the January 31, 2010 data base provided by the International Organisation for Migration (IOM), using the same process as for the EA.

However, the IOM data base was incomplete for the communities of Grand Goâve, Petit Goâve, Léogâne, Croix-des-Bouquets, Jacmel and Gressier. The number of camps to select in each commune in these areas was therefore proportionally determined in relation to the community population in these strata. For each commune, enumerators obtained information on the existence of the camps and purposefully selected the required number. They made sure they were including the most important camps and were covering the whole commune.

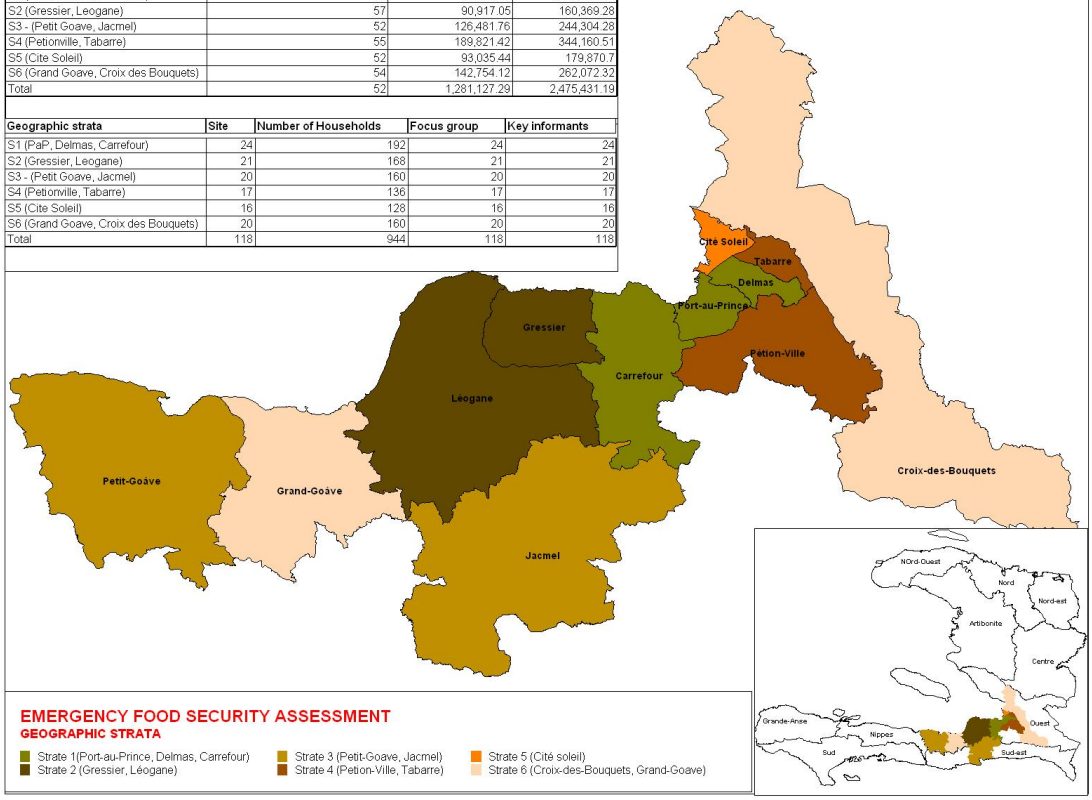
Seven strata were defined, in order to facilitate reporting, according to the sampling plan:

- **Stratum S1**: covers the communes of Carrefour, Port-au-Prince and Delmas; 86 households were surveyed.
- **Stratum S2**: covers the communes of Léogâne and Gressier; 95 households were surveyed.
- **Stratum S3:** covers the communes of de Jacmel and Petit Goâve; 88 households were surveyed.
- **Stratum S4 :** covers the communes of Pétionville and Tabarre; 96 households were surveyed.
- **Stratum S5:** covers the commune of Cité Soleil; 96 households were surveyed.
- **Stratum S6:** covers the communes of Grand Goâve and Croix-des-Bouquets; 96 households were surveyed.
- **Camps :** Camps are superimposed on the six preceding strata, thus forming six small « camp » strata; but most of the time in the analysis, these strata were grouped in two sub-strata while ensuring that the sample was always representative for each stratum.
    - **Camps C1**: uniquely made of camps located in urban communes. 169 households were surveyed (communes in S1, S4, S5).
    - **Camps C2**: made of camps located in more rural communes (communes in S2, S3, S6): Grand Goâve, Croix-des-Bouquets, Léogâne, Gressier, Jacmel, Petit Goâve; 208 households were surveyed.

**Figure A** : Map of surveyed areas

| Geographic strata | % Households Food Insecure | Food insecure people | Total Population |
|---|---|---|---|
| S1 (PaP, Delmas, Carrefour) | 50 | 638,117.5 | 1,284,654.09 |
| S2 (Gressier, Leogane) | 57 | 90,917.05 | 160,369.28 |
| S3 - (Petit Goave, Jacmel) | 52 | 126,481.76 | 244,304.28 |
| S4 (Petionville, Tabarre) | 55 | 189,821.42 | 344,160.51 |
| S5 (Cite Soleil) | 52 | 93,035.44 | 179,870.7 |
| S6 (Grand Goave, Croix des Bouquets) | 54 | 142,754.12 | 262,072.32 |
| Total | 52 | 1,281,127.29 | 2,475,431.19 |

| Geographic strata | Site | Number of Households | Focus group | Key informants |
|---|---|---|---|---|
| S1 (PaP, Delmas, Carrefour) | 24 | 192 | 24 | 24 |
| S2 (Gressier, Leogane) | 21 | 168 | 21 | 21 |
| S3 - (Petit Goave, Jacmel) | 20 | 160 | 20 | 20 |
| S4 (Petionville, Tabarre) | 17 | 136 | 17 | 17 |
| S5 (Cite Soleil) | 16 | 128 | 16 | 16 |
| S6 (Grand Goave, Croix des Bouquets) | 20 | 160 | 20 | 20 |
| Total | 118 | 944 | 118 | 118 |




Three sampling scenarios were applied to the designated sites is order to perform a random selection of households to be surveyed :

**Urban Enumeration Areas (EA):** In these areas, all camps with more than 10 households were excluded from the sample. Urban maps show the area delineation as well as the streets, but no socio-economic infrastructure. Enumerators indicated the household location on the map (including those living in small camps). A systematic 8-household random sample was then drawn from the map. Where many households were living together, one of them was selected at random.

**Rural EAs**: as for Urban EAs, large camps (> 10 households) were excluded. Rural EA maps show all important buildings. A systematic random sampling of these buildings was done. If the building was vacant or was not a housing unit, enumerators were selecting the closest household in the closest building. If the building contained several households, only one of them was randomly selected. If a small camp, in the EA, was on the enumerators' sampling route, a single household was randomly chosen and the next selected building was skipped (very few occurrences).

As far as **camps** are concerned**,** the enumerators' team first defined camp limits as well as the camp center. With the spin-the-pen method, 4 separate routes were selected from the camp

center to the outer limits. Each enumerator numbered the households on his route and selected two at random. If several households were found in a structure or a tent, only one was randomly selected.

The different strata (geographical, socio-economic, etc.) are described in Appendix I.

## 2.4 Data collection

Data collection was preceded by a 3-day training session for enumerators : theoretical training for two days, followed by a tool pre-testing day in two camps in Pétionville. A general tool review was done at the end of the test. Team leaders also received additional training on on-site household selection and the use of a GPS. Enumerators and team leaders were selected according to their experience in former surveys organized by the CNSA and the WFP. This shortened the training periods. Sixty-one individuals attended training and 49 were selected based on their performance.

Data collection was conducted from February 5 to 12 (8 days). Seven teams, each made of seven members (two team leaders, one assistant and four enumerators) were able to cover all sites. Team leaders were in charge of the interviews with key informants and focus groups with the help of the assistant. The four enumerators were in charge of household surveys.

All sites were accessible by car, except two. A helicopter was used to access these.

Three supervision teams followed up on the different enumeration teams to monitor data quality and provide logistical support.

## 2.5 Data Entry and Database Maintenance

Microsoft Access was used for data entry by nine operators. This operation started on February 9 and was concluded on February 14. Double entry was performed on approximately 25% of the questionnaires to verify the occurrence of errors in the base. Less than 0,1% of error was found and was not specific to any question or section. After the data entry, data were first cleaned in the Access data base, then exported to SPSS for further clean-up prior to analysis.

## 2.6 Data Analysis

Household quantitative data were analysed with the SPSS software. Weightings were applied to quantitative analyses to ensure the validity of results (see Section on Sampling).

Qualitative data were consolidated per stratum (8 strata in total) during a two-day workshop with team leaders and survey partners. For each question, responses were coded and frequencies calculated for each site in all strata. These results were discussed in a plenary session with all stakeholders involved in qualitative data consolidation to identify collective trends and differences between strata, then these data were integrated in the Interim Report.

The Interim Report was distributed and discussed with the partners, then presented in a workshop session in order to set forth findings and recommendations.

## 2.7 Limitation of the survey and difficulties encountered

Sampling is based on the 2003 National Population Census and IOM data on camp populations. However, several EAs registered people who arrived or left in the post-earthquake period. Consequently, census data were obsolete in these areas. Many new camps had not been covered by the IOM census, specifically in rural areas (Jacmel, Léogâne). On many sites, no lists were available, teams consulted with local authorities to identify the camps and determine the number of households.

Furthermore, some areas were not accessible, due to their remoteness or because of landslides following the earthquake. In some areas, sampling was modified as follows:

- In the commune of Jacmel, two sites were inaccessible by car. The helicopter could not land because of bad weather. One of the sites was excluded and the second replaced by another which was accessible by car.
- In the commune of Croix-des-Bouquets, one inaccessible site was replaced by another one in the same commune.
- In the commune of Carrefour, one EA was not surveyed due to the lack of time.
- In an EA in the commune of Delmas only 4 households were present (the others were all displaced), numerators only surveyed these 4 households.
- In Pétionville, part of an EA not affected by the quake was inaccessible. Enumerators concentrated their efforts on the accessible part.

Household selection on the sites was not an easy task, mainly in small camps or in areas where several households live together. In small camps, the difficulty was to delineate them and to obtain the right number of households. Finally, there is a slight under-representation of households living together, as this case scenario had not been foreseen, at the beginning. In all cases, only one household was surveyed each time this situation was occurring.

# 3 *Socio-economic context prior to the earthquake.*

The Republic of Haiti, with a population of almost 9 million people in 2003[1], is ranked as one of the least developed and poorest countries of the world. It is also a food deficit country. In 2009, Haiti ranked 149th of 182 countries on the United Nations Development Programme (UNDP) Human Development Index. The proportion of people living under the poverty threshold is estimated at 76%, among which 55% are considered as extremely poor[2].

In 2007, 47 % of the population had no access to basic healthcare and most Haitians were relying on traditional shamans. For a long time, hospital and healthcare center services in Port-au-Prince have been suffering from the lack of infrastructures, power outages, water problems and general deterioration.

Haiti faces important water supply and sanitation problems. In 2009, 45% of the population did not have access to potable water and 83% of Haitians did not have access to sufficient sanitation services (WHO/CCS).

Haiti food deficit is of a structural nature. The average annual cereal deficit represents 50-70% of the country needs and is very unstable as it is directly impacted by major changing crop conditions in farming areas.

Haiti is considered as one of the countries most affected by recent skyrocketing prices on the international market. The rapid rise in the price of cereals and energy products was immediately reflected on the national markets due to the country heavy dependence on imports. Over the last decade, on average 50% of food was coming from imports. This is due to two factors: i) an increase in food products consumption ii) a decrease in agricultural production per capita (and its contribution to GDP) due to important structural weaknesses and the rapid growth of the population. The value of food imports per capita strongly increased since 1994, going from 14.5 US$ in 1981 to 32 US$ in 2003 then to over 40US$ in 2006-2007.

A number of internal factors also contribute to this weakened socio-economic situation. Endemic poverty, the important position food has in the household budget (55% according to the budget-consumption survey conducted in 1999-2000) and the dependence of most households – urban as rural- on local markets for their food supply[3] , are all aggravating factors. Four tropical storms struck the country in 2008, thus worsening the socio-economic conditions, especially in rural areas.

[1] 2003 National Population Census
[2] UNDP Human Development Report 2009
[3] In 1999-2000, only 10% of total consumption in rural areas was on-farm consumption.

# 4 General Food Security Situation in the pre-earthquake period

Over the last decade, several studies on food security were conducted in Haiti.

The multi-hazard vulnerability assessment carried out by FEWS NET and CNSA between May and August 2009 covered the whole country. Results have shown that most food insecure households were concentrated in the dry farming areas including the Nord-Ouest (communes of Baie de Henne, Bombardopolis, Mole St. Nicolas, Henne), the Sud-Est (Côtes-de-Fer) and Artibonite (Ville Anse Rouge), and in areas around Port-au-Prince. There are food insecurity pockets throughout the country. The water deficit in the summer of 2009 led to an significant reduction in cereal production.

In November 2009, CNSA also assessed the Sud-Est (South-eastern part of the country) ; the results of this survey based on a 7-day recall of dietary diversity and food frequency consumption showed that:

- 5% of households in Jacmel are suffering from severe food insecurity (poor food consumption) and 12% from moderate food insecurity (borderline food consumption).
- The situation seems slightly better in rural areas. Actually, in rural areas only 2% to 3% of households were suffering from severe food insecurity (poor consumption). Those suffering from moderate food insecurity (borderline consumption) represented 12-17% of households. These results are very similar to those obtained by the CFSVA (*Comprehensive Food Security and Vulnerability Analysis)* in 2007.

After the price boost in 2008, CNSA organised a survey around Port-au-Prince to assess the impact of price increases on urban households (end of August 2008). The results of this survey show that 14% of the households were severely food insecure and 17% moderately food insecure. The analysis was based on dietary diversity and food frequency consumption.

In 2007, CNSA completed a Comprehensive Food Security and Vulnerability Analysis in the rural areas of the country. According to the results, 6% of households were suffering from severe food insecurity (poor food consumption) and 19% from moderate food insecurity (borderline food consumption). In rural areas in the Ouest and Sud-Est, 4 to 5% were suffering of severe food insecurity (poor consumption) and 15 to 16% from moderate food insecurity (borderline consumption).

The rural areas in the Ouest, Sud-Est, Nord, Nord-Ouest and Grande Anse were showing the highest rates of households suffering from severe food insecurity.

Farm production has significantly decreased due to the lack of arable soil, soil erosion and deforestation. Demographic pressure is another aggravating factor. While cereal production did

not increase over the last 20 years and while tuber production increased only by 1.2% a year[4], population was increasing at a rate of 2% per annum.

In 2009, agricultural production was covering 42 to 53% of the country needs[5] and was keeping over 60% of the active population busy in rural areas. Farming is mainly subsistence farming; three quarters of farmers have less than 2 hectares to cultivate.

According to the CFSVA results, 70% of households were growing corn, 38% tubers and 35% beans. Other crops are plantain (28% of households), sorghum/millet (28%).

[4] Calculated on the FAO stat basis
[5] CNSA

# 5 Socio-economic environment and household living conditions

## 5.1 Demographic Profile

In order to better grasp the demographic profile of the concerned populations, household members were divided in five age groups: under 5 years old, 6 to 11 years old, 12 to 17, 18 to 59 and over 59. These categories show, within a same household, the representativeness of children under 5 years old, children of school age, active household members and finally, elderly people.

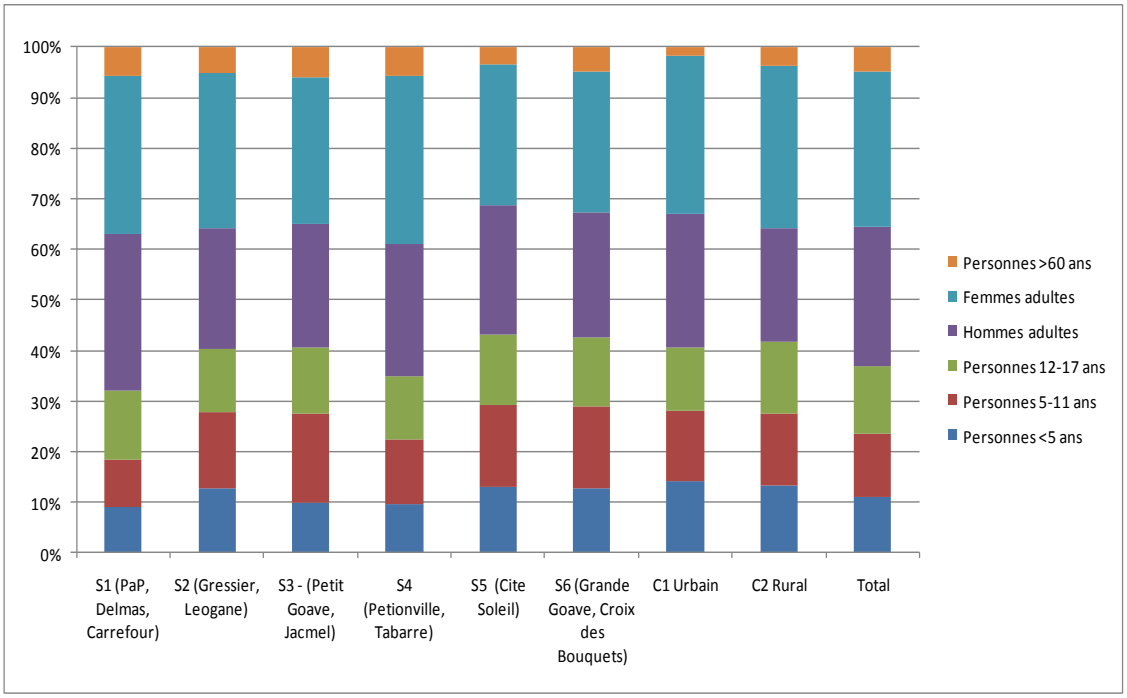
The average household size, in all survey areas, is 6.7 people. Over 41% of surveyed households have at least 6 members.

The average age of household heads is 46 years old ; 41% of surveyed household heads were women. They are strongly represented in strata S1, S2 and C2 where they represent more than 40% of household heads. In stratum C2, they are a majority and represent 51% of household heads.

Children under 5 years old represent 11% of the surveyed population, adult women (18 – 59 years old) 32% of the sample. Over all strata, adult women are a majority; they are 36% in S4. The dependency rate[6] (in percentage) is 41%; it reaches 46% in S5 and C2. Strata S1 and S4 are showing the lowest rates with respectively 36% and 37%.

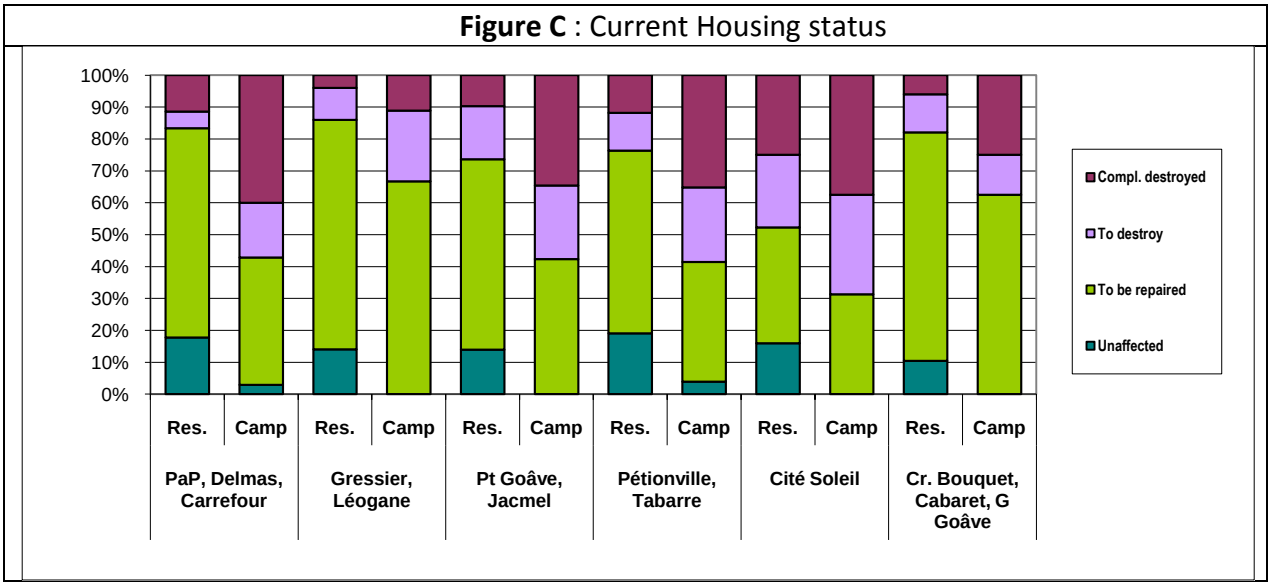
[6] The dependency rate is shown in percentage. It was calculated for each household as follows((number of people aged 0-17) + (number of people >=60 years old)) / (total number of household members).

**Figure B** – Household distribution by age group




As far as the housing status is concerned, the most affected areas are Gressier and Léogâne where 50% of households estimate that their house is destroyed or uninhabitable. They are 30% in the areas of Port-au-Prince, Delmas, Croix-des-Bouquets, Grand Goâve and Carrefour. 50% of households in rural and urban also lost their house.

**Figure C** : Current Housing status



In spite of the earthquake, 17% of households continue to sleep in their house. 22% sleep besides their house and 18% outside their house in the neighbourhood, but in a camp with more than 10 households. In stratum S2, 55% of households sleep besides their house with their family only. Households moving to camps are mostly those whose house has been destroyed, but some of them prefer moving there for security reasons.

**Figure D** : Current household status


In the surveyed areas, more than 13% of households had at least one of their members in hospital, after the quake; they were 19% in stratum S1, 12% in C1 and 15% in stratum C2. As far as deaths are concerned, 10% of households have lost one family member or more. The most affected strata were S1 (12%) and C1 (17%).

Over the whole sample, 6% of households had at least one pregnant woman; they were 9% in strata S5 and C2. On the other hand, 23% of households had at least one lactating woman, which is 1/5 of the households surveyed. This number was 1/4 in stratum C1.

5% of households had at least one handicapped member; they were 6% in stratum S1 and 9% in S6.

## 5.2 Access to potable water

Means to access drinking water are numerous and diversified, but the potability of such water needs to be confirmed. The household survey identified nine sources of drinking water: private faucet, public network, tanks, bottles/bags/gallons, protected wells, non-protected wells, rain water, rivers, spring water and tanker trucks.

The use of drinking water from private faucets or the public network increased from 29% to 41% after the quake. This increase is more important in urban camps where 42% use the public network and 9% a public faucet (18% and 2% before) probably because of the post-quake water distributions.

The use of purchased water (bottles, bags or gallons) went down from 30% to 23% after the quake. The use of such water continues to be higher in urban areas than in rural areas.

Other sources of water did not change significantly after the quake compared to before the event.

Access to potable water is essential to good hygiene and public health; therefore it will be necessary to ensure the potability of water sources used by the population.

## 5.3 Hygiene and sanitation

With respect to sanitation, the situation is precarious in many surveyed areas. On the overall sample, 22% of households do not have any latrines and household members relieve themselves outdoors. Approximately 22% share latrines with more than 3 families and 10% with less than 3 families.

However, more than 28% have access to an individual latrine. This household category is mainly found in S3 (45% of households have an individual latrine), S4 (41%), S5 (32%) and finally S1 (30%).

In stratum C1 (urban camp), one third of households shares a latrine with more than 3 families. The situation is more severe in strata S2, S6 and C2 where respectively 52, 42 and 42% of households have no access to latrines or WC; they relieve themselves in a hole or outdoors.

In order to avoid disease proliferation due to poor hygiene conditions and precariousness, a solution should be quickly implemented in urban camps and other sites.

Concerning the environment, it is worth mentioning the heavy use of coal as cooking fuel. In fact, 76% of surveyed households use coal as fuel whereas 18% use wood and twigs. Around 81% of households using coal or twigs buy them and 17% collect them.

## 5.4 Household income sources before and after the quake

Over all surveyed areas, 19 types of income generating activities were identified. However for the purpose of this analysis and because several of them are overlapping, they were grouped in 8 activities:

1. Farming (sale of farm products, fishing, livestock production);
2. Trade (wholesale, retail, crafts);
3. Unskilled work (farm work, casual work, unskilled day-to-day work);
4. Self-employment (self-employment, land rental, other rentals);
5. Skilled work (Skilled work, civil servant, work for an NGO or the UN);
6. Social assistance (donations, begging, mutual assistance);
7. Remittances;
8. Others (selling food aid, etc.).

Although the range of income generating activities is somewhat diversified, trade by far remains the most important income source (over 26% of surveyed households). It is followed by money transfers from abroad or within the country. These remittances provide an income for 13% of households. The third income source is unskilled work, it employs 12% of households. Before the quake, trade was also the most important income source (34%), followed by skilled work (19%) and unskilled work (15%).

Before the earthquake, trade was also the most important income source for all strata except S4 (Pétionville and Tabarre) where skilled work was an income source for 27% of households. Trade work which was the second most important income source prior to the disaster is now ranking 4$^{th}$, probably because many companies were destroyed by the quake thus leaving many skilled workers unemployed.

Social assistance, which was not one of the main income source sbefore the quake, is now a major source of income for 6% of the households. All income sources went down except for remittances, which almost doubled, going from 5% to 13%. They are the most important income source for more than 18% of households in stratum S4 and 16% in stratum C1 (urban camps).

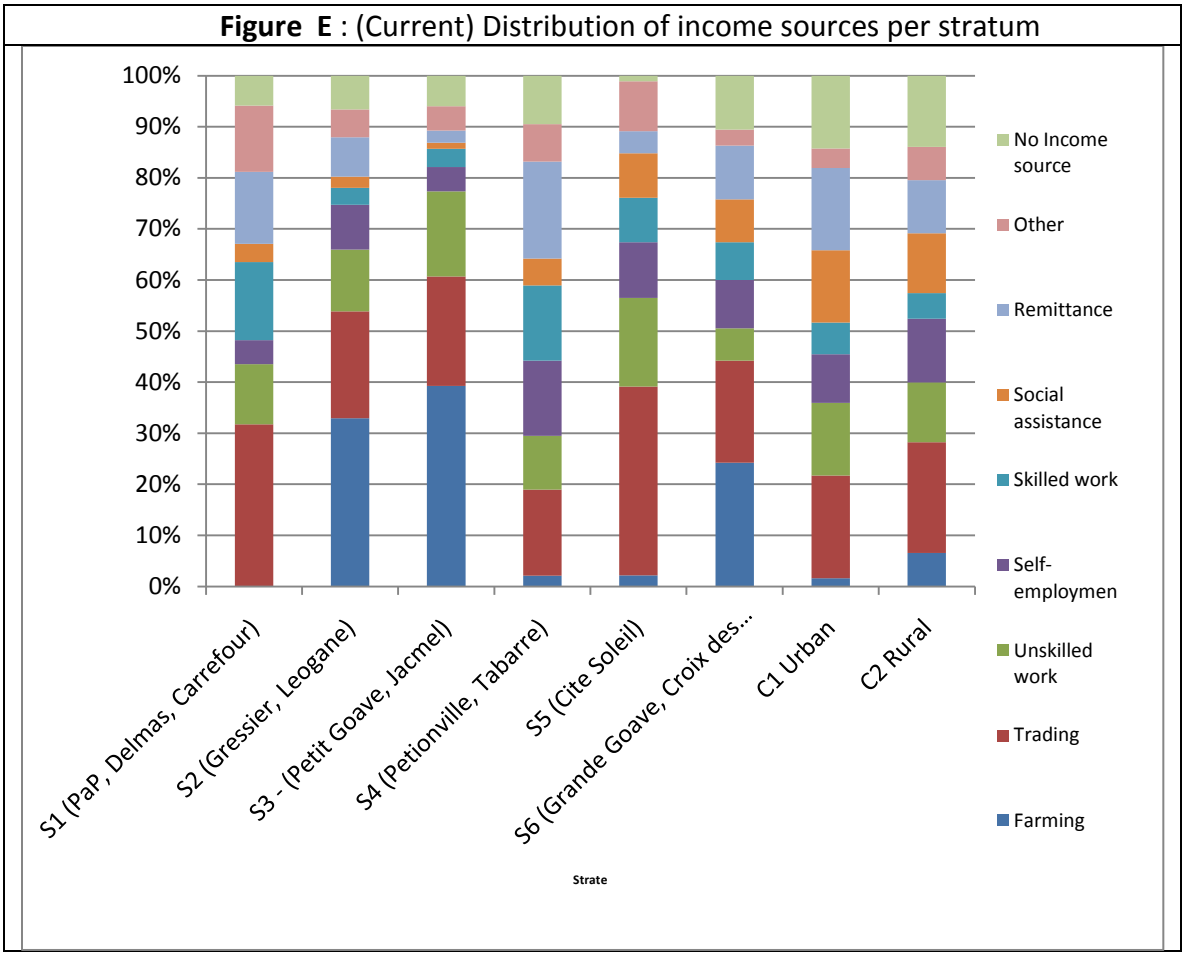
The lack of opportunities to find “skilled work” and “unskilled work” which were respectively the second and third income sources before the quake strongly impacted on more than one third of the surveyed households. The decline in trading activities also affected more than 10% of households in all strata, except S4.

Among the three major household income sources at the moment (trade, unskilled work and remittances), only trade is sustainable, but is still driven by the general purchasing power and the lack of financing. The two other sources are very uncertain. Remittances might not be sent on a regular basis and unskilled work is very precarious and strongly market-driven.

As regards remittances, 21% of households have family abroad sending money or food and 22% receive similar remittances from family members in Haiti. Strata receiving most remittances are S1, S4 and S6 with respectively 29, 25 and 20% of households receiving remittances. Most of the time, remittances are only in cash (58% of transfers). The rest is only in kind (18%) or a combination of both (24%). Substantially all households use remittances to buy food (89%). Other purchases mentioned are healthcare, water, rent, transport and schooling.

One third of households have a bank account; disparities exist between the strata. In strata S2, S3, S5, S6 and C2, only one quarter of households have a bank account.

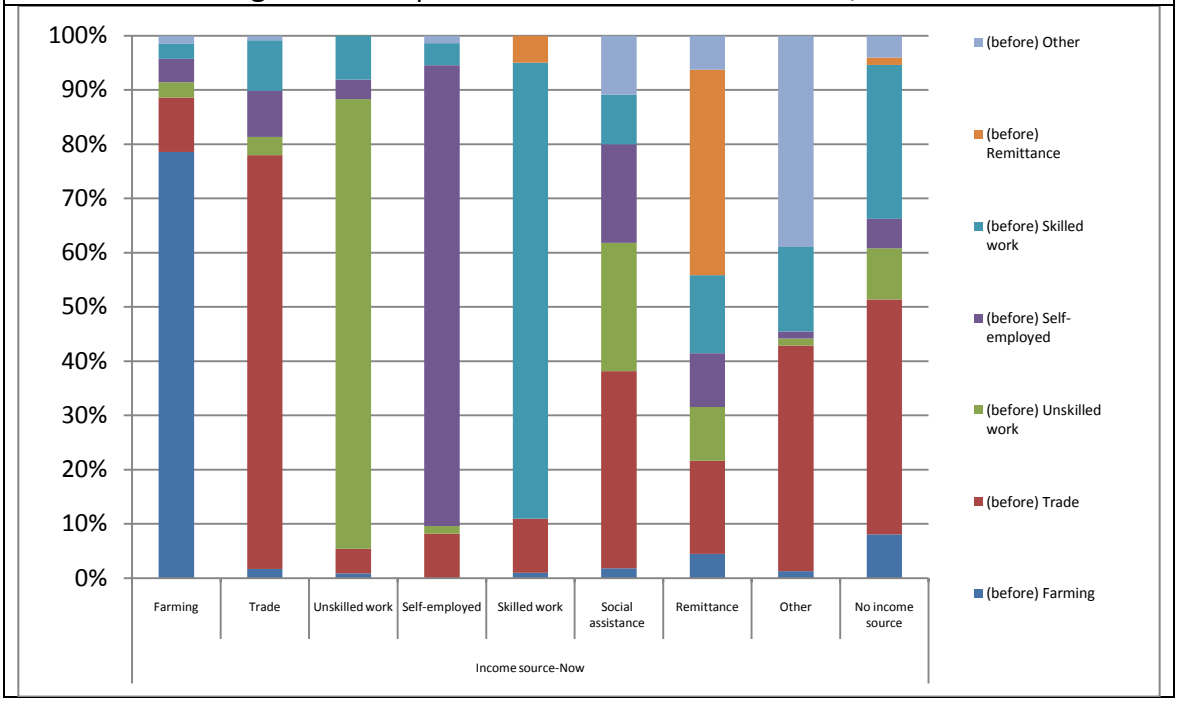
**Figure E** : (Current) Distribution of income sources per stratum




The most important limitations in income generating activities (IGA) are : lack of opportunities to develop them, insecurity, no market and finally no financing.

It is important to look at the opportunities to reduce these limitations. Furthermore, humanitarian interventions to assist in the development of IGA must be implemented.

**Figure F :** Comparison in sources of income now/before




The above graph offers a comparison of groups (according to their income source) before and after the earthquake. Households currently having farming, trade, unskilled work, self-employment and skilled work as an income source usually had these same sources prior to the disaster. Households depending on cash remittances today come from a broad range of activities before the quake. Groups depending on social assistance or with no income (these two groups did not exist before the disaster) had other sources of income before the quake. These groups therefore lost their main income source and are depending on cash remittances, social assistance or have no resource (they are therefore using their savings or their stocks). As indicated in the following sections, groups relying on unskilled work, social assistance or with no income are part of the most vulnerable households or households suffering from food insecurity.

## 5.5 Availability of assets

Available assets are essentially limited to domestic assets. The main available assets are: a cooking kettle (available in 92% of surveyed households), a traditional stove (83%) and a cellular phone (77%). However some households (less than 20%) own productive assets. Productive assets are: farming or fishing tools/equipment (18%), sewing machine (11% of households have one), pick-up truck (9%) and motorcycle (4%).

Productive assets are more readily available in strata S2, S3 and S6 as tools/equipment for farming or petty trades. Strata S1 and S4 show the highest rate of households owning a pick-up truck (>10% of households).

## 5.6 Wealth Index

From the data on household assets, data on cooking fuel, type of toilets used and source of potable water were collected. Respondents were asked to differentiate their assets before and after the quake. The Wealth Index was built on these data. The Wealth Index is a composite index used as a proxy indicator for household wealth (wealth being assessed in relation to their assets). In Haiti, assets owned as well as other indicators as crowding (number of people living in a house compared to the number of rooms), water sources and type of toilets, are used to develop and calculate the Wealth Index (see the 2007 CFSVA).

In the present context, many households have access to toilets and water in camps, and overcrowding is definitely not a good indicator of household wealth at the moment (wealthier households might offer shelter). Thus, eight asset types, with no connection to a particular livelihood and cooking fuel were selected and combined in a principal component analysis. The first component was used to construct a Wealth Index.

The following indicators were used:

- Oven
- Traditional stove
- Cooking kettle
- Sewing machine
- TV
- Radio
- Cellular phone
- Bicycle
- Motocycle
- Car
- Use of coal/wood/twigs to cook (yes/no)

The first component is a continuous indicator which might be used as a proxy for household wealth. In order to create groups for each level of wealth, households were divided in terciles (33% of households in each tercile), according to the score on the Wealth Index[7] .

The following characteristics were observed in the terciles. They reflect the household situation before the earthquake.

[7] In larger surveys, quintiles are often used. Tertiles were employed here to ensure a sufficient number of households in each quantile. Moreover, dividing in quintile would have been difficult due to the limited number of indicators, this would have caused a lack of homogeneity in scores.

| Assets/fuel BEFORE the earthquake | Terciles of Wealth Index (before) | | | Total |
|---|---|---|---|---|
| | Poorer | Average | Wealthier | |
| Did you have an oven? | 0% | 3% | 66% | 23% |
| Did you have a traditional stove? | 75% | 99% | 98% | 91% |
| Did you have a cooking kettle? | 89% | 100% | 100% | 96% |
| Did you have a television ? | 12% | 90% | 98% | 68% |
| Did you have a radio? | 40% | 84% | 99% | 75% |
| Did you have a cellular phone? | 66% | 91% | 99% | 86% |
| Did you have a sewing machine? | 5% | 4% | 32% | 14% |
| Did you have a bicycle? | 3% | 8% | 21% | 11% |
| Did you have a motorcycle? | 3% | 3% | 11% | 6% |
| Did you have a car? | 0% | 1% | 35% | 12% |
| Did you use coal/wood/twigs as fuel? | 100% | 98% | 66% | 88% |

Wealth Index terciles give an idea of the household wealth before the earthquake. To measure the change in the aftermath of the quake, a formula was derived from the pre-earthquake index data and was applied to the post-disaster data. With this method it was possible to recreate the same indicator in the aftermath context[8]. The thresholds used to construct the terciles were also used to calculate the index after the quake.

The following table shows the assets owned and fuel used by the different groups after the earthquake.

| Assets/fuel AFTER the earthquake | Wealth Index groups (now) | | | Total |
|---|---|---|---|---|
| | Poorer | Average | Wealthier | |
| Do you have an oven now? | 1% | 8% | 68% | 15% |
| Do you have a traditional stove now? | 67% | 99% | 100% | 83% |
| Do you have a cooking kettle now? | 86% | 100% | 100% | 93% |
| Do you have a television now? | 4% | 53% | 93% | 35% |
| Do you have a radio now? | 9% | 75% | 95% | 44% |
| Do you have a cellular phone now ? | 59% | 94% | 100% | 77% |
| Do you have a sewing machine now? | 4% | 5% | 40% | 11% |
| Do you have a bicycle now ? | 6% | 6% | 17% | 8% |
| Do you have a motorcycle now? | 2% | 3% | 10% | 4% |
| Do you have a car now? | 1% | 6% | 40% | 9% |
| Current fuel | 1% | 3% | 26% | 6% |

[8] A multiple linear regression was initiated using the Wealth Index as a passive variable and all other indicators as independent variables. Beta values were used to create a formula to calculate the value of the Wealth Index. This formula was first applied to the situation prior to the earthquake to verify that it was accurately representing the Wealth Index value (confirmed).

### 5.6.1 *Changes in wealth groups*

The following table shows the comparison between both indicators – Wealth Index terciles before and after the earthquake. Before the disaster, each tercile included approximately 33% of households (matching the definition of a tercile). After the quake, 52% of households were part of the poorest group and only 18% were part of the wealthiest group. Thus, 11% of the wealthiest group is now part of the poorest group. Before the quake, 16% of the population had a wealth status considered as average and they are now appearing in the poor category. Few households experienced an increase in their wealth status, probably because they now live with wealthier family members.

| **Terciles (BEFORE) compared to wealth groups (CURRENT)** | | Groups according to the Wealth Index (CURRENT) | | | |
|---|---|---|---|---|---|
| | | Poorer | Average | Wealthier | Total |
| Terciles according to the Wealth Index BEFORE | Poorer | 25% | 6% | 1% | 32% |
| | Average | 16% | 18% | 0% | 35% |
| | Wealthier | 11% | 5% | 17% | 34% |
| Total | | 52% | 30% | 18% | 100% |

A comparison was made between the Wealth Index scores before and after the quake and the percentage of households lower on the Wealth Index was calculated. Almost half of the households experienced a decrease in wealth.

There are important differences between the areas. In camps, whether urban or rural, respectively 70 and 78% of households experienced a reduction in wealth.

| Main stratum | Percentage of households with wealth reduction. |
|---|---|
| S1 (PaP, Delmas, Carrefour) | 39% |
| S2 (Gressier, Léogâne) | 48% |
| S3 - (Petit Goâve, Jacmel) | 34% |
| S4 (Pétionville, Tabarre) | 44% |
| S5 (Cite Soleil) | 48% |
| S6 (Grand Goâve, Croix-des-Bouquets) | 51% |
| C1 Urban | 78% |
| C2 Rural | 70% |
| Total | 48% |

Households with the highest Wealth Index before the quake lost the most. Thus a high percentage of households considered as wealthy before the quake fell in the average or poorer group (approx. 14% of the population). This might be explained by the fact that wealthier

households also had more assets. Generally speaking, based on household asset wealth, one may say that the poorer households stayed poor and that many wealthy people became poor.

| Wealth Index Terciles BEFORE | Percentage of households who experienced a wealth reduction after the quake |
|---|---|
| Poorer | 23% |
| Average | 58% |
| Wealthier | 61% |
| Total | 48% |

Looking at the income sources, one may observe differences. Households having social assistance as a main income source and households with no income rank higher in the percentage of households having lost their assets. Households with unskilled work as an income source lost less assets. But these households were part of the poorest groups before the earthquake and therefore had less to lose.

| Income Sources - NOW | Percentage of households with a lower Wealth Index after the quake |
|---|---|
| Farming | 46% |
| Trade | 51% |
| Unskilled work | 37% |
| Self employement | 42% |
| Skilled work | 53% |
| Social assistance | 71% |
| Remittances | 54% |
| Others | 24% |
| No income source | 65% |
| Total | 49% |

Wealth reduction does not really vary between consumption groups. This means that, regardless of their food consumption, all households lost some assets. However there is a strong relationship between household wealth and food consumption. (See Section on food consumption).

There is no difference in asset loss between household headed by a man and those headed by a woman.

### *5.6.2 Current wealth status in the main strata*

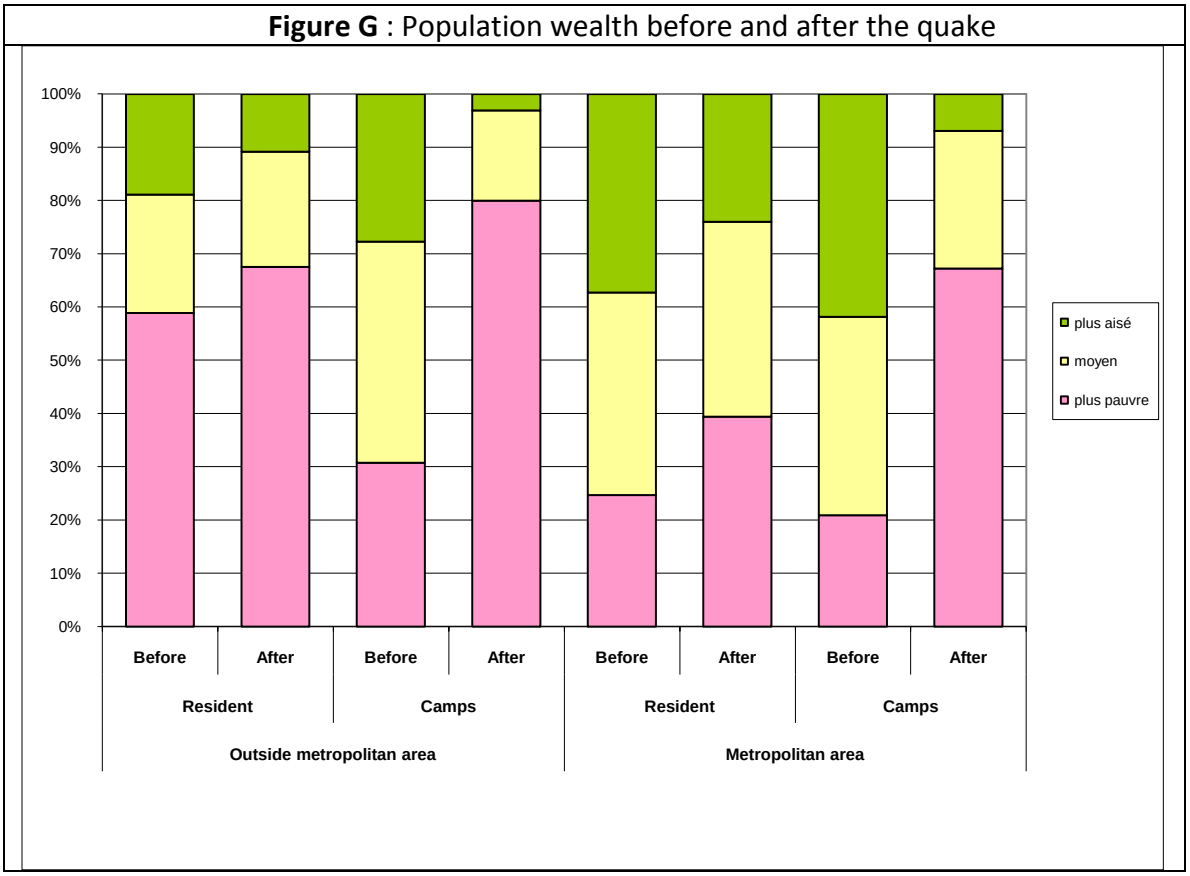
Analyzing Wealth Index groups by areas, one observes that some areas are poorer than others. If we exclude strata were camps are located, stratum 2 (Gressier, Léogâne) and 3 (Petit Goâve, Jacmel) have the highest rates of households belonging to groups with little assets. The highest rate of households with little assets is found in camps.

Stratum S4 (Pétionville, Tabarre) is ranking in the best position. However, in all areas, a number of households saw their wealth decrease in the aftermath of the quake.

| Main strata | Wealth Index groups NOW | | | |
|---|---|---|---|---|
| | poorer | average | wealthier | Total |
| S1 (PaP, Delmas, Carrefour) | 40% | 35% | 26% | 100% |
| S2 (Gressier, Léogâne) | 71% | 23% | 6% | 100% |
| S3 (Petit Goâve, Jacmel) | 69% | 23% | 8% | 100% |
| S4 (Pétionville, Tabarre) | 32% | 44% | 24% | 100% |
| S5 (Cite Soleil) | 53% | 35% | 12% | 100% |
| S6 (Grand Goâve, Croix-des-Bouquets) | 65% | 20% | 16% | 100% |
| C1 Urban | 67% | 26% | 7% | 100% |
| C2 Rural | 79% | 17% | 4% | 100% |
| Total | 52% | 31% | 18% | 100% |

Assets were lost by all population strata, but households in camps lost the most.

**Figure G** : Population wealth before and after the quake




If we look at the prevalences of different Wealth Index groups within the food consumption groups, we observe that the group with the poorest food consumption shows the highest prevalence of poor households.

| Food consumption groups | Wealth Index groups NOW | | | |
|---|---|---|---|---|
| | poorer | average | wealthier | Total |
| Poor consumption | 87% | 11% | 2% | 100% |
| Borderline consumption | 63% | 33% | 4% | 100% |
| Acceptable consumption | 43% | 33% | 24% | 100% |
| Total | 51% | 31% | 18% | 100% |

Looking at the income sources, one notes that farming households, households on social assistance, unskilled workers or with no income source have greater risks to belong to a poor group.

Skilled workers represent the lowest prevalence of households with little assets.

| Income sources NOW | Wealth Index groups NOW | | | |
|---|---|---|---|---|
| | poorer | average | wealthier | Total |
| Farming | 73% | 18% | 9% | 100% |
| Trade | 49% | 36% | 15% | 100% |
| Unskilled labor | 75% | 18% | 7% | 100% |
| Self-employment | 39% | 52% | 9% | 100% |
| Skilled labor | 26% | 31% | 43% | 100% |
| Social assistance | 70% | 27% | 3% | 100% |
| Remittances | 41% | 37% | 23% | 100% |
| Others | 43% | 34% | 23% | 100% |
| No income source | 66% | 19% | 15% | 100% |
| Total | 52% | 31% | 17% | 100% |

As far as wealth and assets are concerned, there is little difference between households headed by a woman and those headed by a man.

## 5.7 Household expenditures

The main expenditure items identified by households prior to the quake were: food items(53% of households), schooling (27%), rent (6%) and healthcare (4%); other expenditure items were a priority for less than 1% of households. After the earthquake, the percentage of households considering food as the most important expenditure item went from 53% to 80%. Schooling is not mentioned at the moment and food items bought on the street went from 2% to 11%.

If one considers food bought on the street as food expenditure, one finds that more than 90 % of households consider this expenditure item as the most important.

There is little difference between strata, the first expenditure items are identical before and after the quake; the frequency of food expenditure as the most important expenditure item increased by only 15% in S1; in all other strata, food expenditure as the most important expenditure item increased by more than 30% after the earthquake.

Over half of the households contracted debts after the quake. The main reasons for debt were essentially to cover food needs. Indeed, 96% of households said that food purchasing was one of the reasons why they contracted the debt. Other expenditures financed by debts are : soap/laundry soap (80% of households), coal (55% of households), water (33%) and transport (27%).

## 5.8 Agriculture

Farming is very common in Haiti; it represents more than 60% of assets in rural areas and contributes to 25% of the Gross Domestic Product (GDP) (World Bank, average 2000-2005). On the whole sample, almost 20% of households stated they were farming before the quake. One must however note that farming is the main income source for 8% of households. Although farming in urban and peri-urban areas is restricted by land availability, 5 to 7% of households in the urban stratum say they are farming.

Land accessibility almost remains the same : 94% of farmers have access to land now, compared to 97% before the quake. Although 29% of farmers saw their house destroyed or severely damaged, only 10% of rural households left their communes.

Access to farm inputs, specifically seeds, remains a real problem. For example, while 57% of households had corn seeds prior to the quake, only 23% said they had some at the time of the survey. To a lesser degree, the quake limited the access to small tools as 6% of households declared they lost some of them.

The seismic event also had an impact on livestock production; in fact, an important number of households have lost animals during the quake. Possession of livestock went from 27% to 23% after the disaster. We also noted an increase in sales of livestock to buy food.

In spite of the difficulty to get seeds, three quarters of households with land are planning to grow food during the next season (March 2010). 85% of them plan to grow corn and 77% beans. Respectively, 45 and 39% want to sow beans and millet/sorghum. Therefore, it will be important to support farmers in their efforts, to guarantee a better access to farm inputs and eventually, to supply seed protection rations.

It is important to note that in rural areas, household food consumption remained at an acceptable level, due to non-sustainable survival strategies such as : contracting debts (65%), eating seed stocks[9] (51%), harvesting earlier (39%), reducing the quantity or even not buying any farm inputs (35%), selling more livestock than usually[10] (32%).

Before the earthquake, 44% of households had food stocks. Currently, only 17% of households have stocks.

[9] Cette stratégie est durable, si les ménages vont avoir des revenus pour repayer dans des délais raisonnables et pas à des taux d'intérêt non usuraires.

[10] Cela dépend du nombre relatif d'animaux que l'on vend et de l'âge de ces animaux. La vente de petits animaux fait partie de la panoplie des stratégies normales de survie. C'est seulement lorsque les ventes portent sur des animaux trop jeunes ou des femelles en reproduction que cela devient non viable à terme.

In the whole surveyed area, 14% of households have rice stocks for one month, 6,1% have beans for a month. Strata S2, S3 and S6 do not have rice stocks anymore. Only 12% of corn stocks will last for a month. In strata C2 and S5, corn stocks are non-existant.

A protection issue existed before the earthquake, i.e. the complex system of land protection. With this system, farmers are not really land owners because the regulation on land rights is not really enforced. It was already a source of dispute between land owners before the quake, particularly in the Nord-Ouest and Artibonite departments. Focus groups indicated that there is an increased risk of inter-communal disputes due to displacements/relocations in the aftermath of the quake. An even greater risk may be expected if the displacement/relocation period is extended, forcing people to cultivate and find a livelihood in these areas.

## 5.9 Markets

### *5.9.1 Market operations and food prices before the earthquake*

Food markets in Port-au-Prince and more specifically the wholesale market in Croix-des-Bossales play an important role in price determination and trade flow organization for the whole country.[11] This market centralizes farm productions from different rural areas of the country and is also the most important in Haiti in terms of flows.

The poor road conditions in Haiti make exchanges between rural and urban areas difficult. This contributes to an increase in transport costs and leads to the loss of perishable goods. Transportation of goods implies the participation of several intermediaries and is therefore generating jobs, mainly for women, the *Madames Sara*. These women carry and sell goods throughout the country; they are the connection between the rural and the urban worlds. *Madames Sara* are often the most affected by sudden crises which severely impact on infrastructures and transport. For example, in 2008, after the hurricane season, and subsequent floods, *Madames Sara* were, among all intermediaries, those who were unable to maintain their liaisons between rural and urban areas. This had an important impact on food availability on the markets.[12]

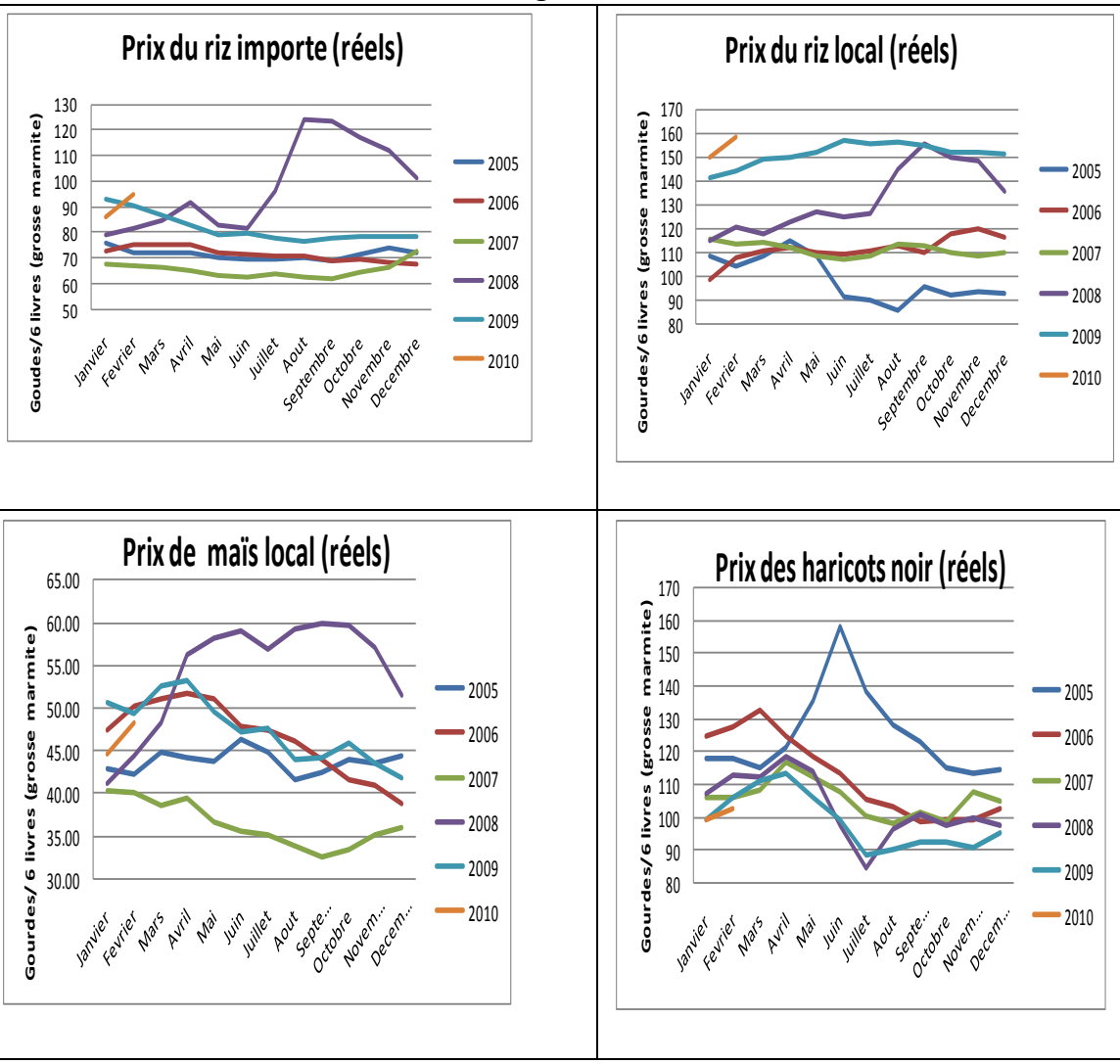
Rice, black beans, corn and cooking oil are among the most frequently eaten foods by poor or middle-income households. Roots and tubers (for example sweet potato, manioc, yam) are also important, but their price is not monitored. Almost all the cooking oil and 80% of the rice consumed are imported. Imported rice is usually cheaper than locally produced rice, which is nevertheless Haitians' favourite food item. Almost 20% of beans are also imported.

[11] FEWS NET, Haïti: A Rapid Assessment of Market Information Systems, A Special Report by the Famine Early Warning Systems Network, April 2007

[12] Cash-Transfers in Emergencies, Oxfam 2008

In 2008, the price evolution in Haiti was disrupted because of a price increase in commodity food and fuel and because of a particularly devastating hurricane season. In 2009, prices for imported rice, local corn and beans continued on a downward trend, after having reached a maximum in August 2008. The evolution of active prices, per the Consumer Price Index (CPI), for January and February 2010, shows an increase for imported rice, and local rice, but a non-significant progression for corn and black beans.

**Figure H**




Source : CNSA/FEWS

The typical evolution in the price of beans and locally produced rice, illustrated by the averages on three years (2005-2007) gives a perspective of the possible evolution of prices according to seasonal changes. In Haiti, there are four harvesting seasons in a year, in the different areas of the country. It is important to note that the main harvesting period for locally produced rice, namely in the Artibonite valley, starts in June-July and may continue until September, depending on the years.

The main harvesting period for black peas is in the spring, from June-July until August. It is important to note that the seasonal patterns observed are minor, as local production is mainly based on a four-season production cycle, throughout the different agricultural areas of the country. This means that the period preceding spring crop harvest (in July) will be difficult as, in addition to problems generated by the earthquake, the price of these items will remain high until most of the corn, rice and beans are harvested.

Concerning imported rice, there is no clear seasonal pattern. This is typical with imported products as they do not depend on agricultural seasons; their price being established on the basis of supply and demand on the global market. Prices for imported rice should therefore be closer to global prices, but will also be somewhat influenced by the consumers' buying power index (BPI) and marketing costs.

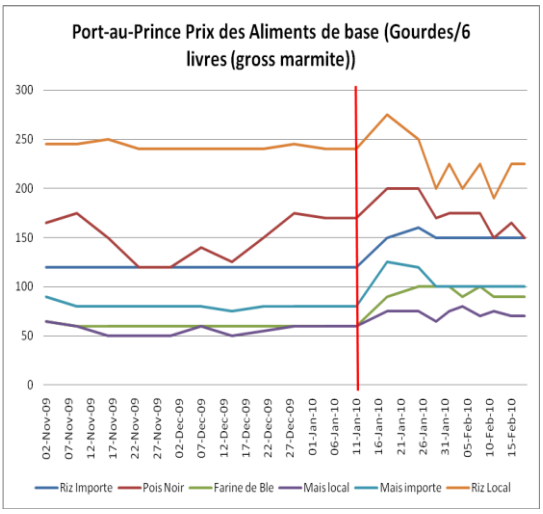
### *5.9.2 Impact of the earthquake on prices*

In the days following the earthquake, the price of food commodities strongly increased, as illustrated in the following graph. During the last two months before the quake, prices for imported rice were stable, at 120 gourdes/6 pounds, on the market. One week after the quake, which stroke on January 12, 2010, prices had increased by 25% to reach 150 gourdes/6 pounds, to culminate at 160 gourdes/6 pounds on January 25th. After this initial market volatility, prices went down and finally stabilized at the current price of 150 gourdes/6 pounds, which is still higher than the pre-earthquake price.

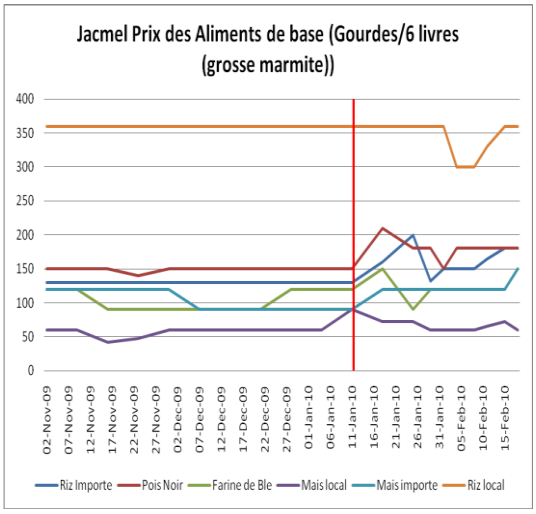
It is yet too early to speculate on the future price evolution, as this will depend on the rally of imports, the increase of transaction costs (transport, storage and security) and the progression of rice prices on international markets.[13]

[13] Haiti only having a 3% tariff rate on rice (source: General customs administration), rice prices are therefore established by international prices. However, as a large part of these imports come from the USA, their cost is also affected by the exchange rate between the US dollar and the gourde and by the American inflation rate.

**Figure I**




***Price of food commodities in Port-au-Prince (Gourdes / 6 pounds)***



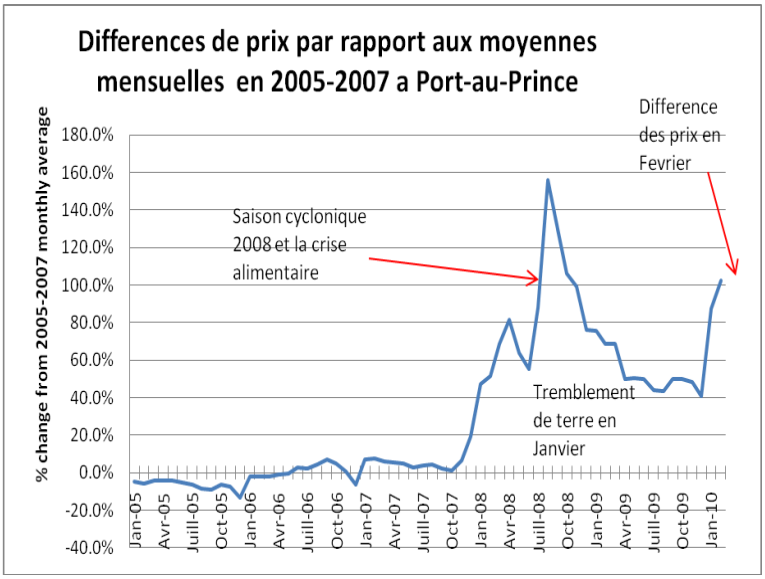

***Price of food commodities in Jacmel (Gourdes / 6 pounds)***

In Jacmel, commodity food prices were also affected, with a greater volatility, as shown in price fluctuation. Although prices seem to be more stable in Port-au-Prince, (particularly for imported rice), prices for imported rice in Jacmel now reach 180 gourdes/6 pounds, which is close to the maximum price of 200 gourdes/6 pounds in the aftermath of the quake. In Jacmel, food prices are higher than in Port-au-Prince, probably due to the post-quake increase in transportation costs.

Hindsight shows that profound shocks have a considerable impact on the price volatility of imported rice. For example, in 2008, four tropical storms (Fay, Gustav, Hanna and the most infamous Ike) hit the island between August and September, worsening the consequences of the oil and food price crises.

Between 2005 and 2007, the price of imported rice remained somewhat stable, with little difference compared to the monthly average over those three years (2005-2007). Greater volatility appeared at the beginning of 2008, with the oil and food price crises and was exacerbated during the hurricane season. During the storm season (between June and November) imported rice prices were 155% higher than average prices for the month of August in 2005-2007. On the other hand, in the second part of the hurricane season, prices and thus volatility, went down (except in isolated mountain areas which were less accessible) as rice prices had plummeted on the global market.

**Figure J**




**Price differences compared to monthly averages in 2005-2007 in Port-au-Prince**

The post-quake increase, compared to the 3-year averages, from 2005 to 2007, is also considerable, as prices soared by 87,5% in January and 102% in February.

The future price evolution, specifically for rice, will depend on trade imports entering the country and on the recovery of small-scale wholesalers and merchants in the supply chain.

Due to the important integration of the supply chain for imported rice, high prices will certainly reach other parts of the country. This could give rise to social unrest and would create additional problems for the populations, directly or indirectly affected by the earthquake. Thus there is a very strong connection between Port-au-Prince and Cap Haïtien markets (correlation of 94%), with the market in les Cayes (correlation of 97%); between Jacmel and Port-au-Prince (90%) and Jérémie (90%); les Cayes and Cap Haïtien (94%). There is a strong connection between Jérémie and Port-au-Prince (86%), Cap Haïtien (87%) and les Cayes (85%).[14]

[14] This correlation is calculated with the statistical method called the *Granger causality* method. It tests the influence of a market on another for the establishment of prices. This method was applied to rice and beans. For imported rice, the causality was significant at a level of 1% between several markets. Ouanaminthe being another important market, it directly influences the price evolution in other markets. For beans and corn, the connection between markets is low, as illustrated by the weak correlation. See addendum for additional information on the *Granger causality* test.

Integration of locally produced commodities as beans, rice and corn is not as important. For beans, the strongest correlations were found les Cayes and Port-au-Prince (73%) and between Cap Haïtien and Port-au-Prince (64%). A large part of local products is often grown by households for their own consumption. Thus 60% of the corn is grown by households for their own consumption.[15]

Due to the strong integration of imported rice markets in Haiti, the impacts of the quake were felt beyond the quake-stricken area. Thus, prices in Cap Haïtien also increased to 144 gourdes / 6 pounds in February 2010, but did not reach the same levels as in Port-au-Prince[16].

In the long term, high prices in commodity food could bring about violent riots, as in 2008, when at least four people died and 20 others were injured. Communes with a traditionally high crime rate, such as Carrefour and Cité Soleil, in the Port-au-Prince area, are particularly vulnerable.

### *5.9.3 Infrastructures and market operations after the earthquake*

The earthquake severely impacted on market operations. The recent Emergency Market Mapping Analysis or EMMA, recently conducted for rice and beans markets, revealed important damages to infrastructures, which in turn contributed to market operations disruption.

The disruptive effect on the Port-au-Prince markets definitely contributed to interfere with the flow of commodities towards other markets in the country. Furthermore, it is most probable that market infrastructures and supply chain in quake-stricken areas, including Jérémie, Jacmel and Hinche, were also disrupted.

The increase in oil prices in the aftermath of the quake and the subsequent increase in the cost of transportation might have severely impacted on market integration, when recovery is very slow. Focus groups indicated that the diversity of products in proximity markets had decreased. Physical access to markets, however, did not change in the areas where interviews were conducted (Sud-Est, along the border with Dominican Republic). There was an important increase in transportation costs as well as a significant rise commodity food prices.

The rice market was disrupted at three levels: importers, small wholesalers and merchants. Factors that most affected these stakeholders, except for importers are: the shortage of credit, damages to storage infrastructures, the disruptive effect on the supply and security chain, when pillage still represents an important risk. Market stakeholders would rather keep a lower inventory and sell all their commodities on the same day.

[15] Identification de Créneaux potentiels dans les filières rurales haitiennes 2005, IDB et Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural

[16] FEWS NET/CNSA Market Price Monitoring

Results of the last EMMA on the imported rice market indicate that there might be problems upstream the supply chain, because only three importers supply the majority of Port-au-Prince and therefore the whole country.

At the other end of the chain, competition seems more open with several wholesalers and merchants and *Madames Sara,* who were present on the market before the quake. These small merchants, mainly women, expressed their concerns and said they were directly exposed to violence and theft. People seem to consider that merchants should give away their goods to those in need. After the earthquake, there seems to be only four important wholesalers left out of ten, and 40 small wholesalers out of 200 (estimate). The six major importers in Port-au-Prince are still there but have to face huge logistical challenges if they want to continue importing the same volume of rice in the country.

Since the quake, they stopped importing because of logistical problems – damages to ports and storage buildings – and the fear that prices could drop due to food aid distribution throughout the country. Only imports in Cap Haïtien have been possible since the quake; they represent approximately 2 495 tons of rice, while before the disaster between 20 000 and 25 000 tons of rice were imported in the country every month.[17] Discussions with importers indicated that approximately 10 000 tons were to reach Port-au-Prince via Cap Haïtien and Lafito at the beginning of March, but at increased costs due to transportation and security issues.

However, the recovery should be faster for importers than for small stakeholders (small wholesalers and merchants, *Madames Sara* in urban and rural areas).

Trade was not only affected by damages to storage spaces belonging to *Madames Sara*, merchants and wholesalers, but also by the growing insecurity on roads and markets and limited access to credit. [18]

When imports resume, chances are that price increases will affect the merchants, thus contributing to price increases in the coming months.

### *5.9.4 Supply and distribution chains*

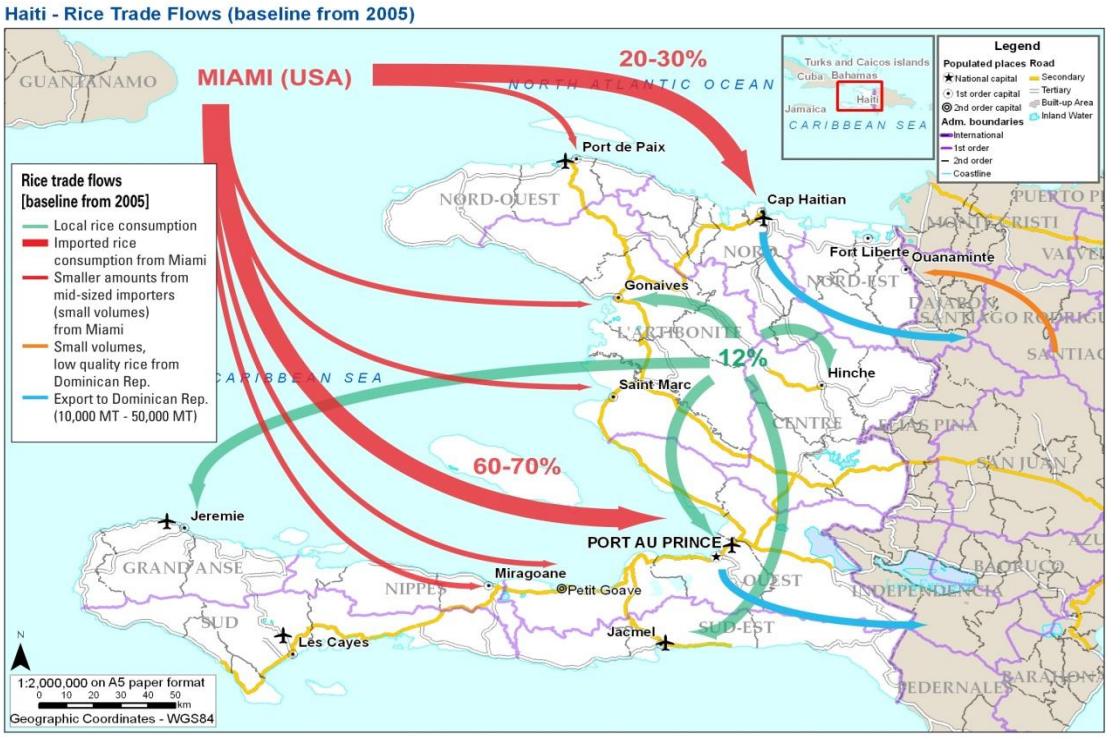
The disruption of market supply chains, described in the previous section, lead to the disruption of trade flows and imports in the country. The main disruption was the change in trading routes for imported rice mainly because of the destruction and subsequent congestion in the port of Port-au-Prince, where 70% of rice imports were transiting. The rest of the imports were arriving via Cap Haïtien. Only small quantities are still arriving.

[17] Source: Administration générale des douanes
[18] Refer to the Appendix for additional information on supply chains maps before and after the quake.

Approximately 20 to 25% of imported rice is transported from Port-au-Prince to the different provinces of the country. In addition, around 10 000 to 50 000 tons are re-exported every year to Dominican Republic. Small quantities also arrive from this neighbouring country, but often they are lower quality products and do not influence the total food availability, as they only represent one percent of the consumption. [19]

The trading flow of imported rice (baseline case before the earthquake) is illustrated below :

**Figure K**




Source: data from the « Identification de Créneaux Potentiels dans les filières rurales haïtiennes 2005, IDB and Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural ; Map prepared by ITHACA

Since the disaster, imported rice arrives via Cap Haïtien and Lafito because of problems in the port of Port-au-Prince. The US imports channel is severely disrupted, as importers ignore how to deal with logistical constraints and the subsequent increase in transportation costs.

Although the Port-au-Prince port is now operational, congestion issues and the lack of storage capacities are a determining factor to explain the shortage in rice imports[20]. Port

[19] Identification de Créneaux Potentiels dans les filières rurales haïtiennes 2005, IDB and Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural

[20] EMMA Rice Market, February 2010

infrastructures were repaired so that containers may now arrive, but it is still difficult to import bulk commodities and bag them in the port area. This generates additional costs.

### *5.9.5 Food deficit analysis*

According to EMMA estimates, it seems that very few rice imports occurred since the earthquake. Because of the disruptive effects on imports and market activities, the Coordination Nationale de la Sécurité Alimentaire (CNSA) estimated the shortage in food availability for the year.

Basic assumptions for this estimate were as follows : 2 million people need assistance (after the quake or because they were already receiving aid prior to the quake), imports and cereal production are close to nothing during the first six months of the year, annual cereal consumption represents 255 kg per person.

For 2010, the food availability deficit in the country is assessed as follows by the CNSA:

| **Estimate (CNSA) of food availability deficit in the country** | |
|---|---|
| *Period* | *Total household deficit* |
| January to June | 17 000 tons (Cereal-Equivalent Tons – CET) per month |
| June to December | 9,000 CET per month |

Source: CNSA, EMMA, February 2010

Rough estimates of the level of imports necessary to meet consumption needs and expected levels of imports in the coming months, confirm the CNSA estimates. Chances are that the country will incur food deficits in the coming months. A security stock in anticipation of the hurricane season, including food but also cooking utensils and propane gas, should be established.

Measures to directly support the markets are necessary to avoid any disruption of commercial activities in the long term.

Furthermore, it is highly expected that planned food distributions will not cover all the population needs. Direct support to the markets must be a priority in the coming months. It must allow for a quick rehabilitation of the port and of transport and market infrastructures, to facilitate the recovery of market operations.

# 6 Household Food Security

## 6.1 Food consumption

A food consumption module included in the questionnaire was used to collect data on the consumption frequency of 23 food items and their availability.

In this module surveyed households were asked : "How many days did you eat this food item during the last seven days ?" and the question was repeated for 23 food items.

Data were used to calculate the Food Consumption Score (FCS), a reference indicator which had already been used in the 2007 CFSVA and SAPSAP (Système d'Alerte Précoce pour la Sécurité Alimentaire), the 2009 household survey by OSASE (Observatoire de la Sécurité alimentaire du Sud-Est) and other studies on food security. Additional information on the methodology used is available in the 2007 CFSVA.[21]

The following table represents the average number of days households consumed the 23 food items, in the covered geographic area.

| Food/Food group | Number of consumption days in the last 7 days | | Food/Food group | Number of consumption days in the last 7 days |
|---|---|---|---|---|
| (Wheat/bulgur wheat flour) | 0.7 | | Red meat, organ meat | 0.9 |
| Corn | 1.6 | | Chicken, poultry | 0.7 |
| Rice | 4.9 | | Eggs | 0.6 |
| Sorghum/millet | 0.4 | | Fish | 1.9 |
| Manioc/Cassava | 0.5 | | Milk, cheese | 1.4 |
| Sweet potatoe | 1.1 | | Sugar | 4.2 |
| Plantain | 1.6 | | Oil | 5.9 |
| Breadfruit/Lam | 0.5 | | Pistachio | 0.5 |
| Spaghetti | 2.2 | | Chocolate | 0.2 |
| Bread | 4.5 | | CSB | 0.2 |
| Peas | 4.5 | | Vegetables | 1.4 |
| Fruits | 1.5 | | | |

These results are quite similar to the nationwide results obtained by CFSVA in 2007, although fruit and vegetable consumption is less frequent and spaghetti consumption more prevalent.

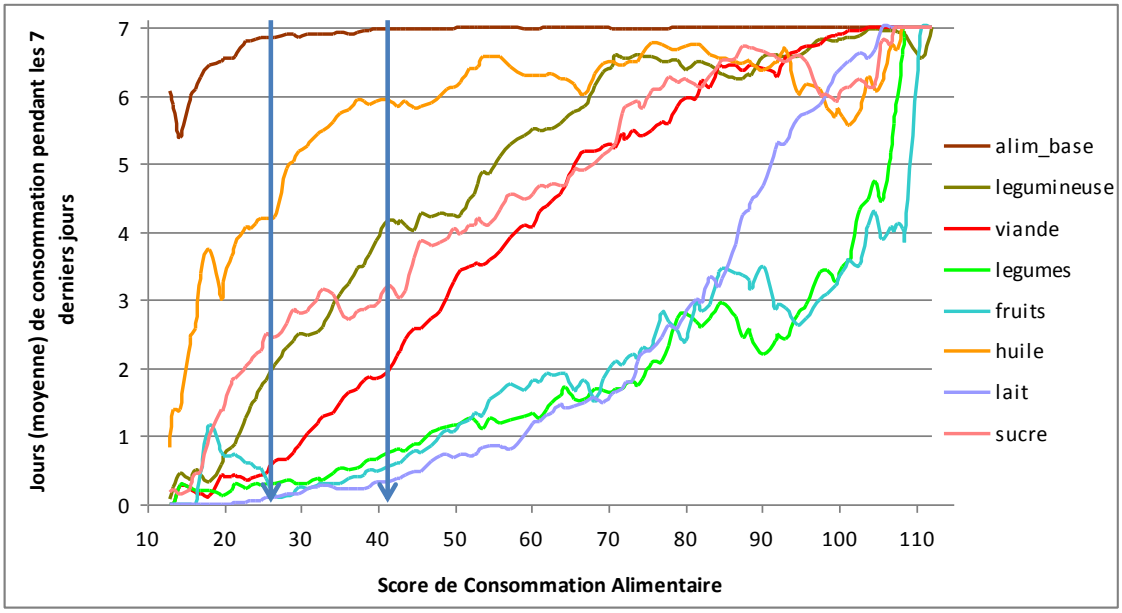
Data were listed in 7 main food groups : starches (cereals, tubers, plantains) legumes, vegetables, fruits, meat/fish/eggs, dairy products, sugar and oil. The FCS (Food Consumption Score) was calculated on the basis of these data and gives a theoretical score between 0 and 112. A more diversified diet along with a more frequent consumption gives a higher score.

[21] http://documents.wfp.org/stellent/groups/public/documents/ena/wfp197127.pdf

Standard thresholds of 26 and 40 were applied to define three food consumption groups (FCG) : “poor” food consumption, “borderline” food consumption and “acceptable” food consumption. The following table illustrates the prevalences for the whole sample.

Consumption frequency for each of these 7 food groups, as established by the FCS, give a general idea of food consumption models in each food consumption group.

**Figure L :** Food groups consumption frequency by Food Consumption Score




One may observe that households with a FCS under 26 (poor food consumption) eat staple foods (starches) between 6 and 7 days, oil between 2 and 5 days, sugar between 1 and 2 days and legumes between 0 and 2 days. The consumption of other food groups is very rare. The consumption of sugar, oil, meat and legumes by households with a borderline consumption score (FCS between 26 and 40) increases. However these households still consume few dairy products, fruits and vegetables. As for households in the acceptable food consumption group (FCS greater than 40), consumption of fruits, vegetables, legumes, oil and meat increases (3-7 days per week).

In 2007, a research project by IFPRI (*International Food Policy Research Institute*), financed by the WFP, examined the relationship between the FCS and the consumption in Kilocalories by analyzing data obtained in rural communities in the Nord and Nord-Est departments of Haiti. This study showed a correlation between the two indicators. The poor food consumption group ate, on average, less than 1600 Kcal per day and per person. The borderline food consumption group ate, on average, between 1 600 and 1 900 Kcal per day and per person. For the acceptable food consumption group, the consumption was over 1 900 Kcal per day and per person. FCS equivalents in Kcal are only an approximation and were not evaluated in other rural or urban areas of Haiti. Therefore, these data must be used with caution in the framework of this EFSA.

Frequencies for all households in the EFSA sampling, as well as all OSASE AND CFSVA baseline data, are represented in the following table. Poor and borderline food consumption groups were combined in order to show only one frequency below the acceptable food consumption level.

| Food Consumption Group | EFSA February 2010 | OSASE-Sud-Est Department Nov. 2009 | OSASE-Jacmel Nov. 2009 (urban) | CFSVA Sept. 2007 national (rural) | CFSVA-Sept. 2007 Ouest Department (rural) | CFSVA-Sept. 2007 Sud-Est Department (rural) |
|---|---|---|---|---|---|---|
| **Poor consumption** | 9 % | 2.3% | 4.7% | 5.9% | 3.7% | 4.6% |
| **Borderline consumption** | 21 % | 14.7% | 12.5% | 19.1% | 16.2% | 14.7% |
| **Acceptable consumption** | 70 % | 83.1% | 82.8% | 75.0% | 80.1% | 80.7% |
| **Poor and Borderline consumption** | 30 % | 17% | 17.2% | 25% | 19.9% | 19.3% |

According to the EFSA results, 30% of households have poor/borderline food consumption. It is almost twice the value found in the Sud-Est department in November 2009. It is also much higher than the results found in the Ouest and Sud-Est departments, according to the data from CFSVA (2007). Furthermore, the poor food consumption frequency is much higher than what was found in the CFSVA (from 1.5 to 4 times higher).

### *6.1.1 Food Sources*

Data on the origin of food items consumed by households during the 7 day period preceding the survey were also collected, based on the food consumption module. These data were analyzed by multiplying the total of the frequency of answers for all food items by the number of consumption days for each food item. This result was then converted in percentage. However this value does not represent the percentage of calories from different sources. It only shows the relative frequency of answers. It must only be used as a comparative indicator and not as an absolute value. The results obtained in the area covered by the survey are shown below:

| Food sources | Total Food Sources as reported by the households (expressed in %) | Sept 2007 CFSVA in rural areas National level |
|---|---|---|
| **Source - Own garden production** | 4% | 23.1% |
| **Source – Cash purchase (market)** | 83% | 67.8% |
| **Source – Credit purchase ( market)** | 3% | 5.5% |
| **Source – Food for Work** | 0% | 0.2% |
| **source - Exchange** | 0% | 0.2% |
| **Source - Borrowing, donations, begging** | 3% | 0.1% |
| **Source – Humanitarian Food Aid** | 4% | 0.5% |
| **Source – Cash remittances (Haïti)** | 2% | 0.3% |
| **Source – Cash remittances (abroad)** | 0% | 0.2% |

As observed in other studies, most food comes from markets. This is also true for rural area households, although the latter often grow most of their food (as shown in the 2007 survey in rural areas). Chances are that households disregard credit purchases as, short-term credit is often perceived as a cash purchase. Moreover, in many locations, massive food assistance distribution was just initiated during the survey; this assistance is only shown for a few food items, in particular rice. Households consuming rice from food assistance distributions with other food items bought at the market may nevertheless show a low percentage of food sources obtained from humanitarian assistance.

### *6.1.2 Food consumption groups by key strata*

A study of the geographical/main camps strata gives the following table:

| Geographical strata and camp strata | Poor consumption | Borderline consumption | Acceptable consumption | Poor + Borderline consumption |
|---|---|---|---|---|
| **S1 (PaP, Delmas, Carrefour)** | 13% | 14% | 73% | 27% |
| **S2 (Gressier, Léogâne)** | 5% | 20% | 75% | 25% |
| **S3 (Petit Goâve, Jacmel)** | 4% | 25% | 71% | 29% |
| **S4 (Pétionville, Tabarre)** | 4% | 28% | 68% | 32% |
| **S5 (Cité Soleil)** | 4% | 18% | 78% | 22% |
| **S6 (Grand Goâve, Croix-des-Bouquets)** | 3% | 17% | 81% | 19% |
| **C1 (Urban)** | 8% | 32% | 60% | 40% |
| **C2 (Rural)** | 14% | 34% | 52% | 48% |
| **Total** | 9% | 22% | 69% | 31% |

The prevalence of households with poor and borderline consumptions is between 20 and 30% in geographical strata (non-camps). There is no significant variation between strata, except for S6 (Grand Goâve, Croix-des-Bouquets) which shows a prevalence of 20% for poor and borderline consumption. Camps show much higher prevalences of poor and borderline consumption. When camps are included in the geographical strata analysis, instead of being analyzed separately, the six geographical strata only show slight variations in terms of food consumption, as they range between 27 and 33%.

The food consumption level is also strongly related to the status as a displaced person.

| Status Displaced/Non displaced | Poor consumption | Borderline consumption | Acceptable consumption | Poor + Borderline consumption |
|---|---|---|---|---|
| **Non displaced** | 8% | 18% | 73% | 27% |
| **Displaced** | 11% | 31% | 57% | 43% |
| **Total** | 9% | 22% | 69% | 31% |

The « displaced » population is defined as households sleeping outside of their original neighbourhood (within or outside their commune of origin). The displaced population has a much higher prevalence of poor and borderline food consumption.

The Wealth Index was calculated based on household assets before the earthquake (See section on the Wealth Index calculation method). Households were divided in three categories (each tercile representing approx. 33% of the sample). Wealth status before the earthquake is an indicator of current food consumption.

| Wealth Index tertile before the disaster | Poor consumption | Borderline consumption | Acceptable consumption | Poor + Borderline consumption |
|---|---|---|---|---|
| **Poorer** | 15% | 28% | 58% | 42% |
| **Average** | 10% | 26% | 65% | 35% |
| **Wealthier** | 4% | 10% | 86% | 14% |
| **Total** | 9% | 22% | 69% | 31% |

Thus, 42% of the households who were in the poorest category before the quake show a poor or borderline consumption. On the other hand, only 14% of the households in the wealthiest category show a poor or borderline food consumption. The pre-disaster wealth status means that these households had more resources to face the aftermath of the disaster. However, many households who were “wealthy” before the quake now show inadequate food consumption. As previously explained, the food consumption level is related to the wealth status.

| Wealth Index groups Today | Poor consumption | Borderline consumption | Acceptable consumption | Poor + Borderline consumption |
|---|---|---|---|---|
| **Poorer** | 15% | 26% | 59% | 41% |
| **Average** | 3% | 23% | 74% | 26% |
| **Wealthier** | 1% | 4% | 94% | 6% |
| **Total** | 9% | 22% | 69% | 31% |

Only 6% of households in the wealthiest category after the quake have a poor or borderline food consumption. On the other hand, 41% of households in the poorest category after the quake have a poor consumption. This is reflected by the fact that many wealthy households (with an acceptable food consumption before the quake) became poorer after the disaster (due to losses/depreciation of assets). Therefore, they also have poor food consumption. The current wealth status accurately predicts food consumption.

The household survey only allowed to collect data on the gender of the household head and did not allow for any distinction between single-parent families and others. In previous studies, one could observe that food consumption was slightly poorer in households where women were in a single-parent situation than when men were in the same situation.

| Household head Today | Poor consumption | Borderline consumption | Acceptable consumption | Poor + Borderline consumption |
|---|---|---|---|---|
| **Male household head** | 8% | 17% | 75% | 25% |
| **Female household head** | 10% | 27% | 63% | 37% |
| **Total** | 9% | 22% | 69% | 31% |

An evaluation of qualitative data also shows that vulnerability to food insecurity is generally higher in single-parent households.

As mentioned in section 5.4, many households indicated different main income sources before and after the quake. Upon examination of the current main income source, important changes in the food consumption models are noted.

| Income sources Today | Poor consumption | Borderline consumption | Acceptable consumption | Poor + Borderline consumption |
|---|---|---|---|---|
| **Farm** | 3% | 23% | 73% | 27% |
| **Trade** | 6% | 19% | 75% | 25% |
| **Unskilled work** | 32% | 22% | 46% | 54% |
| **Self employement** | 11% | 12% | 78% | 22% |
| **Skilled work** | 2% | 17% | 81% | 19% |
| **Social assistance** | 14% | 42% | 45% | 55% |
| **Remittances** | 4% | 20% | 76% | 24% |
| **Other** | 7% | 15% | 78% | 22% |
| **No income source** | 4% | 32% | 65% | 35% |
| **Total** | 9% | 22% | 69% | 31% |

Households living from unskilled work (casual work and labouring) or from social assistance show a higher prevalence of poor or borderline food consumption than other household groups. In this category, are also found households with no current income source. Households with an income from skilled work (farmers, merchants) tend to have acceptable food consumption.

Upon examination of the Coping Strategy Index or CSI (see section 6-2), one notes a significant (but not strong) relationship between the FCG and the CSI.

| Food Consumption Group | Reduced CSI |
|---|---|
| **Poor consumption** | 24.5 |
| **Borderline consumption** | 24.3 |
| **Acceptable consumption** | 22.8 |
| **Total** | 23.3 |

Households with an acceptable food consumption show a CSI score that is average or below households with poor or borderline food consumption. They do not rely as much on coping strategies related to food consumption in the aftermath of the disaster. Nine percent of households show a CSI score of 40 or higher. This indicates that they are restricting their daily

food intake. In doing this, some households maintain an acceptable daily food diversity and frequency, but the quantity may be inadequate.

## 6.2 Coping Strategies

The survey collected data on the frequency of households relying on coping strategies based on food consumption in the last 7 days. Moreover, households were asked if they were relying on other coping strategies since the disaster.

### *6.2.1 Coping Strategies Index*

Five coping strategies based on food consumption were used to calculate the coping strategies simplified index, which is a standard composite score.[22]

Households were surveyed on the frequency on which they were relying on coping strategies, according to the following methodology, below. The number of days per week was calculated as follows:

**Never = 0**
**Occasionally = 1.5**
**Sometimes = 3.5**
**Often = 5.5**
**Every day = 7**

The Coping Strategies Index (CSI) was then calculated according to the following standard weighting system:

- Eating less preferred food (1.0),
- Borrowing food/money from friends or relatives (2.0),
- Limiting serving size at meals (1.0),
- Limiting adult consumption (3.0), and
- Reducing the number of meals per day (1.0).

A high composite score value indicates that these households rely on coping strategies more often or that they use a wider variety of these strategies.

In the framework of this EFSA, the index is 23.2, which is slightly higher than indexes calculated in previous surveys.

[22] l http://www.wfp.org/content/coping-strategies-index-field-methods-manual-2nd-edition

| Score of the coping strategies index (simplified CSI) | | | | | |
|---|---|---|---|---|---|
| **February 2010 EFSA** | **OSASE, Sud Est Departement November 2009** | **OSASE, urban Jacmel** | **CFSVA 2007 national** | **CFSVA 2007 Sud Est Department (rural)** | **CFSVA 2007 Ouest department (rural)** |
| 23.2 | 22.0 | 19.1 | 22.2 | 18.2 | 22.1 |

The highest index is found in Cité Soleil (S5) and urban camps, where people are in a much more difficult situation than in rural camps and most other strata.

| Main strata | Simplified index |
|---|---|
| **S1 (PaP, Delmas, Carrefour)** | 22.9 |
| **S2 (Gressier, Léogâne)** | 21.6 |
| **S3 (Petit Goâve, Jacmel)** | 21.6 |
| **S4 (Pétionville, Tabarre)** | 21.9 |
| **S5 (Cité Soleil)** | 25.3 |
| **S6 (Grand Goâve, Croix-des-Bouquets)** | 22.5 |
| **C1 Urban** | 26.6 |
| **C2 Rural** | 22.6 |
| **Total** | 23.2 |

Wealthier population groups show a lower CSI. With the earthquake, differences between groups increased.

| Wealth Index Tertiles (before the quake) | Simplified CSI | Wealth Index groups (Current) | Simplified CSI |
|---|---|---|---|
| Poorer | 24.9 | Poorer | 25.7 |
| Average | 24.3 | Average | 22.3 |
| Wealthier | 20.8 | Wealthier | 17.9 |
| Total | 23.3 | Total | 23.3 |

Looking at the current income sources, the « skilled work » group has the lowest CSI. The « unskilled work » group and those with no income source or relying on social assistance show the highest CSI.

| Current-<br>Income sources | Simplified CSI |
|---|---|
| **Farming** | 20.5 |
| **Trade** | 24.4 |
| **Unskilled work** | 25.1 |
| **Self-employment** | 23.2 |
| **Skilled work** | 19.5 |
| **Social assistance** | 26.5 |
| **Remittances** | 22.6 |
| **Other** | 21.0 |
| **No income source** | 25.5 |
| **Total** | 23.3 |

With respect to the CSI, there is no significant difference between households with male or female heads.

### *6.2.2 Other coping strategies*

| Prevalence of households using coping strategies after the disaster. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Main strata** | **Eating seed stocks kept for the next season** | **Buy less or refrain from buying farm inputs as fertilizers** | **Harvest sooner than usual** | **Sell more animals than usual** | **Sell household goods** | **Sell productive assets** | **Reduce health care expenses** | **Migrate more than usual to look for work or food** | **Depend on occasional work** |
| **S2 (Gressier, Léogâne)** | 34% | 21% | 32% | 17% | 14% | 2% | 15% | 12% | 12% |
| **S3 -(Petit Goâve, Jacmel)** | 38% | 25% | 25% | 19% | 8% | 10% | 16% | 9% | 18% |
| **S6 (Grand Goâve, Croix-des-Bouquets)** | 23% | 15% | 20% | 22% | 14% | 9% | 15% | 14% | 22% |
| **C2 Rural** | 9% | 7% | 5% | 3% | 11% | 6% | 17% | 17% | 16% |
| **S1 (PaP, Delmas, Carrefour)** | 6% | 5% | 2% | 5% | 6% | 6% | 19% | 21% | 12% |
| **S4 (Pétionville, Tabarre)** | 9% | 5% | 4% | 0% | 4% | 3% | 17% | 20% | 18% |
| **S5 (Cité Soleil)** | 1% | 2% | 0% | 10% | 8% | 3% | 15% | 25% | 27% |
| **C1 Urban** | 8% | 1% | 1% | 3% | 6% | 0% | 10% | 23% | 25% |
| **Total** | 12% | 8% | 7% | 7% | 7% | 5% | 16% | 19% | 17% |

Many coping strategies are related to very specific means of livelihood and are therefore used in areas where these households have these means of livelihood. More rural areas (Gressier and Léogâne, Petit Goâve and Tabarre, Grand Goâve and Croix-des-Bouquets) show the high prevalences of seed consumption. These areas show higher than usual prevalences of people buying less or refraining from buying farm inputs, harvesting early and selling livestock.

Households living in urban camps, more than other strata, are looking for small jobs or consider migrating.

Households living in rural camps are not using coping strategies based on agriculture as much. An analysis of their main income generating activity before the quake shows that few of these households had farm-related activities before the disaster. Therefore, few of these households may rely on this type of coping strategy. Most camps in rural areas are actually located in small urban centres (Léogâne, Jacmel, etc.). This explains why few farmers live there.

| Prevalence of households using these coping strategies since the earthquake | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Wealth Index groups (now) | **Eating seed stocks kept for the next season** | **Buy less or refrain from buying farm inputs as fertilizers** | **Harvest sooner than usual** | **Sell more livestock than usual** | **Sell household goods** | **Sell productive assets** | **Reduce healthcare expenses** | **Migrate more than usual to look for work or food** | **Depend on occasional work** |
| Poorer | 15% | 7% | 8% | 8% | 8% | 9% | 18% | 22% | 22% |
| Average | 10% | 9% | 9% | 10% | 4% | 7% | 17% | 21% | 12% |
| Wealthier | 5% | 6% | 1% | 2% | 0% | 4% | 10% | 9% | 10% |
| Total | 12% | 8% | 7% | 7% | 5% | 8% | 16% | 19% | 17% |

There is a relationship between households' wealth status and coping strategies. The poorest depend on temporary jobs more than the other groups and adopt non-sustainable strategies, i.e. reducing healthcare expenses, selling assets and eating seeds. Wealthier groups generally do not use these strategies as much.

| Prevalence of households using these strategies since the disaster | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Food consumption groups | **Eating seed stocks kept for the next season** | **Buy less or refrain from buying farm inputs as fertilizers** | **Harvest sooner than usual** | **Sell more livestock than usual** | **Sell household goods** | **Sell productive assets** | **Reduce healthcare expenses** | **Migrate more than usual to look for work or food** | **Depend on occasional work** |
| Poor consumption | 10% | 1% | 3% | 13% | 16% | 3% | 14% | 22% | 22% |
| Borderline consumption | 10% | 6% | 6% | 7% | 2% | 4% | 8% | 20% | 18% |
| Acceptable conssumption | 13% | 9% | 8% | 7% | 5% | 9% | 19% | 18% | 16% |
| Total | 12% | 8% | 7% | 7% | 5% | 8% | 16% | 19% | 17% |

Food consumption groups have different coping strategies. Households with a poor consumption choose to sell their assets. All groups reduce their healthcare expenses (perhaps because medical care is free at the moment). Thus many households succeed in maintaining their food consumption by using non-sustainable coping strategies. This allows these households to have acceptable food consumption, but they may not be able to maintain it.

| Prevalence of households using these strategies since the disaster | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Income source (now) | Eating seed stocks kept for the next season | Buy less or refrain from buying farm inputs as fertilizers | Harvest sooner than usual | Sell more livestock than usual | Sell household goods | Sell productive assets | Reduce healthcare expenses | Migrate more than usual to look for work or food | Depend on occasional work |
| Farm | 61% | 40% | 44% | 16% | 9% | 36% | 20% | 11% | 12% |
| Trade | 11% | 7% | 3% | 6% | 3% | 5% | 17% | 19% | 22% |
| Unskilled work | 12% | 5% | 8% | 8% | 13% | 5% | 7% | 24% | 27% |
| Self-employment | 8% | 5% | 5% | 19% | 1% | 11% | 32% | 14% | 27% |
| Skilled work | 1% | 6% | 0% | 2% | 2% | 5% | 5% | 18% | 13% |
| Social assistance | 2% | 1% | 0% | 2% | 10% | 1% | 10% | 13% | 9% |
| Remittances | 6% | 4% | 6% | 3% | 4% | 6% | 24% | 24% | 12% |
| Other | 10% | 7% | 8% | 4% | 1% | 0% | 13% | 30% | 6% |
| No income source | 6% | 1% | 5% | 13% | 8% | 8% | 21% | 12% | 11% |
| Total | 12% | 8% | 7% | 7% | 5% | 8% | 16% | 19% | 17% |

Coping strategies differ according to household income sources. Approximately 61% of households living from agriculture ate their seeds[23], 40% harvested earlier than usual and 36% sold more livestock than usual. This is explained by the fact that these households could use these strategies. They are not sustainable and have long term repercussions in particular on future harvests and sales of livestock.

Some groups like those depending on social assistance or with no income do not use coping strategies as much. This is explained by the fact that they cannot use these strategies or have exhausted them. These groups have a high Coping Strategy Index (CSI) and a poor food consumption score (FCS), which indicate that they have coping strategies based on the reduction of food consumption.

In addition to family separations, directly caused by the earthquake, respondents questioned during focus group discussions declared that immediately after the quake, it was frequent to see families, living in metropolitan areas, sending their children in rural areas to ensure their food security.

This was also done for safety purposes and was more frequent among families living in camps. When children are sent to relatives who adequately take care of them, and send them back home once the food and safety emergency is over, this coping strategy does not appear to be a protection problem. Nevertheless, some EFSA respondents perceive this as a replica of the 'restaveks' phenomenon, which was frequent before the disaster. *Restaveks* are children from

[23] It is quite rare in Haïti to see farmers keeping their seeds year after year. They are very often depending on the markets to get their seeds.

poor and/or large families living in the country who are sent to urban areas where they are used as servants, may receive no education and are sometimes victims of sexual exploitation.

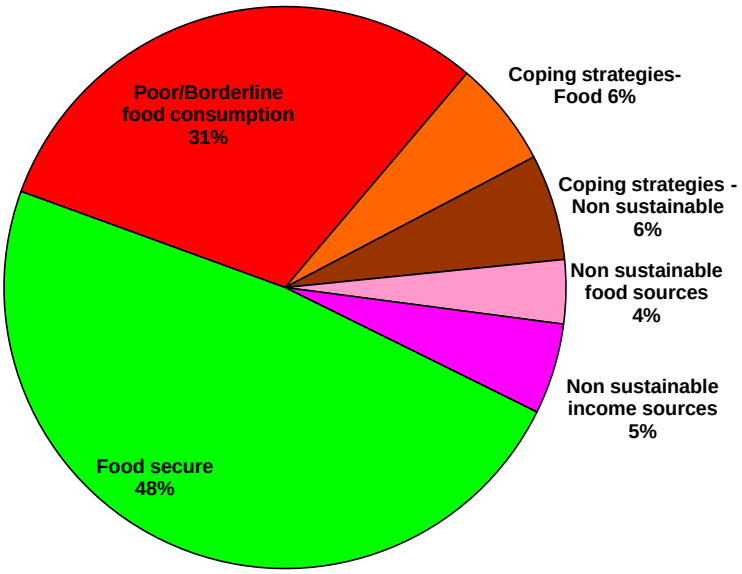
## 6.3 Food insecure household groups in quake-stricken areas

The following assumptions were used to determine food insecure household groups.

1. All households with **poor or borderline food consumption** are considered food insecure. The food consumption level was determined by using the Food Consumption Score (FCS) which is based on diet diversity and the food consumption frequency. These households represent 31% of all respondents.
2. Many families apply **food related coping strategies,** as reducing the number of meals per day, eating less enjoyable food, borrowing food, reducing the quantity of food at meals, reducing adult consumption so that children can eat. These strategies do not directly impact on the food consumption score but nevertheless result in a poor consumption. Consequently, these households are food insecure. They represent an additional 6% of the surveyed households.[24] Although many households using these strategies already have poor food consumption, these 6% represent households with acceptable food consumption but who continue to apply this type of strategy.
3. Among households with an acceptable food consumption who do not strongly rely on coping strategies based on food, a large number will become unable to adequately feed their family in the coming weeks and months because they rely on **non-sustainable (non-food) coping strategies**, as eating seed stocks kept for the next season, selling household assets radio, television, furniture, etc), selling productive assets (tools, sewing machine, bicycle, motorcycle, land, etc..) or reducing healthcare expenses. Six percent of households in this category use at least two of these strategies since the earthquake. They are considered food insecure.
4. Moreover, 4% of households (not affected by the three previous criteria) get more than one third of their **food from unsustainable sources,** as borrowing, food donations, begging and food aid. These households are also food insecure.
5. Lastly, 5% of households (not included in the former groups) have **unsustainable income sources.** They depend on social assistance, and in some cases, since the quake occurred, have no income source at all. They are also food insecure.

[24] Reduced CSI- >40, which corresponds to relying on these many of these strategies on a daily basis .

**Figure M** : Household food insecurity in quake-stricken areas




Thus, since the disaster, there are **52% of food insecure households.** These households need adequate support. A strong transitional insecurity aggravates the food insecurity prevailing in the area. With adequate measures focusing on job opportunities, these households could recover.

## 6.4 Distribution of food insecure households in quake-stricken areas.

In the area directly affected by the disaster (from Jacmel to Croix-des-Bouquets) there are almost 1.3 million food insecure people. Around 450 000 are in displaced people camps, 650 000 are in the metropolis (Port-au-Prince) and 200 000 in directly affected communes around Port-au-Prince, and down to Jacmel. These numbers do not take into account the rest of the country where the quake did not cause too many direct damages.

| Food insecurity by geographic stratum | | | |
|---|---|---|---|
| **Geographic stratum (residents in camps and residents outside of camps)** | **Total Population (estimate)** | **Percentage of food insecure households** | **Number of food insecure people** |
| **S1 (PaP, Delmas, Carrefour)** | 1 285 000 | 50% | 638 000 |
| **S2 (Gressier, Léogâne)** | 160 000 | 57% | 91 000 |
| **S3 (Petit Goâve, Jacmel)** | 244 000 | 52% | 126 000 |
| **S4 (Pétionville, Tabarre)** | 344 000 | 55% | 190 000 |
| **S5 (Cité Soleil)** | 180 000 | 52% | 93 000 |
| **S6 (Grand Goâve, Croix-des-Bouquets)** | 262 000 | 54% | 143 000 |
| TOTAL | 2 473 000 | 52% | 1 281 000 |

| Food insecurity in camps only, in urban or rural area | | | |
|---|---|---|---|
| **Stratum - camps (assumption: 20% of total population lives in camps)** | **Total population (Camps)** | **Percentage of food insecure households** | **Number of food insecure people** |
| **C1- Camps outside the metropolitan area** | 476 000 | 70% | 333 000 |
| **C2 - Camps outside the metropolitan area** | 176 000 | 67% | 118 000 |
| TOTAL | 652 000 | 69% | 450 000 |

Displaced individuals hosted in families live in better conditions. The only represent 22% of food insecure households. This privileged situation only prevails for families who remained in the metropolis, with other wealthy families. In the sample, there were only 9 households hosted by families outside the metropolis, five (55%) of them are food insecure. The situation of displaced individuals in camps, far from their area of origin is much worse: 73% are food insecure.

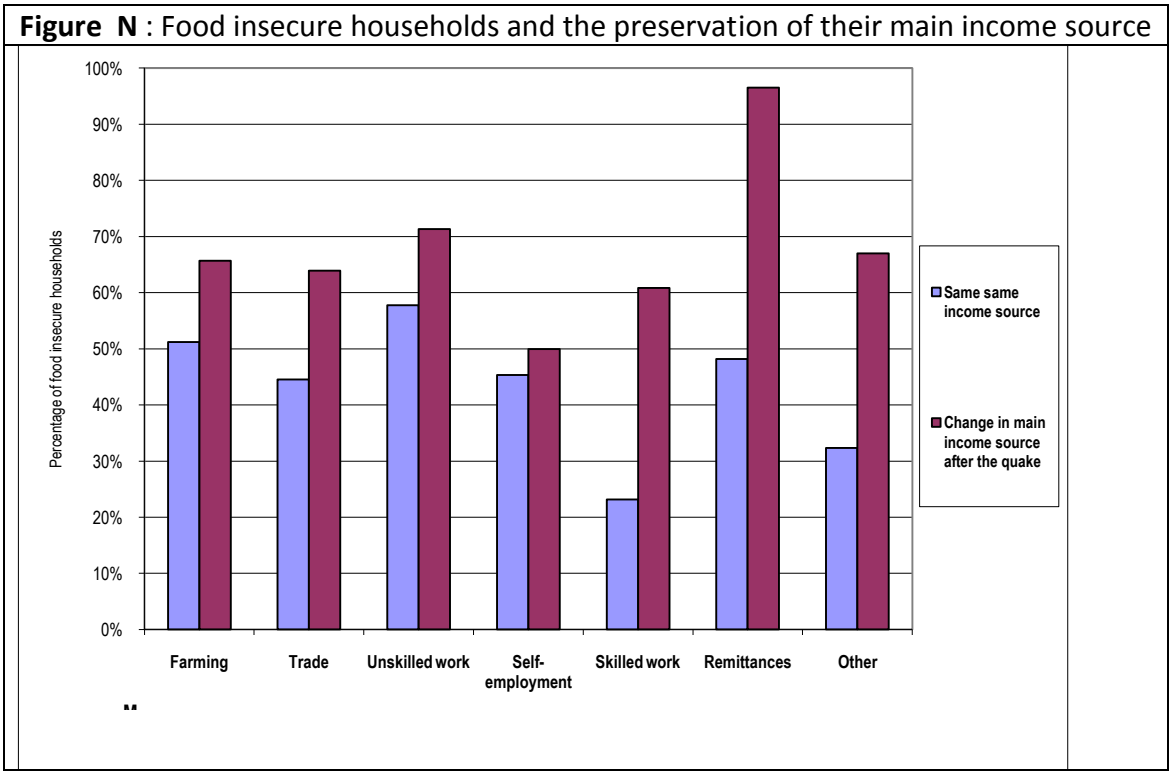
| **Household status** | % of food insecure households |
|---|---|
| In or beside their house | 45% |
| In a host family | 22% |
| Half-time in a neighbouring shelter | 43% |
| Half-time in a shelter outside the neighbourhood | 67% |
| Full-time in a neighbouring shelter | 60% |
| Full-time in a shelter outside the neighbourhood | 76% |
| **Total** | 52% |

Wealth status changes, due to disaster-related losses, are also an important factor to understand food insecurity. The Wealth Index is often used as a proxy indicator of household resilience.

| Food insecure households according to their Wealth Index before and after the quake | | | | |
|---|---|---|---|---|
| Wealth Index tertiles before the quake | Wealth Index groups after the quake | | | |
| | Poorer | Average | Wealthier | All |
| Poorer | 68% | 55% | 0% | 65% |
| Average | 62% | 46% | 0% | 53% |
| Wealthier | 60% | 41% | 23% | 39% |
| **Tous** | 64% | 47% | 22% | 52% |

One notes that, in general, current wealth is the most relevant factor. Only 23% of households now considered as wealthy are food insecure. 60% of households who were wealthy but who are now among the poorest due to losses are food insecure. Among those who were poor before the quake, this rate is 68%.

**Figure N** : Food insecure households and the preservation of their main income source




Approximately 42% of households lost or changed their main income source. Consequently these households are more often food insecure (63% against 44%). This seems to be more acute for those who were depending on money remittances before, but the sample is too small, so these differences are not significant. For those who were able to keep their main income source, skilled work best guarantees food security.

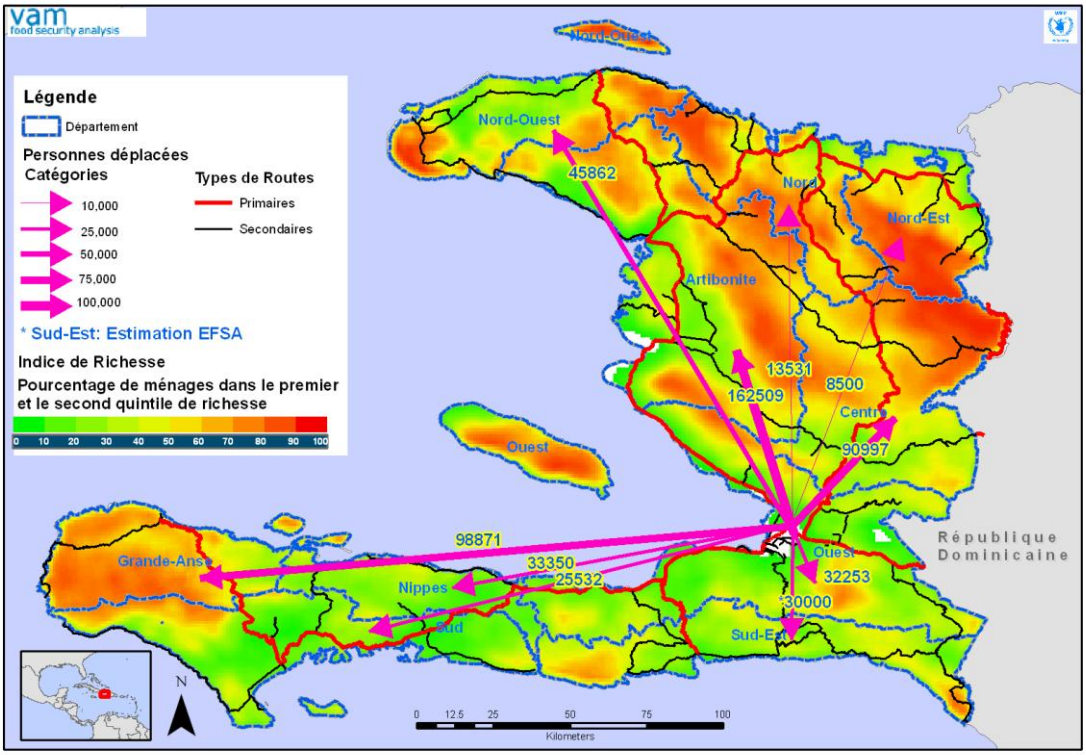
Households with a female household head are more often (60%) food insecure than those headed by a man (45%). The WFP in its first food distributions specifically targeted women.

## 6.5 Food insecurity in the rest of the country

The rest of the country, although having negligible damages, was also affected by the disaster, mainly because of the arrival of displaced people coming from disaster-stricken areas and problems due to markets and prices.

According to official sources, more than half a million people from the Port-au Prince area, moved to other departements in the country.

**Figure O** : Displacements after the disaster on January 12[25]




When visiting the more removed parts of the country, even in the most remote, isolated, and poor villages, approximately 5 to 10% of displaced individuals among the local population was found. These are mainly people who took shelter with their family and relatives in their place of origin. However, sometimes these displaced individuals do not have any family to host them (At Anse Rouge, approx. 15 % of displaced individuals are in such a situation). Some families only sent their children back to their place of origin, and there are also orphans. Many of these displaced families only have their clothes and have little resources to survive.

Displaced individuals depend on what hosting communities can offer. They are exhausting the stocks of already chronically food insecure families; sometimes, they are eating the seeds for the next season. Parents will have a hard time paying school fees.

[25] Data: Bulletin d'information du Gouvernement 21-23 février 2010, CFSVA – WFP 2007.

In the poorest areas, displaced people are getting ready to return to the Port-au-Prince area. In wealthier locations (as at Petite Rivière in Artibonite), displaced people will stay if there are enough schools and job opportunities. In the whole country, staple food prices have increased (except a few local exceptions). The flow of fruits and vegetables towards Port-au-Prince is heavily reduced due to disruptions in the normal supply chain and a decrease in the demand for these « luxury » products. Prices for small livestock are also down.

Therefore, households need to feed more people, the price of food has increased and often income sources have decreased. Trading conditions are less favourable for those who buy more food items than they resell.

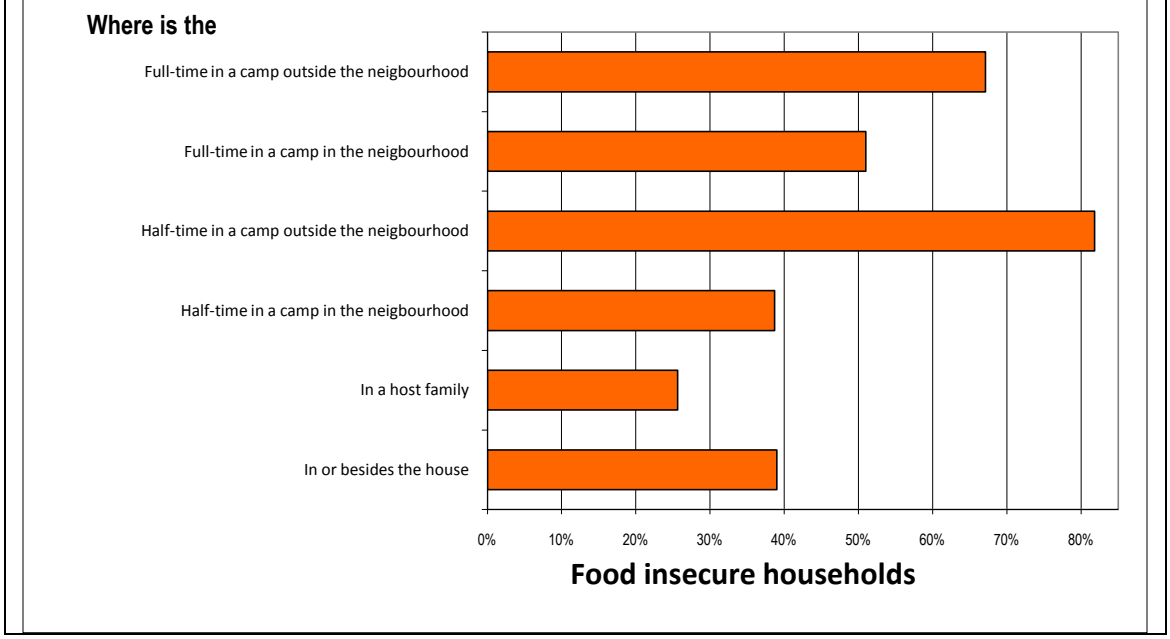
Food security for displaced individuals and hosting communities has significantly decreased.

## 6.6 Immediate causes for food insecurity

The disaster, its direct impacts on households and their assets, the socio-economic disruption of an environment already affected by chronic problems, are causes of the food insecurity that prevails. With a regression analysis[26], we find that there are three immediate major factors for food insecurity in households in the aftermath of the quake: the place where they now live, their capacity to generate household income (including remittances from abroad) and their wealth or poverty status before the disaster.

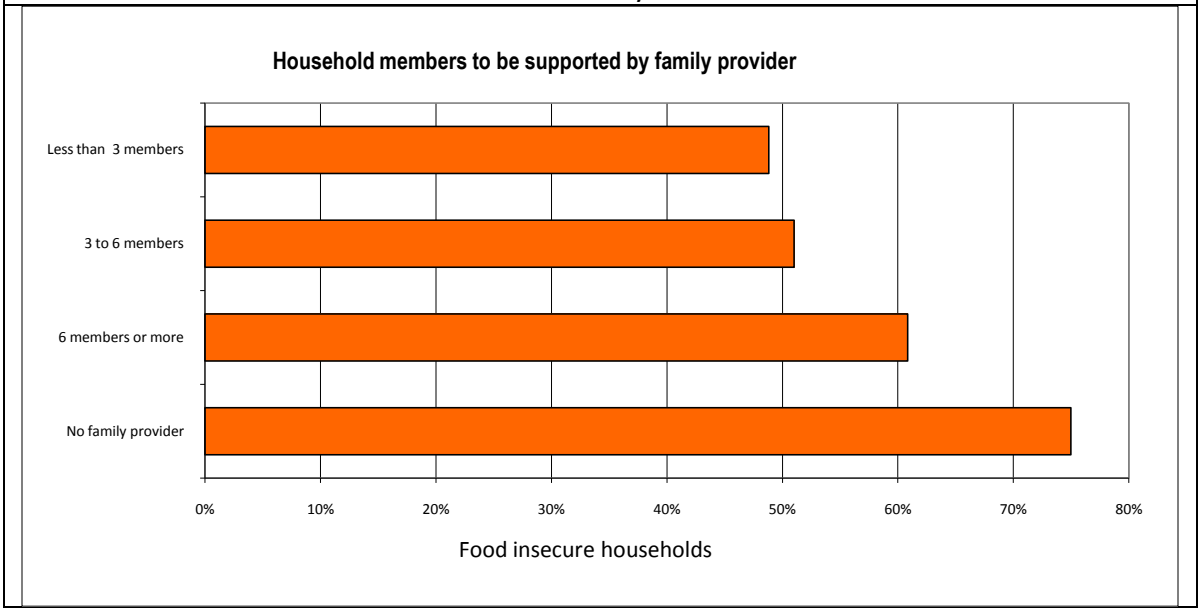
[26] Logistic regression using complex samples. Graphs in this paragraph illustrate the effects of "ceteris paribus" factors; that is to say that it is the effect of a single factor, assuming that all others remained constant.

**Figure P** : Effect of household location on food security




The first factor is related to the current household situation: being displaced in a camp severely increases food insecurity, especially if the camp is far away from home. If the household lives half-time in a nearby camp, its food security is similar to those who stay besides their house.

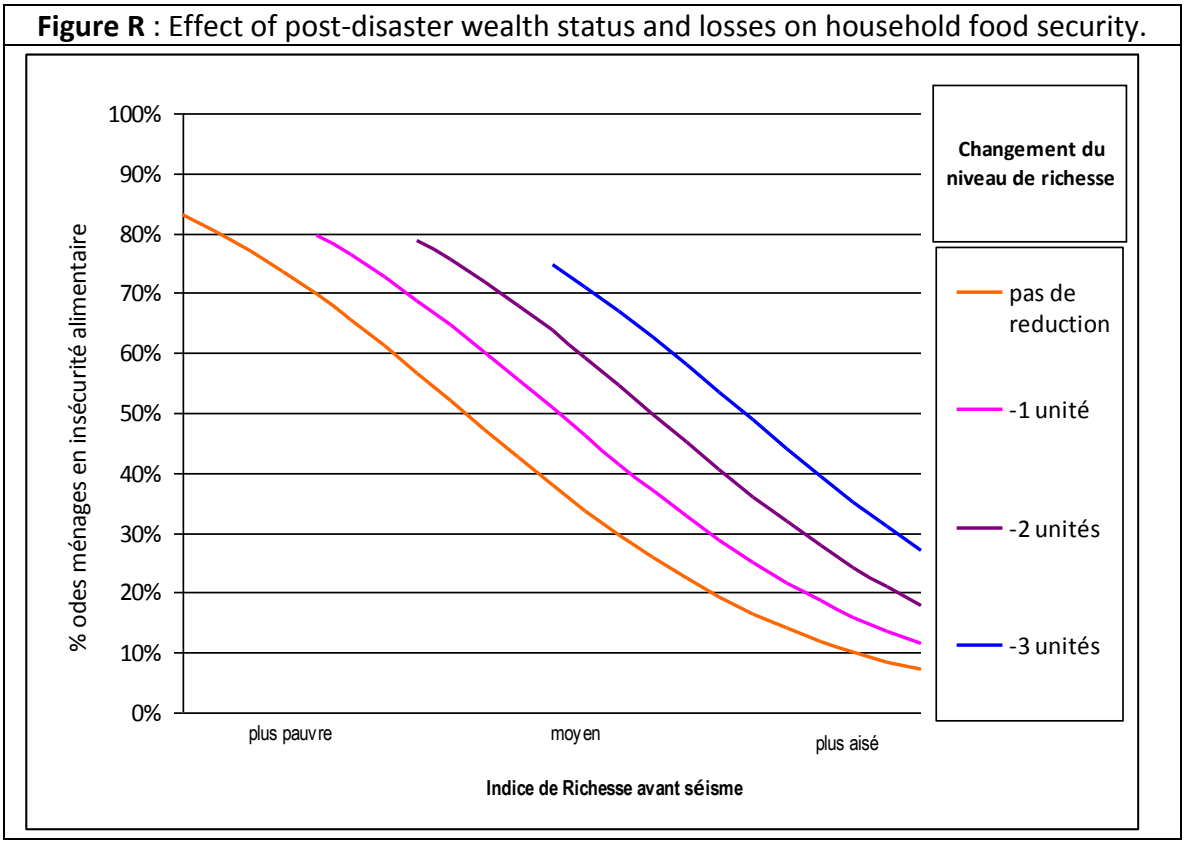
**Figure Q** : Effect of family provider and the number of dependants on food security.




Secondly, the income generating capacity and the number of dependants are important. In households where only one member generates income and has many children and other

dependants to support, food insecurity is more prevalent. Households with no income are in the most difficult situation. Analysis also shows that if all other conditions are identical, receiving remittances from abroad increases by 15% the probability of food security.

**Figure R** : Effect of post-disaster wealth status and losses on household food security.



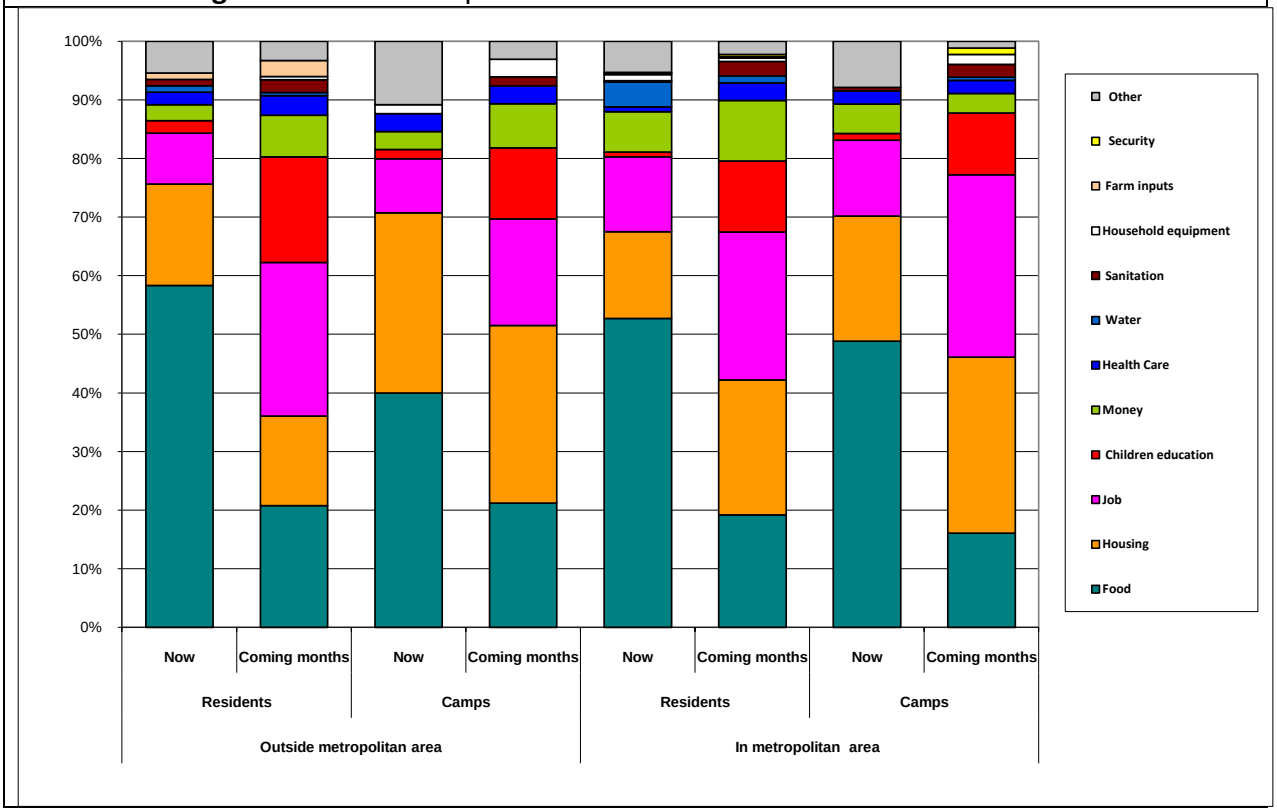

The Wealth Index is often a good indicator of household resilience. Households with the highest index are wealthier and are often able to maintain a good food security level after a shock. On the contrary, a low Wealth Index indicates greater vulnerability. Therefore, among the poorest, there are many more food insecure households after the quake. As many households lost their assets, their current Wealth Index is lower. This wealth reduction is translated into a greater vulnerability, thus a greater probability of food insecurity (see graph R).

All these effects cumulate: poor households, who have lost their assets, have no income generating source and live in camps far from their neighbourhood, have the greatest probability to be food insecure.

## 6.7 Household priorities

On the total sample, the main priority for those affected by the earthquake, at the moment, is food. In fact, 53% of households said that their main priority was food. The second priority is to rebuild or find a dwelling (17%). Finding a job is the third priority at the moment. Healthcare comes fifth after getting money and sending children to school.

**Figure S** : Household priorities at the moment and for the months to come




The priorities of populations are essentially to meet their main basic needs (food, healthcare, water and habitat). Providing for those main basic needs (food, healthcare, water and habitat) still remain the most important challenge for humanitarian organisations and NGOs in the affected areas.

In Haiti, it is particularly appropriate to include protection aspects in food security assessments. Traditionally, there are strong relationships between protection and food security. Apparently, these were exacerbated by the earthquake. Focus groups discussions and interviews with key informants all indicated that food was the main concern for the population after the quake and that protection issues like theft, and at a lesser degree prostitution, were coping strategies to obtain food. Although they were important in the first days after the quake, such strategies decreased in the following weeks, as food aid distributions became more general.

Priorities for the coming months are identical to the current ones, but in reverse order. Indeed, getting a job comes first for 26% of households, followed by habitat (23% of households). This is more obvious in the metropolitan area of Port-au-Prince. Households in camps are prioritizing habitat in the months to come. Food becomes the third priority for the next months (19% of households).

A large number of focus groups respondents expressed a preference for activities where their skills and competencies could be used, as the Food for Work programme, which gives people in these affected areas an opportunity to maintain their dignity and self-esteem.

# *7 Nutritional status of children aged 6 to 59 months*

The Mid-Upper Arm Circumference of children aged 6 to 59 months was measured in all surveyed households. Information on morbidity was also collected.

Among the 539 children living in these households, 18% (i.e. 98 children) were not present at the time of the survey. Due to the fast pace of the survey, it was impossible to re-visit these households to take the measurements. 441 children were measured.

For the Mid-Upper Arm Circumference measurement, enumerators slightly rounded the numbers. Data on oedema were also collected and some rare cases found. However, the training on anthropometric data collection mainly focused on Mid-Upper Arm Circumference and not enough time was spent on oedema recognition. Therefore these data are not shown here.

Six percent (6%) of children between 6 and 59 months in the surveyed area had a Mid-Upper Arm Circumference lower than 125mm (moderate to severe wasting) (95% confidence interval 3.5% - 10%) and 1,3% had a Mid-Upper Arm Circumference lower than 115mm (severe wasting) (95% confidence interval 0.3% - 5.5%).

Although the size of the sample does not allow accurate estimates per stratum, data indicate that the prevalence of children with a Mid-Upper Arm Circumference less than 125mm is higher in displaced and camp populations.

Over 50% of children would have had diarrhoea in the last two weeks. A high percentage of children with a Mid-Upper Arm Circumference under 125mm, had diarrhoea in the last fourteen days. These children were at a greater risk to get a cough or fever in the last fourteen days than other children. Approx. 10% of surveyed children who suffered from diarrhoea during the last 14 days had a MUAC<125 mm, compared to approx. 1% of surveyed children who did not suffer from diarrhoea in that time period.

# *8 Humanitarian Assistance*

## 8.1 Food Aid

The survey shows that food aid covered most disaster-stricken areas. However, according to the communities, at the time of the survey, the quantities distributed were inadequate. Focus groups on issues related to protection were held later on and showed that food distribution coverage had greatly improved afterwards.

At the time of the survey, 22% of households report they had received rice, less than 10% of them said they had received other food items. One must note that the survey was conducted

when food distributions had not yet reached all of the households. During focus groups on protection, held almost one week after the household surveys, the vast majority of respondents declared they had received food aid at least once. The origin of such aid could vary: WFP, religious organizations, national and international NGOs, US army.

Some respondents declared that food aid was not evenly and fairly distributed, mainly when it was placed under the responsibility of local committees or when the latter decided to use this prerogative. Nobody said that this phenomenon was following racial, religious, ethnic or political discrimination pattern. It was mainly opportunism and favouritism towards relatives, allies and friends. Future food distributions should be done according to clear vulnerability criteria, defined with the partners. The analysis of this report will contribute to a more focused targeting. Moreover, it was also estimated that because of the great solidarity which now exists within communities, the most vulnerable groups (handicapped or injured people, people in single-parent families and those with AIDS) have access to food aid.

It is also important to improve the communication strategy where recognized civil society organizations can play a more active role, and to implement accountability procedures that WFP partners should comply with.

The risk to exclude elderly people, orphans, unaccompanied children, or children separated from their family was not identified as a major risk at this point in time. Usually, priority is always given to these vulnerable groups.

Finally, one must indicate that only two households in the whole sample had started to sell their humanitarian assistance in order to buy other essential goods.

## 8.2 Availability of non-food assistance

The availability of food and non-food assistance remains low. The most frequently distributed non-food items are: tarps (available in 10% of households), jerrycans (4%), blankets (2%) and cooking utensils (2%). Farm inputs were not yet distributed at the time of the survey.

During focus group discussions, communities had to express their perception on food aid and the targeting of beneficiaries. In most of the surveyed areas, food aid was considered inadequate in quantity and quality. Communities consider that it should be more diversified and that more distribution points should exist. They also mentioned highly questionable practices in the selection of recipients. Client-orientation, corruption and the sale of ration cards are frequent.

Concerning the targeting, communities suggested a census of all beneficiaries rather than relying on the lists provided by politicians. These censuses should be monitored by an outsider. A good awareness campaign should be conducted to inform beneficiaries about food and cards distribution days. They also mentioned that sometimes women were attacked after receiving

assistance. Lastly, widowers did not directly benefit from any assistance as cards were only distributed to women.

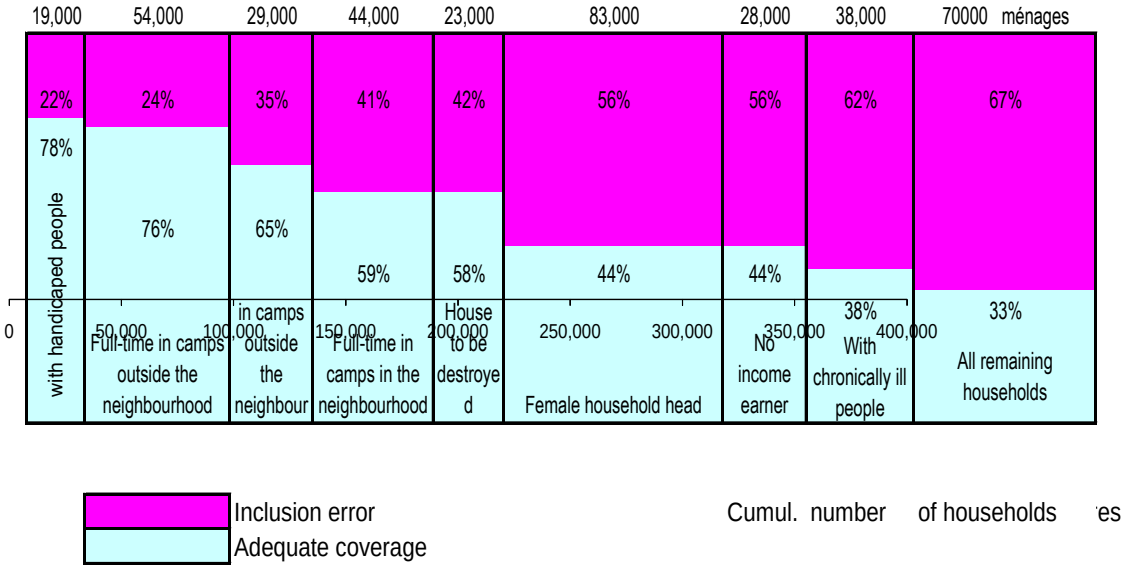
## 8.3 Example of possible analyses for the targeting of food insecure households.

**The following analysis is an example and not necessarily a targeting recommendation. Additional analyses will be necessary to refine the targeting of food insecure households.**

Targeting criteria may be based on the current analysis. As described in the section on causality, many factors are clearly correlated with food insecurity. Some of them could be used as targeting criteria to defined groups of humanitarian assistance beneficiaries, and more specifically food aid beneficiaries. As an example, criteria which would be easily applicable for beneficiaries' registration were selected. Thus, the presence of handicapped people in a household, the place where households live, the presence (or absence) of income earning adults, the actual state of their house before the disaster, are all criteria that might be operationally used , alone or combined. These factors are well correlated to food insecurity and can be easily used to identify beneficiaries. The use of other criteria could be considered, should they be more convenient to identify beneficiaries. Moreover, it is possible to create target groups based on a combination of several factors, but this was not studied. **The two following options are therefore only examples of possible targeting analyses.**

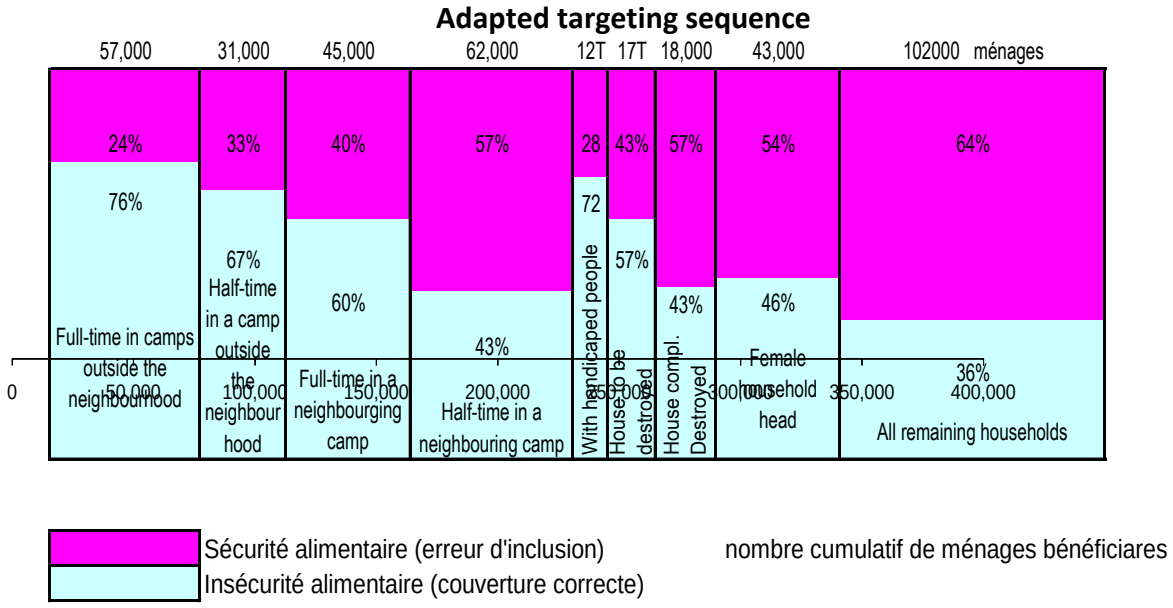
For this example, two targeting options-examples were developed. They are described in the tables in Appendix II.

**Targeting sequence**




The targeting sequence for optimal efficiency first includes the group with the highest proportion of food insecure households in the assistance programme, i.e. households with at least one handicapped member. Then, among remaining households, the group with the

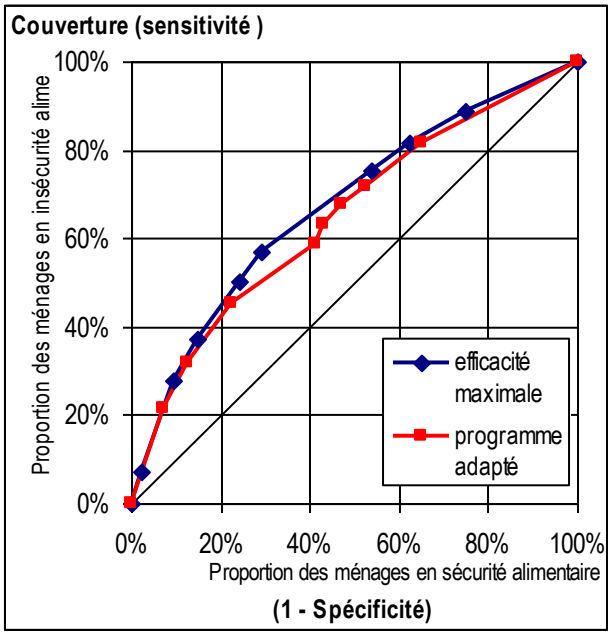
second largest proportion of food insecure households is added to the programme, i.e. households living full-time in a camp outside their neighbourhood. Thereafter, among households that are not yet included in the programme on the basis of the previous criteria, the next group with the highest proportion of food insecure households is selected and added, etc. The inclusion order in the programme is described in the figure. From this figure, one sees that progressively including additional groups (on the basis of a single criterion per group) increases the inclusion error. For example, a programme that would include the first four groups and would exclude the five last ones would have 101,000 beneficiaries and a higher inclusion error (31%) than the first group alone.




In the case of food insecurity in quake-stricken areas, it would be more acceptable to first target households in camps. Including households living « half-time in neighbouring camps » is debatable: there would undoubtedly be some « assistance magnetism » issues, increasing the number of households attracted by camps. On the other hand, including this group could prevent some households from becoming full-time residents in camps only for the sake of receiving assistance; food insecurity in this group is also less severe that what is experienced by other camp residents.

For example, assistance to groups 1-4 could be considered (full coverage of camps) by adding special programmes for families with handicapped people. This example (groups 1-4) would have an inclusion error of 40%. To improve targeting, an additional criterion must be added, but calculations based on convenient and acceptable criteria should be done when drafting the programme. Selecting a programme encouraging self-targeting could also improve efficiency.

**Figure T** : ROC Curves [27], indicating the efficiency of both targeting sequences.




The second option, an « adapted programme », is more realistic to implement, but is less efficient as shown by the ROC curve. For the same number of targeted households, there is a greater inclusion of food secure households and therefore a greater exclusion of food insecure households. It will be up to the humanitarian decision makers to decide how to specifically target these people to get maximum efficiency while maintaining a programme that is acceptable to the population in disaster-stricken areas. According to their approach, different scenarios based on survey data, could be elaborated to obtain a better targeting.

Proposed targeting would include, for example, widowers who would be excluded if assistance was only distributed to women.

A good communication and awareness campaign will need to be implemented to inform beneficiaries about food aid distribution days and modalities (coupons and cards).

[27] Receiver Operating Characteristics. The curve indicates on the Y axis the proportion of included food insecure households and on the X axis, the proportion of food secure households included with the same targeting programme.

# *9 Conclusions & Recommendations*

## 9.1 Main Conclusions

- **The earthquake had a severe impact on food security. Many households became poor and food insecure. In order to cope, households are using non-sustainable coping strategies.**
- **Approx. 250 000 households (close to 1,3 million individuals) in the quake-stricken areas which go from Port-au-Prince down to Jacmel are food insecure. If one also considers the 598 000 displaced individuals who left the quake-stricken areas to live with host families in the rest of the country, and the price increase for staple food on most of the Haitian territory, the number easily reaches over 2 million people.**
    - Households living full-time in rural or urban camps are the most affected, as shown by many indicators. Needs are important and diverse: water, food, hygiene, shelter, income and work.
    - Earning a living has become more difficult. Households with low income and a high dependence rate are in the most difficult situation. Households living mainly from unskilled work, social assistance, or without any income source are facing an even tougher situation.
    - Many wealthy households before the quake lost their assets and became poor and more vulnerable to food insecurity.
    - The frequency and diversity in household food consumption have decreased. They are the lowest among chronically poor households.
    - Households are relying on unsustainable coping strategies: eating their food reserves, seeds and livestock; spending their savings; harvesting earlier; and selling their assets. Those who cannot use such strategies drastically reduce the quality and quantity of the food they eat. In the first days after the quake, negative coping strategies as violence and theft were frequent, but large scale food distributions greatly reduced their occurrence.
    - Households are counting on community support and on wealthier people sharing. This is somewhat a burden for those who have resources. It is unclear how long this mutual support and sharing will last. Should community solidarity decrease, the most vulnerable groups might not have access to food anymore. Displaced individuals, who left quake-stricken areas, generally live with family members, often in their place of origin. These host families, who constantly have to use their resources to feed these people and contribute to their other basic needs, are now themselves experiencing problems. The worst situation is in areas where food insecurity is chronic.

- Because of the disruption in market supply chains, caused by destructed infrastructures and threats to merchants, the rural and the metropolitan area face a food availability deficit. In February, food aid was able to bridge the gap. The same solution and the implementation of measures to support the market supply chains will become even more necessary in the coming months, as imports are now at a minimal level.
- Staple food prices are higher than they were before the quake in most parts of the country (except in Artibonite). This high price level prevents the poorest people and displaced populations from having access to food.

- **The population expresses a strong desire to work to improve its situation, but opportunities are rare. The situation may even get worse with the coming monsoon.**
  - Newly poor households have more resources to get out of poverty than those who were already poor before the disaster. In particular, they may have a certain human and social capital. However, they need to find employment in line with their former activity and their ability to cope.
  - Households mentioned that food represents their main expenditure. Moreover, they said that food and shelter are their immediate priorities. For the coming months, they indicated that their most important needs will be shelter, work and education.
  - This desire and need to work are found in all areas and all social strata.

- **Vulnerable groups are :**
  - Households living in camps outside their neighbourhood;
  - Households depending on social assistance, unskilled work (daily wage labour) or those who have little or no income or remittances from abroad;
  - Households who were already among the poorest before the quake;
  - Households who lost their dwelling and many of their assets;
  - Households with handicapped members.

## 9.2 Recommendations

- **Emergency assistance with non-conditional transfers must continue. Additional activities as food or cash for work (under the condition that markets can meet the demand) should be implemented for 3-6 months and then gradually decreased.**

- In the short-term, camps in urban areas should be specifically targeted by humanitarian assistance, while avoiding to attract people to camps with such assistance.
- Clear criteria have to be defined in close collaboration with communities to improve targeting, and adequate communication on this targeting will be necessary. Other affected households, living out of camps, should be included in a more refined targeting strategy, prioritizing the most vulnerable households.
- School canteen programs should be multiplied within the country to support children from displaced families and host families. It would be important to initiate the school canteen programs before schools re-opening.
- Nutrition programmes addressing young children should prioritize camps.

- **Increase food availability**
  - Food availability deficits in the country should be covered in part by providing food aid (specifically in the coming months) and by supporting the market supply chain to help those who have purchasing power.
  - Infrastructure for imports and marketing should be re-established to allow the resumption of food imports.
  - The whole supply chain needs support; interventions should take into account the situation of wholesalers, retailers and *Madames sara.*
  - In the medium and long-term, local purchases in surplus departments, combined with support to agricultural productivity and processing, will help develop local production.
  - The development of fortified non-grain flours (manioc, sweet potato, yam, breadfruit, etc.) will increase in the long-term staple food availability.

- **Facilitate employment for all population groups**
  - Humanitarian assistance (out of the food assistance sector) should encourage job creation and thereby the possibility of income earning for the population.
  - Food access issues should be handled by Food and Cash transfer programmes, for the majority of food insecure households who can work. In addition to general job creation programmes, humanitarian interventions should benefit from the presence of a large number of well-educated, but unemployed people, to reinforce or complement their activities. For example, informal courses could be organized near canteens, before schools re-open.
  - Housing is one of the highest priorities cited by households. Food or cash transfer programmes to build houses are recommended, as well as tools and construction materials distributions to build or repair houses.

- **Assist rural areas indirectly affected by the disaster**
  - Displaced individuals as well as hosting communities and families need support. Food assistance should be given to displaced individuals, who can share with their hosts.
  - In rural areas, farming activities should be supported through the recapitalization of farmers who need inputs and tools (immediately – 5 months).
  - Workers associations (*konbits* and *eskwads* ) should be assisted with Food and Cash transfers as well as Seed protection programmes.
  - Labour-intensive agricultural and environmental programmes should be supported in order to protect and improve land. This includes land consolidation programmes and supporting the most effective and sustainable farming techniques.

- **Improving food use and the nutritional situation**
  - Nutritional support programmes, in particular supplementary feeding for young malnourished children should continue, especially in the approach of the rainy season.
  - Programmes to improve the nutritional situation and diet diversity are suggested.

- **Mitigate hurricane-related hazards**
  - Contingency measures should be implemented to mitigate the impact of the rainy season and hurricanes. This could be combined with Food and Cash transfer activities.

- **Implementing programmes for the most vulnerable populations.**
  - These programmes should be extended considering that in the aftermath of the earthquake, a growing number of people are chronically food insecure (homeless children, widows, orphans, handicapped people, as well as chronically poor people).
  - School feeding programmes should be extended to the whole country.
  - Labour-intensive programmes could provide a job to the most vulnerable people, where acceptable.
  - School meals in the metropolitan and rural areas should be extended when schools will re-open. Canteens should serve all children of school age and not only those attending school.

- **Monitoring food availability, accessibility and utilization.**
  - Monitoring should be ensured by supporting the CNSA observatory system and by a greater inter-agency collaboration.
  - Following up on staple food availability at the local and regional levels. This includes monitoring prices and market conditions, volumes in the commercial supply chain, imports and exports flows and local production throughout the country.
  - Monitoring the impact of food assistance on populations and markets.
  - Harmonized and regular follow-up of food security indicators at household level.
  - Monitoring of migration.
  - Screening and nutritional and sanitary follow-up of young children, especially in camps.

- **Assessing food security in an emergency situation.**
  - A better understanding of the situation outside disaster-stricken communes is necessary as well as a study on the situation of displaced individuals and host families.
  - A thorough food security assessment will be necessary in 2 or 3 months. It should cover the whole country and will be used to prepare the medium and long-term strategies.
  - An assessment of the nutritional situation of children under 5 years old.
  - A mission to evaluate crops and food security should take place in June/July to assess the country food production and deficit.

# *10 Appendix I- Description of strata*

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| Main Strata | PaP, Delmas, Carrefour | Strate 1 (S1) | These strata were originally labelled with 'degree d'affectation severe' (S1, S2, S3) and 'degree d'affectation moyenne (S4, S5, S6). However, the degree of destruction was very heterogeneous in all strata, so these names are not applied in the document. S1 to S6 in these tables exlude households living in large camps, the camps are grouped by the character of the commune they are found in- primarily urbain (C1) and primarily rural (C2). |
| | Gressier, Léogâne | Strate 2 (S2) | |
| | Petit Goâve, Jacmel | Strate 3 (S3) | |
| | Pétionville, Tabarre | Strate 4 (S4) | |
| | Cite Soleil | Strate 5 (S5) | |
| | Grande Goâve, Croix-des-Bouquets | Strate 6 (S6) | |
| | Urban Camps in PaP, Delmas, Carrefour, Pétionville, Tabarre, Cite Soleil) | (C1) Campements a Caractère urbain | |
| | Rural Camps in Gressier, Léogâne, Petit Goâve, Jacmel | (C2) Campements a Caractère Rural | |

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| Degree of affect and camps | PaP, Delmas, Carrefour, Gressier, Leogane, Petit Goave, Jacmel | Severe degree of affect | These strata combine the severe areas and the moyenne areas, and put all camps into one single stratum. |
| | Petionville, Tabarre, Cite Soleil, Grande | Average of degree of affect | |
| | All camps in the sample (rural and urban) | Camps (all degrees) | |

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| degree only | Petionville, Tabarre | S4 (camps and non-camps) | These strata include the camp and non camp households into the same geographical distributions as the main strata S1 through S6. |
| | Cite Soleil | S5 (camps and non-camps) | |
| | Grande Goave, Croix des Bouquets | S6 (camps and non-camps) | |
| | PaP, Delmas, Carrefour | S1 (camps and non-camps) | |
| | Gressier, Leogane | S2 (camps and non-camps) | |
| | Petit Goave, Jacmel | S3 (camps and non-camps) | |

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| Displacement status | non displaced | non displaced | The deplace are defined as households that sleep outside of their neighborhood of origin, meaning they have physically displaced. It should be noted that some non deplace households can still be found living in large camps, but still withing their neighborhoods of origin. (also should be noted that the WASH cluster has cited that there are approximately 1.1 million displaced in the areas covering roughly the same as this survey. if the households living in camps withing their neighborhoods are considered as displaced, then the EFSA accurately triangulates these estimates. |
| | displaced | displaced | |

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| Food Consumption Groups | Poor consumption | Poor consumption | These strata are described in the food consumption section of the report. |
| | Borderline consumption | Borderline consumption | |
| | Acceptable consumption | Acceptable consumption | |

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| Wealth Index groups NOW | WI poorest groups (now) | poorer | The Wealth Index formula and cut-offs were applied to the post-earthquake asset ownership. These no longer represent terciles. The methodology and strata are described in the Wealth Index section. |
| | WI average groups (now) | average | |
| | WI wealthiest groups (now) | wealthier | |

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| Household head -Now | Male household head | Male household head | These strata are simply based on the household response to the question on the sex of the head of household. The survey fails to identify clearly the single-headed households. |
| | Female household head | Female household head | |

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| Income source- Now | Farming | Farming | These strata are based on the main income source cited by the household post-earthquake. Exploitation Agricole also includes a few households that depend on livestock. Commerce is primarly small commerce, but also includes a few gros commercants. Travail non qualifie is mainly daily wage labour, Travail independant includes such professions as taxi, macon, etc. Travail qualifie includes skilled labour as well as salaried positions such as government, international organizations, etc. Assistance sociale includes don, aide, mendicite. Transferts include both transferts from abroad and from withing Haïti. pas de source de revenue usually implies that households are living off savings, sales of assets, stocks, or other such revenue sources. It should be noted that pre-earthquake, no households cited assistance sociale or pas de source de revenue. |
| | Trade | Trade | |
| | Unskilled work | Unskilled work | |
| | Self-employment | Self-employment | |
| | Skilled work | Skilled work | |
| | Social assistance | Social assistance | |
| | Remittances | Remittances | |
| | Other | Other | |
| | No income source | No income source | |

| Name of the stratification | The communes or household classifications in each strata are: | Strata name | Description of the strata |
|---|---|---|---|
| Income source- before the earthquake | Farming | Farming | These strata follow the same descriptions as the current source of revenue strata, but using the infirmation of what households reported as their main income source before the earthquake. |
| | Trade | Trade | |
| | Unskilled work | Unskilled work | |
| | Self-employment | Self-employment | |
| | Skilled work | Skilled work | |
| | Remittances | Remittances | |
| | Other | Other | |

# 11 Appendix II

| Household groups to be sequentially targeted | Situation of the incremental group | | | | Cumulative situation of groups | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Targeted beneficiaries | | | | Targeted beneficiaries | | | | | | |
| | Total | Food insecurity | Marginal efficiency | Food security | Total | Food insecurity | Targeting efficicency | Coverage | Food security | Inclusion error | Exclusion error |
| **1** With handicaped people | 18 782 | 14 713 | 78% | 4 070 | 18 782 | 14 713 | 78% | 7% | 4 070 | 22% | 93% |
| **2** Full-time in camps outside the neighbourhood | 54 385 | 41 087 | 76% | 13 298 | 73 168 | 55 800 | 76% | 28% | 17 368 | 24% | 72% |
| **3** Half-tme in camps outside the neighbourhood | 29 081 | 19 014 | 65% | 10 067 | 102 249 | 74 814 | 73% | 37% | 27 435 | 27% | 63% |
| **4** Full-time in camps in the neighbourhood | 43 689 | 25 819 | 59% | 17 871 | 145 938 | 100 632 | 69% | 50% | 45 306 | 31% | 50% |
| **5** House to be destroyed | 22 841 | 13 289 | 58% | 9 552 | 168 779 | 113 921 | 67% | 57% | 54 857 | 33% | 43% |
| **6** Female household head | 83 243 | 36 985 | 44% | 46 258 | 252 022 | 150 906 | 60% | 75% | 101 116 | 40% | 25% |
| **7** No income earner | 28 252 | 12 545 | 44% | 15 707 | 280 274 | 163 451 | 58% | 81% | 116 823 | 42% | 19% |
| **8** With chronically ill people | 38 047 | 14 562 | 38% | 23 485 | 318 321 | 178 013 | 56% | 89% | 140 307 | 44% | 11% |
| **9** All remaining households | 69 645 | 22 768 | 33% | 46 877 | 387 966 | 200 781 | 52% | 100% | 187 184 | 48% | 0% |

**Targeted groups by priority for an adapted programme**

| Household groups to be sequentially targeted | Situation of the incremental group | | | | Cumulative situation of groups | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Targeted beneficiaries | | | | Targeted beneficiaries | | | | | | |
| | Total | Food insecurity | Marginal efficiency | Food security | Total | Food insecurity | Targeting effficiency | Coverage | Food security | Inclusion error | Exclusion error |
| **1** Full-time in camps outside the neighbourhood | 56 971 | 43 448 | 76% | 13 523 | 56 971 | 43 448 | 76% | 22% | 13 523 | 24% | 78% |
| **2** Half-time in camps outside the neighbourhood | 30 807 | 20 739 | 67% | 10 067 | 87 778 | 64 187 | 73% | 32% | 23 591 | 27% | 68% |
| **3** Full-time in camps in the neighbourhood | 45 122 | 27 111 | 60% | 18 011 | 132 900 | 91 299 | 69% | 45% | 41 601 | 31% | 55% |
| **4** Half-time in camps in the neighbourhood | 62 016 | 26 436 | 43% | 35 580 | 194 916 | 117 735 | 60% | 59% | 77 181 | 40% | 41% |
| **5** With handicaped people | 12 304 | 8 920 | 72% | 3 384 | 207 220 | 126 654 | 61% | 63% | 80 565 | 39% | 37% |
| **6** House to be destroyed | 16 976 | 9 683 | 57% | 7 293 | 224 195 | 136 338 | 61% | 68% | 87 858 | 39% | 32% |
| **7** House completely destroyed | 18 127 | 7 878 | 43% | 10 250 | 242 323 | 144 215 | 60% | 72% | 98 108 | 40% | 28% |
| **8** Female household head | 43 414 | 19 965 | 46% | 23 449 | 285 737 | 164 180 | 57% | 82% | 121 557 | 43% | 18% |
| **9** All remaining households | 102 229 | 36 602 | 36% | 65 627 | 387 966 | 200 781 | 52% | 100% | 187 184 | 48% | 0% |