

URBAN EFSA

DJIBOUTI

February 2011

Data collected November 2010



unicef 

FEWS  NET  
FAMINE EARLY WARNING SYSTEMS NETWORK

**Urban In-depth EFSA Djibouti**, February 2011 (Data collected in November 2010)

© World Food Programme, OMDF Food Security Analysis Service



Financial support for this study was provided by the World Food Programme. The views expressed herein can in no way be taken to reflect the official opinion of the donors.

For any queries on this document, please contact [wfp.vaminfo@wfp.org](mailto:wfp.vaminfo@wfp.org)

For information about Food Security Analysis, visit [www.wfp.org/food-security](http://www.wfp.org/food-security)

United Nations World Food Programme

Headquarters: Via C.G. Viola 68, Parco de' Medici, 00148, Rome, Italy

For questions or comments concerning this survey and/or report, please contact:

**WFP Djibouti**

Mr Mario Touchette [Mario.Touchette@wfp.org](mailto:Mario.Touchette@wfp.org)

Mr Alessandro Dinucci [Alessandro.Dinucci@wfp.org](mailto:Alessandro.Dinucci@wfp.org)

**WFP Regional Bureau (OMJ – Johannesburg)**

Ms Genevieve Chicoine [Genevieve.Chicoine@wfp.org](mailto:Genevieve.Chicoine@wfp.org)

Mr Mark Gordon [Mark.Gordon@wfp.org](mailto:Mark.Gordon@wfp.org)

Ms Cecilia Garzon [Cecilia.Garzon@wfp.org](mailto:Cecilia.Garzon@wfp.org)

Ms Annet Birungi [Annet.Birungi@wfp.org](mailto:Annet.Birungi@wfp.org)

Ms Margit Bach [Margit.Bach@wfp.org](mailto:Margit.Bach@wfp.org)

**WFP Headquarters (Rome- Italy)**

Mr Romeo Frega [Romeo.Frega@wfp.org](mailto:Romeo.Frega@wfp.org)

Mr Sam De Greve [Sam.DeGreve@wfp.org](mailto:Sam.DeGreve@wfp.org)

Mr MalikiAmadou Mahamane [MalikiAmadou.Mahamane@wfp.org](mailto:MalikiAmadou.Mahamane@wfp.org)

## ACKNOWLEDGMENT

Assessments of this undertaking are never the work of one individual alone, and we would like to take this opportunity to thank those who were involved in the process and helped make it as successful as it was. The list is long, but there are a few key individuals we would like to mention specifically.

A number of individuals in WFP Djibouti made important contributions to this project in terms of planning, preparation, field work and data entry. They are Baidane MohamedMiyir, Alessandro Dinucci, Dato Gaas, Dilan Daoud, Abdoukader Mohamed, Saada Ahmed, Abdallah Mohamed, Hasna Moussa and Intihad Ahmed. Sylvie Montembault, Kathryn Ogden, Nils Grede, Saskia De Pee, and Issa Sanogo in WFP Headquarters in Rome also provided valuable inputs throughout the process.

The assessment could not have taken place without the important contribution of the team of supervisors and the team members. The quality of the work was particularly high, which greatly improved the confidence of the data collected and ultimately, the analysis. There were 60 team members (including six supervisors) from different organisations and we would like to thank the following organisations for releasing their staff to support this work, as well as the individuals themselves, who gave up four weeks of their time:

- Conseils Régionaux et Préfectures
- Programme à l'appui de la Mobilisation des Eaux de Surface et la Gestion des Terres (PROMES GDT)
- Croissant Rouge
- Agence Djiboutienne de Développement Social (ADDS)
- Ministère de la Promotion de la Femme, des Affaires Sociales et du Bien-être Familial
- Direction des Statistiques et des Etudes Démographiques (DISED)
- Secrétariat d'Etat chargé de la Solidarité Nationale (SESN)
- Office National des Réfugiés et des Sinistrés (ONARS)
- Ministère de l'Agriculture, de l'Elevage et des Ressources Hydrauliques (MAERH)
- Médecins Sans Frontières (MSF)
- FEWSNET
- Finally, and in addition to the above institutions, our thanks go to all the members of the Comité de Pilotage, the Ministère de la Santé, Ministère de l'intérieur, the Présidence, Johaniter, UNICEF and UNDP.

## EXECUTIVE SUMMARY

The primary aims of this emergency food security assessment (EFSA) were to: (i) estimate the proportion of food insecure in the six urban centres of Djibouti; (ii) further substantiate the main causes of food insecurity; and (iii) provide broad, feasible and appropriate recommendations on response options for improving food security.

A two-stage random sampling strategy was used to select clusters (enumeration areas) and households to provide statistical confidence for each of the urban centers. After data cleaning, a total of 1,160 households were kept, as were 128 children between the ages of 6 and 23 months, for the Infant and Young Children Feeding (IYCF) questionnaire, and 545 children between the ages of 12 and 59 months for the MUAC screening. Fieldwork was conducted in the first two weeks of November and completed just before Eid el Adha (16 November 2010), at the start of the winter season.

In general, all indicators revealed that the urban food security situation had improved since the 2008 high food prices crisis. Indeed, given the absence of major price hikes and climatic shocks in the twelve months preceding the assessment, the results of this assessment could be use as a baseline for future urban studies.

The 2010 urban EFSA distinguished the following four food security groups based on recent consumption and long term access indicators such as expenditure, assets, possessions, etc.:

1. Food Insecure (6.3% of the urban population or 26,600 people),
2. Borderline Food Insecure (8.2% or 34,600 people),
3. Food Secure Poor (25.6% or 108,100 people)
4. Food Secure Middle to Affluent (59.9% or 252,800 people)

**Food Insecure** households are likely to suffer from poor access to food of a chronic and structural nature. They rely mostly on gifts to access food and non-food items, and the head of household is typically older (average age is 47 years old) than the heads of households in the other profiles (45 years old). The Food Insecure households are also statistically more likely than households in the other Food Security profiles to be burdened with the care of chronically ill or disabled persons. They tend to use detrimental coping strategies to feed their families, such as selecting cheaper and less preferred foods, limiting food portions or sending family members to eat with relatives. They have little access to credit, most likely because they are not perceived as being financially solvent. The heads of the households are also more likely not to be born where they are currently living, and to have had households members temporarily migrating out of the city during the last 12 months. These differences are significant when compared to the other food security profiles. Only 11% of the Food Insecure households use electricity compared to 57% for the overall urban population. Finally, these households are also not likely to earn their income from a salary, pension, qualified work or business.

In comparison, the **Borderline Food Insecure** households rely much more on credit, a sign that they are financially solvent. Their average income is higher than that of the Food Insecure households, though it is not significantly different from that of the Food Secure - Poor households. They do however spend significantly less on food than the Food Secure - Poor households do. The Borderline Food Insecure households also spend proportionally more on non-food items, such as debt and family assistance, repayments, clothing, water and khat. A higher proportion of households in the Borderline Food Insecure Profile also reported an increase in housing expenses over the twelve months preceding the assessment, than households in other Food Security profiles did. Indeed, up to 80% of Borderline Food Insecure households owned their home which is significantly higher than for the Food Insecure households (59%). Similarly to the Food Insecure households, they use detrimental coping strategies to feed their families. The heads of the household tend to be slightly younger than those in the other food security profiles, many are daily labourers and a few earn a salary or a pension.

The Food Insecure and Borderline Food Insecure households have difficulty providing for their families during the dry hot months (July to October) when food and water prices rise, use of electricity increases and there are fewer job opportunities as many middle and better off families leave Djibouti

for cooler places. School fees are due in September<sup>1</sup> when diseases also seem to be on the rise. These households are also more likely to have malnourished children than the Food Secure - Poor and Food Secure - Middle and Better Off households are; the difference being significant within the sample size.

The **Food Secure – Poor** households have adequate food consumption levels, and make less use of credit, gifts and/or detrimental coping strategies to feed their families. Their food security situation seems stable, even during the lean period. However, as many as 80% of the Food Secure – Poor households are too poor to be able to afford a minimum cost diet and to cover all the nutritional needs of their families. They are therefore very susceptible to price increases and as the increased prices forecast exercise has demonstrated (explained in the text), a proportion of the households in this profile is likely to slip into food insecurity if prices rise significantly in the coming year.

The assessment results also show that 47% of the urban population cannot afford the theoretical minimum cost of a nutritionally adequate diet. Even amongst the **Food Secure Middle & Better off** households, 24% can't afford the minimum CoD. This means that although these households have an adequate diet in terms of macro-nutrients (starch, protein, oil and vegetable/fruit)<sup>2</sup>, they still cannot afford all the micro nutrients required.

Finally, the EFSA confirmed that the nutritional situation of young children is of particular concern, with more than 10% of the children between the ages of 6 and 59 months in the sample suffering from acute malnutrition. Among children between the ages of 12 and 24 months, acute malnutrition rates were double those reported for the entire sample. This age group (12- 24 months) is particularly important since during this time window (referred to as 1000 days), nutritional interventions can have great positive impact in preventing children from becoming stunted and disadvantaged for life. The fact that young children are more likely to be malnourished than older ones could be an indication that acute malnutrition is related to weaning practices. An exacerbating factor is the disease burden, as more than 60% of households stated that their children had experienced one or more disease such as diarrhoea, fever and acute respiratory infections (ARI). Exclusive breastfeeding is almost never practiced and continued breastfeeding up to two years is low. This becomes particularly relevant for children between the ages of 6 and 23 months for whom the quality of complementary foods is very poor. The family diet is mainly based on staple foods rich in starch but with limited or no animal, fruit or vegetables to supply protein and micronutrients required for optimal growth and development. These inadequate feeding and care practices continue to expose children to malnutrition and increase mortality risks.

In summary, there is a strong need for action to target the Food Insecure households, the Borderline Food Insecure households and young children. Based on the above, the following broad recommendations for intervention are:

- **Introduce a seasonal conditional transfer of food, cash or voucher<sup>3</sup> during the lean period (July and October)** for Food Insecure and Borderline Food insecure households that includes a training or/and work component as unemployment is high;
- **Increase the reach of supplementary feeding programme in all urban centers** for malnourished children, pregnant and lactating mother that includes a protection ration for family members.
- **Introduce pre- and neo-natal education in Mother-child Health and/or supplementary feeding initiatives** to promote improved infant and young child feeding and treatment practices that address severe and chronic issues related to malnutrition and micro-nutrient deficiencies of both children and mother;

---

<sup>1</sup> Information gathered from Djibouti food security and nutrition specialists from UN, NGOs and governments.

<sup>2</sup> The second threshold (acceptable), is composed by daily consumption of staple and vegetables complemented by a frequent (4 day/week) consumption of oil and pulses (staple\*weight + vegetables\*weight + oil\*weight + pulses\*weight =  $7*2+7*1+4*0.5+4*3=35$ ).

<sup>3</sup>The market study recommends that a feasibility assessment for cash and voucher transfer be carried out to advise on implementation. The study also revealed that Djibouti Ville might be more suited for cash and vouchers as its market is more developed than those found in the other regional cities.

- **Protect the population against international food price surges** by promoting the development of safety net systems, fiscal policies and/or grain/food reserves that can be activated when the situation becomes critical. Close monitoring of the prices of a nutritional and culturally acceptable food basket is also essential;
- **Promote longer-term investments in job creation and technical training to enhance work force capacity and ultimately reduce unemployment.**

A set of more detailed recommendations based on the results of the response analysis workshop will be available mid-February 2011.

## Table of Contents

<b>ACKNOWLEDGMENT .....</b>	<b>3</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>SECTION I: OBJECTIVES, METHODOLOGY AND LITERATURE REVIEW .....</b>	<b>11</b>
<b>1 OBJECTIVES.....</b>	<b>11</b>
<b>2 METHODOLOGY.....</b>	<b>11</b>
2.1 CONCEPTUAL FRAMEWORK .....	11
2.2 SOURCE OF DATA AND TOOLS .....	13
2.2.1 <i>Secondary data review</i> .....	13
2.2.2 <i>Primary data collection</i> .....	13
2.3 SUPERVISION AND COORDINATION OF THE STUDY .....	14
2.4 STRATIFICATION AND SAMPLING.....	14
2.5 DATA ENTRY AND ANALYSIS .....	15
2.6 LIMITATIONS OF STUDY .....	15
<b>3 LITERATURE REVIEW .....</b>	<b>16</b>
3.1 COUNTRY BACKGROUND .....	16
3.2 HISTORY.....	17
3.3 ECONOMY, EMPLOYMENT AND LIVELIHOOD STRATEGY .....	17
3.4 MARKET .....	18
3.5 POVERTY, FOOD SECURITY AND SAFETY NET.....	19
3.6 SEASONALITY .....	20
3.7 NUTRITION AND HEALTH.....	21
3.8 DJIBOUTI FOOD SECURITY STRATEGY .....	22
3.9 CURRENT LIVELIHOOD AND FOOD SECURITY ASSISTANCE.....	23
<b>SECTION II: MAIN FINDINGS.....</b>	<b>24</b>
<b>1 DEFINING HOUSEHOLD FOOD SECURITY .....</b>	<b>24</b>
1.1 HOUSEHOLD FOOD CONSUMPTION .....	24
1.2 HOUSEHOLD ACCESS .....	25
1.2.1 <i>Household access index</i> .....	25
1.3 HOUSEHOLD FOOD SECURITY GROUPS.....	25
<b>2 HOUSEHOLD FOOD SECURITY CHARACTERISTICS AND PROFILING.....</b>	<b>26</b>
2.1 HUMAN CAPITAL .....	26
2.1.1 <i>Household Demography</i> .....	26
2.1.2 <i>Migration</i> .....	27
2.1.3 <i>Child Demographics, health and nutrition</i> .....	27
2.1.4 <i>Infant and young child feeding practices</i> .....	28
2.1.4.1 Breastfeeding.....	28
2.1.4.2 Complementary feeding for children between the ages of 6 and 23 months .....	29
2.1.4.3 Meal Frequency and Consumption .....	30

2.1.5	<i>Household food security and child nutrition status</i> .....	31
2.2	SOCIAL CAPITAL.....	32
2.3	FINANCIAL CAPITAL.....	33
2.3.1	<i>Livelihood and income sources</i> .....	33
2.3.2	<i>Total expenditures as a proxy for income</i> .....	34
2.3.3	<i>Household per capita expenditure and child nutrition status</i> .....	35
2.3.3.1	Food and Non-food expenditures .....	35
2.3.3.2	Food Sources .....	36
2.3.4	<i>Changes in expenditure and income</i> .....	38
2.3.5	<i>Access to credit, sources and uses</i> .....	39
2.4	PHYSICAL AND NATURAL CAPITAL .....	39
<b>3</b>	<b>MINIMUM COST OF DIET</b> .....	<b>41</b>
3.1	AFFORDABILITY OF MINIMUM COST DIET .....	42
<b>4</b>	<b>VULNERABILITY, SHOCKS AND COPING</b> .....	<b>43</b>
4.1	SHOCKS.....	43
4.2	COPING STRATEGY INDEX .....	45
<b>5</b>	<b>SEASONALITY</b> .....	<b>46</b>
<b>6</b>	<b>PRIORITY OF ASSISTANCE</b> .....	<b>47</b>
<b>7</b>	<b>MARKET</b> .....	<b>48</b>
7.1	MARKET TYPOLOGY AND MARKET CHAIN .....	48
7.1.1	<i>Importers</i> .....	48
7.1.2	<i>Wholesalers</i> .....	49
7.1.3	<i>Retailers</i> .....	49
7.2	MARKET SUPPLY, AVAILABILITY, SEASONALITY OF COMMODITIES.....	49
7.2.1	<i>Market Flow, Prices and Food Access</i> .....	50
7.3	TRADERS' ACCESS TO CREDIT .....	51
7.4	MARKET OUTLOOK: IMPLICATIONS FOR HOUSEHOLDS AND INTERVENTIONS.....	52
7.4.1	<i>Response capacity of traders</i> .....	52
7.4.2	<i>Impact of Global Price Outlook on Households</i> .....	53
7.4.3	<i>Summary of findings and Implications</i> .....	54
<b>8</b>	<b>REGIONAL DIFFERENCES</b> .....	<b>55</b>
<b>9</b>	<b>CONCLUSION AND RECOMMENDATIONS FOR RESPONSE OPTIONS</b> .....	<b>55</b>
<b>10</b>	<b>BIBLIOGRAPHY:</b> .....	<b>59</b>
	<b>ANNEX 1: CALCULATION OF FCS AND FOOD WEIGHTS</b> .....	<b>61</b>
	<b>ANNEX 2: MODEL INPUTS: FOOD LIST &amp; PRICES, HOUSEHOLD COMPOSITION AND PORTION SIZE</b> .....	<b>63</b>
	<b>ANNEX 3: REGIONAL AFFORDABILITY OF MINIMUM COST DIET</b> .....	<b>64</b>
	<b>ANNEX 4 MARKET ADDITIONAL INFORMATION</b> .....	<b>67</b>
	<b>ANNEX 5: ADDITIONAL DATA</b> .....	<b>70</b>

## LIST OF FIGURES

Figure 1: Conceptual Framework of the Impact of Price Shocks on Food Security and Nutrition .....	12
Figure 2: Djibouti map including the six main urban centers. ....	16
Figure 3: Seasonal Calendar for Djibouti – FEWSNET 2003 .....	20
Figure 4: Immunization coverage in Djibouti (MICS 2006) .....	22
Figure 5: Acute malnutrition among children by age group .....	28
Figure 6: Food groups consumed .....	30
Figure 7: Dietary diversity among children between the ages of 6 and 23 months .....	30
Figure 8: FGD picture showing a meal served to a child 6-23 months .....	31
Figure 9: Household food security and malnutrition .....	32
Figure 10: Proportion of cash, credit and gift used to acquire food and non-food goods per food security profile .....	33
Figure 11: Distribution of Food Security Profiles across Income Sources .....	34
Figure 12: Total household food and non-food monthly expenditures per Food Security Profile .....	35
Figure 13: Household total expenditure .....	36
Figure 14: Proportion of food source by food security profile .....	37
Figure 15: Non-food, food and total household monthly expenditure per food security profile .....	37
Figure 16: Percentages of Household spending on food and non food items by Food Security Profile. ....	38
Figure 17: Breakdown of expenditures on food across food security profiles .....	38
Figure 18: Changes in wealth between 2006 and 2008. ....	40
Figure 19: Minimum Cost Diet is nutritionally adequate as opposed to diets of Food Consumption Score.....	41
Figure 20: Minimum Cost Diet per family per day and food items included in the calculation of the CoD for the Different urban centers .....	42
Figure 21: Ability of households (7 persons) in Djibouti to afford the minimum cost diet per day.....	42
Figure 22: Affordability of minimum cost diet vs. food security groups and food access profile .....	43
Figure 23: Proportion of shocks affecting households by Food Security Profiles .....	44
Figure 24: CSI Index value per livelihood activities. ....	45
Figure 25: Proportional and Seasonal differences in perception of being unable to satisfy household food need between Food Security Profiles .....	46
Figure 26: Proportional and Seasonal differences in expenditures between Food Security Profiles.....	47
Figure 27: Seasonality of main shocks.....	47
Figure 28: Trend in staple food at Djibouti Ville.....	51
Figure 29: Trader access to and supply of credit .....	52
Figure 30: Forecasted proportion of households by Food Security Profile, given fixed prices increase of commonly used food commodities .....	54
Figure 31: Food Consumption Score Threshold Graph.....	62
Figure 32: 42% of Households in Djibouti Ville are not able to afford the minimum cost diet per day .....	64
Figure 33: 85% of Households in Ali Sabieh are not able to afford the minimum cost diet per day .....	64
Figure 34: 78% of Households in Tadjura are not able to afford the minimum cost diet per day .....	65
Figure 35: 69% of Households in Arta are not able to afford the minimum cost diet per day .....	65
Figure 36: 66% of Households in Obock are not able to afford the minimum cost diet per day .....	66
Figure 37: 66% of Households (7 persons) in Dikhil are not able to afford the minimum cost diet per day.....	66
Figure 38: Djibouti Market-System Map: Regionally and Internationally Imported Products .....	67
Figure 39: Main difficulties to expand and scale up trade in regional cities .....	68
Figure 40: Main difficulties to expand and scale up trade in Djibouti City.....	68
Figure 41: Production and market flow maps .....	69
Figure 42: Food consumption groups per urban centers .....	70
Figure 43: Access profile per urban Center (weighted) .....	71
Figure 44: Prevalence of food insecurity security in the 6 urban centers.....	71
Figure 46: Proportional and Seasonal differences in debts between Food Security Profiles .....	72
Figure 47: Expenditure (quintile) per region .....	72
Figure 48: Forecasted Food Security Profiles if prices of rice, wheat flour, sugar, increase .....	72
Figure 49: Indicative low MUAC by city.....	73

## LIST OF TABLES

Table 1: Number of enumeration areas included in the sample for each of the strata .....	14
Table 2: Djibouti Population per region and characteristics (Djibouti Recensement 2009) .....	17
Table 3: Wealth breakdown information for Djibouti Ville (FEWSNET 2003) .....	18
Table 4: Prevalence of malnutrition in Djibouti (MICS 2006) .....	22
Table 5: Average days of different food group consumption by food consumption categories.....	24
Table 6: Consumption Score Profiling for 2008, 2009 and 2010 – Djibouti Ville .....	24
Table 7: Description of the five food access profiles. ....	25
Table 8: Cross-table of consumption score and access index to define food security. ....	26
Table 9: Summary of the food security profiles in the Djibouti urban areas .....	26
Table 10: Estimated urban population per Food Security Profile .....	26
Table 11: Population percentages per age cohort.....	26
Table 12: Number of market traders per commodity and urban centre .....	49
Table 13: Calculation of the cost structure of WFP ration. Price are in USD per Mt.....	52
Table 14: Forecasted price evolution for the first six months of 2010 .....	53
Table 15: Advantages and risks of non-food based responses.....	54
Table 16: Weights used to calculate dietary diversity.....	61
Table 17: Establishing Dietary Diversity categories .....	61
Table 18: Sampled Points of Sale Across Djibouti .....	63
Table 19: Family Composition used for Calculation of Minimum Cost Diet .....	63
Table 20: Numbers of food importers at Djibouti Ville .....	68
Table 21: Percentage of households per food security profile that stated having months when it is difficult to satisfy food needs .....	70
Table 22: [Proportion of Male and Female per city.....	70
Table 23: Proportion of age groups per cities .....	70
Table 24: Total Estimaed Urban population by Food Security Profile .....	71
Table 25: Comparison of MUAC in Djibouti city (2008 and 2009) .....	73
Table 26: Number of children in selective feeding programme by city. ....	73
Table 27: Types of diseases by city. ....	73

# Section I: Objectives, Methodology and Literature review

## 1 OBJECTIVES

In 2008, 10% of the households surveyed in Djibouti Ville had poor food consumption patterns and 16% had borderline food consumption patterns. In 2009, the proportions fell to only 1% and 6% respectively for a similar sample that had benefitted from assistance. Similarly, the percentage of household expenditure on food had reduced by 15% and the coping strategy index had also significantly reduced between 2008 and 2009 (WFP EFSA 2008, WFP evaluation 2009). All are signs of improved access to food and overall household food security. Yet, most recent nutrition surveys, such as the recent MSF survey in Djibouti Ville, show continuing levels of food insecurity above emergency thresholds. Indeed, an MSF-Switzerland nutritional survey in a peri-urban area of Djibouti City (Balbala) reported global acute malnutrition (GAM) at 20.8% and severe acute malnutrition (SAM) 8.2% in July 2009. A follow-up survey a year later (August 2010), showed a constant level of GAM at 19.5% but a reduced SAM rate at 3.6%

According to FEWSNET, food security in Djibouti is forecasted to improve in both urban and rural settings in the last quarter of 2010. However the high costs of certain essential food and non-food items (e.g., kerosene, water etc.), the resumption of education related expenses and the lack of employment all remain constraining factors and are likely to have an impact on food access. Although the price of wheat remains relatively low, a global price increase of wheat would also likely have a significant impact on Djibouti household food security.

Given the recently changing environment in food access in Djibouti Ville, coupled with the lack of information on food security in other urban areas of Djibouti, WFP and the National and District government, agreed to conduct an urban Emergency Food Security Assessment (EFSA) in Djibouti Ville and five other major towns around the country.

The primary aim of the assessment was to estimate the proportion of food insecure in the six urban centres of Djibouti, further substantiate the main causes of food insecurity, and provide broad, feasible and appropriate recommendations on response options to improve food security. In order to achieve this, the assessment also aimed to:

- Assess how the food security situation has evolved in the poor “quartiers” of Djibouti city since 2008;
- Assess the nutritional situation of children between 6 and 59 months of age using MUAC;
- Better understand the feeding patterns and quality of diet of children between 6 and 23 months of age in Djibouti’s urban areas;
- Determine the minimum cost of a nutritious diet in Djibouti and measure it against the income / purchasing power of assessed households;
- Understand household access to markets, market functioning/linkages and trader access to credit; and
- Identify targeting criteria for the food insecure in urban settings.

## 2 METHODOLOGY

### 2.1 CONCEPTUAL FRAMEWORK

Food Security was defined by the 1996 World Food Summit as follows:

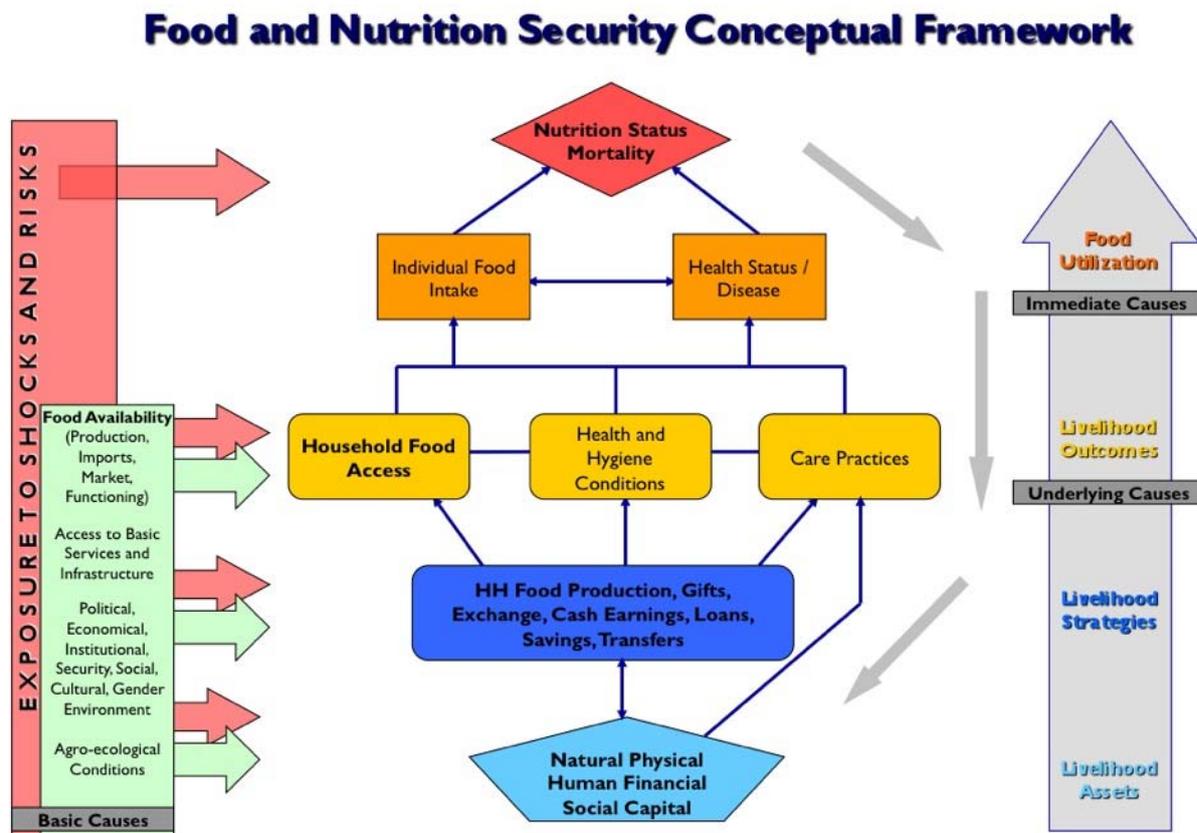
*“Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.”*

The approach used for this study is based on the Food and Nutrition Security Conceptual Framework (Figure 1). The food security status of any household or individual is typically determined by the

interaction of a broad range of agro-environmental, socioeconomic, political, institutional and biological factors. However, the complexity of the food security problem can be simplified by focusing on three distinct, but interrelated dimensions of the concept: aggregate food availability, household food access, and individual food utilization, which includes care practices, health and hygiene conditions.

In the context of Djibouti's urban centres, the study gave particular importance to understanding how households accessed food and what factors influenced their access. It also looked at key health and hygiene conditions and feeding (care) practices that were likely to impact the nutrition of children under 5 year of age (U5). The study also used the Sustainable Livelihood Framework and its five livelihood capitals<sup>4</sup> (Natural, Physical, Human, Financial and Social) to describe household assets.

Figure 1: Conceptual Framework of the Impact of Price Shocks on Food Security and Nutrition



As an additional tool to evaluate food access in Djibouti, a 'Cost of the Diet' (CoD) analysis was conducted, using a software programme developed by Save the Children UK and building on the linear programming work done by the World Health Organization to develop and cost out nutritionally appropriate complementary diets. The CoD uses a mathematical approach known as linear programming to work out the cheapest combination of food items that will enable a family to meet all their nutrient (energy, protein, fat and micronutrient) requirements whilst adhering to a set of constraints on the combination and quantities of foods that can be included in the lowest cost diet.

<sup>4</sup> Physical: basic infrastructure and producer goods needed to support livelihoods; Human: skills, knowledge, ability to work, good health; Financial: financial resources that can contribute to production and consumption; Social: social resources that people can draw upon; Natural: natural resources stock (land, pasture, water) important to livelihood source (IPC, 2009).

## 2.2 SOURCE OF DATA AND TOOLS

### 2.2.1 Secondary data review

A literature review of existing information on the food security and nutritional status of populations living in the assessment area was conducted prior to, and during, the survey. This information included nutritional assessments, rural and urban baseline studies, early warning reports on meteorological data, access to natural resources, food insecurity and vulnerability profiles, market information, livelihood data, reports on previous development and food assistance interventions in the Djibouti urban environment, WFP past planned and distributed assistance (2003 - 2010), and World Bank reports and studies etc.

### 2.2.2 Primary data collection

Primary data collection aimed at filling in the information gaps on household food security and better understanding the dietary patterns of children between 6 and 23 months of age, a group that is particularly vulnerable to food insecurity. Primary data collection examined if, who, and why households in Djibouti urban centres were food insecure, and whether food assistance would be the most appropriate intervention. The study gathered information from households, key informants and traders, and focus group discussion with mothers and the “sans-abris”. The following tools were developed based on an analysis of the secondary data available in Djibouti and experiences in other countries where similar studies were carried out by WFP/VAM<sup>5</sup>.

**Household (HH) questionnaire:** In the interest of being able to make comparisons between this assessment and the 2008 urban EFSA, the household tool was changed as little as possible. Modifications were made to include seasonality, migration and to reduce references to the high food price crisis. The questionnaire was designed to provide quantitative data in the following areas of interest: (a) food security profiles and socio-economic characteristics; (b) household expenditures; (c) household food consumption patterns and patterns among children between 6 and 23 months of age (frequency, diversity and source); (d) access to food, health, water, sanitation and education services; (e) household exposure and response to risk, including coping strategies; (f) assets and livelihoods (e.g. income/livelihood sources, ownership of physical assets such as land, livestock, seasonality, migration, etc.); (g) normal and abnormal migration patterns; (h) seasonality of food insecurity and employment; and (i) screening for acute malnutrition using mid-upper-arm-circumference (MUAC).

**Infant and Young Child Feeding (IYCF) questionnaire:** This questionnaire assessed the feeding patterns of children between 6 and 23 months of age, with a focus on understanding breastfeeding practices, the utilisation of homemade special foods and commercially purchased special foods as complementary foods, using 24-hour recall to understand dietary diversity. The questionnaire was used on a sub-sample. There is consensus that the damage to physical growth, brain development and human capital formation that occurs during the ages between 6 and 23 months can be extensive and largely irreversible. Therefore nutrition interventions must focus on targeting children in this age range, as investments after this critical period are much less likely to improve nutrition and individual development (World Bank Strategy for large scale action 2010).

**Traders and Cost of Diet (CoD) questionnaire:** These tools aimed to collect information on (1) the structure, performance and conduct of markets in Djibouti; (2) to assess the feasibility of a safety net programme through voucher or/and cash projects; and (3) the availability of (nutritious) food products through markets as well as detailed price data to evaluate the minimum cost of diet (CoD).

In addition qualitative data were collected through the following tools:

**Key informant (KI) questionnaire:** This tool was administered to focus groups of elected leaders, administrators, religious representatives, health workers, school principals and teachers. It covered issues related to employment, infrastructure and services, migration, structural problems and possible solutions.

**Focus group discussions (FGD) with women and mothers** were held in Djibouti to get a better, qualitative understanding of the main food items (not food groups) consumed by poor urban

---

<sup>5</sup> Tools are available upon request – contact WFP Djibouti Country Office.

households and children between the ages of 6 and 23 months, and to get an approximation of the portion sizes these children received.

**Focus group discussions with “sans-abris”** were carried out at the request of the *committee de pilotage*, and qualitative information on this particular population was gathered to get an understanding of their food security situation and needs.

## 2.3 SUPERVISION AND COORDINATION OF THE STUDY

The data collection was carried out by six teams, each composed of a supervisor or team leader (KI questionnaire), a market enumerator (KI, Market and CoD) and four household survey enumerators (HH questionnaire and IYCF questionnaire). A total of 36 people (30 enumerators and 6 WFP team leaders) were always present during data collection. National and local government staff were also involved in leading and facilitating the assessment from the very beginning.

For each of the six urban centres, the following interviews were conducted:

- Two to three KI questionnaires which included traders association leaders, town leaders, religious leaders, school director/teachers as well as medical staff;
- Five Market questionnaires (2 wholesalers, 3 retailers);
- One completed market price list;
- 200 Household questionnaires; and
- Where households had a child aged between 6 and 23 months, the IYCF questionnaire was completed; about 20 of these questionnaires were completed per urban centre.

Prior to carrying out the assessment, a training workshop was conducted to insure that everyone involved in data collection understood the objectives of the assessment, the sampling strategy, and their roles and responsibilities regarding data collection. The training was divided into two concurrent sessions, with one focusing on Market and CoD tools (6 enumerators) and a second one focusing on household interviews and the IYCF questionnaire (24 enumerators, 6 WFP team leaders, et 1 to 4 government facilitators). The training was carried out from November 1<sup>st</sup> to November 4<sup>th</sup> at WFP offices in Djibouti. Trainers came from WFP RB and HQ and trained for three days and also assisted during the testing of the instruments (one day).

The study was done in cooperation with a number of Government of Djibouti Ministries and NGOs operating in the country and areas of concern. Consultations were also held with other UN organisations working in Djibouti as to the purpose and outputs of the assessment.

Data collection started on November 5<sup>th</sup> and was completed by November 15<sup>th</sup> 2010, just prior to Eid Celebration.

## 2.4 STRATIFICATION AND SAMPLING

Sampling for the 2010 Djibouti urban assessment was based on a two-stage cluster sample. Each urban area (Djibouti Ville, Arta, Dikhil, Tajourah, Obock and Ali Sabieh) was considered an independent stratum. The sample frame was constructed as follows:

The first stratum was based on the geographical boundaries of each city and used the enumeration areas within the geographic boundaries of each city created by the Direction des Statistiques et des Etudes Démographiques (DISED) for the 2009 census, as clusters. For the towns of Arta, Dikhil, Tajourah, Obock and Ali Sabieh all enumeration areas were included, however for Djibouti Ville, only the enumeration areas in the communes of Boulaos and Belbala were included because they are the most populous areas and include the poorest *quartiers* (neighbourhoods). This included the areas of: Q6, Q7, Q7 bis, Arhiba, Lotissement and Ambouli (**Error! Reference source not**

**Table 1: Number of enumeration areas included in the sample for each of the strata**

Town Name	Enum. Areas by Town
Ali Sabieh	29
Arta	6
Dikhil	24
Djibouti	319
Obock	5
Tajourah	13
<b>Grand Total</b>	<b>396</b>
<b>Equation 1:</b>	$n_0 = \frac{Z^2 pq}{e^2}$

ound.).

The household sample size was calculated using Equation 1 where:

$Z$  =  $Z$  value or confidence level

$p$  = the prevalence, and  $c$  = the confidence interval.

For this assessment  $z$  = 95% (1.96),  $p$  = 50% (based on the 2008 EFSA) and  $c$  = 7% (design effect was estimated at 1). With this equation, a sample size of 196 households per stratum was derived. Following WFP guidance, the minimum number of households per cluster was established at ten.

Based on the calculation of ~200 households and 20 enumerator areas per stratum, enumeration areas were selected using the DISED household lists by enumeration area. The number of households per enumeration area was calculated, and it ranged from 1 to 140 households. Arranging the enumeration areas by number of households in order of magnitude from the largest to the smallest, the 20 clusters (enumeration areas) were selected using the Population Proportion to Size (PPS) method. At the same time, a total of ten replacement clusters were also identified. Given that some of the towns such as Obock and Arta had less than 20 enumeration areas, the same enumeration area was selected more than once or in other words - more households were selected per cluster/enumeration area.

As the DISED enumeration areas included an exhaustive list of households, for each selected cluster ten households and two replacement households were randomly chosen using a fixed interval selection method. The enumerator teams were then provided with a sample list for each enumeration area, which included household codes corresponding to the DISED's enumeration area codes so as to help identify household locations. Semi-permanent shelters such as tents were not included in the recent DISED census and were thus automatically excluded from the sampling exercise.

## 2.5 DATA ENTRY AND ANALYSIS

A data entry application was created in Microsoft Access by the WFP Regional Bureau. A half-day training was given to the data-entry clerks to provide them with the opportunity to practice with the application. In total 11 data entry clerks entered 1,200 household and 134 IYCF questionnaires and 240 trader questionnaires over a period of eight days. Altogether, 590 children between the ages of 6 and 59 months were sampled for the MUAC measurement. There were more boys (326) than girls (264). After cleaning and discarding cases that lacked sufficient information, a total of 1,160 household questionnaires were kept as were 128 IYCF questionnaires for children between the ages of 6 and 23 months. 590 children were screened for acute malnutrition (MUAC), but those below the age of 12 months were excluded from the analysis, which meant that in total, only data gathered for 545 children between the ages of 12 and 59 months was analysed, as per Comprehensive Food Security and Vulnerability Analysis guideline recommended. A child was considered severely malnourished if he/she had a MUAC value below 11.5cm, moderately malnourished if MUAC was greater than 11.5cm but less than 12.5cm and normal if the MUAC measurement was above 12.5cm.

## 2.6 LIMITATIONS OF STUDY

While rigorous standards were applied to the analytical process, the following limitations must be acknowledged:

Limitations specific to this assessment were as follows:

- **The sample size for children between 6 and 59 months was not sufficient** to allow for inferential analysis (extrapolation to the general population). The sample size for children between 6 and 24 months was only 128 children, which was also too small for effective causal analysis;
- Data on **early initiation of breastfeeding** and exclusive breastfeeding for children between 0 and 6 months of age as well as the introduction of complementary foods were collected only through focus group discussions in Djibouti Ville;
- Information on **diseases** was gathered at the household level, and not in relation to individual children, which does not allow for drawing clear linkages between health and the children's nutritional status;

- **Households sampling:** Households living in tents (semi-permanent shelters) were not included in the 2009 census, and were therefore not covered by the assessment. In addition, in some of the regional districts, the maps and/or aerial photos used to guide in the selection of household structures did not reflect the reality on the ground which caused difficulties in household identification for interviewing.

The below limitations are common to all quantitative assessments:

**Threat to external validity:** Limitations in the ability to generalize the results from the sample to the general population must be acknowledged. The survey data is designed to represent the situation at a given point in time.

**Threat to internal validity:** Incorrect recall and quantitative estimates may affect the validity of the results. The enumerators were trained to facilitate recall and quantitative estimates to improve internal validity. In some cases social desirability, lack of freedom of speech and expectations may have affected the responses and set patterns, especially given that the households may previously have been the object of programme-oriented assessments (e.g., food aid). However, survey anonymity hopefully helped mitigate this bias.

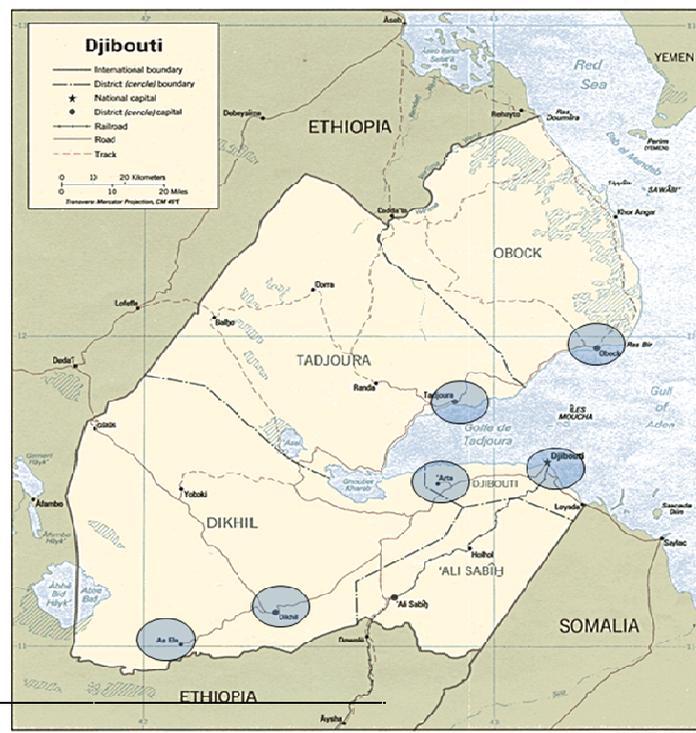
**Threat to reliability:** Threat to the reliability or repeatability (Kalton et al., 2005) of the results was minimized through careful questionnaire design and enumerator training. Training in the household questionnaire was carried out to reduce the degree of variation in individual enumerator interpretations of the questions. The questionnaire, although designed in English, was translated into French for the enumerators and in most cases the interviews were conducted in the local language or dialect.

### 3 LITERATURE REVIEW

#### 3.1 COUNTRY BACKGROUND

Djibouti is one of the smallest countries in Africa with an area of 23,200 square kilometres. Total population is estimated at 818,160 of which more than 70% live in urban centres (and of this figure, 58% in Djibouti Ville (DISED, 2009). All other urban centres are small, with less than 40,000 residents each (Table 2). Household size averages at 6.2 people. About half the population is ethnically Issa (of Somali origin) and slightly less than half are Afar (EIU, 2008).

Figure 2: Djibouti map including the six main urban centers.



Strategically located at the intersection of the Horn of Africa and the southern end of the Red Sea, Djibouti has a hot and dry climate that does not allow for agricultural production. Djibouti is mostly volcanic desert and the land is among the least productive in Africa. Agriculture is limited and meets only 3% of the country's food requirements. In addition, it is entirely dependent on irrigation. Temperatures range between 30 and 45 degrees with an average rainfall of only 200 mm per year for most of the country. (EIU, 2008).

Djibouti ranks 147 out of 169 countries in the 2010 Human Development Index (HDI)<sup>6</sup>, placing the country at the bottom of the Medium Human Development Countries categories.

<sup>6</sup> <http://hdrstats.undp.org/en/countries/profiles/DJI.html>

Despite an annual per-capita income of US\$1,024<sup>7</sup>, about 19% of the population live on less than 1.25 USD per day and 41% live on less than 2 USD per day<sup>8</sup>.

**Table 2: Djibouti Population per region and characteristics (Djibouti Recensement 2009)<sup>9</sup>**

Region	Urban population			Sedentary rural population	Nomadic population	Total population
	Regular	Particular	Total Urban			
Djibouti Ville	353 801	121 521	475 322			<b>475 322</b>
Ali Sabieh	22 630	15 309	37 939	11,977	37 033	<b>86 949</b>
Dikhil	19 347	5 539	24 886	22 510	41 552	<b>88 948</b>
Tadjourah	12 157	2 663	14 820	23 482	48 402	<b>86 704</b>
Obock	9 933	1 773	11 706	9 780	16 370	<b>37 856</b>
Arta	11 043	2 217	13 260	11 345	17 775	<b>42 380</b>
<b>Total</b>	<b>428 911</b>	<b>149 022</b>	<b>577 933</b>	<b>79 094</b>	<b>161 132</b>	<b>818 159</b>

### 3.2 HISTORY

In 1967 the territory that now comprises Djibouti voted to retain its association with France, and its name was changed to the French Territory of Afars and Issas, primarily because the Afar and the Issa are the two main ethnic groups living in the country. Growing immigration and agitation, as well as pressure from the Organisation of African Unity and internal French political considerations eventually forced France to grant the territory independence. In 1977, Hassan Gouled Aptidon, became the first president of the Republic of Djibouti through the *Rassemblement populaire pour le progrès* party (RPP).

### 3.3 ECONOMY, EMPLOYMENT AND LIVELIHOOD STRATEGY

The Djiboutian economy depends largely on its proximity to Ethiopian markets and a large foreign expatriate community. The economy is based on services that revolve around the port, the railway, the civil service and the French and US military bases. Services account for an estimated 78% of the GDP, followed by Industry (18%) and Agriculture (3%) (2008, EIU). In short, Djibouti's economy depends primarily on the Port of Djibouti, which contributes to over 70% of the country's GNP, while the banking sector and the airport come in at a distant second<sup>10</sup>.

Economic performance has improved in recent years, driven by Foreign Direct Investment (FDI). FDI as a percentage of investment to GDP grew from 19% in 2005 to 38.3% in 2007<sup>11</sup>. The capital, Djibouti Ville, is the main platform for Ethiopian imports and exports. Its transport facilities are also used by several landlocked African countries that fly in their goods for re-export. This earns Djibouti much needed transit taxes and harbour fees. However, recent economic growth has not successfully translated into increased employment. Employment opportunities remain limited due to: (i) the absence of labour-intensive economic sectors such as agriculture; (ii) underdeveloped manufacturing and industries; (iii) weak productivity of labour (resulting from low skill and education levels to match employment requirements); and (iv) scarce potential for self-employment due to limited access to finance for micro and small enterprises. Recent investments in the port and free zones have generated only a few jobs to date – in large part due to structural issues (including infrastructure and shortage of skills).

The creation of jobs is a major ongoing concern. Accurate employment figures do not exist for Djibouti but it is estimated that the unemployment rate is as high as 60% in urban centres (HLTF, 2009; WB 2009). Djibouti has an estimated 110,300 migrants, which represent almost 14% of the total population (HDR-UNDP, 2009). This migrant population further increases competition for unskilled

<sup>7</sup> World Bank 2008

<sup>8</sup> Oxford University July 2010

<sup>9</sup> *population particulière*: elle est composée des personnes vivant dans des ménages collectifs, c'est-à-dire un ensemble de personnes, souvent sans lien de parenté vivant en communauté (internat, orphelinat, prison, caserne militaire, hôpital, l'hôtel, chantiers,...) et de personnes de statut particulier (sansabris, réfugiés,...).

<sup>10</sup> <http://www.state.gov/e/eeb/rls/othr/ics/2009/117422.htm>

<sup>11</sup> World Bank 2008

and daily labour wage, although many are living in camps and therefore may not really be a great source of competition. According to FEWSNET's 2003 livelihood study of Djibouti, most households in Djibouti Ville generate income from four broad categories of activity; (1) casual labour; (2) petty trade; (3) salary or pension; or (4) business and commerce (FEWSNET 2003). Casual labour (an activity mostly followed by men) and petty trade of food and non-food items (an activity mostly followed by women) are the primary sources of income for the poorer segment of the population while business and commerce constitute the main means of livelihood of the 'upper middle' and 'better-off' households. Other sources of income for a minority of households in the 'middle' and 'better-off' segment of the population include rental income and remittances. The FEWSNET study (2003) found that opportunities for casual labour were limited, with port work, building construction and market porters being the main types undertaken. According to FEWSNET, wealth depends on the type of income source, but also the number of people working per household (Table 3). Child labour is not common.

**Table 3: Wealth breakdown information for Djibouti Ville (FEWSNET 2003)**

<b>VERY POOR</b> <i>15 – 25,000 FD per month</i>	One income source per household: <b>Petty trade</b> (e.g., school snacks, bread, prepared foods, vegetables, tea stalls) or <b>Casual labour</b> (dockers, construction workers, market porters)
<b>POOR</b> <i>25 – 40,000 FD per month</i>	One income source per household: <b>Salary/Pension</b> (e.g., cleaners, taxi drivers) or <b>Petty Trade</b> (e.g., from Khat, small kiosks, meat sellers) Two income sources per household: <b>Petty Trade and Casual Labour</b>
<b>LOWER MIDDLE</b> <i>40 – 80,000 FD per month</i>	One income source per household: <b>Salary/Pension</b> (e.g., many private sector and port employees, non-commissioned officers, assistant teachers, government drivers) Two income sources per household: <b>Petty Trade and Skilled Casual Labour</b> (e.g., electricians, masons)
<b>UPPER MIDDLE</b> <i>80-150,000 FD per month</i>	One income source per household: <b>Salary</b> (e.g., teachers, nurses, port workers, government employees) Two income sources per household: <b>Salary and Business</b> (e.g., small retail shops and restaurants)
<b>BETTER-OFF</b> <i>&gt;150,000 per month</i>	One income source per household: <b>Salary</b> (e.g., senior government employees) or <b>Business</b> (e.g., Khat importers/distributors, larger shops, bakers) Two income sources per household: <b>Double Salary and Business</b> (e.g., minibuses, medium-sized shops, clothes retailers)

Most adult males in Djibouti chew *khat*, an amphetamine-based stimulant imported from Ethiopia and Yemen, for up to 3-5 hours a day at all-male social gatherings, taking time away from work and family life. This practice diverts the limited incomes of poor people from spending on basic needs and adversely affects labour productivity and livelihood opportunities. While precise figures are not available, it is estimated that 50% of households in Djibouti use khat, and that khat absorbs up to 20% of family budgets. It is, in one way, considered an important economic resource because it generates about 16% of tax revenue, as well as employment in retail trade. Despite the revenue, the Government has campaigned to raise awareness of the negative consequences of khat consumption, and effort which has received much press attention and triggered public debate, particularly since the campaigns equated the health and economic risks of khat consumption with those of tobacco and alcohol in a predominantly Muslim country (World Bank 2009).

Little information exists on urban livelihoods in areas other than Djibouti Ville but it is expected that labour opportunities would be even more limited in the other five district capitals. Future economic prospects will largely depend on the country's ability to continue developing its port facilities, and improving trade and transit links to Ethiopia, Djibouti's main port facilities customer (2008, EIU). It will also have to enhance the productivity and skills of its labour force.

### 3.4 MARKET

As Djibouti is an arid country, its agricultural and livestock sectors are quite small and account for only 3% of the national GDP. Agricultural production through micro fruit and vegetable gardens yields around 6,000 Mt per year, which covers only 10% of the national needs (Central Bank of Djibouti, 2009). Djibouti remains therefore, highly dependent on imports for its food supply, and households are highly dependent on markets in order to meet their food needs. This dependency puts Djibouti

into a difficult position in relation to global price developments. Within the last two years, global market price increases for basic commodities such as cereals and oil immediately translated into increased prices for basic commodities on the local market<sup>12</sup>.

The taxation structure in Djibouti on importation of food commodities is both direct and indirect. Indirect taxes include the Value Added Tax (VAT), at a standardised rate of 7% (though it does not apply to staple food items<sup>13</sup>) while direct taxes include property, patent, and tax on profits with surtaxes applicable to some products.

Formal banks and microfinance institutions are still in their early growth stages; there were a total of nine banks in 2009. Credit supply to enterprises and individual entrepreneurs in 2009 accounted for 73% of all credit supplied by banks and represented an annual increase of 36.1% versus the previous year (Central Bank of Djibouti, 2009). Depending on the duration and the amount of credit supplied by banks, the cost of receiving credit is relatively high and ranges from 7% to 14.09%. In January 2009, the *Agence Djiboutienne de Développement Social (ADDS)*, with the support of UNDP, created a microfinance corporation which included 15 microfinance institutions, almost half of which are based in Djibouti Ville. Since its creation, the number of members has increased from 1,500 to 5,287, with the majority of the members being women (African Economic Outlook)<sup>14</sup>.

### 3.5 POVERTY, FOOD SECURITY AND SAFETY NET

Despite the relatively high per capita income (US\$ 1,024), the incidence of poverty remains high (42% absolute and 75% relative<sup>15</sup>). As a food-deficit country, totally dependent on imports to meet its food requirements, Djibouti is highly vulnerable to external shocks such as surging food and fuel prices, and to natural disasters such as droughts. As mentioned earlier, poverty is exacerbated by the presence of migrants from neighbouring countries, who place further pressure on the country's already strained employment opportunities and social services (WB, 2009- Djibouti Country Brief).

A number of EFSA's have been conducted since 2008 in rural Djibouti as well as Djibouti Ville. A summary of findings follows:

- Compared to 2009, the May 2010 rural EFSA measured a significant reduction in average household per capita expenditure on food and non-food items, a proxy for household income. This decline in revenue, measured through reduced expenditure, coupled with higher than normal prices meant that the percentage of household expenditures allocated to food versus total household expenditures had increased from 60% (2009) to 70% (2010). In addition, the quantities of items typically produced by households themselves (considered 'own production'), such as milk and butter had also fallen, which further increased household reliance on markets, remittances and 'community support'. These factors led to a decline in household consumption with the percentage of households having a 'poor' food consumption score doubling, and the use of harmful coping mechanisms increasing, with the coping strategy score (CSI) almost doubling. The rural 2010 EFSA estimated that 38% of households (29,500 people) were acutely food insecure, and an additional 33% of households (24,500 people) were classified as moderately food insecure.
- The only urban EFSA conducted was carried out in Djibouti Ville in 2008, and it was followed by a project evaluation in 2009. It found that household food security had significantly improved in 2009, most likely due to a combination of increased external assistance and reduced food and non-food item prices since 2008. In 2008, 10% and 16% of the households surveyed in Djibouti Ville had poor and borderline consumption patterns respectively, while in 2009, only 1% and 6% of a similar sampled were found to be so. Similarly, the percentage of

---

<sup>12</sup> See FEWSNET alert 2006

<sup>13</sup> [www.ministere-finances.dj/fiscalite2.htm](http://www.ministere-finances.dj/fiscalite2.htm)

<sup>14</sup> [www.africaneconomicoutlook.org](http://www.africaneconomicoutlook.org)

<sup>15</sup> **Relative poverty** is a poverty measure based on a poor standard of living or a low income relative to the rest of society. Unlike absolute poverty, it does not necessarily imply that physical human necessities of nutrition, health and shelter cannot be met; instead it suggests that the lack of access to many of the goods and services expected by the rest of the contemporary society leads to social exclusion and damaging results for the individuals and families in relative poverty.

Measurements of relative poverty are similar to measurements of social inequality.

expenditure on food versus total household expenditure had reduced by 15% from 59% in 2008 to 44% in 2009 and the coping strategy index had also significantly reduced over the same period. The 2009 evaluation recommended the implementation of a safety net programme, initially to be lead by the international community and then spearheaded by the Government of Djibouti and supported by local administration. It also recommended focussing on household resilience-building activities.

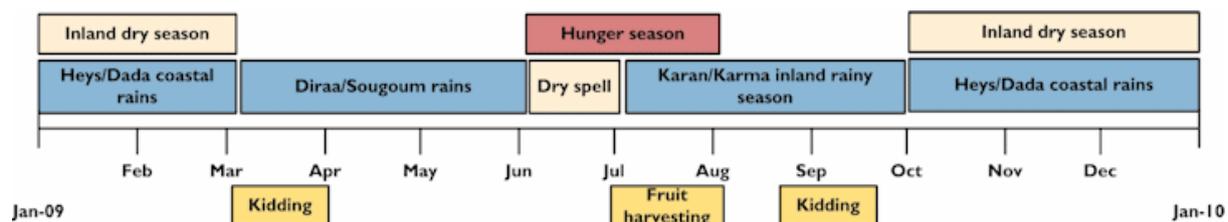
According to FEWSNET (October 2010), the food security situation has improved recently due to declining international food prices and higher rainfall within the country, which has replenished water and pasturelands. However, the poor rains, predicted by the Greater Horn of Africa (GHA) consensus September-December climate outlook for Eastern Africa, may reverse the recovery process in part of, or all of the country. According to FEWSNET, this could result in increased food insecurity in most pastoral livelihood zones by January 2011. Given that all urban centers, except Djibouti, are most likely reliant on rural livelihoods, the impact of poor rains is likely to extend to the smaller urban centers.

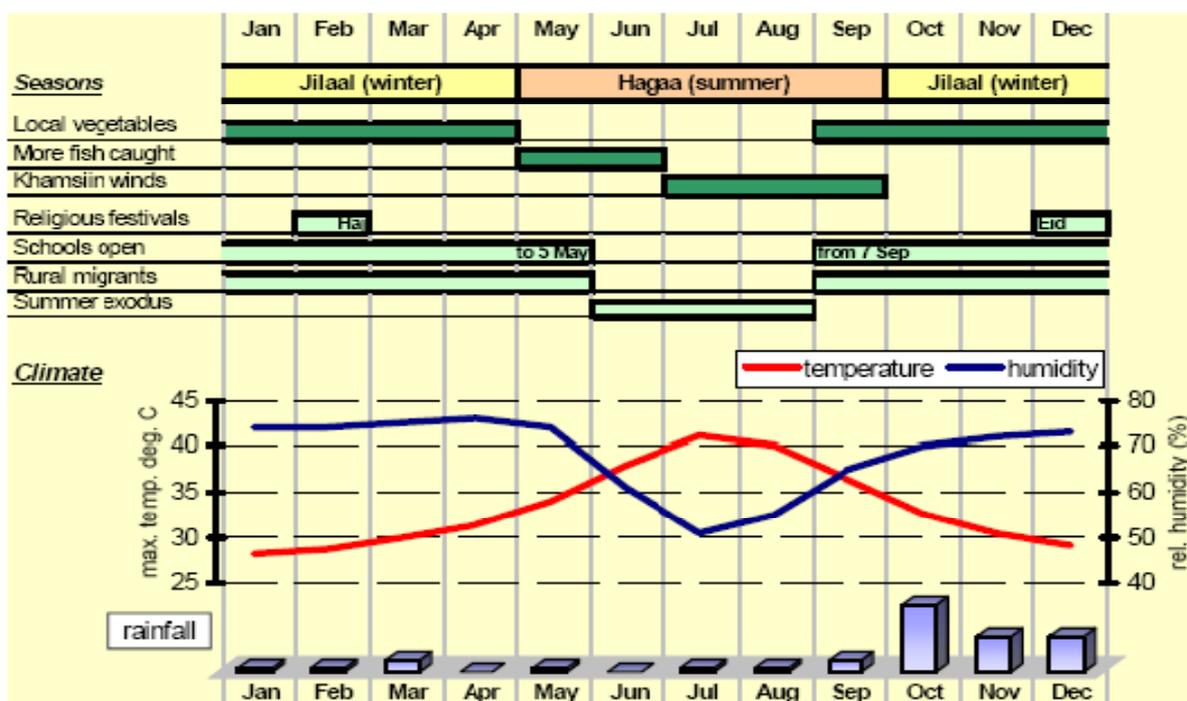
Despite the recent action of the Government of Djibouti to inject subsidized wheat flour into the markets to stabilize staple food prices, the cost of the minimum food and non-food basket remains higher than at the same time in 2009 (FEWSNET November 2010). The current basic expenditure basket for poor households remains 43% above the five-year average. The major cause for the increase is the kerosene price which increased by more than 6% between September and October 2010. High fuel prices, school-related costs, and expenses related to Eid holidays all contribute to a net decline in the share of household income available to cover daily food needs and are likely to affect household consumption and food security (FEWSNET Djibouti Oct 2010). The limitations on food access that result from these high prices and limited income opportunities mean that poor households in urban areas will likely remain highly, to extremely, food insecure throughout the end of the outlook period (e.g., March 2011) (FEWSNET November 2010). Water shortages also prevail in Djibouti Ville, particularly in the suburbs of Balbala and PK12, where prices for this commodity have almost doubled. However, improvement in water availability is expected as demand declines during the colder season (September to March).

### 3.6 SEASONALITY

Djibouti Ville, although an urban centre, is affected by seasonal variations in income sources, expenditures, and short term migration. The calendar below from the 2003 FEWSNET urban livelihood baseline highlights the impact of seasonal variations on household access to employment and expenditure.

Figure 3: Seasonal Calendar for Djibouti – FEWSNET 2003





### 3.7 NUTRITION AND HEALTH

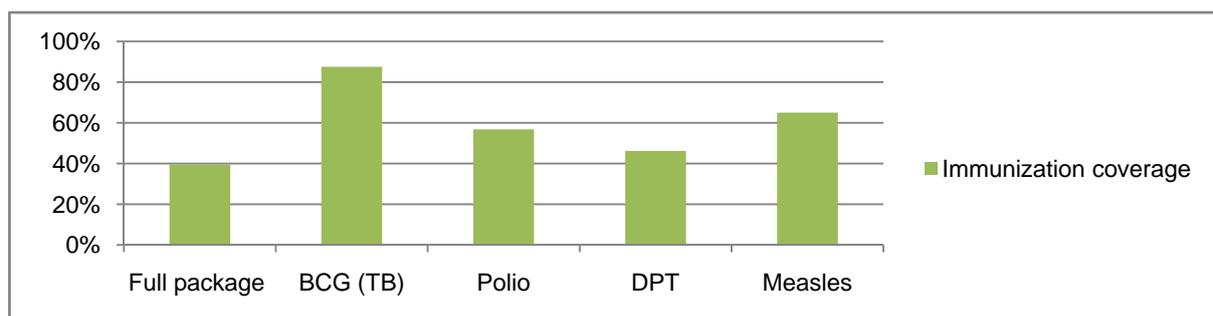
Overall the nutrition and health indicators of Djibouti are poor and the country is not on track to achieve the MDG 1 target of reducing the proportion of people suffering from hunger by half, as measured by the underweight indicator (Tracking MDG Progress Report, UNICEF 2009;

Djibouti generally experiences a high disease burden, and the country's tuberculosis prevalence is one of the highest worldwide with 1,104 cases per 100,000 people (TB country Profile, WHO). Among the most prevalent child diseases are Acute Respiratory Infections (ARI), diarrhoeal diseases, malaria and malnutrition (MICS 2006). Diarrhoea and ARIs are also among the most common causes of infant mortality. As a possible contributing factor to diarrhoea, only 67% of Djiboutians have improved sanitation facilities and 1.8% use appropriate methods for water treatment (MICS 2006). A more recent study of the World Bank (2009) confirms these findings, indicating that health service delivery and health systems need further strengthening in order to build on recent progress. In summary, significant health challenges include: (i) high maternal mortality; (ii) high and rising incidence of communicable diseases, among them tuberculosis, malaria, and HIV/AIDS; (iii) significant geographic inequalities in health indicators; (iv) weak health systems and management capacity due to the scarcity of qualified personnel; and (v) periodic shortages of medicines and medical supplies.

The infant mortality rate in Djibouti is 67 per 1,000 live births, and neo-natal mortality is 36 per 1,000 live births (MICS 2006). The under five mortality rate in Djibouti currently stands at 95 per 1,000 live births (Countdown to 2015 MDG report). Despite the significant decline in infant and child mortality rates in the last few years (annual rate of reduction of 1.4%) these rates show insufficient progress towards meeting the MDG 4 targets of reducing child mortality (Countdown to 2015 MDG report). Similarly, the maternal mortality rate is 650 for 100,000 live births. Among the suggested causes for the high mortality are eclampsia and haemorrhage (MICS 2006) as well as the fact that 93% of women in Djibouti have undergone female genital mutilation (State of the World's Children, UNICEF 2009).

A total of 31.7% of children between the ages of 12 and 23 months have received the full immunization package for the six childhood diseases (MICS 2006). The coverage of individual DPT, BCG, Polio and Measles vaccination is shown below. Most women (96%) attend antenatal care sessions, while 87% of women give birth in health facilities and 93% give birth with the assistance of a qualified health person (MICS 2006).

**Figure 4: Immunization coverage in Djibouti (MICS 2006)**



Child malnutrition in Djibouti is of particular concern. The 2007 Nutrition Survey reported a global acute malnutrition (GAM) rate of 17% across the country with the highest rate of 25% in the northwest pastoral livelihood zone (MoH, PNN, 2007). Severe acute malnutrition (SAM) is 2.4% nationally with variations across the regions<sup>16</sup>. In July 2009, MSF-Switzerland did a nutritional survey in a highly populated peri-urban area of Djibouti Ville (Balbala) and estimated GAM at 20.8% and SAM 8.2%. A more recent follow up survey in July-August 2010 in the same area has shown a similar level of GAM at 19.5% but a reduced SAM rate at 3.6%. A total of 33% of children in Djibouti are stunted - a result of long term malnutrition. This is likely to be in part due to the high extent of micronutrient deficiencies; 65.8% of pre-school children suffer from anaemia and 35.2% are affected by Vitamin A deficiency. There is no consumption of iodized salt in Djibouti, and with little fish intake as a potential source of iodine, children and adults are susceptible to iodine deficiency disorders (Micronutrient Initiative, 2009).

**Table 4: Prevalence of malnutrition in Djibouti (MICS 2006)**

Type of Malnutrition	Indicator	Prevalence (%)
Acute malnutrition (Wasting)	Global Acute Malnutrition (GAM)	20.6
	Severe Acute Malnutrition (MAM)	7.6
Chronic Malnutrition	Stunting	32.8
Combined Acute/Chronic Malnutrition	Underweight	28.9

Infant and young child feeding practices in Djibouti are inadequate. Though 96% of Djiboutian women breastfeed their children, only 1% of children are exclusively breastfed and 45% of all newborns do not receive breast milk within one hour of birth (MICS 2006). As this is of concern from an infant nutrition perspective, the EFSA analysis has made a concerted effort to understanding this in more detail (see results section). Furthermore, 77% of infants are not fed appropriately with both breast milk and other foods during the important transition period between weaning and the introduction of more solid foods (State of the World's Children, UNICEF 2009). Finally, many households lack access to a year-round diverse diet with the macro and micronutrients necessary for healthy maternal and child development.

### 3.8 DJIBOUTI FOOD SECURITY STRATEGY

Following the global high food and fuel crisis in 2008 and within the framework of the World Food Summit in 1996, the Government of Djibouti (GoD) agreed on a National Food and Nutrition Security Strategy in 2009. The first specific objective of the strategy is to achieve food security by 2025, addressing issues related to availability, access, stability and utilization of food. The second objective aims at strengthening national capacity for early warning and disaster risk reduction. Within this framework and in order to achieve its objectives, the GoD has established the Djiboutian Society of Food Security (DSFS) for the management of overseas farms in Ethiopia, Sudan and Malawi. The plan envisages the creation of strategic grain stock reserves at district level that would be sourced from these overseas farms. The strategy also calls for increase coordination amongst food and

<sup>16</sup> 3.5% in the Northwest, 2.9% in Djibouti city and 2.5% in the Southeast

nutrition security stakeholders. Any assistances and responses strategies to address Food and Nutrition Security in Djibouti should be elaborated within the government strategy and framework<sup>17</sup>.

### **3.9 CURRENT LIVELIHOOD AND FOOD SECURITY ASSISTANCE**

Overall, the safety nets and livelihood assistance available to the vulnerable population are very limited. Throughout the year, the poor are vulnerable and not sufficiently protected against the impact of systemic crises and other shocks. The majority of poor people who live in urban areas do not receive any direct public assistance, whether in the form of cash or other means, except for access to micro-credit. Providing social assistance to the urban poor poses several challenges, including designing effective targeting systems (World Bank 2009).

The main livelihood and food security assistance mechanisms available in urban settings are:

- Provision of nutrition food and complementary ration to 1560 malnourished children, 500 pregnant and lactating mother, and 3,110 HIV/AIDS, and 500 tuberculosis patients and their families by WFP and cooperating partners.
- MSF nutrition programme that focuses on malnourished children in Djibouti Ville with 200 children as monthly beneficiaries on average.
- Johaniter, together with the health ministry, participate in a nutrition programme that provides assistance to children with moderate malnutrition level in Djibouti ville. In 2010, about 3000 children were reached.
- Water and Sanitation programme as well as and Nutrition programme implemented by UNCEF.
- A small-scale, successful experience with cash transfers in Djibouti-Ville. The religious NGO “Diwan-i-Zakat” collects donations, especially during the Ramadan, and distributes cash to a limited group of beneficiaries, consisting of orphans (fatherless children) and the handicapped. Orphans receive money on a regular basis if they provide their school grade records to the organization. The identification of beneficiaries is done with the help of neighborhood committees, while all check-based transfers to the orphans’ guardians are meticulously documented (World Bank, 2009).
- The Government has been experimenting with food for work schemes in urban areas, but the coverage of these programs is very narrow (World Bank 2009).
- 

---

<sup>17</sup> For more details consults: Strategie National de Security Alimentaire et Nutritionelle. Volume 1 et 2. Presidence de la Reublique de Djibouti. Conseil National de Securite Alimentaire. Decembre 2007.

# Section II: Main Findings

## 1 DEFINING HOUSEHOLD FOOD SECURITY

As explained in the methodology section, in this study, household food security was defined considering recent household consumption patterns (using seven-day recall), longer-term food access patterns, and expenditures (e.g., wealth, food and total expenditures). This section explains household food consumption, household access to food and finally household food security.

### 1.1 HOUSEHOLD FOOD CONSUMPTION

Household food consumption is measured by a food consumption score (FCS), which is based on a recall of food groups eaten in the seven days preceding the moment of interview. It is a short-term indicator for household food intake or food consumption which takes the form of a weighted scoring of the food groups consumed, compared against WFP standardized cut off points. value (see annex 1). It ultimately allows for a quick categorisation of food intake levels by distinguishing the three different food consumption patterns of “poor”, “borderline” and “acceptable”.

Overall, across the six urban centers of Djibouti, 93% of households had an “acceptable” food consumption pattern while 5% and 2% had “borderline” and “poor” consumption levels respectively. Zooming in on these vulnerable groups, 60% of the households with “poor” food consumption and 47% of the households with “borderline” consumption stated having difficulties meeting their food and other basic needs in the seven days preceding the interview. This could suggest that the situation is more chronic than acute, or rather, that the lack of food is more a long term issue.

Even though the FCS classifies 93% of the population as having “acceptable” food consumption levels, is important to point out that the food consumption score does not give a full picture of nutritional adequacy, as it only considers the frequency of consumption of specific food groups, without any indication of quantity, quality or diversity of the specific food items. As an example, in the group with an “acceptable” food consumption level, households consumed vegetables more than six days a week. Yet, practical experience from the field visits revealed that the vegetables consumed were mostly very small amounts of low quality vegetables such as tomatoes or onions. It is therefore important to note that, an acceptable diet is not necessarily an “adequate” diet in terms of micro and macro-nutrients.

Still, these results are significantly better than those found in rural areas in Djibouti, and are better than those emerging from previous urban studies in Djibouti Ville (EFSA 2010, EFSA 2008). In comparison to both 2008 and 2009, household consumption in Djibouti has improved markedly (see **Table 6**). Lower food prices and improvements in wealth have contributed to this positive change.

**Table 5: Average days of different food group consumption by food consumption categories**

Consumption	Starch	Pulses	Meat	Dairy	Vegetables	Fruits	Oil	Sugar
<b>Poor</b>	7.0	0.0	0.5	0.0	2.0	0.1	5.1	6.3
<b>Borderline</b>	7.0	1.2	1.9	0.1	4.3	0.1	6.1	6.1
<b>Acceptable</b>	7.0	5.1	5.4	3.9	6.4	1.4	6.8	6.9
<b>Total</b>	<b>7.0</b>	<b>4.8</b>	<b>5.1</b>	<b>3.6</b>	<b>6.2</b>	<b>1.3</b>	<b>6.8</b>	<b>6.9</b>

**Table 6: Consumption Score Profiling for 2008, 2009 and 2010 – Djibouti Ville <sup>18</sup>**

Year	Sample size	Poor	Borderline	Acceptable
2008		8%	14%	78%
2009		1%	8%	91%
2010	183	1%	3%	96%

<sup>18</sup> using 21 as a cut-off point (same as previous year for comparison purpose)

## 1.2 HOUSEHOLD ACCESS

### 1.2.1 Household access index

In this study, a number of indicators were clustered to define food access patterns which could then be cross tabulated with the FCS to develop food security profiles for Djibouti's urban centers. The following are considered important indicators of longer term access to food in the Djibouti urban context:

- The households Wealth Index which is based on a composite assessment of assets possession<sup>19</sup>, access to potable water, household density as well as various per capita expenditure categories (including per capita food expenditure);
- The number and types of coping strategies used in order to access food in the seven days preceding the moment of interview.

Given the fact that the EFSA was focusing on the urban areas of Djibouti, the above components help to provide information on the longer-term capacity of households to access food. Income (for which total expenditure acts as a proxy) and food expenditure were selected as key indicators, given that virtually none of the food in Djibouti is considered of "own production". Assets, measured through the wealth index, and the extent to which households had to use detrimental behaviours (coping mechanisms) to meet food and other basic needs were also included. The latter in particular, allowed for consideration of the fact that although households may have acceptable food consumption levels, they may adopt behaviours that are overall harmful to family members or their future access to resources. The statistical cluster analysis grouped these four indicators into five different food access profiles described below.

**Table 7:** Description of the five food access profiles.

Access Profile	% of HHs	Description of Access Profile
Poor with high coping	9.1	Total expenditure averages 195 Djibouti Franc (DjF) per day per person and per capita food expenditure averages 114 DjF. These households used on average four coping strategies in the seven days preceding the interview to feed and provide essential non-food items for their families. Wealth index is poor.
Poor	30.1	Total expenditure averages 202 DjF per day per person and per capita food expenditure averages 97 DjF. Less than one coping strategy was employed in the preceding seven days. Wealth index is poor.
Average	35.1	Total expenditure averages 307 DjF per day per person and per capita food expenditure is 143 DjF. Less than one coping strategy was employed in the preceding seven days. Wealth index is good, above average.
Good	20.6	Total expenditure averages 638 DjF per day per person and per capita food expenditure is 296 DjF. Less than one coping strategy was employed in the preceding seven days. Wealth index is above average.
Very Good	5.0	Total expenditure averages 1,470 DjF per person per day and per capita food expenditure is 253 DjF. These households did not employ coping strategies in the preceding seven days. Wealth index is good, above average.

## 1.3 HOUSEHOLD FOOD SECURITY GROUPS

The Food Security Profiles were elaborated by cross-tabulating the FCS and the food access index (Table 8) discussed in the previous two sections. Four distinct Food Security Profiles were identified, each with a specific description (Table 9) –i.e., the **Food Insecure**, the **Borderline Food Insecure**, the **Food Secure Poor**, and the **Food Secure – Middle & Better-Off**. Given the large absence of shocks, these profiles are likely to be more chronic in nature rather than acute, and could be used as a baseline for future urban studies.

<sup>19</sup> Assets possessions included for the wealth analysis are based and the same list used for the 2008 EFSA, for comparison purpose –i.e., electricity, radio, TV, mobile phone, landline phone, refrigerator, motorbike, car and cart.

**Table 8: Cross-table of consumption score and access index to define food security.**

	Poor	Borderline	Acceptable
Poor with high coping	0.7%	0.9%	7.5%
Poor	1.4%	3.2%	25.6%
Average	0	0.8%	34.3%
Good	0	0.2%	20.4%
Very Good	0	0	5%

**Table 9: Summary of the food security profiles in the Djibouti urban areas**

Profile	% of HH	Description
Food Insecure	6.3%	All households with poor food consumption patterns and households that combine borderline food consumption levels with poor access to food.
Borderline Food Insecure (high coping)	8.2%	Households with poor access, high coping and borderline food consumption levels, as well as households with borderline food consumption levels and average access to food. These households also employ numerous coping mechanisms.
Food Secure - Poor	25.6%	Households that are poor in terms of wealth and income, but have an acceptable food consumption level. These households do not use coping strategies in order to feed their families and meet basic needs.
Food Secure- Middle and Better off	59.9%	Households with acceptable food consumption levels and food access that is average, good or very strong. It also includes a few households with good access index but borderline food consumption levels.

**Table 10: Estimated urban population per Food Security Profile**

Food Security Profile	Population
Food Insecure	26,600
Borderline Food Insecure	34,600
Food Secure – Poor	108,100
Food Secure – Middle & Better-Off	252,800
<b>Total Urban Population*</b>	<b>422,100</b>

\* Does not include the population of Radiska, which was not sampled.

## 2 HOUSEHOLD FOOD SECURITY CHARACTERISTICS AND PROFILING

This section describes Food Security Profiles considering human capital, social capital, financial capital and physical capital.

### 2.1 HUMAN CAPITAL

#### 2.1.1 Household Demography

Human capital encompasses the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives. At the household level human capital is limited by the amount and quality of labour available; this varies according to household size, skill levels, leadership potential, health status, etc.

Overall the assessment shows that the Djibouti urban population is composed 51% of men and 49% of women – this differs from the recent census which presented reverse findings (e.g., 51% women and 49% men). Further exploration of the results shows that the difference in demographic breakdown between the census and this assessment's results is mainly because of Djibouti Ville figures. Although the age cohorts are different from those used in the recent census, the population's age structure appears similar overall.

**Table 11: Population percentages per**

**age cohort.**

Age groups	Percentage %
0 to 5 year old	11%
6 to 17 year old	32%
18 to 59 year old	53%
over 60 year old	5%

The assessment found that the average household size in the urban settings was seven (the recent census reported a national average of 6.2). Overall, 37% of the households were female headed, 82% of the heads of households were married, and 14% were widowed. Less than 1% of the population surveyed was divorced or separated. There were no significant differences in this regard across the Food Security Profiles. In general, the average age of the heads of the households was 45 years old, but the heads of households of the Food Insecure households tended to be older, while those of the Borderline Food Insecure

Households tended to be younger; the age difference between the heads of households in these two groups was significant.

Although the numbers were small (less than 4%), the heads of the households that were single (never married) were more likely to be among the Food Secure Middle & Better off households than in the other Food Security Profiles. Dependency ratios - or the number of dependent family members per household – were also significantly smaller in the Food Secure Middle and Better off households than in any of the other Food Security Profiles.

Interestingly, although the overall proportion of households having to care for chronically ill (around 5%) or disabled people (also around 5%) was small, the Food Insecure households were significantly more likely to have to care for a chronically ill or disabled person than households in the other Food Security Profiles were.

In summary, Food Insecure households were more likely to be older and burdened with care for disabled or chronically ill members, while Borderline Food Insecure households tended to be younger, and Food Secure Middle and Better off were more likely to be single and have fewer dependents.

### **2.1.2 Migration**

Immigration is an important phenomenon in Djibouti, with a reported 110,300 or 13.7 % immigrant population (HDR 2009). This assessment confirmed this phenomenon. Overall, 21% of the heads of households interviewed were not born in the same town where they were living at the time of the survey; 12% were born in another country (Somalia 6%; Ethiopia 5%; Yemen 1%), and 5% and 3% were born in rural areas and other urban areas respectively. Of these migrant households, 17% had come over at least five years before the time of survey. Interestingly, the Food Insecure households were more likely to have a head of household not born in the same city than the Borderline Food Insecure and the Food Secure Middle & Better Off households were. The heads of these Food Insecure households were more likely to be from Somalia.

Less than 4% of the households interviewed had arrived less than five years ago - they were in large majority from Somalia, and most interestingly among the Food Secure Middle & Better Off households. This finding may be partly related to the sampling framework which was based on the DISED recent census and did not include temporary tent-like structures in its survey. Discussion with key informants and focus groups stated that many of these tents were occupied by recent migrants.

Only 7% of the urban population had members living either permanently or temporarily outside their city, while 13% reported having welcomed newcomers within the previous twelve months. The proportion of new arrivals did not vary across the Food Security Groups – however, a higher proportion of the Food Insecure Households had members living temporarily outside their city than households in any of the other Food Security Profiles did. It is also important to note that out-migration mainly occurred during the months of August, September and October.

In summary, Food Insecure Households were more likely not to have been born in the same city they were living in at the time of the survey than households from the other Food Security Profiles, and these long term migrants tended to be of Somali origin. They were also likely to migrate temporarily between August and October.

### **2.1.3 Child Demographics, health and nutrition**

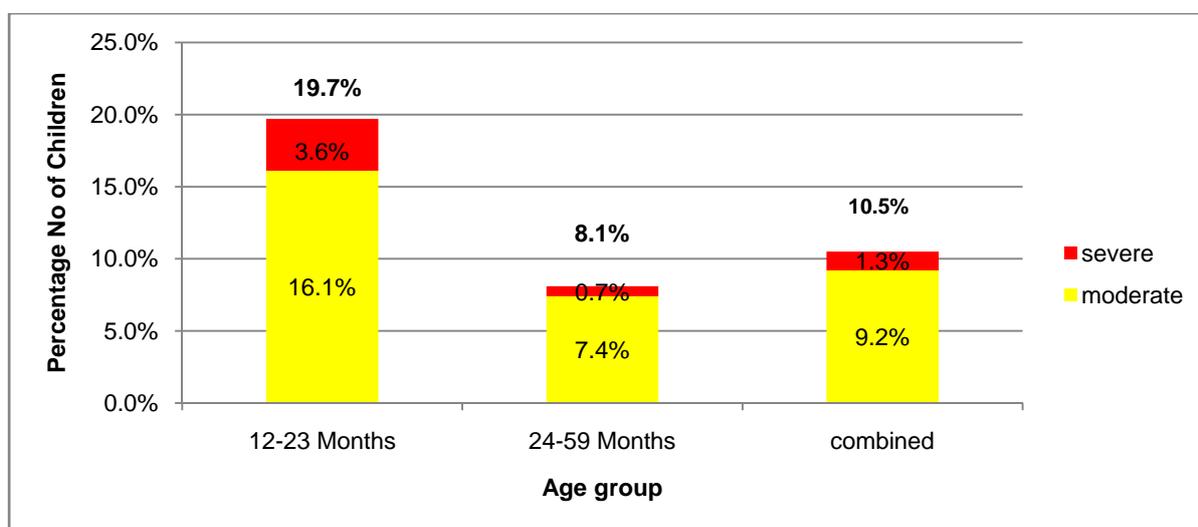
As previously discussed in the methodology section, 590 children from the sample, between the ages of 6 and 59 months, were screened for acute malnutrition using MUAC measurements. 55.3% of these children were male and 44.7% were female. The findings of the screening suggested that child malnutrition is of particular concern in Djibouti's urban centers. Of the households visited, 10.5 % of

the children between the ages of 12 and 59 months were found to be acutely malnourished while 9.2% were moderately so and 1.3% were found to be severely malnourished. Though these findings are merely indicative due to the low sample size, recent representative surveys (see the August 2010 MSF nutrition survey in Djibouti) have confirmed acute malnutrition to be above the 10% emergency threshold with GAM at 19.5% and SAM at 3.6%.

As expected, acute malnutrition was more prevalent among younger children, especially in the age group between 12 and 23 months than among older children (see Figure 5). There was no statistically significant difference across regions but this may be a consequence of the small sample size.

Low MUAC can be a good mortality predictor. In this regard, 1.3% of the children assessed may be at risk of death and 9.2% at risk of becoming severely acutely malnourished. In Djibouti, WFP supported supplementary feeding programmes and UNICEF/MSF supported therapeutic feeding programmes to help manage moderate and severe acute malnutrition. Of the 128 children between the ages of 6 and 23 months screened, only 10.2% were enrolled in one of the selective feeding programmes (of which 61.5% in the therapeutic feeding programme and 38.5% in the supplementary feeding programme).

**Figure 5: Acute malnutrition among children by age group**



63% of the households interviewed reported child illnesses in the three months preceding the survey. The most common diseases reported were fever (26.1%), diarrhoea (21.8%) and respiratory infections (8.4%). This corresponded to the main diseases found by the 2006 MICS (i.e., diarrhoea, 32.6%).

### 2.1.4 Infant and young child feeding practices

The infant and young child feeding practices were explored by interviews with a sub-sample of the originally selected households. As a result, the findings presented below are not representative but merely indicative, although complemented and verified by focus group discussion information and previous surveys.

#### 2.1.4.1 Breastfeeding

Generally, mothers in Djibouti breastfeed their babies. 94.5% of the children in the households that responded to the IYCF questionnaire had been breastfed. This corresponds to the findings of the MICS 2006 (which reported the figure at 96%) and was also confirmed by mothers during the focus group discussions. The focus group discussions further revealed that while breastfeeding begins on the day the child is born, the child also receives sugar water. Among the reasons given were that Djibouti is a hot country and the baby often feels thirsty. This finding corresponds to the results of the MICS, which found that only 1.3% of children were exclusively breastfed. The poor quality of the water used for the sugar water may also contribute to the high presence of diarrhoea. In addition, studies have shown that mixed feeding before the age of six months may lead to increased mortality because of diarrhoea (WHO, 2010)

Among children between the ages of 12 and 14 months and 21 and 23 months, 76% and 25% were still being breastfed respectively. This suggests that the WHO 2010 recommendation for continued breastfeeding until the age of 2 is not being practiced. Continued breastfeeding is critical as it provides one third of the energy needs of children between 12 and 24 months of age<sup>20</sup>. Furthermore, studies have shown that breastfeeding reduces mortality among malnourished children<sup>21</sup>. The low breastfeeding could perhaps be explained by a lack of awareness among mothers of the importance of breastfeeding and the wide usage and presence of milk powders observed during market visits and corroborated by the focus group discussions. Some mothers stop breastfeeding at six months, a practice that increases their children's risk of becoming malnourished<sup>22</sup> and may be a consequence of limited birth spacing. According to the women in the FGDs, it was not possible to breastfeed a child while pregnant, with another saying that this was like '*splitting the energy into two*'.

Overall these findings suggest that poor breastfeeding practices may be a contributing factor to the poor child nutrition status reported.

#### **2.1.4.2 Complementary feeding for children between the ages of 6 and 23 months**

Complementary foods were grouped into three categories; home prepared, commercially purchased special foods and foods prepared for the whole family (i.e. if the child simply eats from the family pot).

The results found that 31% of children were not receiving age-appropriate homemade or commercially marketed special foods, which means that they were not receiving adequate nutrition. Only 35% received both homemade and purchased special food, while 14% received homemade special foods only (solid foods, porridge, puree, milk tea, fruit juice) and 20% received commercially purchased special foods only (baby cerelac, powdered milk, condensed milk, biscuits, infant formula) which are appropriate for feeding young children.

Of concern are the 31% of children who are either only breastfed after six months or who are eating the same as the rest of the family. Giving a child breast milk exclusively after six months is problematic since at this age breast milk alone can no longer meet the child's nutrient requirements. Similarly, serving the child the same foods as consumed by the rest of the family is also an issue as small children eat very little due to their small stomachs, and they require regular nutrient-dense meals (ideally stored hygienically to avoid exposing them to disease) such that this practice also does not meet their nutrient requirements<sup>23</sup>.

Through 24-hour recall of the foods served to the child, the assessment identified and defined the type of foods children between the ages of 6 and 23 months consumed. As per the WHO guidelines on IYCF and criteria for recommended food groups, the foods consumed were divided into seven food groups. As sugar is such an important component of the diet in Djibouti the WHO classification was slightly expanded to eight food groups to allow the inclusion of sugar. The eight food groups were cereal, legumes and nuts, dairy products, meat and fish, eggs, vitamin A rich fruits and vegetables, other fruits and vegetables, and sugar. Most children consumed cereals, dairy products and sugar (Figure 6).

About 50% of the children surveyed consumed Vitamin A rich fruits and vegetables (mango, melon, broccoli, carrot or beet root). However, very few children consumed meat or fish, legumes and nuts, eggs and other fruits and vegetables (such as oranges, bananas, and/or cabbage). From the focus group discussions, it was revealed that meat, fish and eggs are expensive for ordinary households, hence the low intake.

---

<sup>20</sup> WHO/PAHO, Guiding principles for complementary feeding of the breastfed child, 2003.

<sup>21</sup> Briend A, Bari A. Breastfeeding improves survival but not nutritional status. European journal of clinical nutrition, 1989.

<sup>22</sup> WHO, The optimal duration of exclusive breastfeeding, report of an expert consultation. 2001.

<sup>23</sup> Save the Children UK, An eight-step costed plan of action to tackle global child hunger, 2009.

## Figure 6: Food groups consumed

The low intake of fruits, vegetables, meat and eggs can potentially result in major micronutrient gaps in the diet of children between the ages of 6 and 23 months.

In addition to the high acute malnutrition, micronutrient deficiencies - particularly iron deficiency anaemia and related disorders - are likely to be highly prevalent and a serious problem in Djibouti.

WHO 2010 recommends the consumption of a minimum of four food groups for children who are not adequately breastfed; in Djibouti this was not the case for 42% of the children surveyed between the ages of 6 and 23 months.

In Djibouti 42% of the children had poor dietary diversity, below 'minimum dietary diversity' (MDD) recommendations. These findings suggest that low dietary diversity could partly explain why younger children are more malnourished as was revealed by the screening for acute malnutrition (Figure 5).

## Figure 7: Dietary diversity among children between the ages of 6 and 23 months

### ***2.1.4.3 Meal Frequency and Consumption***

There is a small but significant difference with regard to the number of meals consumed by household members across the Food Security Profiles. The less food secure the household, the fewer meals member were likely to consume in a day. The difference was significant across all the profiles except

between the Food Secure-Poor and the Food Secure - Middle & Better Off households, which consumed both an average of three meals a day. The Food Insecure households consumed on average 2.4 meals a day, while the Borderline Food Insecure households consumed 2.8 meals a day.

Young children (between 2 and 5 years old) consumed more meals than adults, and this was so across all Food Security Profiles. Children in the Food Insecure and Borderline Food Insecure households consumed three meals a days while children in the Food Secure households (Poor, Middle & Better Off) consumed on average 3.6 meals a day.

The focus group discussions further indicated that children between the ages of 6 and 23 months received overall three meals and one mid-morning snack. Lunch was their main meal. Generally for breakfast most children were served a thin pancake with butter, tea and sugar followed by a mid-morning snack of orange juice, for example. The next meal was lunch made of potato, rice and carrot as indicated in Figure 8, whereas dinner often consisted of the soft part of white bread with butter only.

From the FGDs it was clear that mothers were aware of the need to frequently feed their children. However, meat, fish, legumes, and eggs were often not part of the child's diet suggesting that protein intake was limited in children's meals. Young children require a lot of protein especially animal source protein to support rapid growth and development. (FAO 2004) The low intake of animal source protein could be related to the high prices for these products. The relatively low intake of legumes despite their affordability remains unclear and may be related to the local food habits.

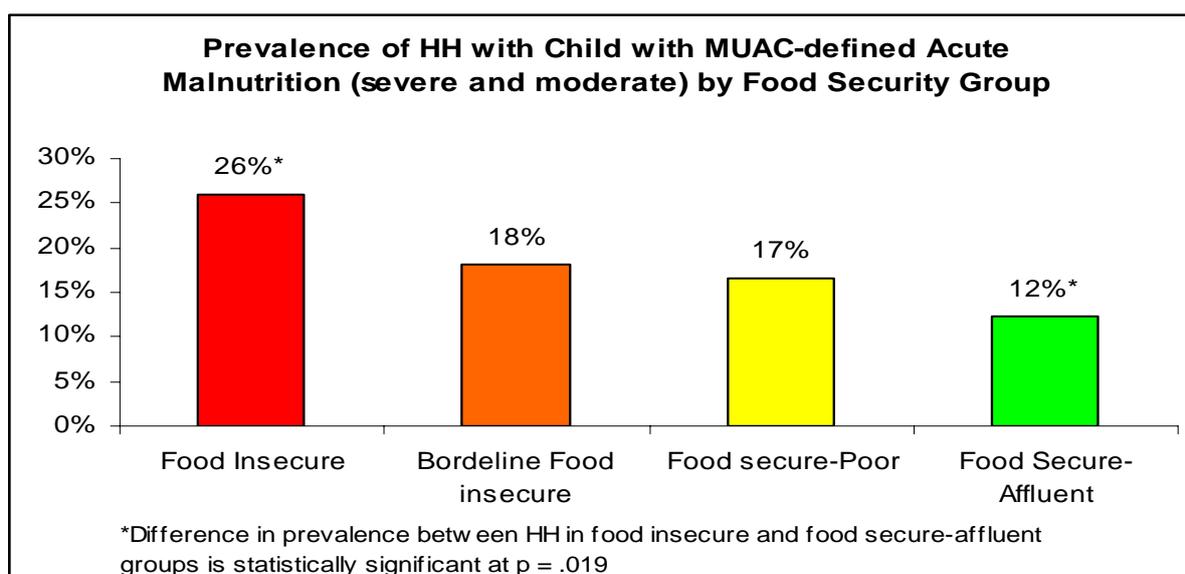
**Figure 8: FGD picture showing a meal served to a child 6-23 months**



### **2.1.5 Household food security and child nutrition status**

Household food security impacts the nutritional status of children. Accordingly, assessment findings confirm that children from food insecure households seem to be more prone to malnutrition than children from food secure households. Given that food security is determined by numerous indicators, numerous factors also contribute to the nutritional status of children.

**Figure 9: Household food security and malnutrition**



## 2.2 SOCIAL CAPITAL

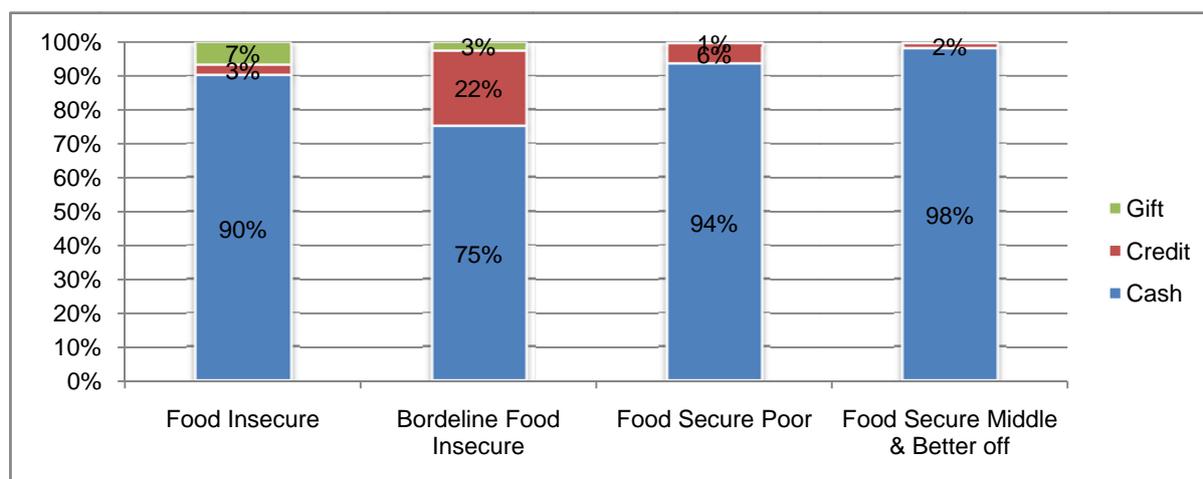
Social capital is intended as the social resources upon which people draw in pursuit of their livelihood objectives; these are developed through social networks, relationships of trust, reciprocity and exchanges that facilitate co-operation, and may provide the basis for informal safety nets for the poor.

Households were asked if they had received assistance in the six months preceding the survey from either *zakat* (Islamic charity), NGOs, and/or Government, or from neighbours, colleagues or family members (their social network). Overall assistance was moderate with 15% of the urban households having received support from family, friends and colleagues and only 3% from having received support from *zakat* or NGOs. By regrouping the Food Security Profiles into two large groups –i.e., one comprising the Food Insecure and Borderline Food Insecure, and one comprising the Food Secure-Poor and Food Secure Middle & Better off, results indicated that the former were significantly more likely to have received assistance from within their social networks than the latter were. This relationship between assistance, social networks and Food Security Profiles is also illustrated when exploring the sources of food and non-food items consumed in the six months preceding the time of survey. Households were asked to provide an estimated value of the food and non food items consumed in the recent past. They were also asked to separate and estimate independently the values and quantities of the items purchased with cash, purchased on credit and received through donation or gift.

With 7% of all goods consumed having been received as gifts, Food Insecure households received the most donations within the Food Security profiles, and were well above the overall average of 0.7% (Figure 10: ). Rice, followed by other cereals, was the food item most often received in gift, while education, clothing and housing repairs were the non-food items with the highest value in gift/donations. Contrary to in-country perceptions, khat was rarely given.

This finding was also substantiated when looking at the food sources. The Food Insecure households received more than 14% of their food through gifts suggesting that the surrounding community was able to identify the food insecure households and provide them with donations and that without these gifts, the food insecure households would have been worse off. Focus group discussions with very poor households, likely to be food insecure, brought out the fact that they could not access credit but that they were able to access food through donations. In fact, women and children would pass from household to household to collect/beg for leftover food around their neighbourhoods.

**Figure 10: Proportion of cash, credit and gift used to acquire food and non-food goods per food security profile**



## 2.3 FINANCIAL CAPITAL

Financial capital refers to the financial resources that people use to achieve their livelihood objectives. In the context of Djibouti's urban centres, financial capital is of utmost importance as it influences consumption, food security and ultimately, nutrition.

### 2.3.1 Livelihood and income sources

82% of the household surveyed reported having one adult income earner in the family, 10% reported having two income earners, and only 2% reported having three income earners in the family. Less than 5% reported having no income earner at all. These households relied on loans, gifts, and/or charity and had no income at all. These households were more likely to be Food Insecure or Borderline Food Insecure.

The study also assessed the number of income sources per family –i.e., the types of income-generating activities use by a household to earn a living<sup>24</sup>. The large majority of the urban households (85%) had only one source of income, while 12% had two sources and only 2.5% had three or more.

Just about 43% of the households reported a “Salary” as their main income source, followed by informal/casual daily work (22%), skilled work (12.4%), pension and compensation (10.5%), business and restaurant (7%), gifts and loans (3.6%), sale of khat (2%) and fishery and artisanal activities (0.3%). All these activities were practiced year-round, with negligible seasonal differences<sup>25</sup>. The only exception was in relation to those receiving pension and/or compensation, as these were received every two months.

These results are consistent with the 2008 Djibouti Ville urban survey, in which 86% of the households declared only one source of income, with minimal seasonal variation in the practice of the various income sources. The proportions of income sources in the urban population appear to be similar to those found in the 2008 survey; this is particularly true for that Salary (35%), Casual labour (31%), Gift/Begging (3%) and Sale of Khat (2%) categories.

The study also looked at the proportion of working adults per total number of adults in the households surveyed. Overall, 40% of adults of working age reported having earned an income in the twelve months preceding the survey. The study did not gather information on the number of adults available to the workforce, so it is not possible to establish the unemployment rate – however it is fair to say that it is not above 60% in urban centers, since the study results show that 40% of adults were working in the formal or the informal sector. While there was no significant difference across cities in the proportions of adults of working age actually earning an income, there was a significant difference

<sup>24</sup> For example, if two people earn a salary – only one income activity “salary” was identified however if one adult was earning a salary and the household also had a “boutique” – two income activities were identified.

<sup>25</sup> It is possible that earnings vary seasonally but this information was not captured.

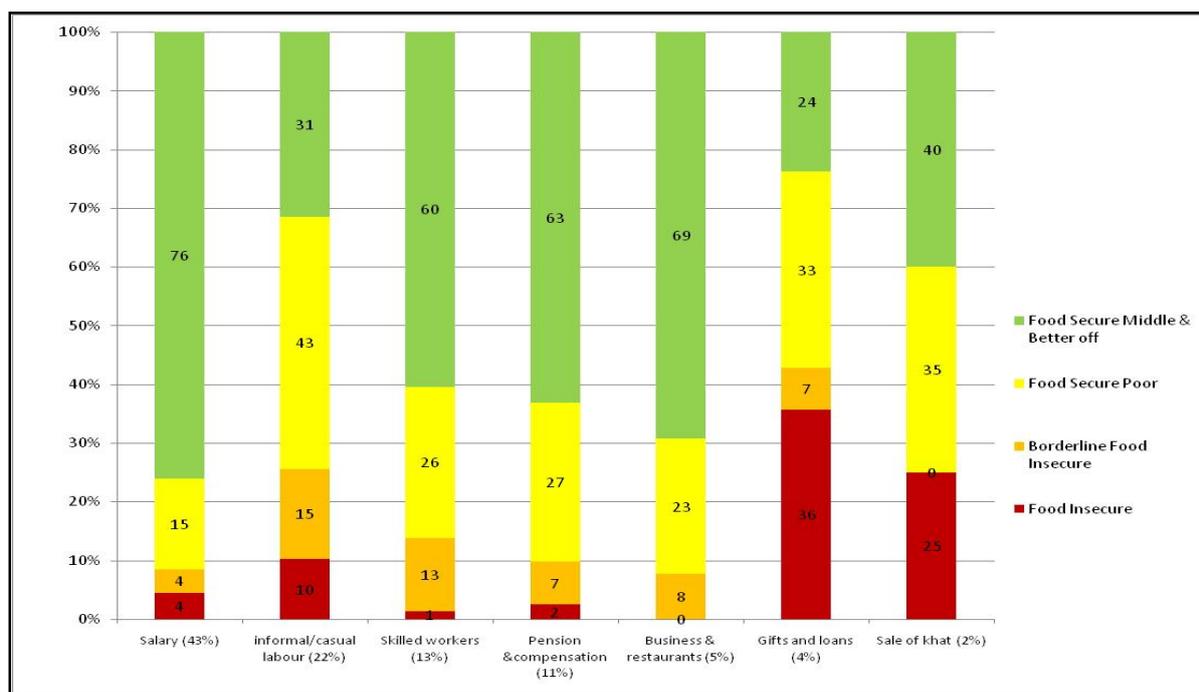
between the Food Insecure and the Borderline Food Insecure households, with the highest proportion of working adults being found in the Food Insecure households and the lowest proportion in the Borderline Food Insecure households.

Overall, livelihoods alone do not determine a households' Food Security Profile. Food Insecure and Borderline Food Insecure households make use of many livelihood types and income sources. However, there are a few significant differences (Figure 11: ):

- Households earning a Salary are much more likely to fall in the Food Secure Middle & Better Off profile than any other Food Security Profile;
- Food Insecure households are more likely than households in the other Food Security Profiles to rely on gifts and loans as their main source of income;
- Food Secure Middle & Better Off households are less likely than households in the other Food Security Profiles to rely on informal/casual labour as their main source of income;
- Food Secure households (Poor, Medium and Better Off) are more likely than Food Insecure and Borderline Food Insecure households to have two or more sources of income.

These findings are also similar to those of the FEWSNET urban study which also stated that households having members earning a salary were more likely to fall in the Middle and Better Off profile than in the Poor and Very Poor profiles, while casual labour was less likely to be a source of income for households in the Upper Middle and the Better Off profiles. There were no significant differences in livelihoods and/or income sources across cities.

**Figure 11: Distribution of Food Security Profiles across Income Sources<sup>26</sup>**



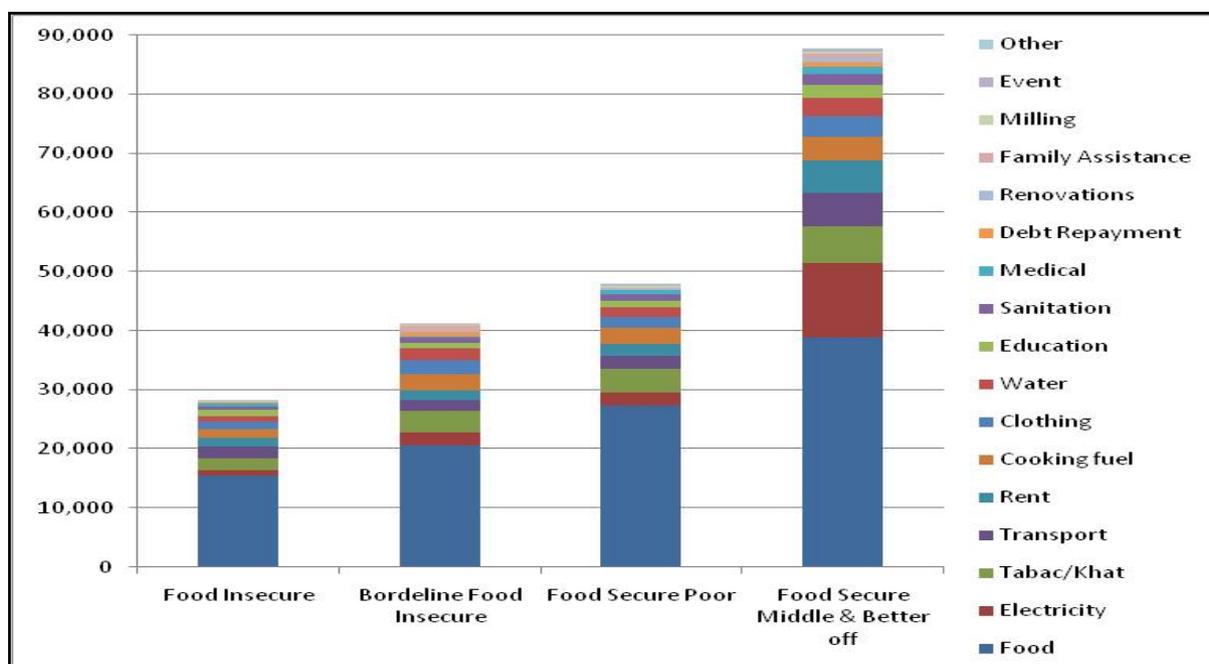
### 2.3.2 Total expenditures as a proxy for income

Total household expenditure – used as a proxy indicator for household income – was calculated by adding the monetary value of all the food and non-food items acquired over the six months preceding the survey through purchase, credit and/or gift or donations. For example, if housing was provided by an employer, the respondent was asked to evaluate the market value of the house, which was then indicated under “House Rent” under the donation/gift column.

<sup>26</sup> Fishing & artisans is taken out as it represents not even 1% of the total urban population.

Average total household income/expenditure was just below 70,000 Djiboutien Francs per month – equivalent to about 400 USD per month per family or about 2 USD per capita per day. As expected there were great differences in expenditure levels across the Food Security Profiles, given that total expenditure was utilised to define the Food Security Profiles. Average monthly household expenditure was estimated at 28,000 Djiboutien Francs in Food Insecure household; at 41,000 DJ francs for Borderline Food Insecure households; at 48,000 for the Food Secure - Poor households; and at 88,000 DJ francs for Food Secure Middle and Better off households (Figure 12: ).

**Figure 12: Total household food and non-food monthly expenditures per Food Security Profile**



The EFSA Food Security Profiles were also compared with the FEWSNET wealth profiles, revealing a strong link between them. The EFSA Food Insecure households largely correspond to the FEWSNET Very Poor and Poor households, while the EFSA Food Secure Middle and Better Off households essentially correspond to the FEWSNET Better Off and Upper Middle households. The EFSA Borderline Food Insecure Households fall mostly within the FEWSNET Poor Households profile, but can also be found in the Lower Middle and the Upper Middle FEWSNET groups. This can be explained by the fact that the EFSA Borderline Food Insecure households can have relatively high levels of household expenditures, which places them in the high poverty profile, but they may use credit and high coping mechanisms as the means to acquire their food and non-food items, which arguably, are not sustainable approaches to food security.

### 2.3.3 Household per capita expenditure and child nutrition status

The nutritional status of children is related to access to food as measured by per capita expenditure. There were more malnourished children (20.4%) in households with expenditures below mean per capita than in the better off households (8.9%). Noting that Djiboutians depend mainly on market as their source of food, this finding suggests that poor households were not able to purchase sufficient quality food to feed their children. Malnutrition may therefore be associated with poverty.

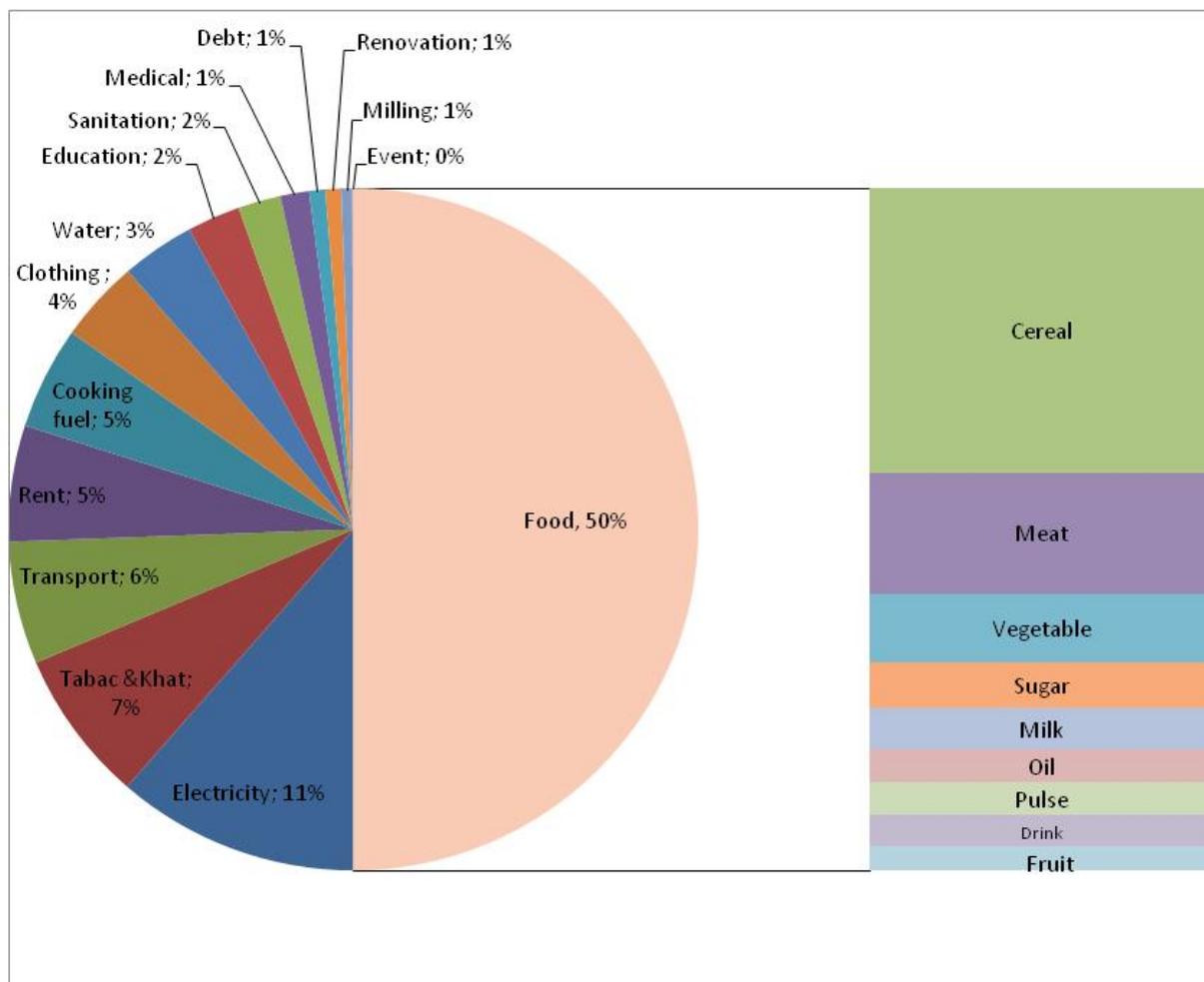
#### 2.3.3.1 Food and Non-food expenditures

In general, 50% of total household expenditures went to food. Other expenses included, on average: electricity (11%); tabac and khat (7%); transport (6%); and rent (5%) (Figure 13: ). Expenditures for Khat represented the highest non-food costs across all profiles, with the exception of households in the Food Secure – Middle & Better Off profile, for whom electricity was the highest non-food cost. On average, between 7% and 9% of total household expenditures went to khat – which although much lower than the 20% reported in the literature review – was still considerable.

In terms of total expenditures on food, on average 44% of expenditures went to the purchase of cereal, followed by meat (18%), vegetable (9%) and sugar (8%). These percentages varied across the Food Security Profiles: the most food insecure spent relatively more on cereal (55%), sugar (10%) and oil (8%) and less on all other food items, with the exception of vegetables which remained constant across profiles. The consumption of protein among the food insecure was most affected, with only 9% of their food expenditures going to the purchase of meat and 2% for the purchase of milk, while the averages for the other profiles were 16% for meat and 6% for milk respectively.

Only 55% of the households surveyed spent money on special foods for children between the ages of 6 and 23 months, indicating that the remaining 45% of households fed their 6 to 23 month-old children the same foods as were consumed by the rest of the family (Figure 17: ).

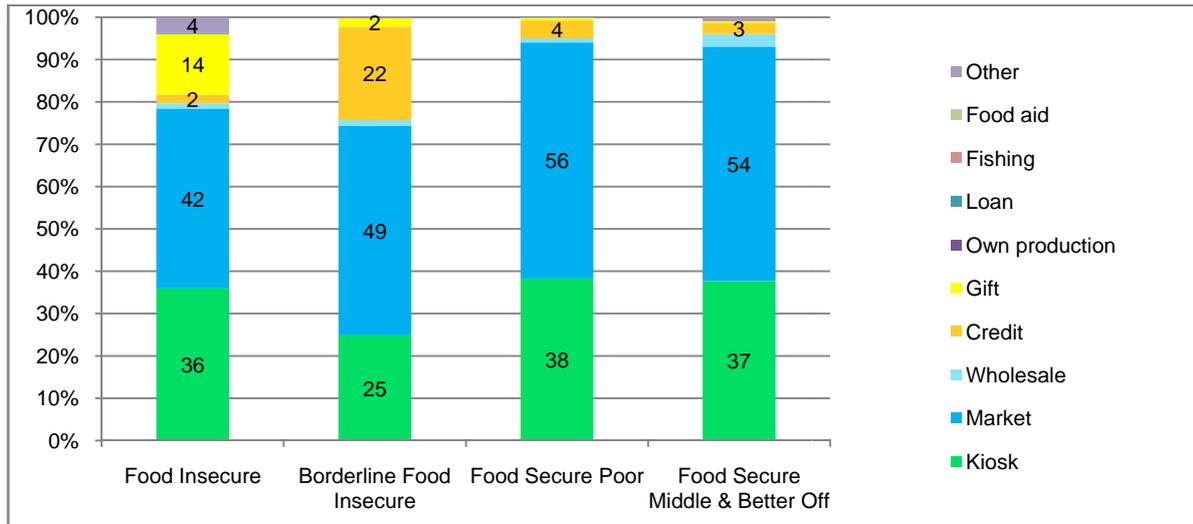
**Figure 13: Household total expenditure**



### 2.3.3.2 Food Sources

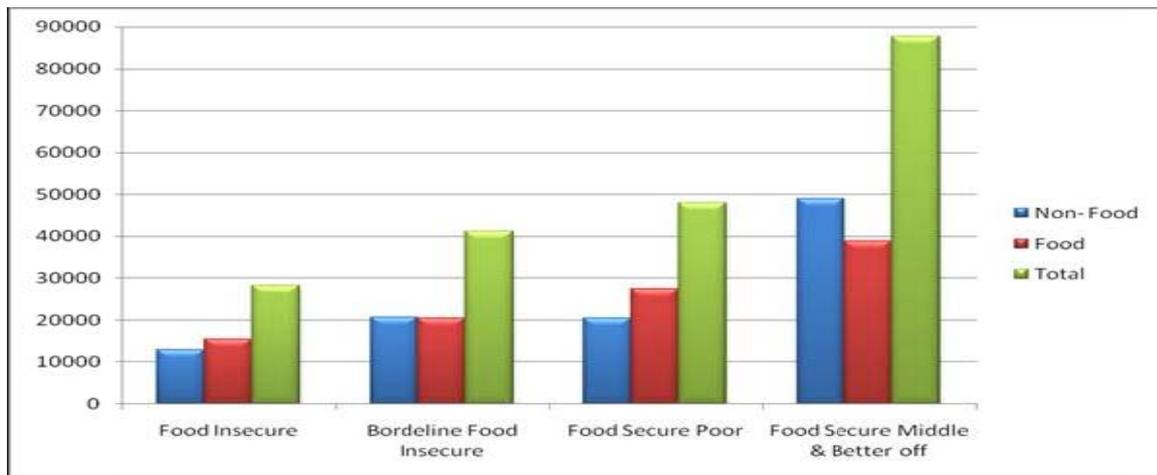
In Djibouti urban centers, 92% of the food consumed was purchased on cash basis from markets (53.6%), kiosks (36%) and wholesalers (2%). Credit (4.6%) was the second most common means of acquisition, followed by receiving food as a gift (1.4%). Own production was barely existent, yielding less than 1% of all food consumed. There were however very important regional differences. In urban areas other than Djibouti Ville, the main food purchase point was the kiosk, a factor which could be important for the design of future market interventions. Food Insecure households tended to buy more food from the kiosks, followed by the Food Secure Poor households, suggesting that households in these two profiles bought small quantities daily, paying more per unit, than households in the other groups who bought from the larger markets or wholesalers would.

**Figure 14: Proportion of food source by food security profile**

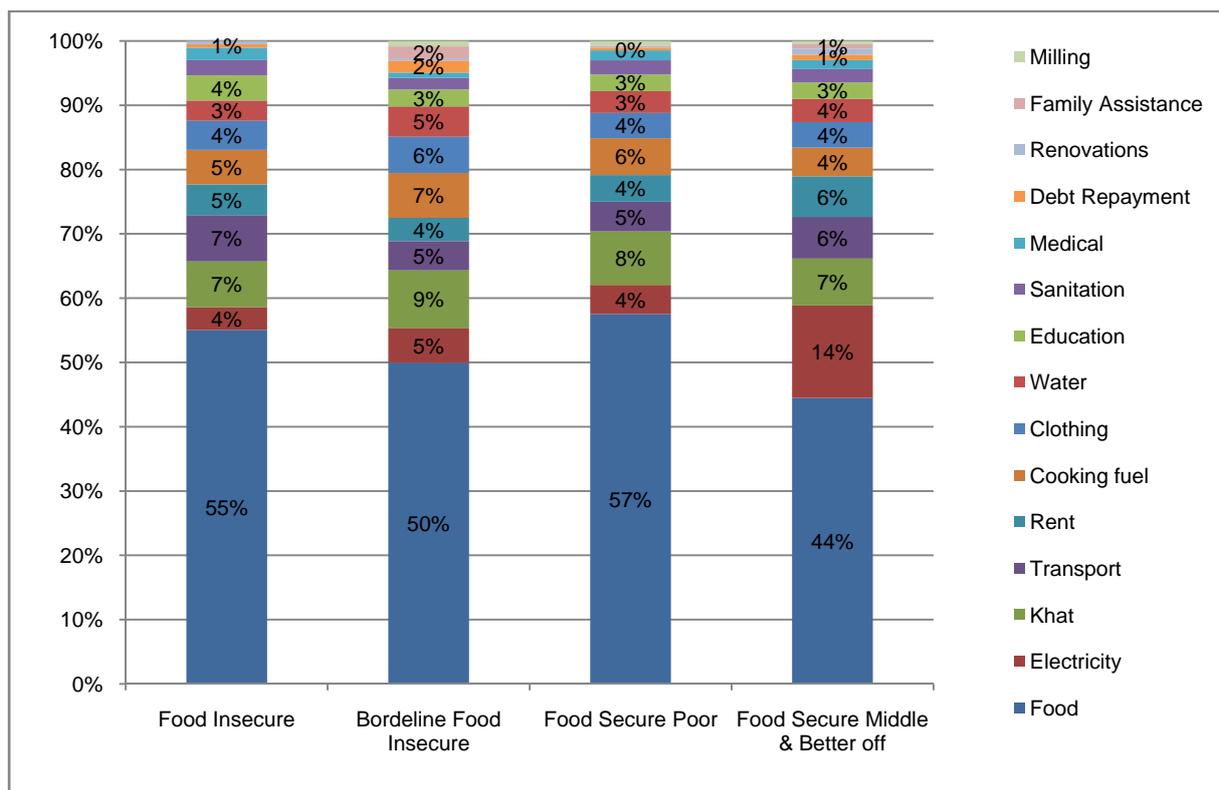


It is important to note that while total household expenditures did not vary significantly between the Food Secure Poor and the Borderline Food Insecure households, the former spent significantly more on food than the latter, which could partly explain their improved food security ( Figure 15: ). The Food Secure Poor households also spent more on high quality food items (e.g. meat) than the Borderline Food insecure households did (Figure 17: ). Borderline Food Insecure Households spent about 4% of their total expenditures on debt repayment and assistance.

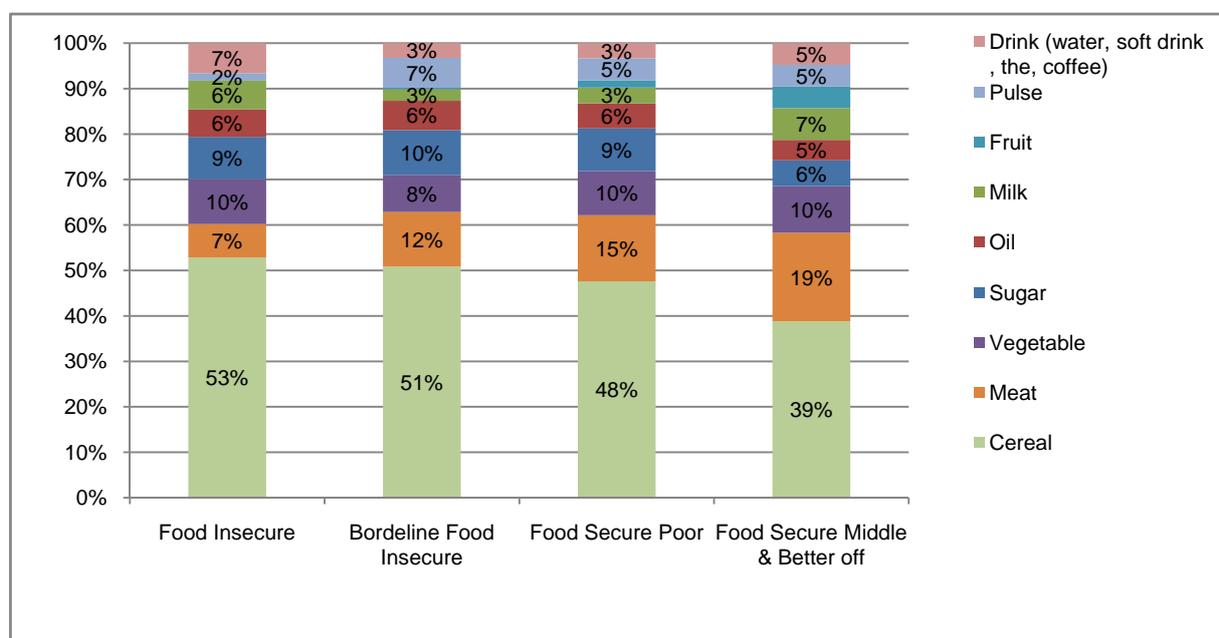
**Figure 15: Non-food, food and total household monthly expenditure per food security profile**



**Figure 16: Percentages of Household spending on food and non food items by Food Security Profile.**



**Figure 17: Breakdown of expenditures on food across food security profiles**



### 2.3.4 Changes in expenditure and income

Households were also asked about changes in income levels and key expenditures compared to the previous year. The large majority of urban households (75%) stated there had been no change in their income levels, 18% stated they had experienced a decrease and 6% had experienced an increase. Significantly more Food Insecure household stated they had witnessed a change, mainly a decrease in their income compared to the previous year, indicating greater variability in earning for this profile.

96% of the households surveyed reported no change in their spending on housing while 80% reported no change in transport related expenditures. Expenditures on medical bills, education and electricity remained unchanged for 67%, 60% and 55% respectively of the households surveyed. There are however significant differences across cities and Food Security Profiles. Djibouti was the city in which changes in transport costs were most frequently stated. Food Secure Middle & Better Off households mainly reported increases in spending on electricity (very significant) and medical expenses.

Borderline Food Insecure households stated an increase in housing related expenditures more frequently than households in the other Food Security Profiles did. This might partly explain why Borderline Food Insecure households spent a smaller proportion of their income on food items and made greater use of credit.

### **2.3.5 Access to credit, sources and uses**

As stated previously, access to cash, credit and gift varied across the Food Security Profiles. Financial capital, and more specifically how cash and credit are used, provide important insights into the differences between food security profiles.

An important difference between households in the Borderline Food Insecure and the Food Secure Poor profiles related to the use of credit. Borderline Food Insecure households relied much more on credit, with 22% of the items consumed in a month accessed through credit, while the Food Secure Poor households (and those in the other groups), barely made use of credit at all (6%) (Figure 10: ). This higher dependence on credit was also corroborated by the data collected on food sources in the seven days preceding the survey, which indicated that 22% of the food consumed had been obtained on credit. It could be suggested that the Borderline Food Insecure households might become further food insecure were credit no longer made available to them. At the same time, it might also be possible that their food security could improve upon repayment of their debts/loans.

Focus group discussions and the market analysis suggested that the Food Insecure on the other hand simply could not access food or non-food items on credit given their extremely poor income. They were not sufficiently financially solvent and presented a high risk that Djiboutian traders were not willing to take. Overall, the Food Insecure households relied on purchase of food, and as stated previously, donations to survive (Figure 10: and Figure 14: Proportion of ).

Food Secure – Poor and Food Secure – Middle & Better-off households barely used credit and gifts as a source of food and non-food items, but rather relied essentially on purchases. Overall the analysis of the use of gift, credit and cash across food security profiles strongly suggests that while the Food Secure - Poor, and - Middle & Better-off households were self-reliant, the Food Insecure and Borderline Food Insecure households were not.

Households were also asked if they had borrowed money in the twelve months preceding the survey. Only 5% of all households reported having had a loan in that period. Of these households, 60% lived in Djibouti Ville and another 20% in Ali Sabieh. Very little borrowing was done in the other city centers. The average amount borrowed was 108,000 Djibouti franks (620 USD) although in Ali Sabieh, the average amount borrowed was only 90 USD. The proportion of households that borrowed was slightly higher among the Borderline Food Insecure (10.5%) and Food Insecure (9.6%) households than among the Food Secure Poor (6.8%) and the Food Secure - Middle and Better off households (3.6%). Money was essentially borrowed to either purchase food (51%) or to purchase (or carry out repairs on) a house (32%). Other reasons less stated were to pay tuition fees, social events, and to buy land.

Sources of borrowing were diversified, and were, in order of importance: (i) friends and family within the country (41%); (ii) private lenders (21%); (iii) banks (16%); (iv) informal saving groups (11%); and (v) boutiques (10%). The sources also varied across food security profiles. Households in all food secure profiles borrowed from friends and family, with the exception of the Food Insecure households which only borrowed from private lenders. Also the Food Secure – Middle & Better off households were the only households accessing money through banks or other formal lending systems. Again, it is important to remember that formal lending systems (banking) are mainly available in Djibouti ville. The source of borrowing in Ali-Sabieh was friends and family, but the amounts were extremely small.

## **2.4 PHYSICAL AND NATURAL CAPITAL**

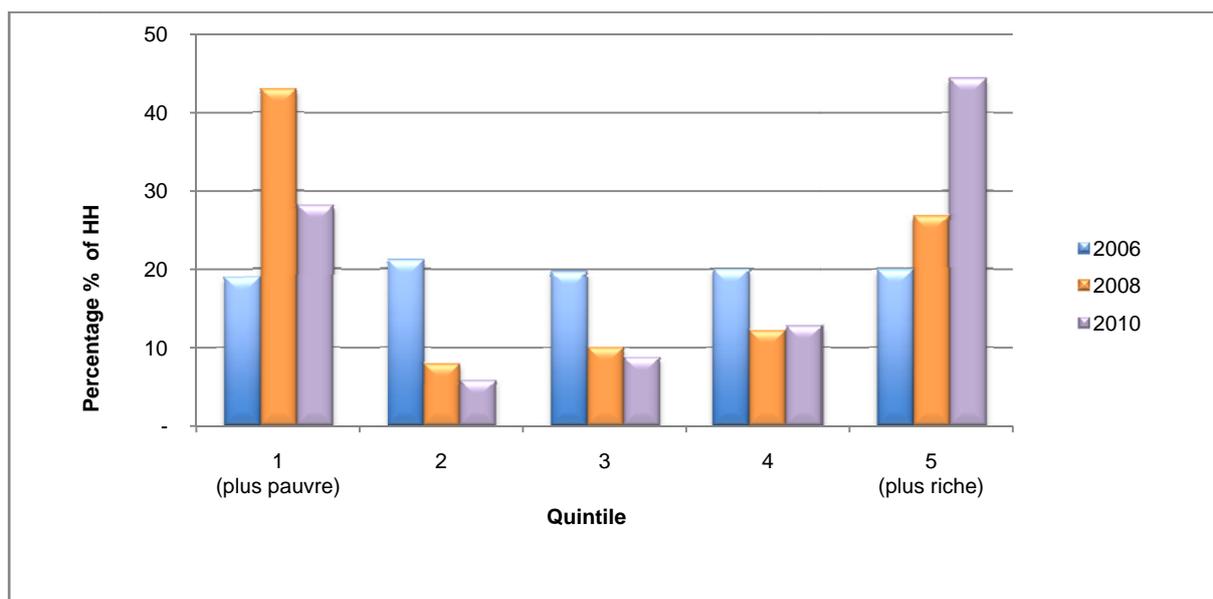
Physical capital describes a household's physical assets and access to basic infrastructure, while natural assets include access to natural resources such as land, pasture and water. In the Djibouti

urban context physical and natural capital appear to be of relatively lesser importance than social and financial capital, and were therefore analysed together.

Since the possession of key assets such as cars, motorbikes, phones, TVs etc. was used to define the wealth index, which was in turn used to define the food security profiles, little independent analysis can be conducted with regard to asset possession, although the data can be used to identify changes over time (as was done, for example in 2008, with data from the 2006 MICS).

Overall, wealth (seen as the number of assets urban households possess, access to safe water and crowding - see section 1.2.1 Household access index), has improved over the four years preceding the survey, and particularly so in the previous two years. However, the proportion of households with very poor assets was still relatively higher in 2010 than it was in 2006.

**Figure 18: Changes in wealth between 2006 and 2008.**



Consumption of water per capita was significantly higher among the Food Security – Middle & Better Off profile than among those in the other Food Security Profiles. There were however, no significant differences across the three other profiles. Possession of livestock was overall low in Djibouti urban centres; only 8% of the households in urban centres reported having any livestock. There was no significant difference in livestock holding across food security profiles. However, there were regional differences. Households in Djibouti Ville possessed significantly fewer goats compared to households in the other regional capitals.

When households were asked if they had sold assets or livestock during the twelve months preceding the survey only 6% and 2% said that they had sold assets or livestock, respectively. This finding suggests minimal, if any, assets stripping and an overall relatively stable year. Reasons given for selling assets were mainly to purchase food and cover lighting/electricity expenses. There were no differences across food security profiles.

Overall 70% of the households surveyed owned their home, 26% were renting, 1.7% were living in a home provided by family and 1% lived in a home provided by an employer. The most commonly used material for roofing was corrugated sheets.

The main fuel sources were kerosene (76%), charcoal (15%) and wood (6%). Food Insecure households used significantly more charcoal and less kerosene as fuel sources than households in the other food security profiles. Similarly, Food Secure - Middle & Better Off households used significantly more kerosene as a fuel source than any of the other households did. These relationships are likely linked to income/expenditure levels. Similar relationships were also found with regard to household source of lighting. Overall, 57% of the households used electricity as their main source of lighting while 37% used oil lamps. However, 88% of the Food Secure – Middle & Better Off households used electricity while only 11% of the Food Insecure households did.

Data also suggested that housing varied across Food Security Profiles. 80% of Borderline households owned their homes, while 70% of the households in the Food Secure profile and 59% of the Food Insecure households did. The difference in ownership levels among the Food Insecure and the Borderline Food Insecure households was significant. 10% of the Food Insecure households and 3% of the Food Secure Poor households were more likely to use a house belonging to a family member than Food Secure households were (0.3%)

### 3 MINIMUM COST OF DIET

As discussed in the methodology and in annex 2, a minimum cost diet was calculated for the six different regions in Djibouti. The minimum cost diet represents the daily cost of a theoretical diet, which covers all the nutritional requirements of all seven family members modelled in the tool, at the minimum cost, using the locally available foods. The diet is not necessarily a diet that would be culturally acceptable in Djibouti, nor is it a diet which would necessarily be recommended for the population in Djibouti. Any diet, which would cover all nutrient requirements AND be culturally acceptable and/or be recommendable from a programming perspective, would be more expensive than the minimum cost diet. The minimum cost diet software only selects food items which deliver the most and best quality nutrients for the least cost, disregarding feasibility, cultural acceptance or palatability of the diet.

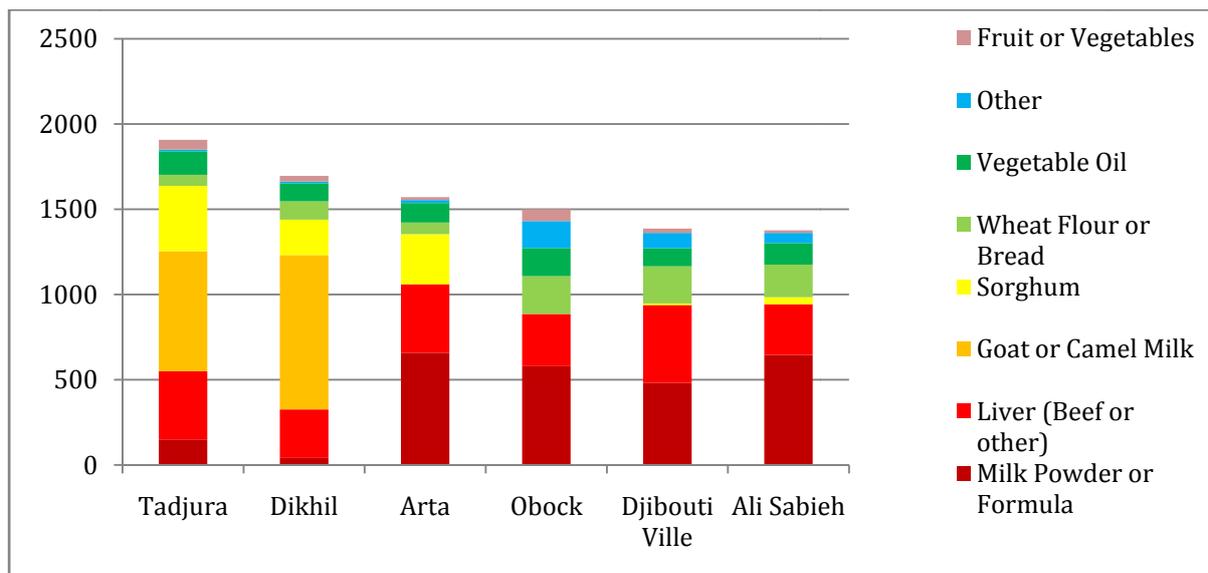
**Figure 19: Minimum Cost Diet is nutritionally adequate as opposed to diets of Food Consumption Score**

<u>Methodology</u>	<u>Type of Diet</u>	<u>Description of Diet</u>
Cost of Diet (CoD)	Minimum Cost Diet	• Nutritionally adequate diet, including all micronutrients, at minimum cost
Food Consumption Score (FCS)	Acceptable Consumption	• NOT nutritionally adequate, acceptable in consumption terms
	Borderline Consumption	• NOT nutritionally adequate, borderline in consumption terms
	Poor Consumption	• NOT nutritionally adequate, poor in consumption terms



The minimum cost diet calculated for the different regions in Djibouti ranges in cost between 1,376 Djibouti Francs (in Ali Sabieh) to 1,908 Djibouti Francs (in Tadjourah). Overall in Djibouti the minimum cost diet, based on the weighted average, cost 1,690 Djibouti Francs (Figure 20).

**Figure 20: Minimum Cost Diet per family per day and food items included in the calculation of the CoD for the Different urban centers**

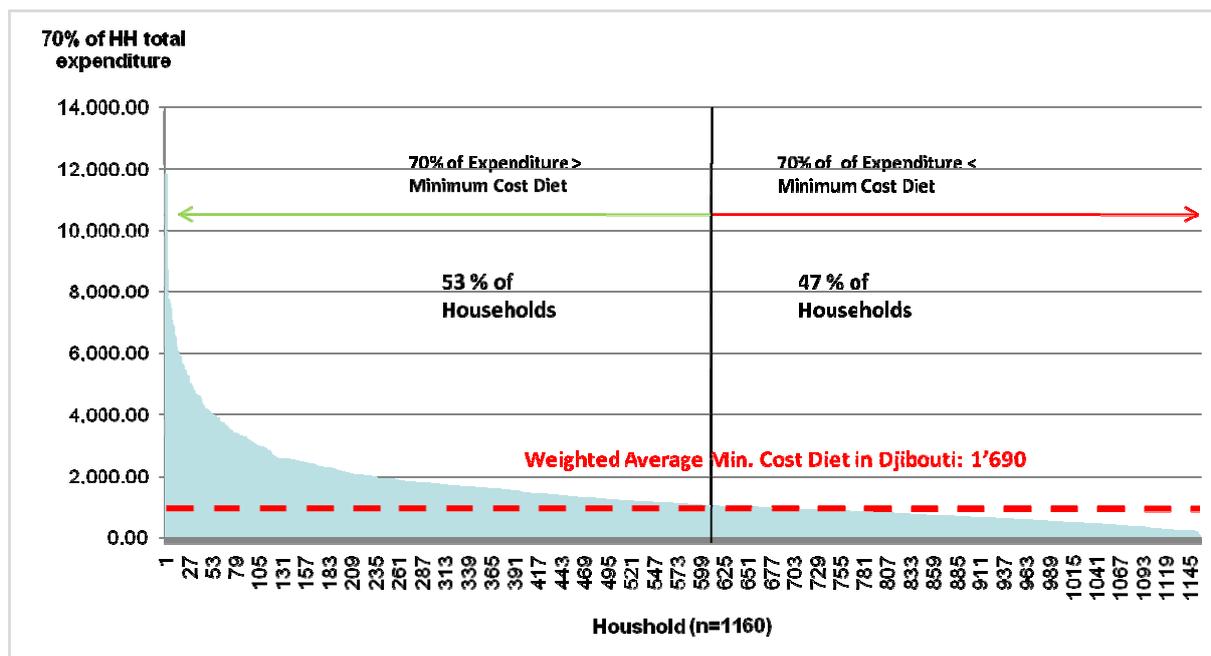


### 3.1 AFFORDABILITY OF MINIMUM COST DIET

The assessment results demonstrated that only 47% of the households in Djibouti could afford the theoretical minimum cost diet, assuming their maximum food expenditure was no more than 70% of their total income. This percentage was calculated using the expenditure data (used as a proxy for income) collected through the household questionnaires - and considering that a household cannot spend its full income on food – a cut-off of 70% of total expenditure was established as the maximum amount of money that could be spent.

This finding complements the findings of the food security assessment, as it shows that even though a large part of the population may have an “acceptable” diet in terms of their food consumption score (FCS), the diet of a very large part of the population is most likely nutritionally inadequate, as many simply cannot afford all the nutrients their families need. It also links to the findings on MUAC and infant feeding, indicating that adequate nutrition may simply be out of reach.

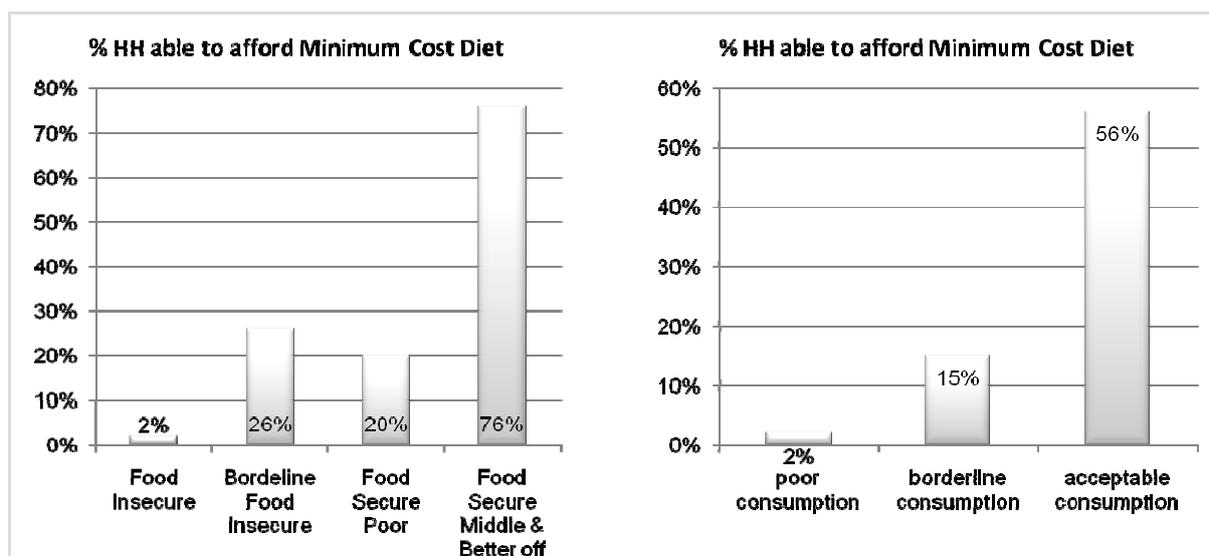
**Figure 21: Ability of households (7 persons) in Djibouti to afford the minimum cost diet per day.**



Assessing the affordability of the minimum cost diet against the FCS shows that just over half (56%) the population with “acceptable” food consumption can afford the minimum cost diet

More generally, when analysing what percentage of households in the various food security groups could afford the minimum cost diet, figures indicated that only 2%, 26%, and 20% of the Food Insecure, Borderline, and Food Insecure-Poor households respectively could afford the minimum cost diet. 76% of the Food Secure – Middle and Better Off could afford the minimum Cost of Diet. While more Borderline Food Insecure households could afford the minimum cost diet than Food Secure – Poor households could, they were apparently using a larger part of their income on non-food items rather than on food items and had poorer consumption levels than the Food Secure – Poor households did.

**Figure 22: Affordability of minimum cost diet vs. food security groups and food access profile**



## 4 VULNERABILITY, SHOCKS AND COPING

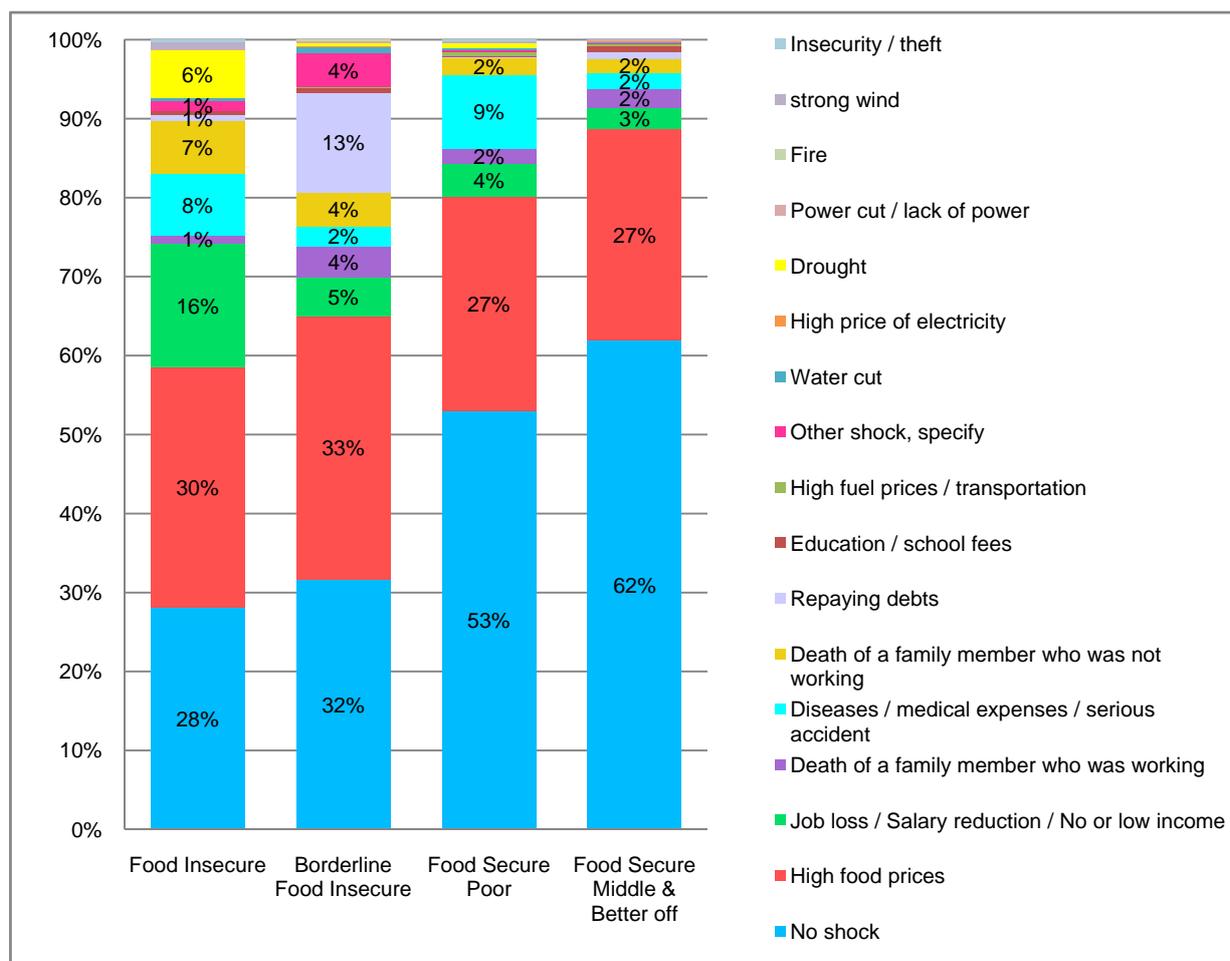
### 4.1 SHOCKS

A common distinction in discussions on shocks is made between ‘covariant’ shocks, which affect entire communities, regions or even countries, and ‘idiosyncratic’ shocks which only affect particular households or individuals.

Over 50% of the households surveyed in the urban centres of Djibouti, reported they had not been affected by any shocks between November 2009 and October 2010. This suggests that the present study could act as a baseline for future monitoring as it is likely to capture the population during a normal period.

Among households that had experienced one or more shocks during that period, the most important covariate shock that affected all Food Security Profiles was related to high food prices. Overall, high food prices were the single most important factor urban households perceived as impacting their incomes and access to food, with 29% of the households mentioning them as their biggest shock. In urban areas of Djibouti where more than 92% of household food sources coming from market purchase and another 4.6 % from credit, it is not surprising that market prices had such a significant and direct impact on household livelihoods.

**Figure 23: Proportion of shocks affecting households by Food Security Profiles**



The main idiosyncratic shocks identified by households were loss of a job or low income at 7%, and disease or medical expenses and death of a family member who was working, both reported by 4% of total responses.

There were great differences between food security profiles and also some differences across geographical areas. During the twelve months preceding the survey, the Food Insecure and Borderline Food Insecure households reported they had experienced considerably more shocks than the Food Secure Poor and Food Secure Middle & Better Off households had. While 62% of the Food Secure Middle & Better households off had not experienced a shock, an average of only 30% of the Food Insecure and Borderline Food Insecure households reported the same.

Within the Food Insecure profile, job loss or low income was the second biggest shock at 16% of responses, while it was reported to a much lesser extent by households in the other Food Security Profiles. Disease or high medical expenses were felt more by the Food Insecure and Food Secure-Poor households at 8% and 9% respectively. Interestingly, repaying creditors was the second biggest shock for the Borderline Food Insecure at 13%, after high food prices. As discussed earlier the Borderline Food Insecure households were also the households relying most on credit to access food, non-food items and cash.

Households were asked if shocks had affected their ability to access food. Of the households reporting specific shocks, 90% of those who had identified repaying debt as a shock, stated it had impacted their food access, followed by 73% who reported that diseases had done so. 70% stated the death of a working family member had impacted food access, as had the loss of a job (69%) and high food prices (62%).

When households were asked if they had recovered from the shock of high food prices, 84% of the respondents said they had not recovered, 5% reported they had partly recovered and only 11% said they had fully recovered; further highlighting the vulnerability of households to high food prices.

Households were also asked *how* they had recovered from the shocks they had faced. Out of the households that had stated high food prices as their biggest shock, 41% said nothing had been done to compensate for the effect of the shock while 33% stated that they had had to reduce their expenditure on food.

Similarly, 90% of the households that reported having lost their employment, or having experienced a decrease in income, had not yet recovered. About 41% of these households reported not being able to compensate for the shock, while 19% stated reducing food expenditures.

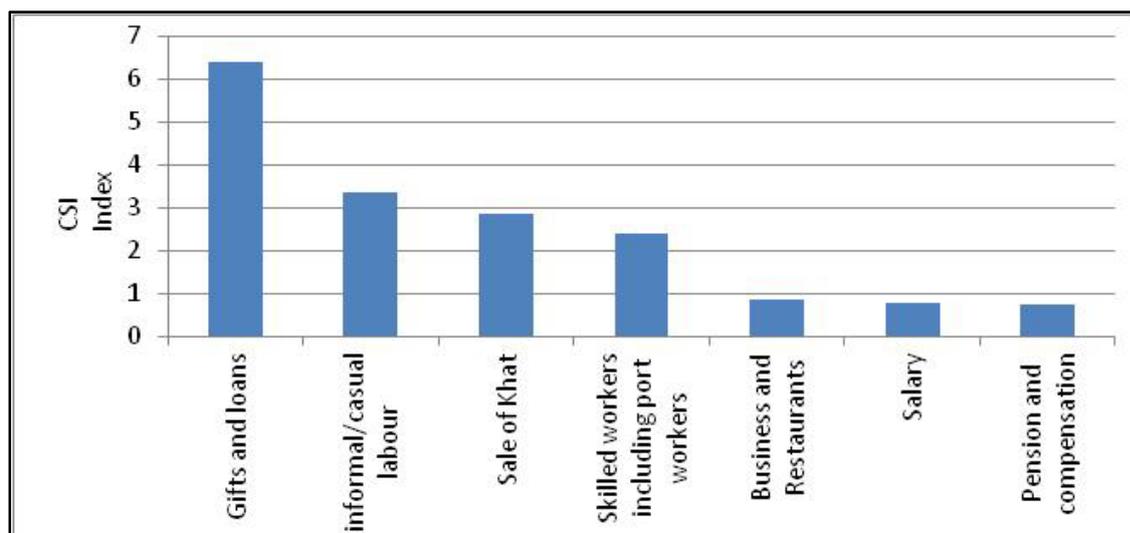
## 4.2 COPING STRATEGY INDEX

The Coping Strategy Index (CSI) is a standardized means of comparing the various coping strategies used by households. Households were asked how many days, over the seven-day period preceding the survey – had they employed a set of defined coping strategies in order to access food. Replies were then weighted and summed together to develop an index.

Urban households in 2010 were using fewer detrimental coping strategies than urban households in 2008 had; in fact, the 2010 CSI value was only 40% the CSI value of 2008. This confirms that overall the proportion of urban households vulnerable to Food Insecurity had reduced considerably since 2008.

Households relying on gifts and loans to access food had by far the highest CSI index, followed by those relying on informal/casual labour. Households relying on salary, pension and compensation, and business and restaurant had the lowest CSI.

**Figure 24: CSI Index value per livelihood activities.**



The CSI index was also compared across Food Security Profiles. Given that the number of coping mechanisms was included in the food security profile definition, it is not surprising to see that the CSI is ten times higher for the Food Insecure and the Borderline Food Insecure households than for the Food Secure Poor and Food Secure - Medium & Better off households. This once more shows an important difference between the Borderline Food Insecure and the Food Secure Poor households. While both had comparable total expenditure/income, the Borderline Food Insecure households were using detrimental coping strategies to feed their families while the Food Secure – Poor households were not.

The CSI index also varied greatly across cities. Arta had the highest CSI, followed by Obock, meaning that households in these cities had on average, used detrimental coping strategies more frequently in the seven days preceding the interview than households in other urban centres had. Households in Ali Sabieh and Dikhil had the lowest CSI index, and thus used fewer coping strategies to provide for their families.

The most often mentioned coping strategies were: 1) using less favourite/ less expensive food, 2) buy food or other things on credit, 3) limit the portion eaten at each meal, 4) reduce the number of meals eaten per day and 5) send an adult family member to seek work elsewhere.

## 5 SEASONALITY

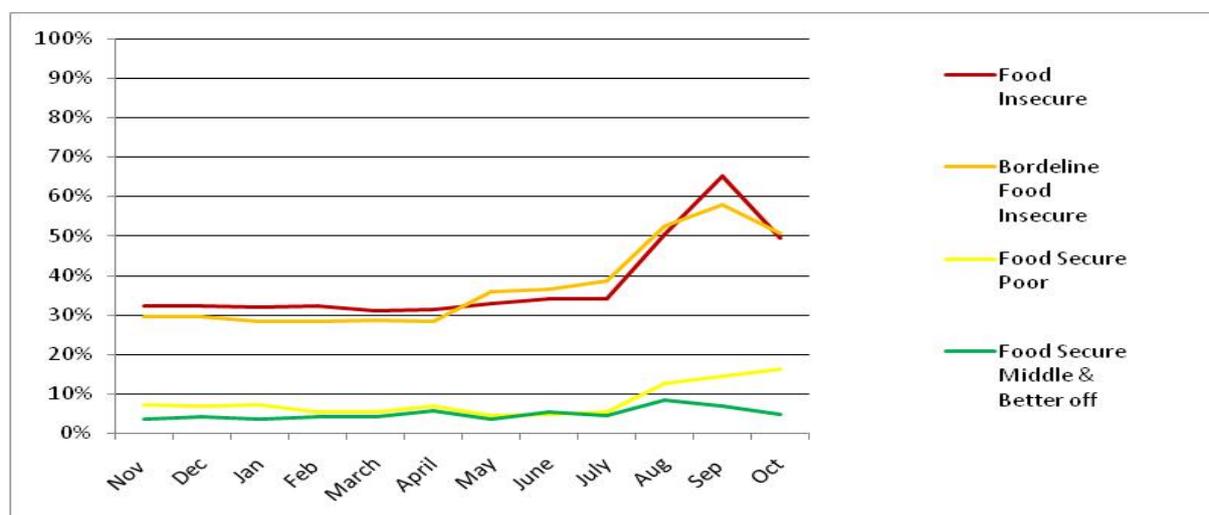
Households were also asked about their perception of seasonality with regard to income, spending, shocks, credit and ability to satisfy their household food needs.

All data collected on seasonality indicated that in 2010, food insecurity was highest during the months of July to October, with a peak in August and September. These were the months during which households, especially the Food Insecure and Borderline Food Insecure, had the hardest time getting enough food to feed their families (Figure 25: ). Households that have been classified as Food Security Poor and Food Security Middle & Better off did not themselves feel they had difficulties feeding their family, while the Food Insecure and Borderline Food Insecure did.

July to October was also the period during which high spending was registered, across all food security profiles, and households tended to have more debt (Figure 26). Debts were again significantly more prominent among the Borderline Food Insecure households (Figure 45). Shocks also appeared to be more important between the months of June/July to October.

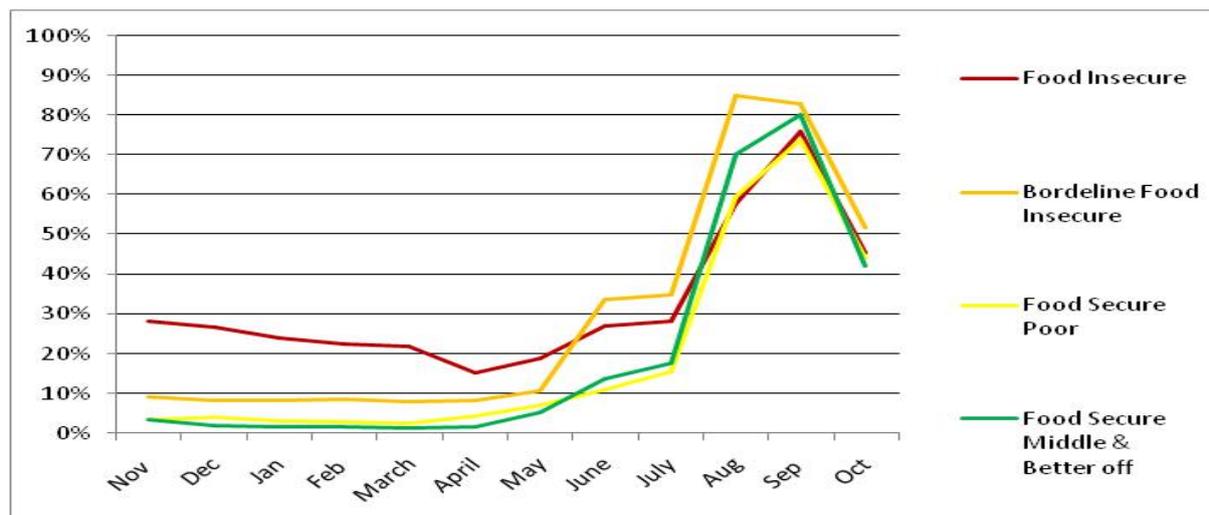
These months correspond to the hottest months, with food and water prices rising, increased use of electricity and fewer job opportunities, as many middle and better off leave Djibouti for cooler places. School fees also have to be paid in September<sup>27</sup>. In focus group interviews with the *sans-abris*, it was also mentioned that Ramadan (the month of Fasting) was a difficult period for the ones relying on food donations, as no households cooked during the day and therefore could not provide leftovers to poorer neighbours. In 2010, Ramadan was coincidentally in August–September, which probably further exacerbated the difficulties being experienced by the food insecure households in feeding their families during these already difficult months.

**Figure 25: Proportional and Seasonal differences in perception of being unable to satisfy household food need between Food Security Profiles**

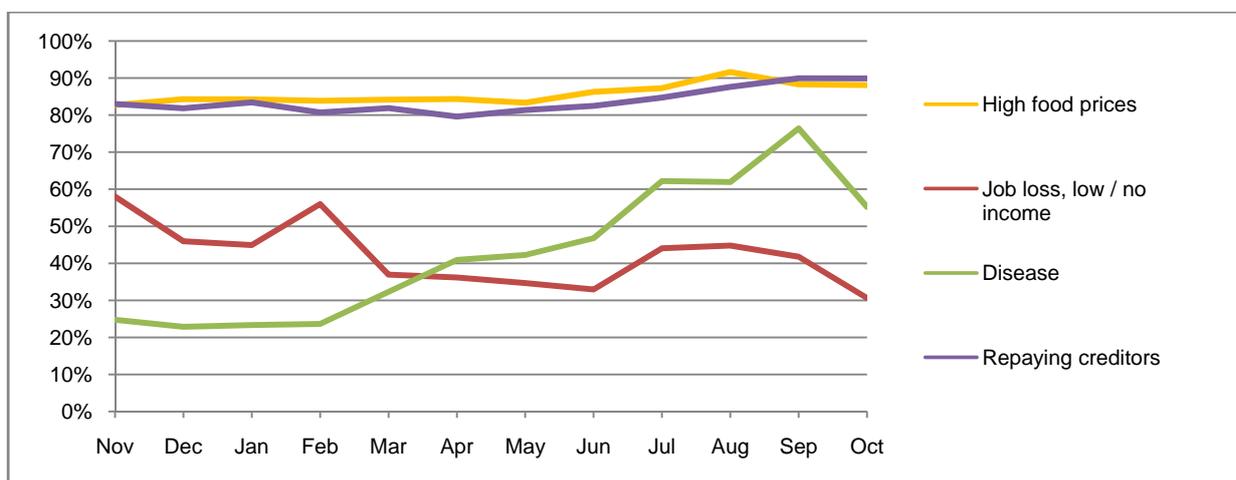


<sup>27</sup> Information gathered from Djibouti food security and nutrition specialists from UN, NGOs and governments.

**Figure 26: Proportional and Seasonal differences in expenditures between Food Security Profiles**



**Figure 27: Seasonality of main shocks**



## 6 PRIORITY OF ASSISTANCE

The priorities of the types of assistance requested varied greatly across the Djiboutian urban population. Despite a large proportion of households having acceptable consumption levels (93%), the main priority reported in terms of assistance was the receipt of food (represented by 30% of the responses which combined reported first and second priorities, which was then followed by the receipt of money (18%) and the provision of job opportunities and housing (12% each). The high proportion of urban households stating food as a priority could be related to the high food prices which continued to be perceived as the most important shock. Indeed, if the first priority reported was taken alone, 35% of the households mentioned food related issues, followed by money (18%) and then housing (13%).

There were significant differences across Food Security Profiles. Regarding the first priority, health was the most important priority among Food Secure Poor households, and money was much less of a first priority for them than households in the other Food Security Profiles. Similarly, housing was much less of a first priority for the Borderline Food Insecure households than it was for other Food Security Profile households.

If priority 1 and 2 were combined, the following significant differences also emerge: Borderline Food Insecure households prioritised receiving food more than the Food Secure households did, while the Food Insecure households prioritized receiving money more than the Food Secure households did. The Borderline Food Insecure households also prioritized electricity more than the other households,

significantly so when compared with the Food Insecure and the Food Secure Middle and Better Off ones. Health remained a stronger priority for the Food Secure Poor households.

There were also differences across cities – Djibouti Ville households put less priority on receiving food than households in the other cities. Households in Ali Sabieh tended to give a higher priority to receiving food. Health issues were also a stronger priority for households in Ali Sabieh than other cities and this difference was significant when compared with households in Dikhil and Tadjourah.

There were few seasonal variations with regard to the assistance needed, except that money was more requested for the months of August, September and October.

## **7 MARKET**

### **7.1 MARKET TYPOLOGY AND MARKET CHAIN**

Djibouti imports almost all its food (as discussed above). As a result, the country is extremely dependant on international and regional markets for the availability of basic food commodities. Urban markets in Djibouti are principally markets for consumption, with the exception of the Harbi market in Djibouti Ville, which is also used by wholesalers and importers (Djibouti National Market Profile, WFP 2008). In Djibouti, there are two main market chains: (i) one for internationally imported products such as sugar, wheat and rice and (ii) one for regionally imported products such as sorghum, certain fruits and vegetables, most of which arrive from Ethiopia.

The types of market actors will be discussed briefly in the following paragraphs below.

#### **7.1.1 Importers**

Importers, dealing in the importation of food items from regional and global markets, are mainly found in Djibouti towns. Cereals (rice, wheat, pasta) as well as products such as sugar, oil and powder milk are all imported. In 2008 it was estimated that there were a total of 172 importers, of which 46 were large importers in Djibouti<sup>28</sup>. According to the findings from the market assessment, international importers sold on average up to 125 Mt of sugar, 120 Mt of vegetable oil, 100 Mt of pasta, 12.5 Mt of Basmati rice and 15 Mt of Belem rice per week. Stock duration for international importers was estimated at two months, which is a relatively short period. Reasons for this included concerns over losses due to spoilage because of high temperatures and humidity and the risk of profit loss due to price fluctuations. Although the Djiboutian Franc has been linked to the US dollar at a fixed exchange rate since February 1973 (Central Bank of Djibouti), the recent and continuing depreciation of the US dollars vis-à-vis other global currencies has created a risk premium for importers, which makes food imports more expensive. Not only does the devaluation of the US dollar impact the duration of stocks importers hold, but it also reduces their willingness to scale up imports, thus contributing to local price volatility.

Regional importers focus mainly on commodities produced within the region such as sorghum, maize, pulses, fruit, vegetables and livestock. These commodities are mainly sourced from Ethiopia, Somalia and Eritrea. Food imports from these countries are usually in small quantities. According to the market study, on average, these importers sold up to 225 Kg of lentils, 1.5 Mt of sorghum, 5 to 8 Mt of fruits<sup>29</sup> and 5 to 6 Mt of onion, tomatoes and potatoes weekly. The stock duration for these importers was very short for perishable commodities such as fruit and legumes (e.g., only seven days) while for cereals stock duration could last between three to six months. Importers reported the existence of middle-men on the Ethiopian markets who were able to influence the price of the imported commodities they purchased.

In addition, regional importers stated that prices could vary greatly between middle men, which further increased price uncertainty for them and contributed to price instability on Djibouti markets. Aside from supplier price fixing, regional currency instability also had an impact on Djibouti prices. The current devaluation of the Berr would be expected to increase the purchasing power of regional traders, but this positive impact has not been observed yet.

---

<sup>28</sup> Djibouti national market profile, WFP 2008.

<sup>29</sup> According to the fruit commercialization season in Ethiopia which starts at the end of the raining season.

### 7.1.2 Wholesalers

In Djibouti, wholesalers purchase in bulk from importers and resell to retailers. Compared to 2008, the number of wholesalers for cereals and vegetable oil in surveyed markets had fallen from 117 to 99 (except for in Djibouti Ville where the number had increased). The scarcity of wholesalers was apparent in the rural areas where, for example, there were on average ten wholesalers in Ali Sabieh and only two in Tadjourah (see table 1). The limited number of wholesalers did not seem to be due to regulation or other entry barriers, but rather to high transaction costs, price instability and the low purchasing power of the district population. These factors undermine wholesaler profit margins and have in fact resulted in some wholesalers leaving the regional markets for Djibouti Ville.

**Table 12: Number of market traders per commodity and urban centre** <sup>30</sup>

	Town	Retailers (end 2010)	Wholesalers (end 2010)	Retailers before 2008	Wholesalers before 2008
Cereals	Ali Sabieh	9	4	10	1
	Djibouti Ville	80	40	92	20
	Tadjourah	6	2	8	2
Vegetable oil	Ali Sabieh	n.a	2	24	4
	Arta	3	1	n.a	n.a
	Djibouti Ville	36	36	40	44
	Tadjourah	5	2	4	n.a
<b>Total</b>		<b>139</b>	<b>99</b>	<b>178</b>	<b>117</b>

### 7.1.3 Retailers

The number of retailers, i.e. traders who sold food and non-food items to households, had also reduced considerably compared to 2008. This situation was due, in part, to the low purchasing power of customers and the low capacity of retailers to realize sufficient profits from their small scale businesses. Consequently, retailers were more vulnerable to trade shocks and unable to mitigate price volatility.

In summary, the findings of the assessment on the market structure underline the extent of market imperfections at the importer, wholesaler and retailer levels. At the importer level, the market was concentrated such that five of the biggest importers controlled over three-quarters of the market share for milk powder, wheat flour, and cooking oil<sup>31</sup>. The concentration coefficient was above 60%, suggesting that the importer market (the first step in the market chain) was indicative of an oligopolistic market. The market concentration coefficient was likely due to the administrative constraints related to importing food in bulk quantities, the financial capacity of traders necessary to carry out imports, risks related to currency devaluation and spoilage of stocks.

## 7.2 MARKET SUPPLY, AVAILABILITY, SEASONALITY OF COMMODITIES

Seasonality of prices on Djibouti markets is mainly driven by the seasonality of prices in Ethiopia (the biggest commercial partner in the region). The seasonality analysis of the Ethiopian markets revealed that the highest levels of sorghum and maize prices were reached in June through October while the lowest prices were observed between November and February<sup>32</sup>. Prices in Djibouti followed nearly the same pattern with the highest prices recorded in June through December and the lowest ones recorded between January and May. The influence of neighbouring countries' seasonality of prices has to be taken into account when considering market-based interventions.

<sup>30</sup> This table shows the number of market actors according to the trader responses so these figures are not exhaustive but gives just an idea of the number of market actors on the markets where data were collected.

<sup>31</sup> Djibouti national market profile, WFP 2008.

<sup>32</sup> Seasonality analysis was done by using the monthly 5-year averages of sorghum and maize prices.

In 2008 staple foods increased 67% for Belem rice, 125% for millet flour and 103% for sorghum red. The increase in prices was due to the high global price and the limited availability of regional imports due to inform export bans. Although, the government of Djibouti implemented several price intervention and price control measures such as tax reduction, re-export ban, subsidizing energy and local bakers, prices continued to increase in Djibouti markets until international prices started to decline. This is an example of vulnerability and low capacity of Djibouti markets to absorb external price shocks

Despite the majority of traders (70%) stating that food commodities were available on Djibouti markets, it is important to note that there could be a risk of shortfalls because of the high dependency of the country on regional and international imports and the oligopolistic nature of the import sector. Depending on the commodities, 40% to 60% of all market actors reported a decrease in their stocks, while 37% reported stability and 12% reported an increase compared to the 2008 pre-crisis period. Despite the fact that prices were lower in 2010 than in 2009, traders continued to state that lower stock levels were due to continuing high prices at both national and international levels.

### 7.2.1 Market Flow, Prices and Food Access

As mentioned earlier, the food items imported from international markets are mainly rice, wheat flour, cooking oil and sugar while sorghum, maize, pulses, fruit and vegetables come from regional markets (mainly Ethiopia, though smaller quantities also come from Somalia). Food items imported from international markets arrive in Djibouti Ville via the port of Doraleh and are transferred to the warehouses at the central market of Harbi. The regional products mainly come from Ethiopia via Ali Sabieh, transitting through Djibouti Ville prior to being transported to other cities (Figure 41).

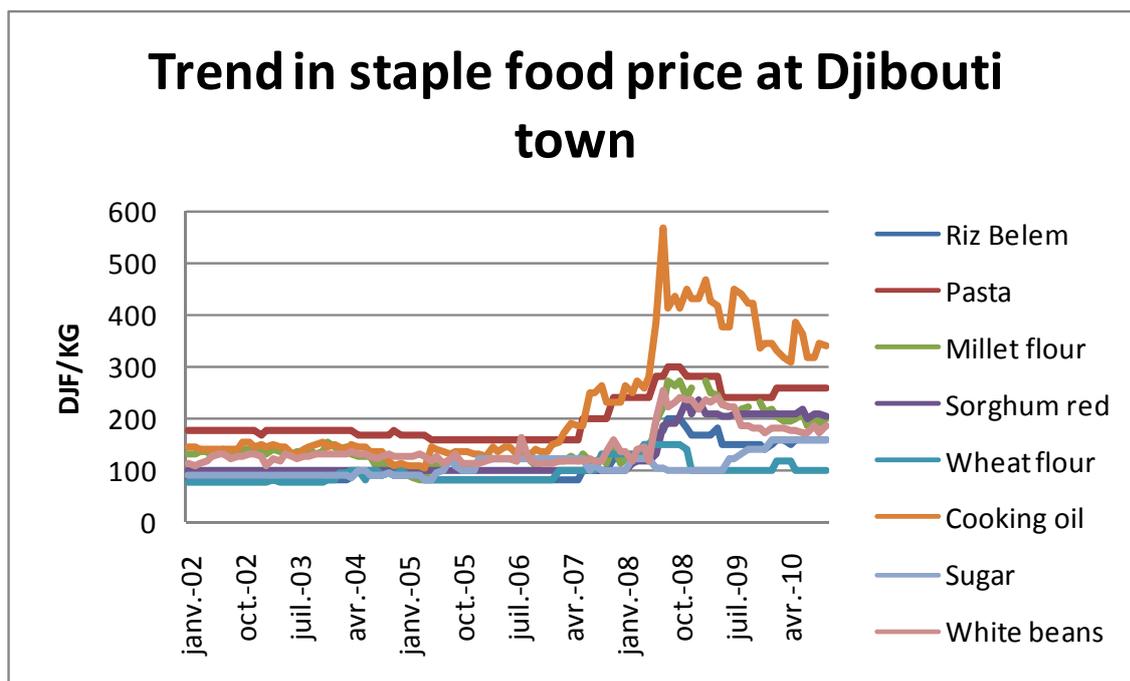
Djibouti food markets are integrated with international and regional markets and the country relies more than 90% on food imports. This reliance exposes the country to the volatility of the external markets, e.g., global and regional price instability, as well as to other global shocks. For example, the main reasons given by traders to justify domestic price increases foreseen for the six months following the survey were price increases at international level (according to 37% of the traders) and import restrictions (reported by 24% of the traders), highlighting the country's susceptibility to external shocks (high prices at international level) and regional markets (import restrictions).

Around 13% of the traders interviewed in Ali Sabieh reported collusion between retailers to set prices on the market, as did 29% of those interviewed in Arta and 35% of those interviewed in Dikhil. However the agreed prices were not respected in Ali Sabieh, though 50% of the traders interviewed in Arta adhered to the agreed prices as did 35% in Dikhil. Food markets in these two cities however were not fully competitive.

Although Djibouti is integrated with the international market, there is a delay in price transmission to the domestic markets that requires caution in planning the cost of the food basket for future interventions. Food commodity prices in Djibouti are integrated with the international market at a correlation coefficient of 0.73 for wheat flour and 0.73 for rice. However, it can take about four months for any changes (whether increases or decreases) in international prices to be reflected to Djibouti markets. Indeed, when this four-month delay is taken into account, the correlation coefficient between domestic prices and the global prices increases to 0.9. It is therefore important to consider the delay in the price transmission to Djibouti markets when setting reference prices for food commodities targeted for future programme interventions.

In October 2010, staple food prices on the urban markets were decreasing compared to prices in October 2009, with the exception of sugar which was following an upward price trend. The graph below presents the trend in nominal prices for key household commodities between 2002 and 2010. As the graph illustrates, compared with 2008/2009 the retail prices for basic food commodities declined from 10% to almost 50% across all urban areas.

Figure 28: Trend in staple food at Djibouti Ville



Source of data: FEWSNET and WFP Djibouti.

However, food prices were still high if compared to their five-year averages (monthly average 2005-2009)<sup>33</sup>. In October 2010, food prices were about 31% higher than their monthly average for the period 2005-2009 for rice, 33% higher for millet flour, 45% higher for red sorghum and 43% higher for sugar. The high food prices were mainly caused by international price levels<sup>34</sup>, and this situation undermined the purchasing power of poor and medium income households (The FEWSNET Food Security Outlook released in November 2010). Furthermore, due to the dependence of the Djibouti markets on international markets, the recent increases in the global price of wheat and rice since June 2010 were likely to result in further price increases on Djibouti markets<sup>35</sup>.

### 7.3 TRADERS' ACCESS TO CREDIT

Of the six importers interviewed, four reported having access to credits, but only one said it was from a formal banking institution. Wholesalers' access to credit seemed to vary across urban centres. None of the wholesalers in Ali Sabieh Dhikil had access to credit, while all the wholesalers in Arta and Djibouti Ville did.

Overall, the limited access to credit by traders undermined their capacity to scale up their businesses. On average only 34% of the respondents stated having access to credit, with the highest access to credit reported in Djibouti Ville (83% of traders) and the lowest in Ali Sabieh and Dikhil where none of the surveyed traders had any. The main sources of credit were other traders, informal money-lenders, and family members. Comparing these findings with the 2008 assessment highlights, it appears that traders' access to credit had improved slightly whereas credit sources had remained unchanged.

The graphs below highlight the percentage of traders that offered credit to their clients and the percentage of traders that offered more credit in 2010 than they had in 2008. Surprisingly, despite the relatively poor access of traders to credit, about 80% still provided credit to their clients at all levels of the market chain. This also represents an improvement compared to 2008, when just over 60% of traders interviewed offered credit to their clients. In some areas such as Arta, Obock and Djibouti, the

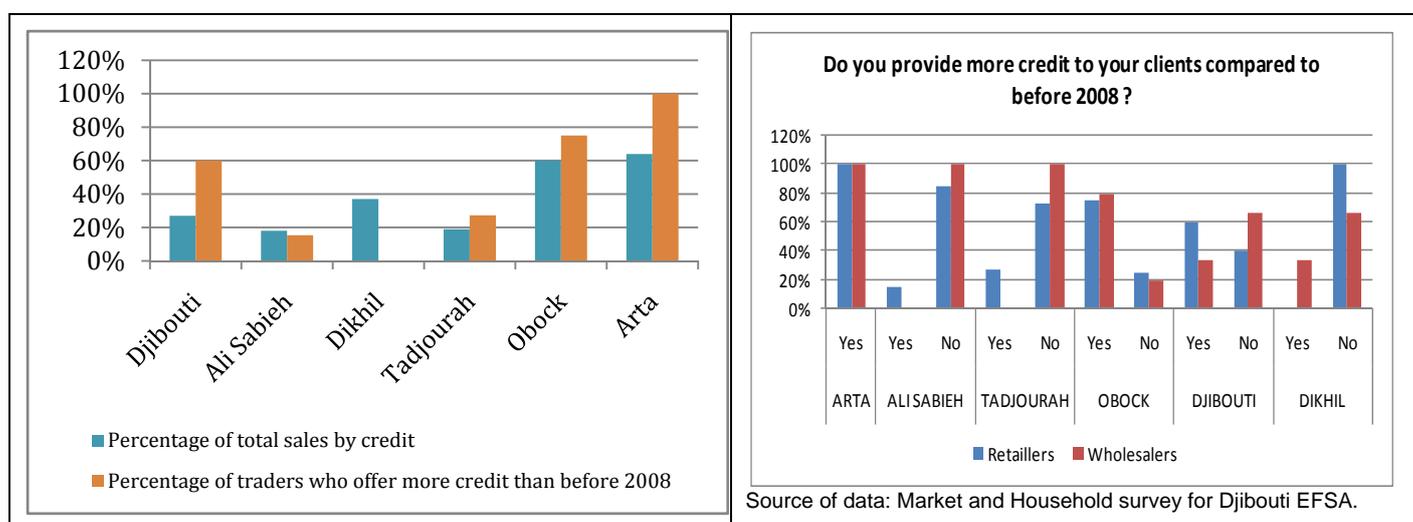
<sup>33</sup> The choice of the 5-year average 2005-2009 is done because the high food price crisis which occurred in 2008 introduced a new price dynamics which needs to be taken into account. In fact, IFPRI, FAO said that food price will stabilize at high level so the normal price level have to be adjusted to take into account this new price situation.

<sup>34</sup> At international level, price of rice and wheat in October 2010 were respectively 45% and 39% above their 5-year average.

<sup>35</sup> High food prices impact varies widely, Oxford Analytica, 7<sup>th</sup> December 2010.

increased amount of credit traders were providing to customers could be seen as a trader strategy to deal with the low purchasing power of households, which was one of the main difficulties they were experiencing.

**Figure 29: Trader access to and supply of credit**



## 7.4 MARKET OUTLOOK: IMPLICATIONS FOR HOUSEHOLDS AND INTERVENTIONS

### 7.4.1 Response capacity of traders

Overall, the capacity of Djibouti market actors to scale up appears weak. The capacity of importers to scale up is closely linked to their import sources. Importers dealing with regional products from Ethiopia transit relatively small quantities but would be able to double quantities in less than two weeks. However, seasonality of products and possible trade restrictions in source countries of the region would have to be taken into account.

- For importers dealing with international markets, the capacity for expansion was between 20% to 50% of their supply levels at the time of survey, and would require a two months delay;
- Wholesaler capacity to scale up was low and potential expansion was estimated between 10% to 35% of their supply levels at the time of the survey. The main constraints to expansion were price instability (35%), high fuel prices (21%), and high purchase prices, coupled with low purchasing power (19% and 18% respectively);
- For retailers, low purchasing power was the main constraint to their scaling up (as reported by 30% of the retailers interviewed), followed by price instability (24%) and high prices (21%).

Given that practically all food is imported in Djibouti, any interventions aimed at strengthening the market would likely also have a positive impact on food access. Despite the relatively high levels of food inflation in Djibouti, traders stated having, although limited, some capacity to expand their supplies without having to impose any price increases. In the other urban markets outside of Djibouti Ville, the majority of traders faced major challenges linked to the low purchasing power of the regional population, which is a major obstacle to further market development.

In Djibouti Ville, the market chain is sufficiently developed whereas in the other urban centres this is not the case. However before any non-food based responses are considered, a feasibility study should be carried out.

**Table 13: Calculation of the cost structure of WFP ration. Price are in USD per Mt.**

	Rice	Vegetables	Vegetable Oil	Sugar	Total
International price	385	72	674	1 080	2 211
Transport costs	171	171	171	171	683
Other direct operational costs	24	24	24	24	95

Direct management costs	146	146	146	146	584
<b>Sub-total</b>	<b>341</b>	<b>341</b>	<b>341</b>	<b>341</b>	<b>1 363</b>
Indirect support costs	24	24	24	24	95
<b>Total cost to WFP</b>	<b>750</b>	<b>437</b>	<b>1 039</b>	<b>1 445</b>	<b>3 669</b>
<b>Djibouti Ville Market Price</b>	787	1 034	1 921	899	4 640
<b>Efficiency Cost (Alpha-value)</b>	<b>0,95</b>	<b>0,42</b>	<b>0,54</b>	<b>1,61</b>	<b>0,79</b>

Table 13 presents the alfa value or the cost efficiency ratio between WFP-provision of basic food items vis-à-vis a food ration and their comparable price on the local market (without taking into account differences between WFP's transaction costs and traders' transaction costs (e.g. taxes), setup costs of non-food based systems and quality differences between imported commodities and local food products). For example, if the Alfa value for wheat is 0.7, the cost of WFP wheat is 70% of the market value in Djibouti for the same commodity. It highlights that it is more cost efficient financially for WFP to import commodities of the typical basket than to purchase them in Djibouti Ville and other regional markets.

#### 7.4.2 Impact of Global Price Outlook on Households

As discussed earlier, with a price correlation coefficient between international and local markets of 0.9, Djibouti is extremely vulnerable to surges in international food prices. As experienced in 2008, increases in prices can have a direct impact on household access to food and ultimately on household food security. This assessment thus sought to assess the possible impact of increased food prices on the Djibouti urban population. It is also important to note that 63% of traders in Djibouti anticipated a 10% increase in prices in the six months following the survey.

Prices were forecasted for a few of the most commonly purchased food commodities, i.e. rice, wheat flour, sugar and oil (Table 14). The price forecast for the six months following the survey was based on the average of the Djiboutian traders' anticipation of price increases and the Commodity Future Prices published regularly by the Chicago Board of Trade.

**Table 14: Forecasted price evolution for the first six months of 2010**

Sources	Rice	Wheat Flour	Wheat Grain	Sugar	Vegetable Oil
Djibouti traders –median increases*	10%	10%		10%	10%
Future prices**	25%		15%	15%	6%
<b>AVERAGE</b>	<b>17%</b>	<b>10%</b>	<b>15%</b>	<b>13%</b>	<b>8%</b>

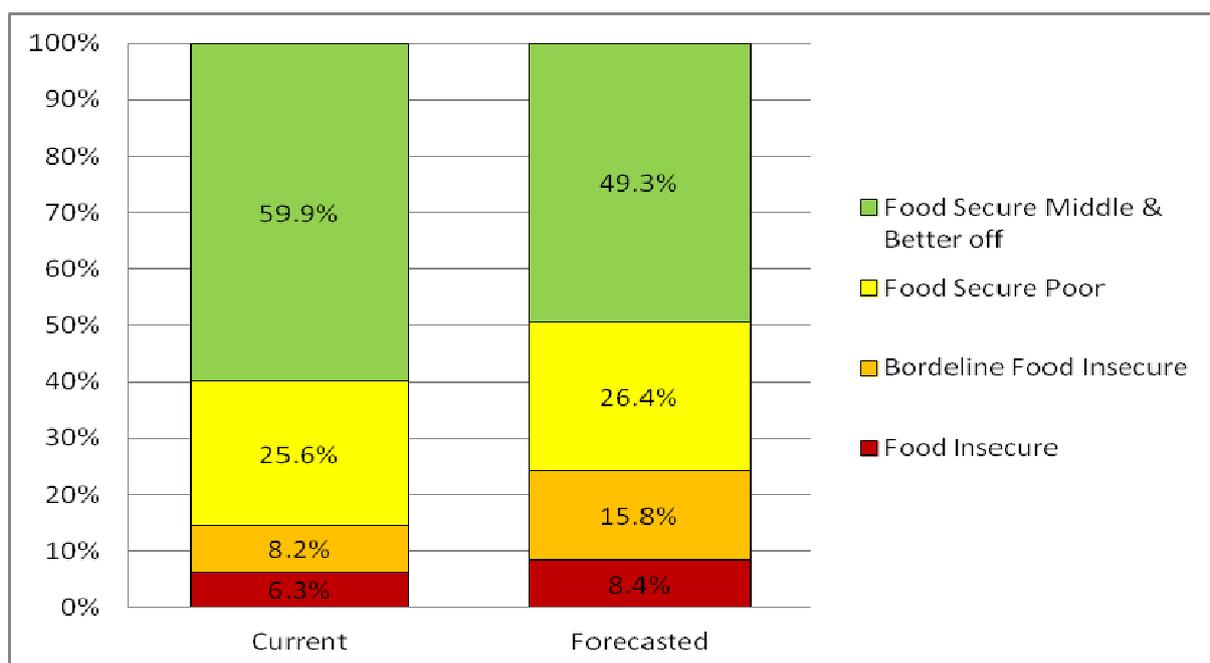
\*Median increase for three main traded products – based on the responses of the 63% traders anticipating a price increase (from the trader survey).

\*\* Source: [www.TradingCharts.com](http://www.TradingCharts.com) (commodity future prices are from Chicago Board of Trade - CBOT)

To estimate the impact of forecasted price increases at the household level, household food expenditure levels were recalculated by multiplying the captured household expenditure on rice, wheat flour based product, sugar and oil, by the forecasted increase. The household-level forecasted food expenditure was then compared with the original household total expenditure (taken as a proxy for income). If the revised household total food expenditure was above 70% of the total household expenditure (income), the assessment team assumed that the household would not be able to maintain such high food expenditures and would therefore fall into the next lower food security group. For example, if the new food expenditures of a Food Secure Poor household reached 72% of their original total expenditure (income), the household's food security level would be expected to fall into the Borderline Food Insecure<sup>36</sup> profile.

<sup>36</sup>This method is not taking into account the elasticity of a household to shift commodities, and it also only looks at a few commodities, rather than the entire food basket. Nonetheless it allows for some insights in possible impact of price increases on households food security.

**Figure 30: Forecasted proportion of households by Food Security Profile, given fixed prices increase of commonly used food commodities**



Based on the process described above, the proportions of households falling into each of the Food Security Profiles were recalculated, suggesting that the Food Insecure and Borderline Food Insecure population could increase from 15% to 24% of the total urban population if the basic food commodity prices increased according to the forecast (see Table 14), all else being equal.

### 7.4.3 Summary of findings and Implications

While the small number of market actors (particularly wholesalers and importers) suggests oligopolistic tendencies and/or trader collusion throughout the country, markets are relatively well developed in Djibouti Ville. In general, traders in Djibouti would have the capacity to increase their supply in response to higher demand, but they are faced with constraints like the low purchasing power of the population, limited availability of credit and environmental factors, which impede long term storage of cereals. In addition, traders are dependent on international and regional markets, which in the past two years have shown a high degree of volatility.

Taking these factors into consideration, any decision to implement a non-food based response in Djibouti Ville would require a more detailed feasibility and cost-efficiency analysis. Aside from the cost-efficiency aspect of non-traditional food assistance responses, there are both advantages and risks due to the market context that must be taken on board when evaluating the most efficient and appropriate response. The key advantages and risks associated with non-traditional food assistance responses based on the findings of the market assessment are summarized below.

**Table 15: Advantages and risks of non-food based responses**

Advantages	Risks
<ul style="list-style-type: none"> <li>Strengthened regional trade and market integration.</li> </ul>	<ul style="list-style-type: none"> <li>Imported inflation and food inflation within the country</li> </ul>
<ul style="list-style-type: none"> <li>Boost effective demand by giving more purchasing power to the population.</li> </ul>	<ul style="list-style-type: none"> <li>Dependence on deficit neighbouring countries</li> </ul>
<ul style="list-style-type: none"> <li>Increased availability of food on Djibouti Ville markets</li> </ul>	<ul style="list-style-type: none"> <li>Low competition at wholesalers and importers levels</li> </ul>
<ul style="list-style-type: none"> <li>Increased availability of credit institutions in Djibouti Ville</li> </ul>	<ul style="list-style-type: none"> <li>Trade restrictions and exchange rate instability</li> </ul>
<ul style="list-style-type: none"> <li>Food inflation in the country is mainly driven by vegetables, salt, spices and sauce which would not be part of vouchers</li> </ul>	<ul style="list-style-type: none"> <li>Low access to credit institutions by traders</li> </ul>
<ul style="list-style-type: none"> <li>Allow market to become more competitive by</li> </ul>	<ul style="list-style-type: none"> <li>Seasonality in price and supply in neighbouring</li> </ul>

Advantages	Risks
targeting small wholesalers/importers.	countries
	<ul style="list-style-type: none"> <li>• High transaction (transportation costs) of regional trade</li> </ul>
	<ul style="list-style-type: none"> <li>• Uncertain cost-efficiency</li> </ul>

## 8 REGIONAL DIFFERENCES

Data was also analysed to assess differences between the six urban centres. In terms of Food Security, Arta and Obock have the highest percentage of Food Insecure and Borderline Food Insecure households. The difference is statistically significant (0.05%) when compared to Djibouti and Ali Sabieh. Ali Sabieh has by far the highest proportion of Food Secure-Poor households; the difference is significant when comparing with Djibouti. Consumption data shows that Arta and Dhikil have the highest proportion of households with Poor and Borderline consumption levels, however the difference is only significant between Djibouti and Arta. There are however, important differences in terms of the access indicators, such as expenditures and coping mechanisms. For example, Arta and Obock have by far the most households having poor access and adopting numerous coping mechanisms; the difference is statistically significant (0.05) in comparison to Ali Sabieh, Djibouti and Dikhil. Arta also has the highest coping strategy index (CSI), followed by Obock, meaning that households in these cities used more potentially detrimental coping strategies in the seven days preceding the moment of interview.

Another interesting finding was that the households in Arta and Ali Sabieh reported the highest incidence of job loss and/or decrease of income as a main shock than households in other urban centres did. This was confirmed by the key informants in Arta, who stated that the closing of the construction site of the new port terminal had impacted employment. Lack of employment was stated as one of the main issues in Arta. There were however no statistical differences between cities on the proportion of working adults versus the total adult population (18 to 59 year old). Gifts and loans as a main source of income were more important in Arta and Dikhil than they were in the other cities, while the use of credit to purchase food and non-food items was more important in Arta than in Djibouti, Ali Sabieh and Dhikil.

The proportion of Food Insecure and Borderline Food Insecure tend to be higher in Arta than other urban Center but the difference is only significant with Djibouti and Ali SABieh only. Another interesting difference is that the proportion of Food Secure- Poor is highest in ALi Sabieh, the difference is significantly different than in Djibouti and Arta

Overall, the fact that Arta had a greater proportion of Food Insecure households compared to other cities was surprising, because Arta was not generally perceived to be a vulnerable or food insecure city. It is possible that the data for this particular city might have been biased by the sampling method, especially since the Arta map/aerial photo used for sampling households did not tally with the reality on the ground. Through discussion and visit of a senior DISED cartographer the team tried to rectify the issue as much as possible. Numerous replacement households were selected to compensate for some areas where the identification of sampled housing structures was particularly difficult from the aerial photo/maps. Despite these efforts, this problem may have introduced a bias in the sample, resulting in targeting the worse off areas rather than the entire urban centre.

Another important regional difference is the fact that Ali Sabieh had the highest percentage (52%) of households with poor access and low usage of coping mechanisms. This could also explain the fact that Ali Sabieh had the highest proportion of households that could not afford the Cost of the Diet (85%), as only 5% of households had "Good Access" and no households had "Very Good Access". Although not statistically significant, the data suggests that Obock and Ali Sabieh had the highest proportion of households with malnourished children, based on the MUAC figures gathered.

## 9 CONCLUSION AND RECOMMENDATIONS FOR RESPONSE OPTIONS

Although the urban food security situation has improved since 2008, the Food Insecure and the Borderline Food Insecure households (a total of 14.5%) still require particular attention. In addition,

the Food Secure Poor households, though currently food secure, are particularly vulnerable to price and income shocks. The 2010 urban EFSA distinguished four different food security groups:

1. Food Insecure (6.3% of the urban population or 26,600 people),
2. Borderline Food Insecure (8.2% or 34,600 people),
3. Food Secure Poor (25.6% or 108,100 people)
4. Food Secure Middle to Affluent (59.9% or 252,800 people)

It also found that 47% of the urban population could not afford the theoretical minimum cost of a nutritionally adequate diet (CoD). Even amongst the Food Secure Middle & Better off households, 24% could not afford the minimum CoD. The following paragraph briefly describes the populations in need of assistance and at risk of food insecurity.

The Food Insecure households are likely to suffer from chronic and structural poor access to food. They rely mostly on gifts to access food and non-food items, and the head of household is typically older than the heads of households in the other food security profiles. The Food Insecure households are also statistically more likely to have to care for chronically ill or disabled family members than the households in the other Food Security profiles are. They use detrimental coping strategies to feed their families, such as selecting cheaper and less preferred foods, limiting food portions or sending family members to eat with relatives. They also rely little on credit, most likely because they are not perceived as financially solvent.

On the other hand, Borderline Food Insecure households rely much more on credit, a sign that they are financially solvent. Their average income is higher than that of the Food Insecure households but it is not significantly different from that of the Food Secure-Poor households. The Borderline Food Insecure households spend significantly less on food than the Food Secure-Poor households do, but also spend proportionally more on non-food items (e.g., debt and family assistance repayment, clothing, water and khat). A higher proportion of Borderline Food Insecure households reported an increase in housing expenses in the twelve months preceding the survey than did households in the other Food Security profiles. Similarly to the Food Insecure, they used detrimental coping strategies to feed their families. The head of the household in the Borderline Food Insecure households tends to be slightly younger than in the other food security profiles.

Households in these two profiles – the Food Insecure and Borderline Food Insecure - have difficulties providing for their families during the dry hot months from July through October, when food and water prices rise, use of electricity increases and there are fewer jobs opportunities as many middle and better off households leave Djibouti for cooler places. School fees are due in September<sup>37</sup> and diseases appear to increase. These households are also more likely to have malnourished children than the Food Secure-Poor and Food Secure-Middle & Better off households, and this difference was significant within the sample size.

The Food Secure – Poor households have adequate food consumption levels, rely little on credit and/or gifts, and make little use of detrimental coping strategies to feed their families. Their food security situation seems stable, even during the lean period. However, as many as 80% of the Food Secure–Poor households are too poor to afford a minimum cost diet and to cover all the nutritional needs of their families. Because they are poor, they are also susceptible to price increases. As the forecast demonstrated, a proportion of this profile is likely to slip into food insecurity if prices rise significantly in the coming year.

In line with findings emerging from other assessments (MICS 2006, MSF 2010), this EFSA confirms that the nutritional situation for young children is of particular concern, with more than 10% of the children between the ages of 6 and 59 months in the sample suffering from acute malnutrition. Among children between the ages of 12 and 24 months the rates are double those reported for the entire sample. This age group is particularly important, since during this time window (often referred to in the technical literature as “1000 days”), nutritional interventions can have great positive impact in preventing children from becoming stunted, and thus disadvantaged for life. The fact that young children are more likely to be malnourished than older ones could be an indication that acute

---

<sup>37</sup> Information gathered from Djibouti food security and nutrition specialists from UN, NGOs and governments.

malnutrition is related to weaning practices. An exacerbating factor is the disease burden, as more than 60% of the households interviewed stated that their children had experienced one or more illnesses in the three months preceding the survey (e.g., diarrhoea, fever and acute respiratory infections).

In terms of feedings practices, exclusive breastfeeding is almost never practiced and breastfeeding up to two years of age is very infrequent. This becomes particularly relevant for children between the ages of 6 and 23 months for whom the quality of complementary foods is very poor. The family diet is mainly based on staple foods rich in starch but with limited or no animal source protein, fruit or vegetables to supply the protein and micronutrients required for optimal growth and development. The proportion of children who receive specialized complimentary products is low, possibly because their families cannot afford them. These inadequate feeding and care practices continue to expose children to malnutrition and increase the risk of death.

In short, there is a strong need for action targeting the Food Insecure and Borderline Food Insecure households as well as the nutritional situation of young children. Based on the above, the following broad recommendations for intervention are:

- **Introduce a seasonal transfer of food, cash or voucher<sup>38</sup> during the lean period (July and October) for Food Insecure and Borderline Food insecure households that includes a training or/and work component as unemployment is high;**
- **Increase the reach of supplementary feeding programme in all urban centers** for malnourished children, pregnant and lactating mother that includes a protection ration for family members.
- **Introduce pre- and neo-natal education in Mother-child Health and/or supplementary feeding initiatives** to promote improved infant and young child feeding and treatment practices that address severe and chronic issues related to malnutrition and micro-nutrient deficiencies of both children and mother;
- **Protect the population against international food price surges** by promoting the development of safety net systems, fiscal policies and/or grain/food reserves that can be activated when the situation becomes critical. Close monitoring of the prices of a nutritional and culturally acceptable food basket is also essential;
- **Promote longer-term investments in job creation and technical training to enhance work force capacity and ultimately reduce unemployment.**

A set of more detailed recommendations based on the results of the response analysis workshop will be available mid-February 2011.

---

<sup>38</sup> The market study recommends that a feasibility assessment for cash and voucher transfer be carried out to advise on implementation. The study also revealed that Djibouti Ville might be more suited for cash and vouchers as its market is more developed than those found in the other regional cities.

**BOX 1: Qualitative information collected specifically for the “sans-abris”**

In Djibouti Ville, the term “*sans-abris*”, can refer to two very different groups of people.

The *sans-abris* may be people who have no shelter and sleep outside in the markets. Key informants estimated them to be at most around 1,000 to 1,200 people. They are mainly adult men (~20%) and boys (~ 65 to 80%). They often lack papers and have no legal status, even if they were born in Djibouti; they are often children of immigrants. They survive by carrying out small jobs in boutiques and restaurants, selling small objects and begging for money and food. The main issues they are faced with include sickness and diseases as well as the use of drugs, mainly glue. They mainly live in Quartiers 4, 13 and 26.

The other group of people to whom the term “*sans-abris*” can refer to are those having only a temporary shelter. These are families that live on borrowed land and have built a shelter with a number of old superimposed pieces of fabrics. Few families live in the open. The ones interviewed have been in Djibouti for about two years, and originally came from Ethiopia or Somalia. Information was gathered through discussions with the lead female head of the households. In general, women earn a living (food and/or money) by washing clothes or selling small recycled items; some have working husbands (employed as casual labour) while others have husbands who do not work. Food is either purchased or received in donation; they do not have access to credit. Consumption levels appear to be poor; those with whom discussions were held stated that no milk or meat had been consumed in the seven days preceding the moment of interview. The most difficult period falls during Ramadan as they can no longer rely on food donations since households only cook at night. The assistance priorities for these *sans-abris* were, in order of importance, obtaining permanent shelter and receiving food and clothing. None of the key informants could estimate the number of these families living in temporary shelters.

Overall, both groups appear to be very poor and food insecure, and in need of assistance. To best understand how to assist these families, it is suggested that a small quantitative study focusing on households living in temporary shelters be conducted through a random sample. Given that these families all have a fixed domicile, it would be relatively easy to sample these households through GPS or other systematic methods. Regarding the young homeless population, although the key informants felt they were not gravely malnourished, it is likely they would certainly benefit from healthy meals. An expanded qualitative study on the assistances required for this segment of the population would allow better understanding of this particular group.

## 10 BIBLIOGRAPHY:

- Banque Centrale de Djibouti, Rapport Annuel 2009.
- Brass, Jennifer, 2008, The political Economy of Livestock Policy: The Case of Djibouti, IGAD LPI Working paper No. 02-08.
- Briend A, Bari A., 1989, Breastfeeding improves survival but not nutritional status. *European journal of clinical nutrition*.
- DISED, 2009, Resultats preliminaire du 2ieme recensement de la population et de l'habitat. Ministere de l'economie et des finances et de la planification charge de la privatisation. Direction de la statistique et des etudes demographiques.
- DJIBOUTI Urban Emergency Food Security Assessment, WFP, October 2008
- Djibouti Livelihood Zone In-depth Emergency Food Security Assessment, WFP, September 2006.
- DJIBOUTI Perspectives sur la sécurité alimentaire, FEWSNET, octobre 2010
- DJIBOUTI Perspectives sur la sécurité alimentaire, FEWSNET, Novembre 2010
- Economist Intelligence Unit. May 2008. *Country Report: Djibouti*. EUI: London.
- FAO (2004) Human Energy Requirements: Joint FAO/WHO/UNU Expert consultation report. Government of Djibouti. March 2004. *Poverty Reduction Strategy Paper*.
- Government of Djibouti, December 2007, Rapport Final, Enquete Djiboutienne a Indicateurs Multiples.
- High Food Prices in the Eastern, Central and Southern Africa: Assessing Impact and Tracking Progress towards Meeting the CFA Objectives, WFP, 2008.
- High food prices impact varies widely, Oxford Analytica, 7th December 2010
- <http://www.dj.undp.org/abtdj.html>
- <http://www.imf.org/external/french/np/country/notes/djiboutif.htm>
- <http://www.africaneconomicoutlook.org/fr/countries/east-africa/djibouti/>
- <http://www.fao.org/gIEWS/countrybrief/index.jsp>
- <http://www.fao.org/gIEWS/english/gfpm/index.htm>
- [http://www.boursereflex.com/actu/2010/12/21/le\\_prix\\_du\\_sucres\\_au\\_plus\\_haut\\_niveau\\_depuis\\_30\\_ans\\_nouveau\\_sommet\\_du\\_cafe](http://www.boursereflex.com/actu/2010/12/21/le_prix_du_sucres_au_plus_haut_niveau_depuis_30_ans_nouveau_sommet_du_cafe)
- Hernandez M. A., M. Robles and M. Torero (2010): Fires in Russia, Wheat Production, and Volatile Markets, Reasons to Panic? IFPRI, August 6. Accessible sur: <http://www.ifpri.org/blog/fires-russia-wheat-production-and-volatile-markets>.
- IMF (2010): Primary Commodity Prices. Accessible sur: <http://www.imf.org/external/np/res/commod/index.asp>.
- Kalton et al, 1996, Handling missing data in survey research, *Stat Methods Med Res*.1996; 5: 215-238
- Milanovic, Branko, "QAT EXPENDITURES IN YEMEN AND DJIBOUTI: AN EMPIRICAL ANALYSIS" World Bank, 2008
- MSF, 2009, Enquete sur l' etat nutritionel la couverture vaccinale et la mortalite retrospective a balbala, Dibouti-Ville,
- MSF,2010, Enquete sur l' etat nutritionel la couverture vaccinale et la mortalite retrospective a balbala, Dibouti-Ville,
- UNICEF, 2009, State of the World's Children
- UNICEF, 2009, Tracking progress on child and maternal nutrition
- UNICEF,2006, Multi indicator cluster survey-Djibouti.
- USAID: FEWS NET Programme. October 2004. *Djibouti Livelihood Profiles*.

USAID: FEWS NET Programme. September 2010. *Djibouti Food Security Alert*.

USAID: FEWS NET Programme. October 2010. *Djibouti Food Security Alert*.

USAID: FEWS NET Programme. November 2010. *Djibouti Food Security Alert*.

WFP, March 2005, Etude de la Vulnerabilite a la Securite Alimentaire, Djibouti

WFP, September 2006, Djibouti Livelihood Zone In-depth Emergency Food Security Assessment, WFP: Rome

WFP, December 2007, WFP/UNICEF Nation Joint Nutrition Survey, Djibouti

WFP, May 2008, Rapid Emergency Food Security Assessment, Djibouti

WFP, 2008, Djibouti national market profile

WFP, Draft, Technical Guidance Sheet, Food Consumption Analysis, Calculation and use of the Food Consumption Score in Food Consumption and Food Security Analysis.

United Nations Development Programme. 2008. Human Development Report 2008: Fighting climate change: Human solidarity in a divided world. New York: United Nations, Palgrave-McMillan.

<http://hdrstats.undp.org/en/countries/profiles/DJI.html>

UNDP 2009 Human Development Report- Djibouti.  
[Http://hdrstats.undp.org/en/country\\_fact\\_sheets/cty\\_fs\\_DJI.html](Http://hdrstats.undp.org/en/country_fact_sheets/cty_fs_DJI.html)

World Bank 2009. International Development Association. Country Assistance Strategy for the Republic of Djibouti. Report No 47273-DJ. March 30, 2009

## ANNEX 1: CALCULATION OF FCS AND FOOD WEIGHTS

As indicated in the VAM guidelines: “When creating a composite scoring system for dietary diversity (with or without the added dimension of food frequency), the choice of weights is obligatory and subjective. Weights are typically constant across analyses in order to have a better degree of standardization of the tool. ... The guiding principle for determining the weights is the nutrient density of the food groups. The highest weight was attached to foods with relatively high energy, good quality protein and a wide range of micro-nutrients that can be easily absorbed.”

The following weights were used for the calculations:

**Table 16: Weights used to calculate dietary diversity**

Food groups	Weight	Justification
Main staples	2	Energy dense/usually eaten in larger quantities, protein content lower and poorer quality (PER <sup>39</sup> less) than legumes, micro-nutrients (bound by phytates).
Pulses	3	Energy dense, high amounts of protein but of lower quality (PER less) than meats, micro-nutrients (inhibited by phytates), low fat.
Vegetables	1	Low energy, low protein, no fat, micro-nutrients
Fruit	1	Low energy, low protein, no fat, micro-nutrients
Meat and fish	4	Highest quality protein, easily absorbable micro-nutrients (no phytates), energy dense, fat. Even when consumed in small quantities, improvements to the quality of diet are large.
Milk	4	Highest quality protein, micro-nutrients, vitamin A, energy. However, milk could be consumed only in very small amounts and should then be treated as condiment and therefore re-classification in such cases is needed.
Sugar	0.5	Empty calories. Usually consumed in small quantities.
Oil	0.5	Energy dense but usually no other micro-nutrients. Usually consumed in small quantities
Condiments	0	These foods are by definition eaten in very small quantities and not considered to have an important impact on overall diet.

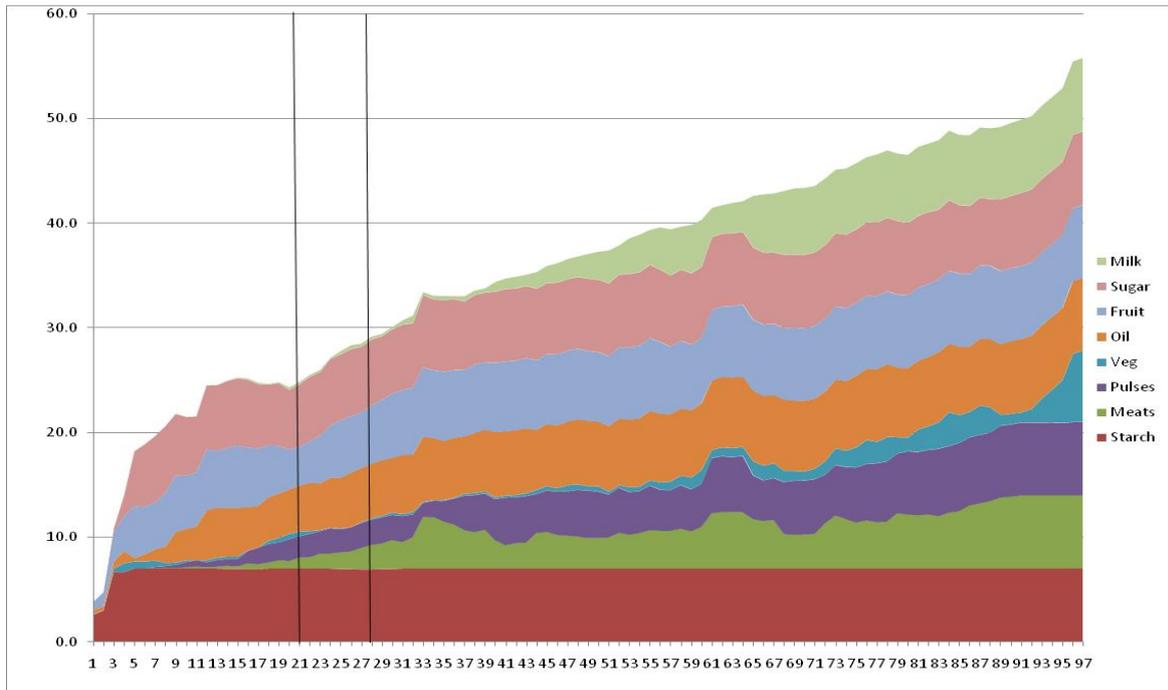
Given that sugar and oil are eaten almost daily in the urban households sampled in Djibouti the cut off points used to categorise dietary diversity (see figure below) were set at higher ranges, as recommended by VAM when sugar and oil are extremely predominant in diet.

**Table 17: Establishing Dietary Diversity categories**

FCS	Profiles
0-28	Poor
28.5-42	Borderline
> 42	Acceptable

<sup>39</sup> PER Protein Efficiency Ratio, a measure of protein quality of food proteins.

Figure 31: Food Consumption Score Threshold Graph.



## ANNEX 2: MODEL INPUTS: FOOD LIST & PRICES, HOUSEHOLD COMPOSITION AND PORTION SIZE

In order to model the minimum cost diet, the methodology uses Microsoft Excel™-based software which links the nutritional requirements of people of different age groups with the nutritional composition of foods found in the markets and their prices, using the solver function of Excel™. In order to run this analysis, four different types of inputs are required: (1) a comprehensive listing of foods which are available on the market; (2) the prices of these foods; (3) the household size and composition for which the diet is to be calculated; and (4) the portion sizes the tool uses for each of the foods.

As for the list of foods and their prices, data was collected for all six urban areas in Djibouti: Djibouti Ville, Arta, Tadjoura, Ali Sabieh, Dikhil & Obok, as the situation is slightly different in each region. Overall, a set of 28 points of sale (i.e. larger markets and small neighbourhood shops) were selected for the food and price data collection. The data was collected using a pre-compiled comprehensive food list capturing all foods which could be available for sale in this specific season.

**Table 18: Sampled Points of Sale Across Djibouti**

Region	# Markets	# Boutiques
Djibouti Ville: Balballah	2	2
Djibouti Ville Boulaos	2	2
Ali Sabieh	1	3
Arta	1	3
Dikhil	1	3
Tadjura	1	3
Obock	1	3

For the model household in Djibouti, demographic data from the household questionnaires was used to create the adequate composition for Djibouti. The model household includes one child between 12 and 23 months, one child between 7 and 8 years, one child between 14 and 15 years, two adult women and two adult men each between the ages of 18 and 29 and 30 and 59 (please refer to Table 19). In addition, given that the infant in the model is breast-fed, one of the adult women in the household was considered a lactating

mother with special nutritional requirements.

**Table 19: Family Composition used for Calculation of Minimum Cost Diet**

Children under 2 years	Number
Baby (either sex) 6-8 months	0
Baby (either sex) 9-11 months	0
Baby (either sex) 12-23 months	1
All other Members	Number
Child (either sex) 3-4 years	0
Child (either sex) 7-8 years	1
Child (either sex) 10-11 years	0
Child (either sex) 12-13 years	0
Child (either sex) 14-15 years	1
Child (either sex) 16-17 years	0
Man, 18-29y, 50 kg, vigorously active	1
Woman, 18-29y, 55 kg, vigorously active	1
Man, 30-59y, 60 kg, vigorously active	1
Woman, 30-59y, 55 kg, vigorously active	1
Pregnant or Lactating Women	Number
Pregnant Woman (2-3 trimester)	0
Lactating Woman	1

As for the standard portion size for each of the food items, the tool models based on the portion size that a child between 12 and 23 months of age would consume per serving on average. This Portion size data is part of the CoD methodology 'standardised assumptions and is based on unpublished research from the London School of Hygiene & Tropical Medicine. The standardised portion sizes per food item are then extrapolated to the other members of the household using appropriate conversion factors.

## ANNEX 3: REGIONAL AFFORDABILITY OF MINIMUM COST DIET

Figure 32: 42% of Households in Djibouti Ville are not able to afford the minimum cost diet per day

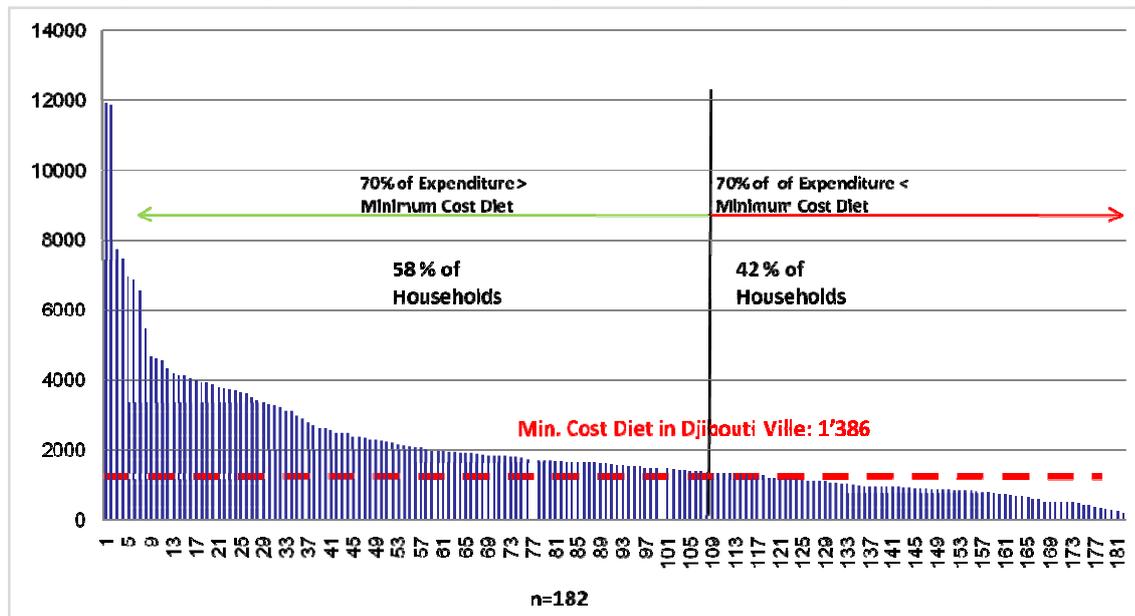
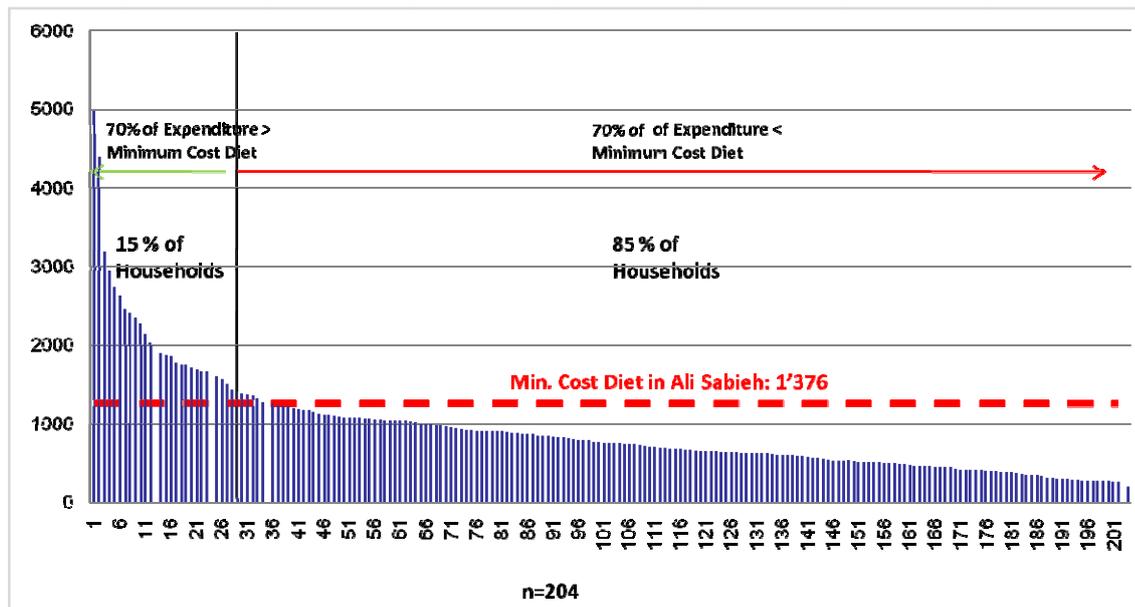
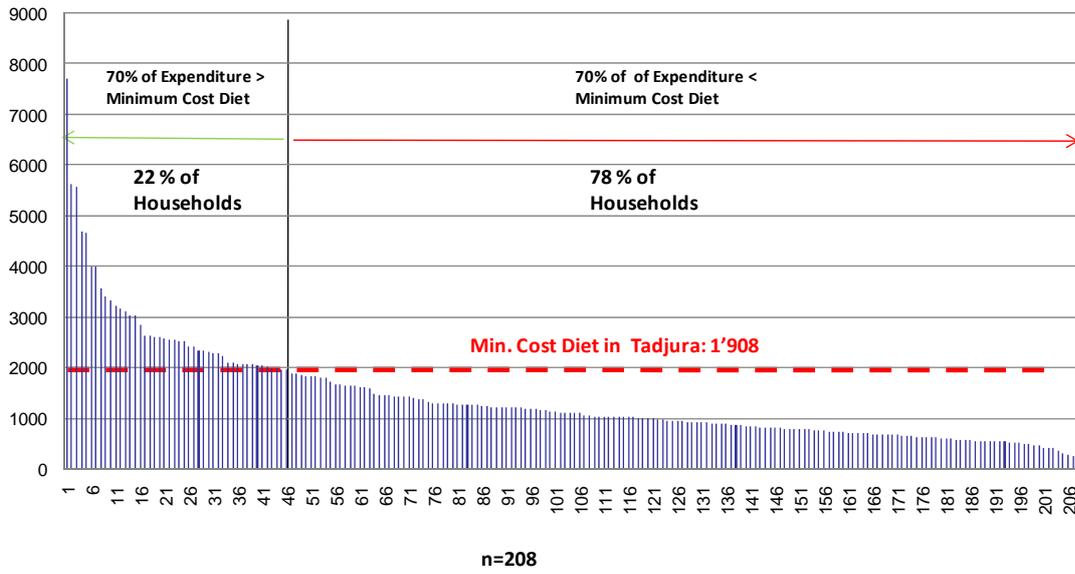


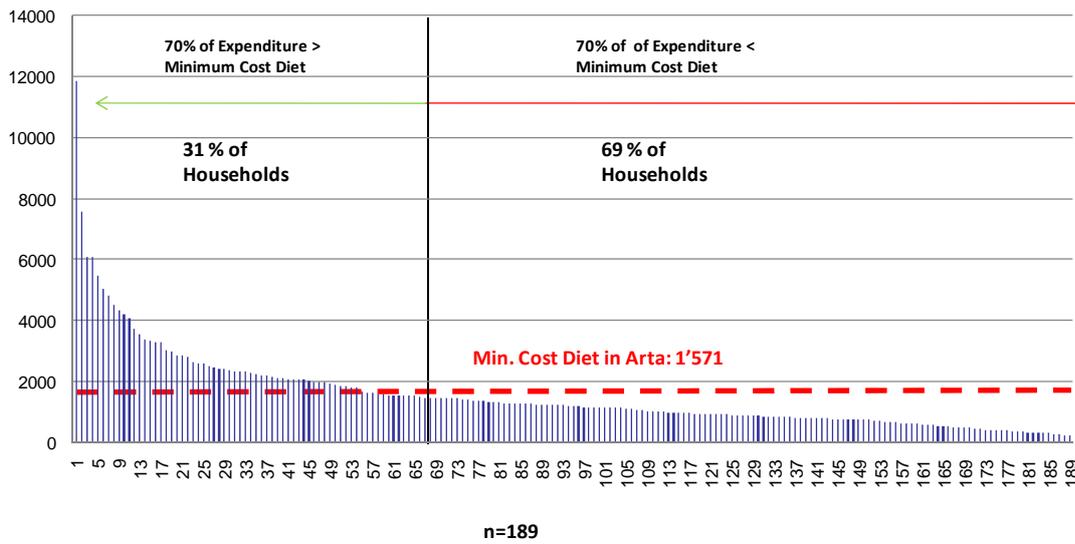
Figure 33: 85% of Households in Ali Sabieh are not able to afford the minimum cost diet per day



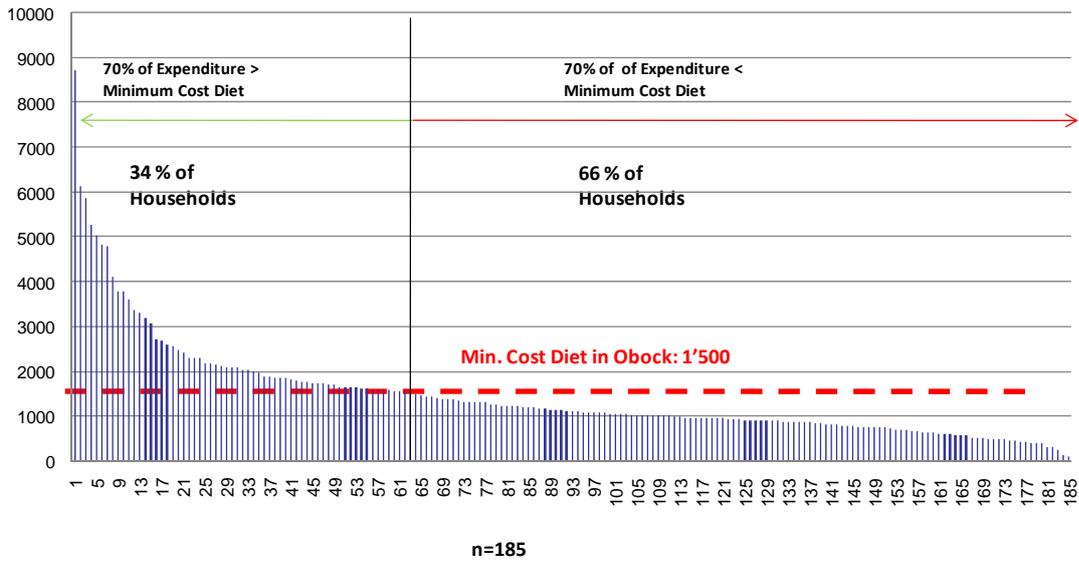
**Figure 34: 78% of Households in Tadjura are not able to afford the minimum cost diet per day**



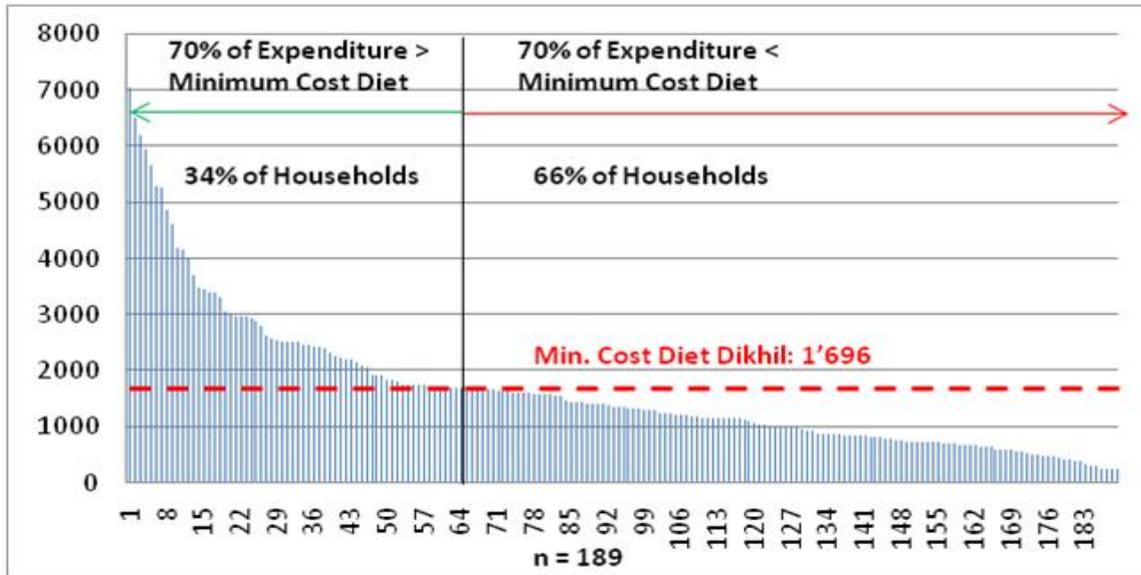
**Figure 35: 69% of Households in Arta are not able to afford the minimum cost diet per day**



**Figure 36: 66% of Households in Obock are not able to afford the minimum cost diet per day**

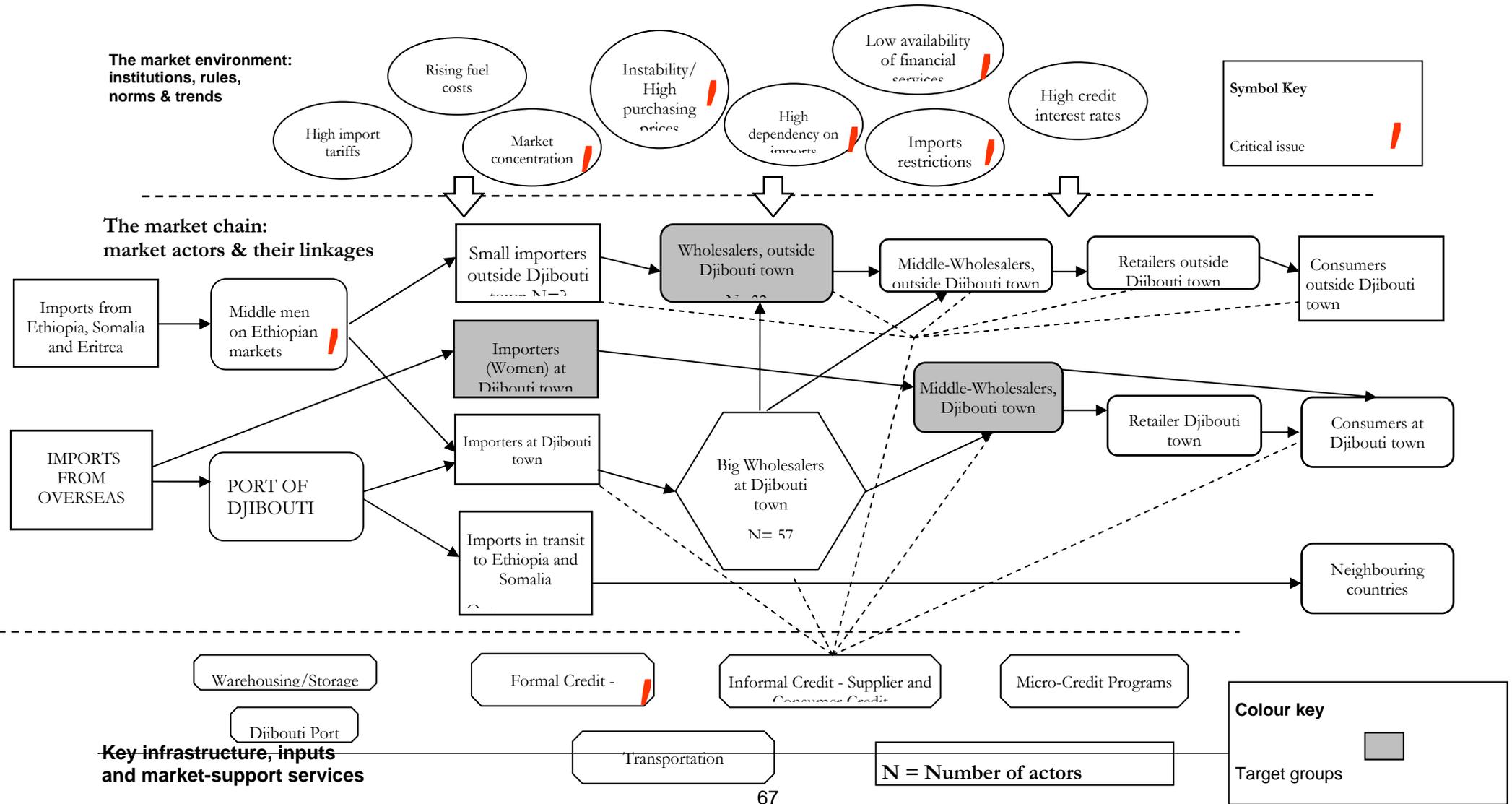


**Figure 37: 66% of Households (7 persons) in Dikhil are not able to afford the minimum cost diet per day**



# ANNEX 4 MARKET ADDITIONAL INFORMATION

Figure 38: Djibouti Market-System Map: Regionally and Internationally Imported Products

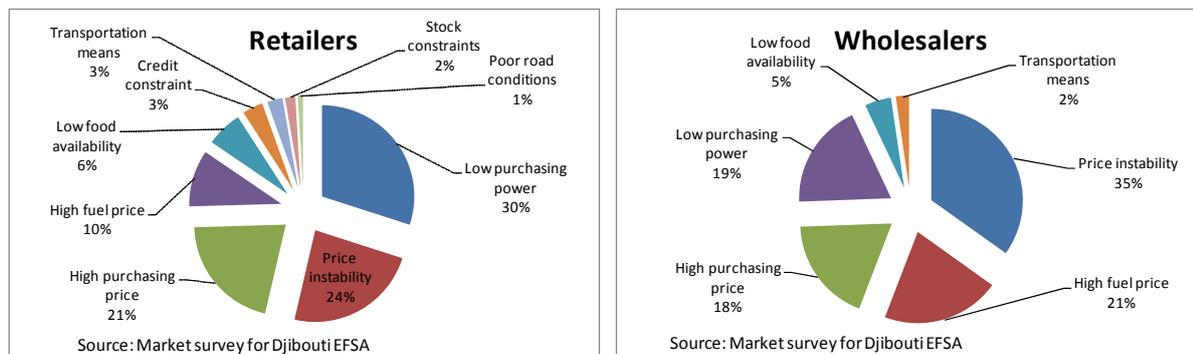


**Table 20: Numbers of food importers at Djibouti Ville**

Items	Pasta	Rice	Wheat flour	Powder milk	Vegetable oil	Sugar
Number of importers	21	35	20	13	48	35
Number of Major importers	11	7	9	5	10	4

Source: Djibouti National Market Profile, WFP 2008

**Figure 39: Main difficulties to expand and scale up trade in regional cities**



**Figure 40: Main difficulties to expand and scale up trade in Djibouti City**

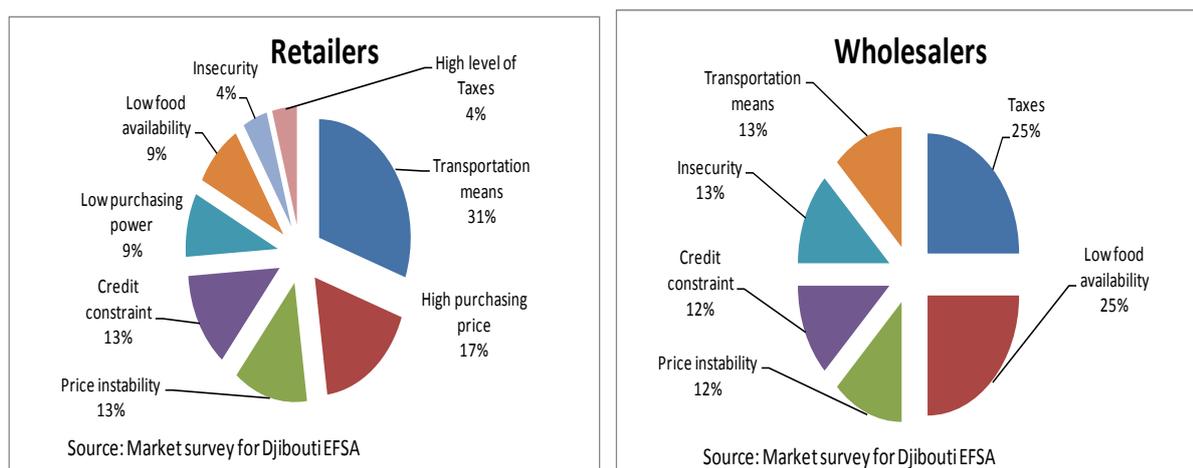
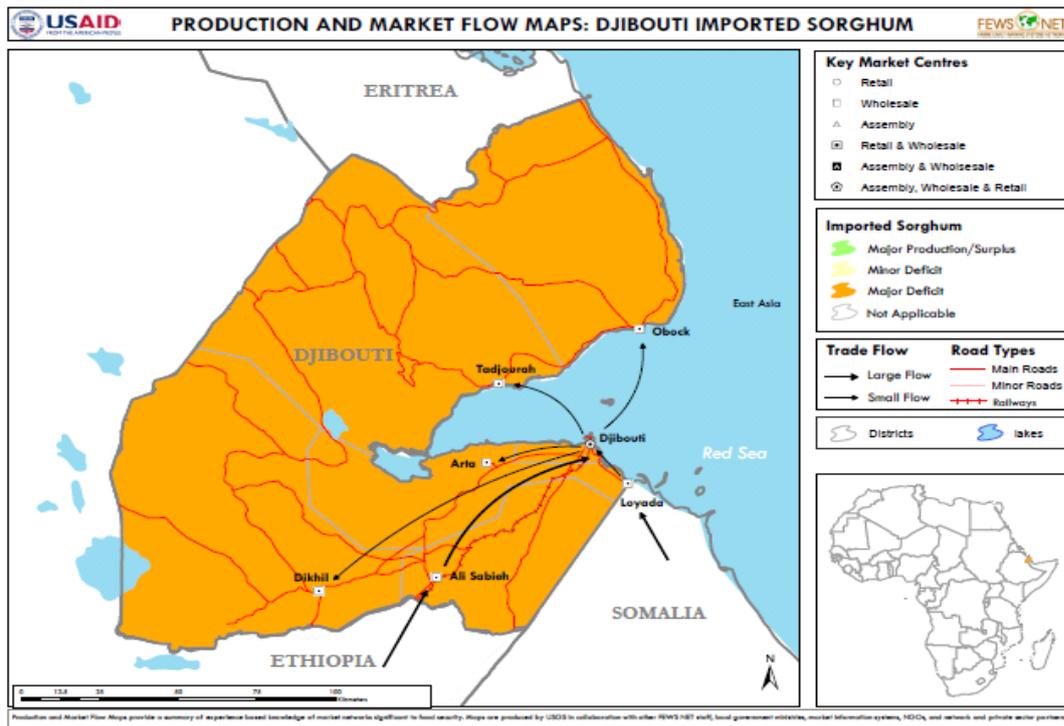


Figure 41: Production and market flow maps



Source : FEWSNET

## ANNEX 5: ADDITIONAL DATA

Table 21: Percentage of households per food security profile that stated having months when it is difficult to satisfy food needs

Food Insecure	Bordeline Food Insecure	Food Secure Poor	Food Secure Middle & Better off
76%	80%	29%	14%

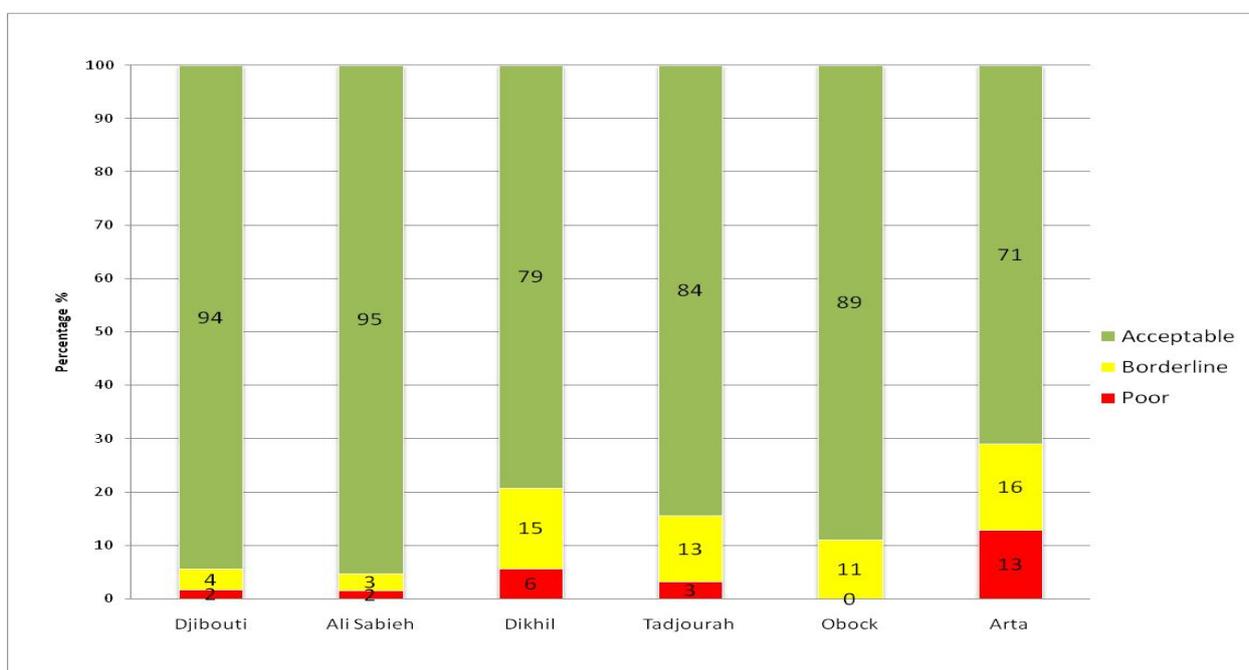
Table 22: [Proportion of Male and Female per city

Gender	Djibouti	Ali Sabieh	Dikhil	Tadjourah	Obock	Arta	Total
Male	52%	50%	51%	47%	52%	50%	51%
Female	48%	50%	49%	53%	48%	50%	49%

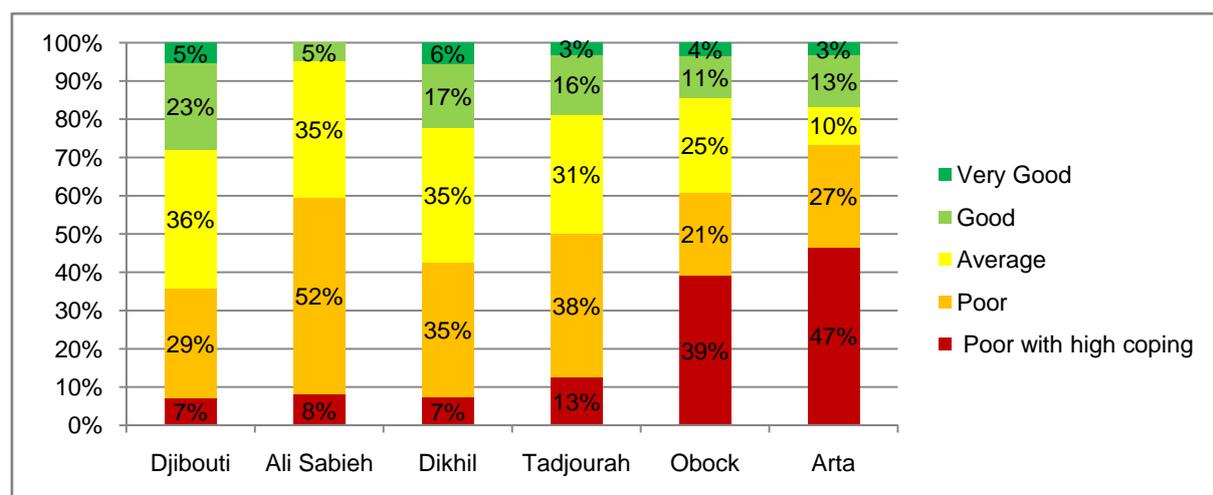
Table 23: Proportion of age groups per cities

Age groups	Djibouti	Ali Sabieh	Dikhil	Tadjourah	Obock	Arta	Total
0 to 5	11%	11%	10%	10%	12%	10%	11%
6 to 17	31%	39%	40%	36%	34%	39%	32%
18 to 59	54%	48%	47%	49%	50%	48%	53%
over 60	5%	2%	4%	5%	3%	3%	5%

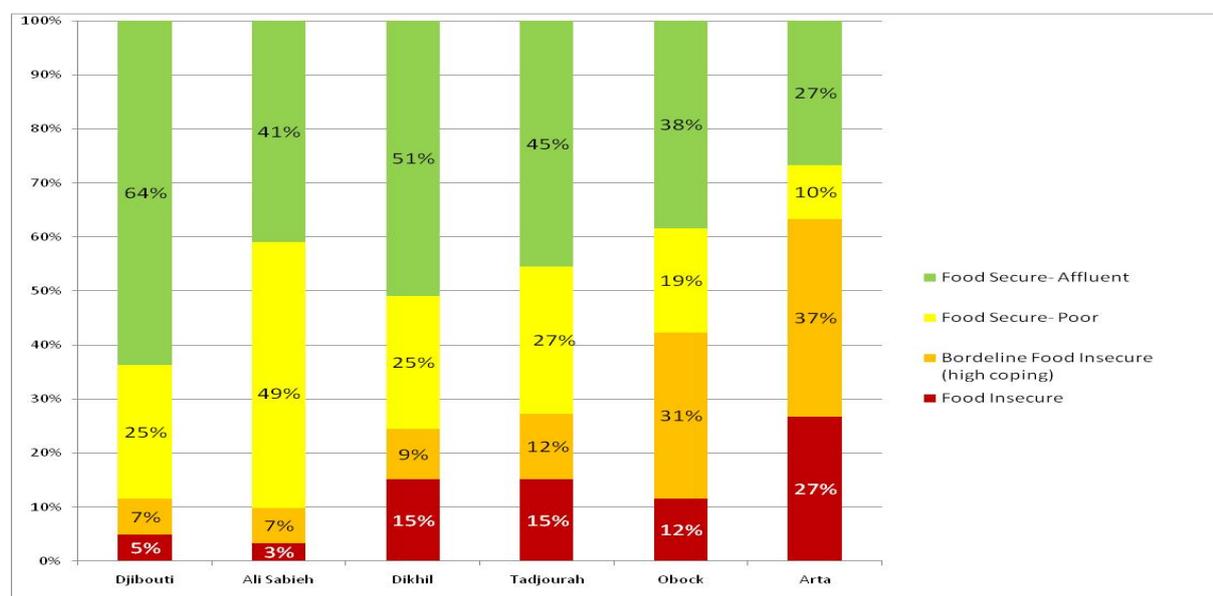
Figure 42: Food consumption groups per urban centers



**Figure 43: Access profile per urban Center (weighted)**



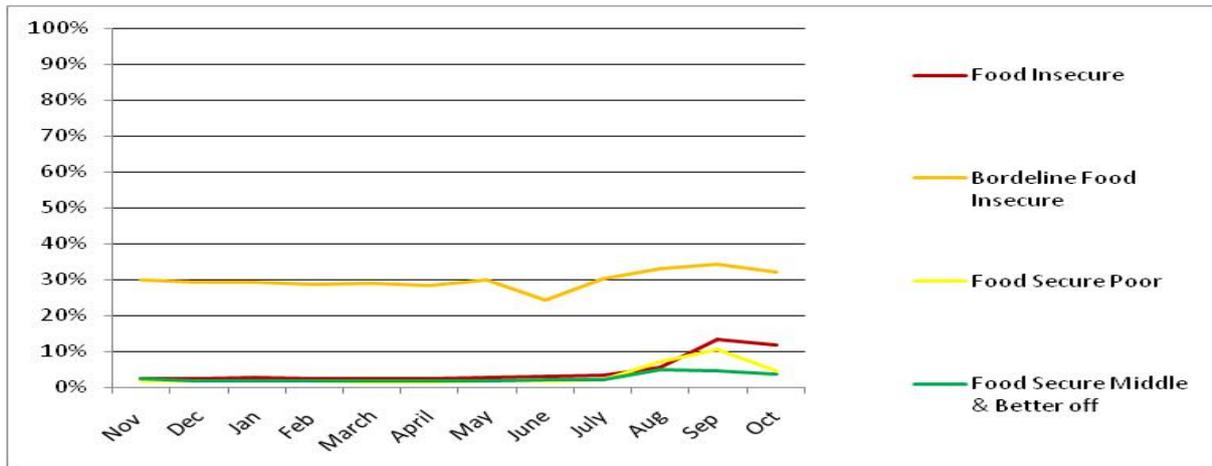
**Figure 44: Prevalence of food insecurity security in the 6 urban centers**



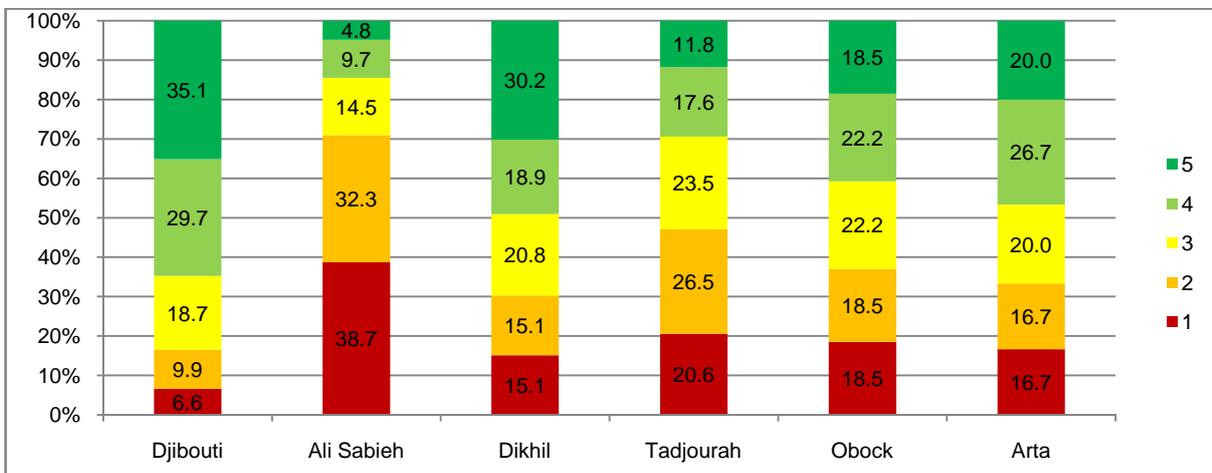
**Table 24: Total Estimated Urban population by Food Security Profile**

Food Security Profile	Djibouti	Ali Sabieh	Dikhil	Tadjourah	Obock	Arta	Total
Food Insecure	17,148	742	2,920	1,842	1,146	2,945	26,743
Borderline Food Insecure	22,985	1,484	1,825	1,474	3,056	4,049	34,874
Food Secure Poor	85,739	11,132	4,745	3,316	1,910	1,104	107,947
Food Secure Middle & Better off	221,098	9,277	9,856	5,526	3,820	2,945	252,522
<b>Total Population</b>	<b>346,971</b>	<b>22,636</b>	<b>19,347</b>	<b>12,157</b>	<b>9,933</b>	<b>11,043</b>	<b>422,087</b>

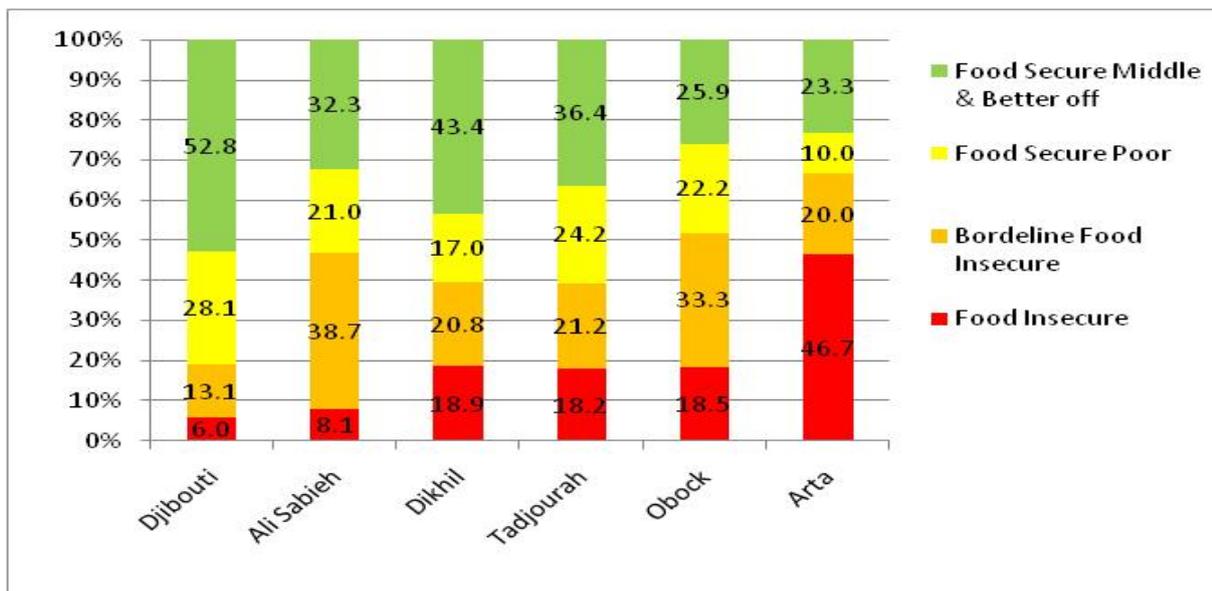
**Figure 45: Proportional and Seasonal differences in debts between Food Security Profiles**



**Figure 46: Expenditure (quintile) per region**



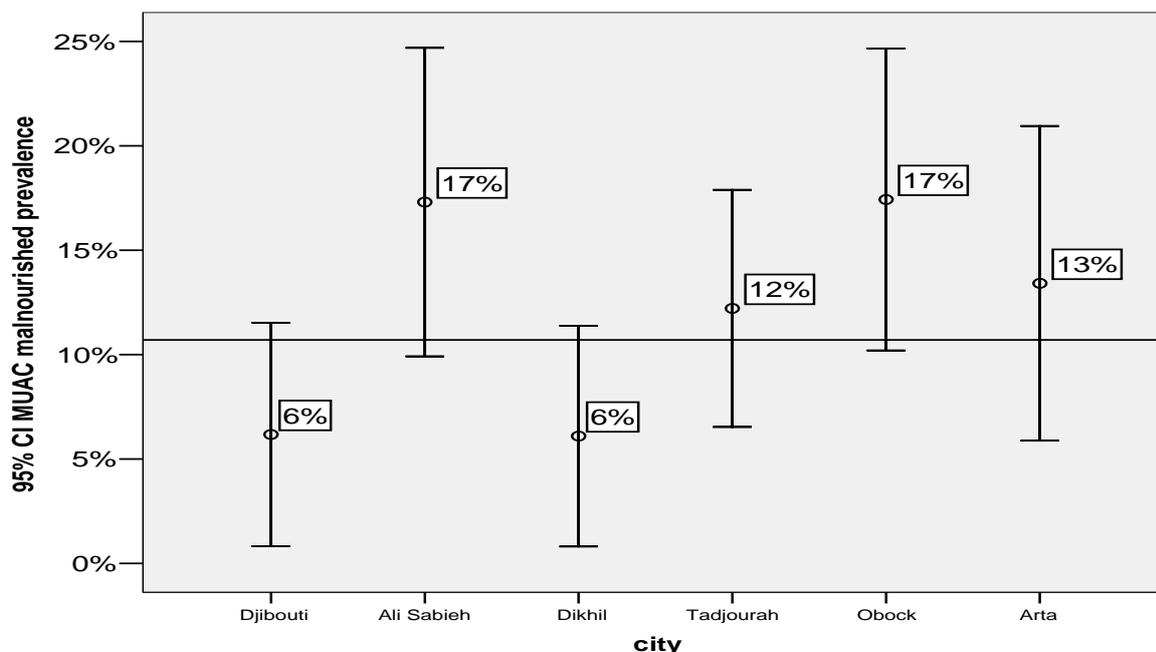
**Figure 47: Forecasted Food Security Profiles if prices of rice, wheat flour, sugar, increase**



**Table 25: Comparison of MUAC in Djibouti city (2008 and 2009)**

YEAR	N	Measurement		
		Severe	Moderate	Normal
2008		2.8%	5.6%	91.6%
2010	188	1.2%	4.9	93.8

**Figure 48: Indicative low MUAC by city**



**Table 26: Number of children in selective feeding programme by city.**

Type of feeding programme.	Ali Sabieh	Dikhil	Obock	Arta	All areas
Therapeutic	0.0%, N=0	50%, N=1	66.7%, N=2	83.3%, N=5	5%, N=8
Supplementary	100%, N=2	50%, N=1	33.3%, N=1	16.7%, N=1	38.5%, N=5

**Table 27: Types of diseases by city.**

City.	Djibouti	Ali Sabieh	Dikhil	Tadjourah	Obock	Arta	All areas
Headaches / fever	17.5%	36.4%	26.9%	16.3%	27.6%	31.4%	26.1%
Diarrhoeal diseases / stomach aches	41.3%	27.3%	11.5%	11.3%	23.7%	15.7%	21.8%
respiratory infection	3.2%	3.9%	17.3%	5.0%	1.3%	22.9%	8.4%
Malaria	0.0%	18.2%	0.0%	1.3%	2.6%	0.0%	4.1%
skin infections	1.6%	0.0%	1.9%	0.0%	1.3%	2.9%	1.2%
Other diseases	0.0%	0.0%	0.0%	2.5%	3.9%	1.4%	1.4%
No response	17.5%	14.3%	21.2%	30.0%	22.4%	8.6%	19.1%