WFP
World Food Programme

vam
vulnerability analysis and mapping

Food Security and Livelihood Survey in the Central Highlands of Rural Angola

Angola

June 2005

Index

Index of Tables

Index of Figures

Overview of the central highlands survey area

1. EXECUTIVE SUMMARY

WFP's current Protracted Relief and Recovery Operation (PRRO) in Angola started in 2004 and will end in December 2005. Since 2002, 2.5 million refugees and returnees have been repatriated and resettled and the WFP programme's main objective was to assist returnees during reintegration in their communities of origin. Through general food distribution and other programmes, WFP has been assisting these households in resettling into their communities, putting up dwellings, and preparing land for planting.

Several vulnerability and poverty assessments[1] over the last three years have indicated that the central highlands are the most vulnerable and food insecure areas in the country. Most of the fighting during the war took place in this area, and the area also hosts most of the formerly displaced/recently returned populations, including the majority of former UNITA soldiers. In addition, factors such as environmental degradation due to over-cropping and deforestation and a very poor road network impede agricultural development. To quantify the problems and because of a general lack of secondary information on livelihoods in the area, WFP has undertaken a detailed food security and livelihoods survey covering this central part of the country, also known as *planalto central.*

The survey was a key input to the new WFP programme (PRRO 2006-2008), which focuses its interventions in the most vulnerable areas of the country. With the return of peace and stability in the area, WFP is reorienting its interventions from general food distributions to more specific targeting of its areas of intervention.

The main objectives of the survey were to:

- Assess the overall socio-economic situation of resident populations and returnees and their levels of food security.

- Assess people's livelihood objectives.

- Provide recommendations on whether there is a need for food aid beyond 2005 and if yes, where and in which sectors.

Coverage and methodology

The survey included a household and community questionnaire and anthropometric measurements of children under five. The survey area covered 160 rural communities (1,921 households) in seven agro-economic zones, which include the entire province of Huambo, western parts of Bié province (33% of the province), northern Huila (14%), eastern Benguela (12%) and southern Kuanza Sul (8%).

A household questionnaire was used to collect quantitative information on household demography, housing conditions, assets, income sources and expenditures, food consumption, food sufficiency, risk, shocks and coping strategies, child health and nutrition. A community survey questionnaire was used to collect information at community level, such as access to school, health and market infrastructures, external interventions, etc. A qualitative focus group discussion on specific topics (education, health, food intake, external aid) was conducted in selected communities. The quantitative survey was conducted from November 2004 to January 2005, while the focus group discussions were carried out in April 2005. The main interview period thus took place in the middle of the rainy season, which corresponds to the first half of the agricultural season in the area.

Analysis and reporting

Staff of Tulane University, New Orleans, USA, through collaboration between WFP and World Vision USA, carried out the bulk of the statistical data analysis. The report was compiled by WFP Angola.

---

[1] WFP Vulnerability Assessment 2004, FAO-WFP CFSAM 2004.

Key findings

Vulnerability to food insecurity in the *planalto* is still dominated by the effects of the war and the return and resettlement of households in their area of origin. In most cases, the returnees have returned with very few assets and need several years (and harvests) to re-establish their livelihoods. Other limiting factors are the lack of alternative income generating activities. Table 1 lists key parameters linked to the households' vulnerability level, by zone.

Table 1 Key parameters linked to vulnerability to food insecurity by zone

	Planalto	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
New returnee (<3 years)	35%	20%	48%	27%	47%	38%	35%	25%
Displaced	67.4	61.1	73.1	61	87	62.7	57.5	71.9
Female HH	36%	34%	31%	45%	34%	27%	42%	46%
Wealth Index	0	0.14	0.72	-0.26	0.03	-0.59	0.07	-0.33
Total income earned (rank)	-	4	2	5	1	7	6	3
Stunting (<-2 Z)	45%	50%	42%	46%	38%	36%	55%	51%
Wasting (<-2 Z)	13%	11%	10%	8%	27%	9%	21%	7%
Eating <=1 meal/day	16%	16%	24%	16%	8%	20%	6%	27%
Oxen for animal traction	6%	3%	10%	0%	20%	2%	4%	0%
Households food insecure	18%	23%	28%	15%	14%	17%	12%	15%
Food aid received	44%	32%	37%	41%	48%	53%	58%	38%

Demography
On average, women head 36% of households in the *planalto*. Wealth analysis shows that these households tend to be better off those headed by males. Elderly people head 5%, and children 2% of households. The average number of persons in a *planalto* household is five. Overcrowding is a concern in many, with 22% sleeping six or more in one room.

Displacement and resettlement
The majority of household members (67%) have been displaced at least once during their life, and the average period of displacement is 5.4 years. The average return date is just over three years (as of December 2004), which allowed the households two or three harvests. The last important wave of resettlement in the *planalto* took place in 2002/2003, when 47% of the total displaced population returned home. In the past year only 6.3% of the total number of returnees resettled, confirming a continuous decline in resettlement.

Literacy
Heads-of-household have a 60% illiteracy rate, and of those who are literate, 73% never finished primary education. Currently, primary school enrolment is 115%, 15% higher than the total number of children between the ages of 5 and 10, the normal age group for primary education. Of those children between 5 and 18 years of age, 63% are enrolled in primary school, but secondary education enrolment is much lower at 5%. The quality of schooling facilities is often very poor and classes irregular.

Livelihoods and income sources
Agriculture is the primary means of livelihood practiced by 94% of the rural population. 65% of these households also raise livestock, but only 22% raise animals other than poultry. 60% of households have no additional income to supplement agriculture.

The two main sources of income are the sale of agricultural products (potatoes, beans and vegetables generate the highest income), animals and income from paid work. Permanent work is available to only 7% of households. Women in the focus groups felt strongly that the market favours male labour and also that it is a seasonal source of income with high levels of competition, providing little additional income.

Expenditures
About 80% of total household expenditure is for food, which is a typical characteristic of poverty.. Significant effect of food aid on expenditure has been noticed: households in the generally poorest areas spend the smallest percentage on food due to food aid.

Nutrition
Wasting rates are very high. Possible factors may include the high diarrhoea rates in the two months prior to the survey. Given that the study was conducted from November to January, during the worst period of the year for gastro illness, it was expected that the prevalence of acute malnutrition, which is very sensitive to seasonal changes, would be higher.

The stunting trend is almost independent of child age. There is an increasing trend from 6 to 20 months, but after this age the chronic malnutrition rates range between 40 and 60%. Acute malnutrition rates are generally decreasing with age, once the child reaches 20 months. A maximum of over 20% of wasting is reached between 14 and 18 months, but before and after this age range, the total acute malnutrition rate ranges between 10 and 20%. The global rate decreases below 10% when the child reaches 3 years.

As per the classification of severity of malnutrition in a community for children under five years of age, the situation in the *planalto* is considered critical concerning chronic malnutrition and underweight, and serious for acute malnutrition.

Energy and Water sources
Firewood is used for cooking by 93% of households, which contributes to environmental degradation in the densely populated areas. Rivers are the main source of drinking water for half of the households, and almost all households live within 30 minutes walk to the water.

Assets and livestock
The majority of households (90%) possess agricultural inputs, but these are often limited and low-tech (hoe). Excluding poultry, only 22% of households own livestock. Large livestock, such as cattle, is owned by only 5% of the households, while only 4% have oxen for agricultural production.

Diet
The most commonly eaten foods are cereals (87% of households), tubers (76%), and pulses (55%). In some areas up to 27% of households take only one meal per day.

Risks
Households face one to three hazards affecting productive activities. Most important are lack of seeds, crop infestation and death of animals. The most common coping strategies are dietary adjustments and seeking aid or seeking employment/commerce. A small portion of households copes by taking children out of school or marrying daughters off early. 75% of the highest risk households are receiving aid.

Aid
Approximately 44% of households surveyed have been receiving aid. Food aid is the most common form, received by 73% of households on assistance. Agricultural aid accounts for 34%, non-food assistance for 18% and money for 5%. Aid is concentrated mostly in Zones 5 and 6. Zone 6, in particular, has a high concentration of aid and more diverse aid programming, with 22% of households receiving two or more types of aid. Aid is very limited in Zones 1 and 2. In Zone 4, 96% of aid is in the form of food.

Wealth index
The areas with the lowest wealth index correspond to the most pronounced household vulnerability. These zones have the highest proportion of vulnerable households, meaning that households have relatively less assets and, consequently, will face more difficulties to overcome emergency situations.

Households headed by young people, with a high number of dependents, recently resettled, and higher exposure to risks tend to have a lower wealth index. Households headed by women tend to be wealthier, which might indicate that women are more concerned with providing the households with a livelihood guarantee.

Spatial distribution of vulnerability

Table 2 Synthesis of the most vulnerable areas in the Central *Planalto*

Variables	Geographic Risk
Crowded households	Zones 1,3, 5 and 7
Female headed	Zones 3, 4 and 7
Migration	Highest percentage of migration in Zones 3, 6 and 7. Zones 4 and 6 have the highest percentage of households with less than two harvest and Zone 4 has the greatest net flow of departures
Activities	Seasonal activities like agricultural and occasional jobs are more significant in Zones 4 and 6. This last zone has the greatest diversity of household engagement in activities
Scarcity of modern agricultural inputs	Zones 3, 5 and 7 are more deficient in terms of agricultural inputs. The last two zones also complain about the precarious job market
Roads and transportation	Basically all the zones are deficient in terms of roads and transportation
Access to water	Zones 1, 6 and 7 are the most problematic in terms of water supply and relying on a precarious source of drinkable water
Education	Zones 3 and 6 are deficient in terms of primary schooling and present the smallest percentage of enrolment
Health	Zones 3, 5 and 7 are the most deficient in terms of availability of physical infrastructure and qualified professionals
Market	Zones 3, 5 and 7 are relatively less covered by markets
Aid programme	Zones 3 and 7 are relatively less benefited by aid projects
Food aid	The smallest number of people receiving food aid is in Zone 4. Zones 1, 2 and 6 benefit the most
Environmental degradation	Zones 1 and 2 are the most deforested.

2. INTRODUCTION

2.1 BACKGROUND OF THE SURVEY

The 27-year civil war ended in 2002 with the death of the UNITA leader and the signature of a memorandum of understanding between the government of Angola and UNITA. Since the end of the civil war, the food security situation in rural areas has been dominated by the return and resettlement of populations in their areas of origin. As a result of the disruptions caused by the protracted fighting, these groups have generally returned with very few productive and domestic assets and have been rebuilding their livelihoods with limited access to basic services and few options for income diversification.

Both the May 2004 Vulnerability Assessment carried out by WFP and its partners, and the 2004 FAO/WFP joint Crop Assessment mission (CFSAM), showed that the highest relative levels of poverty and food insecurity were in the central highlands of the country due to the following structural reasons.

- Generalised poverty, and few productive or domestic assets at household level.

- Very sensitive to any risk and extensive recourse to negative coping mechanisms (sale of charcoal and firewood, hunting).

- Few options for income diversification through income generating activities.

- Localized high population density, resulting in limited access to agricultural land.

- Impoverished soils, poor farming practices with few agricultural inputs.

- High pressure on natural resources

- Livelihoods of the rural population exposed to various social, productive and economic risks.

Figure 1 Central Highlands overview
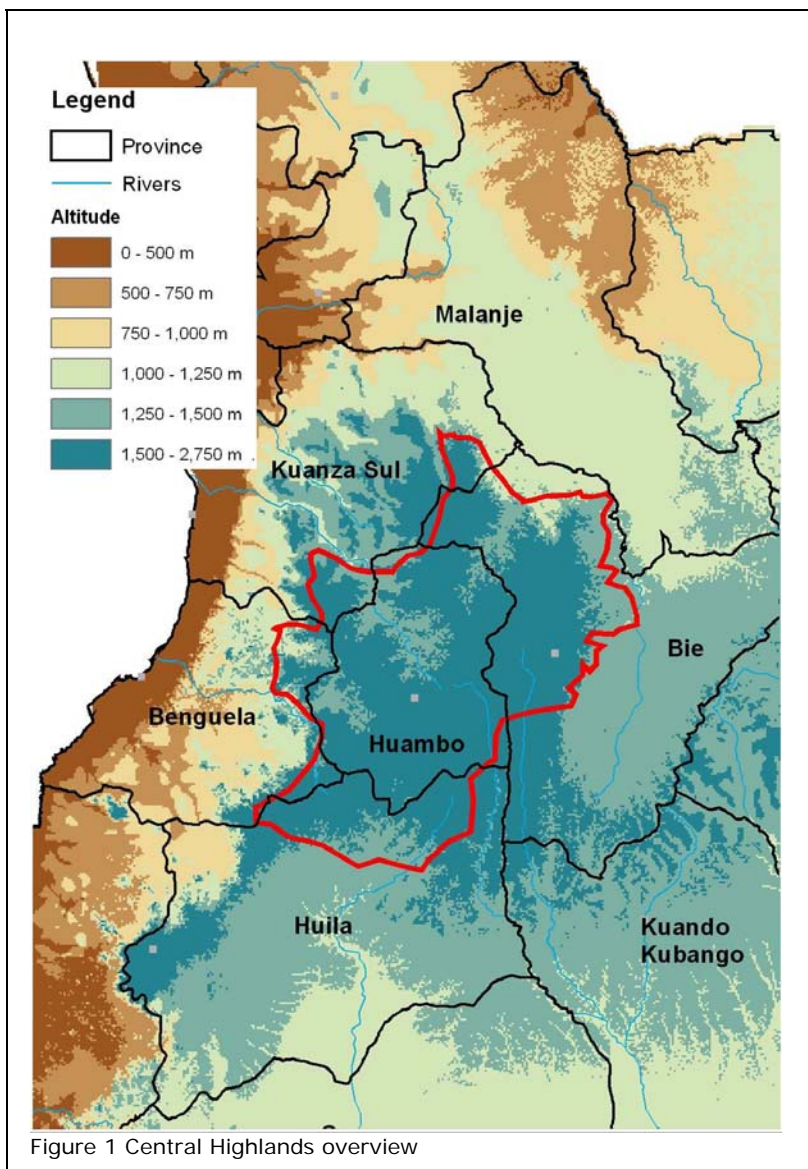
Following these outcomes, WFP decided to undertake a detailed food security survey to better understand sources and dynamics of household vulnerability.

The central highlands (Figure 1) cover an area of 79,040 km^2 (6% of the total area of the country) and have an estimated rural population of around 2.3 million people (57% of the total population in the area)[2].

Data collection was coordinated by WFP/VAM in collaboration with government agencies (Ministry of Agriculture and Ministry of Health), international organizations (UNICEF) and NGO's (Africare, CARE International, Save the Children-UK and World Vision International). The statistical analysis was coordinated by World Vision and carried out at Tulane University, in collaboration with WFP/VAM staff in Luanda.

The survey was largely financed by GTZ and DFID.

Results and findings of the survey were used to define the WFP Angola programme for the years 2006-2008.

2.2   OBJECTIVE OF THE SURVEY

The overall objective of the detailed food security and livelihoods baseline survey is to understand the livelihoods of the rural population in the central highlands of Angola. In particular, the survey aims to better understand chronic levels of vulnerability to food insecurity in risk-exposed communities.

More specific objectives include:

- To determine who are the hungry, poor, and vulnerable populations, and where they live.

- To understand the causes of vulnerability and food insecurity.

- To determine the risk exposure of different household groups and the risk management and livelihood strategies of communities and households.

- To identify areas of intervention where food aid may have an advantage in addressing food insecurity and vulnerability.

- To provide a basis for the development and improvement of existing food security monitoring systems.

The ultimate goal of the assessment is to assist WFP in the definition of its intervention programmes and to:

- Guide the formulation of food and non-food based safety net programmes and decision-making that would lead to improved household livelihood and food security.

- Outline community food security strategies that already exist and that can be reinforced through appropriate programmes.

- Design food-aid programmes that complement and strengthens community structures rather than compete with them.

2.3   STRUCTURE OF THE REPORT

The first section gives an overview of the geographic area under investigation. It is followed by the methodological and analytical framework, which describes the techniques and tools used to carry out the survey. Three subsequent sections provide the outcomes of the analysis, covering quantitative information of the household and community interviews. The last chapter provides recommendations for WFP interventions.

---

[2] Based on government data from http://ecb.jrc.it/natprof/angola/newpage1.htm.

3. METHODOLOGY AND DATA COLLECTION TOOLS

3.1 STRATIFICATION AND SAMPLING

For the definition of the sample, the region was divided into eight strata, each one corresponding to an agro-ecological and economical zone (Figure 2). Zone VIII corresponds to the urban area of Huambo town and was not included in the survey, as urban vulnerability must be looked at separately. Figure 2 illustrates the location of the zones while Table 3 gives a brief description of the zones.

The survey was designed to draw samples of rural households from each of the seven agro-economic zones to produce results at the zone level.

Given the lack of an accurate community or household level sampling frame it was necessary to use a three-stage cluster sampling methodology (cells of 10 km x 10 km for the first stage, localities for the second stage, and households for the third stage). For each strata, 25 communities were selected randomly using the grid overlay, each one of them corresponding

Figure 2 Overview of strata and sampled communities

to a village. To guarantee higher geographical coverage, 105 alternative cells were selected, using the same technique. Each geographical cell corresponds to an area of 10 km^2 and a geographical central point was utilized as guidance for the enumerators to find the village. In the selected villages 12 households were randomly selected using the list of inhabitants supplied by the soba (traditional authority).

Table 3 Main Characteristics of the Agro-Economic Zones

Agro-economic Zone	Main Characteristics
I	Traditionally considered an extensive cereal production area for trading. Livelihoods dependent on seasonal migration of active members of the household due to poor soils and low investment capacity in agriculture system.
II	Traditionally better soils and availability of water sources for small-scale irrigation systems and diversified crops, including cash crops such as potatoes and wheat.
III	Traditionally a cereal production zone. Arabica coffee was the main cash crop.
IV	Traditionally an extensive cereal commercial production zone. Important use of animal traction.
V	Traditionally an intensive cereal production zone. Arabica coffee was the main cash crop.
VI	Traditional reliance on subsistence agriculture.
VII	Traditional cassava trading zone.
VIII	Traditionally the area of the Huambo town influence. More industrial and commercial activities.

The household survey covered 160 rural communities, 1,921 households in seven agricultural zones out of 2,100 planned, corresponding to a 91% achievement. Based on the preliminary results of the quantitative survey, 12 villages were chosen for focus group discussions, providing valuable information on the risk and livelihood context within each village, explaining the story behind the numbers. In each of the selected villages, four focus group discussions were conducted, totalling 48 groups.

3.2   THE TOOLS

The survey included both qualitative and quantitative data collection tools. Three quantitative instruments were used:

1. **Household questionnaire** included sections on household demographics, education, migration and temporary displacement, housing and living conditions, asset ownership (productive and non-productive), access to social services, access to water and sanitation, agricultural production, livelihoods, income and expenditures, weekly food consumption recall, risks, shocks and coping strategies.

2. **Nutrition questionnaire** sought details on maternal and under-five child health and sanitation, including anthropometric measurements

3. **Community survey** administered to a focus group composed by 5-6 key people within the community. It covers topics regarding demography and socio-economic and population movements, resources and economic activities, social infrastructures existing in the community, access to health and education services, external interventions and coping strategies.

The household and community survey was followed by **focus group discussions** on the following subjects:

- Livelihoods (men and women)
- Education (women only)
- Health and food intake (women only)
- External aid and solidarity (women only)

3.3   FIELD DATA COLLECTION AND DATA ENTRY

Primary data collection took place between November 2004 and January 2005. Nine teams, each consisting of five enumerators and one team leader, carried out data collection. The enumerators and supervisors were selected from NGOs working in the area and government institutions and attended a five-day training session focusing on the objectives of the survey and interviewing methods.

Data entry was carried out by three data entry clerks after each questionnaire was checked for inconsistencies, errors, and miscoding.

After some preliminary analysis of the field data, the focus group discussions were conducted during a ten-day period in April 2005.

3.4   DATA ANALYSIS

The quantitative data analysis was carried out by staff of Tulane University in collaboration with World Vision and WFP, in the framework of World Vision's Global Geospatial Warning Information Surveillance Evaluation and Reporting (GWISER) initiative. WFP staff participated in the analyses

The qualitative data from the focus group discussions were analysed by using a risk and livelihood analytical framework developed by the Vulnerability Analysis and Mapping Unit (VAM) in WFP Rome.

VAM staff in Luanda compiled the report.

3.5   ANALYTICAL FRAMEWORK

Several analytical approaches were applied to the data to better understand the vulnerability of the population. Triangulation of the results of these analyses resulted in a robust classification of households and areas according to their vulnerability to food insecurity.

The analytical approaches include:

> Household clustering according to seven parameters

- Displacement - the percentage of people ever displaced and the time of displacement (less than one year meaning probability of no harvest completed);

- Livelihoods – the three main economic activities of the households;

- Productive Assets – the percentage of households having agricultural assets;

- Income diversity – the mean of the number of income sources outside main livelihoods (agriculture);

- Diet – the frequency and diversity of the diet, based on the FANTA Food Groups;

- Risk exposure – the mean of the number of risks the households are exposed to;

- Aid – the percentage of households receiving aid and the percentage of types of aid received.

> Household short-term and long term income analysis (wealth analysis).

> Short and long term analysis of household economics. The households were also characterized by the way they access the food (e.g. own production, purchasing, aid). Essentially it is a short-term analysis since it focuses more on the household's capacity to access food today than on their ability to create sustainable means through income generation and assets or animal ownership, to meet a permanent dietary requirement.

> Focus group discussions provided valuable information on the risk and livelihood context within each parameter, explaining the story behind the numbers.

The different analytical approaches and their triangulation have resulted in:

1. **Defining the sources of vulnerability**. These are obtained by identifying:
   > key vulnerable groups and their living conditions, the risks they face, and incidence of these risks;
   > key risks and shocks (both idiosyncratic and covariate, and their incidence and impact); and
   > formal and informal coping mechanisms of households and communities.

2. **Understanding better the multidimensional nature of vulnerability**, which aims at summarizing the other sources of vulnerability outside the triad of "material wealth, income, and consumption". It includes vulnerability due to limited education, poor nutrition or health, or a lack of access to remunerative employment, housing, and basic services.

3. **Documenting the correlation between household characteristics and vulnerability.** We attempted to: (i) quantify who is likely to become food insecure; and (ii) identify the household characteristics that are signals of this vulnerability. We limit the analysis to a particular dimension of welfare (consumption).

The analysis concentrates on characterizing groups that are poor and hungry, that is, eating one meal per day, or less, and with low diet diversity.

4. THE CENTRAL HIGHLANDS OF ANGOLA

The central highlands of Angola are a well-defined plateau in the centre of Angola with an altitude ranging from 1,000 m to 2,500 m. The area includes the entire province of Huambo, a large part of western Bié and smaller areas in the provinces of Huila, Benguela and Kuanza Sul. It has an average altitude of 1,500 m, and covers almost two-thirds of the combined area of these provinces.

4.1 DEMOGRAPHIC SITUATION AND LIVELIHOODS

One third of the rural population of Angola live in the central highlands, hence its importance in terms of agro-economic activities. The spatial distribution of the population is highly correlated with the quality of agricultural land, resulting in high population concentrations in areas with better soils.

The *Ovimbundu* ethnic group is the most important in the highlands. They originated from a mixture of groups of diverse origin (and varying size), as a result of historically high mobility.

Before independence in 1975, the central highlands were characterized by important agricultural and commercial activities. Extensive agriculture, (based on maize cultivation intercropped with beans, cassava, and sweet potato) was the main activity. While agricultural inputs were limited and soils poor, livestock provided the necessary transport and traction and a good commercial network provided generally good living conditions for the rural population.

After independence major livelihoods did not change but the degradation of the road network and the impact of the war with resulting displacement, seriously affected rural livelihoods (see Box). Currently, 95% of households are subsistence farmers, with very little access to agricultural inputs besides low-tech equipment. The redistribution of population during the war - forced to settle in large numbers in small areas - has resulted in accelerated degradation of vegetation and soil.
Deforestation continues due to the high population pressure.

Population Displacement in the Central Highlands

Before independence, the main migratory movements from rural to urban areas were linked to the economic development of the country. The changing political situation after independence and the war intensified these movements. At the time of the Bicesse Accords (1991), there were some 800,000 IDPs, with only a small number of people returning home during the peaceful period between 1991 and 1992. The number of displaced people grew by an additional 2 million because of the resumption of fighting after the unsuccessful electoral process of September/October 1992.

Displacement again became significant when a full-scale war erupted during the second half of 1998. Fighting between the government and UNITA troops increased, particularly in the north, east and central highlands, and armed attacks on villages and ambushes occurred in many other parts of the country. OCHA estimates that between 1998 and February 2002, more than three million war-affected people fled from the countryside to the major urban areas, bringing the total number of internally displaced persons in Angola to 4.1 million. The war was mainly concentrated in the Central Highlands, Moxico and Kuando Kubango provinces with an additional and distinctive pattern: villagers were deliberately used for pursuing military strategies: "cleansing operations" succeeded in emptying significant parts of the countryside, preventing UNITA forces from recruiting fighters and using vital food support provided for by civilians.

"The continuous shift of populations from rural to urban areas has changed the demography of the country from one predominantly rural-based to one in which around 60 percent of the population now live in urban centers…". The majority of them have been displaced several times, lost many members of their family and have lost ties with their home communities. They are now concentrated on the coastal belt and in major urban centers of the country *(Source: Global IDP Project)*

Two years after the Luena Peace Agreement in April 2002, the Government reported that 2.34 million IDPs had returned to their areas of origin, primarily in the provinces of Huambo, Benguela, Kuanza Sul and Bié. In addition, approximately half of the 450,000 refugees estimated to flee to neighbouring countries had returned home since the end of hostilities.

It is generally considered that the soils in the *planalto* are more suitable for forestry and intensive livestock rearing that could guarantee a more sustainable livelihood.

4.2 ENVIRONMENTAL CONDITIONS

4.2.1 Climate

The plateau has a cool dry season and a hot rainy season with heavy rains that cause periodic flooding. The wet season lasts seven months and is slightly longer in the north than in the south of the area. It starts in September and ends during April. Total annual rainfall amounts vary between 1,000 and 1,500 mm, with December being the wettest month. There is often a short dry spell during the month of February. In general, the highlands enjoy a very favourable climate with regular rainfall.

Maximum temperatures range between 25 and 27°C and are slightly higher during the wet season. Minimum temperatures vary between 11 and 13°.

Figure 3 below illustrates average monthly rainfall and temperatures in the central highlands.

Figure 3 Average rainfall and temperature in the central highlands (Source: FAO, FAOCLIM)
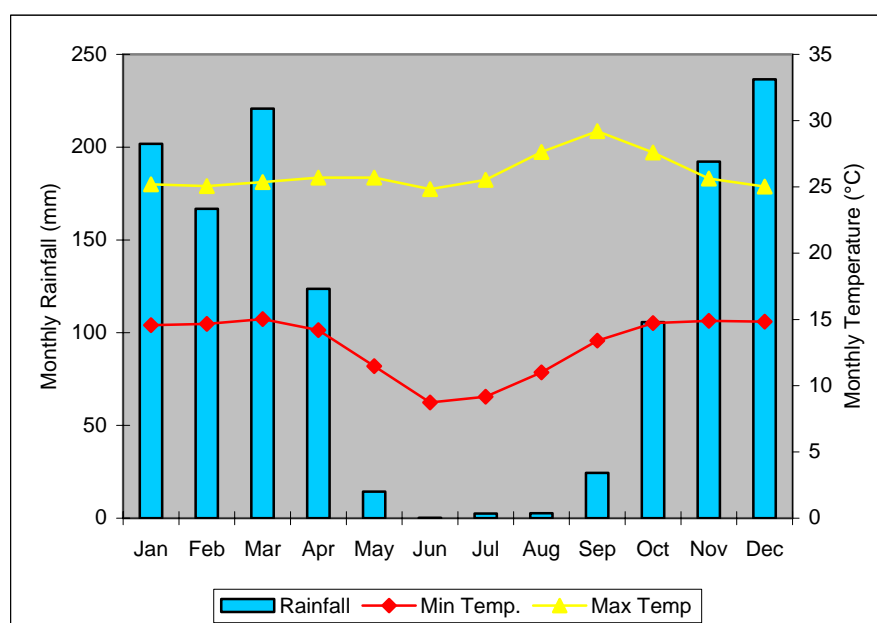
Rainfall in the central highlands is the main source of water for more arid neighbouring countries, in particular Namibia and Botswana.

4.2.2 Soils

Two types of soils are dominant in the central highlands: *ferralsols* on the plateau and *luvisols* in the lower wetlands. The *ferralsols* are dominant but they have a low agricultural productivity due to the low level of nutrients, low water retention capacity, and low content of organic matter. This results in a high rate of erosion and generally low crop yields. Maize yields on these soils range from 100 to 400 kg per hectare.

The *luvisols* are found in depressions and valleys. These are productive soils and can provide significant yields up to almost one metric tonne of maize per ha. However, there is a high population pressure on these soils and not all households have access to these. Located in the lowlands and valleys, they often suffer from problems related to excessive water.

5. HOUSEHOLD FOOD SECURITY AND POVERTY PATTERNS

This section gives a detailed description of indicators related to food security and poverty at household level and community level where indicators are the same for everyone in the community.

5.1 DEMOGRAPHICS

5.1.1 Head of Household

Over half of the households (57%) surveyed are headed by men. Female heads of households account for 36%, the elderly 5% and children 2%. Zones 3, 6 and 7 have a larger proportion of female and elderly-headed households than other zones and the percent of child-headed household is higher in Zone 5 than others.

The average size of the household is five persons. Dependency ratio shows a normal distribution with the majority of the households having between 1 and 2 dependents. 12% of the households surveyed in the region have mentally and/or physically handicapped members.

5.1.2 Education

Education is extremely limited in the area where 60% of the household heads are illiterate. Of those who can read and write, 73% have never made it beyond the primary education level. Given the disruption of education and the displacement during the war, many children belatedly started primary education.

Table 4 shows that primary school enrolment is 115%, which is 15% higher than the total number of children between the ages 5-10. This indicates that many children older than 10 years attend primary school. Overall, 63% of the children between the age 5 and 18 are enrolled in primary school. There is no significant difference by gender. Enrolment figures reduce drastically to 5% in secondary school within the 10-18 age group.

Table 4 Enrolment by Education and Age Group

School Enrolment	Primary	Secondary
Total Enrolment in Age Group	115%	11%
Total Children (5-18)	63%	5%

Illiteracy among household heads is especially high in Bié province (Zones 3 and 7), which correlates highly with female household headship. This suggests that education embeds in it a potential gender-bias. The lack of education is likely to extend to the next generation, as children in Zones 3 and 7 also have one of the lowest primary and secondary enrolment rates.

The survey shows that 69% of communities in the *planalto* have a primary school and for those without a school, the average distance to the nearest is 5 km. However, the focus group discussions indicated that many of these schools do not function properly due to lack of materials and teachers.

The focus group discussions also revealed that many children do not attend school for a variety of reasons: lack of documents, absence of teachers, and economic situation of the households. The poorer families cannot afford to send children to school far from home as they have few assets and low income.

Those in school do not have a good education due to lack of books and other education materials, low qualification of teachers and low frequency of classes.

There is a clear differentiation between the impact of this situation on boys and girls, as the latter end up marrying and getting pregnant very early.

Communities feel that their future as families and communities is compromised, as education is a basic need.

> "*Even if the child is with the aunt the financial burden is still the parents', if they can't afford it they take the child back*" **Julieta Ninalasso**, Bailundo (Huambo).

> "*If children don't study and the old people who studied before (*colonial times*) are dying, what will it be (*future of families and communities*)? Men, ok, but 15 year old women get married or pregnant at parties and finished*", **Beatriz Nessenje**, Andulo (Bié).

They also feel that it is the government's responsibility to run such schools. However, some of them indicated two main ways of dealing with poor schooling: sending children to relatives living in the provincial capitals (but families are generally poor and they only can afford to send one or two children) and women taking on casual work to cover educational expenses.

5.1.3   Displacement

Over two thirds of the population sampled has been displaced at some point in time. Because of this, the floating population tends to constitute an important share of the total population in the region.

The majority of those who have been displaced are found in Bié (30%) and Huambo (32%). The last wave of massive re-settlement in the region took place in 2002-03, which is reflected by 47% of the total displaced population. Half of these households (23% of the total) had less than two harvests at the time of the survey. New returnees (less than 1 year and probably no harvests) account for just over 6% of the total sample population.

Displacement and date of return are amongst the most discriminating factors causing the households' vulnerability status.

5.2   LIVING CONDITIONS

5.2.1   Housing

97% of the households live in individual houses. Adobe housing with grass roofing is the most prevalent type (56%), followed by *"pau-a-pique"* with grass roofing (31%). 71% have one room for sleeping, usually shared by 3-5 people.

However, overcrowding (persons per sleeping room ≥ 6, as a proxy) is a concern for 22% of the households. This is a problem in particular in Zone 6, where 30% of households have to share a sleeping area with 5 or more people. Approximately 13-14% of the households in Zones 2, 4, and 7 are living in crowded households.
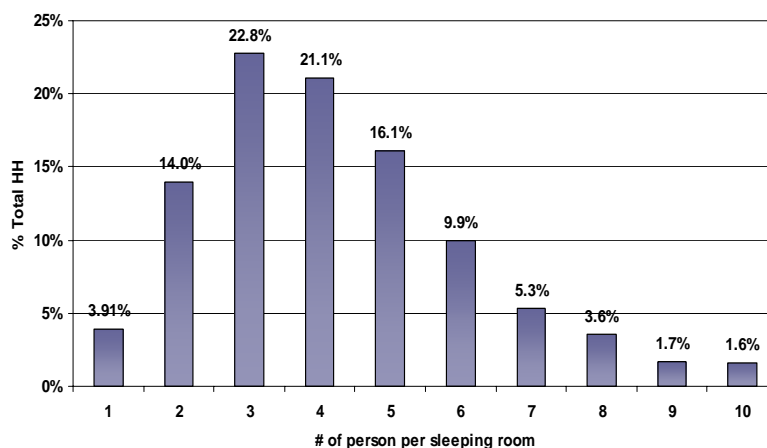
Figure 4 Household Size per sleeping Room

5.2.2   Sources of Energy

Given the lack of electricity, petroleum/oil provides the main source of lighting for 83% of the households, while collected firewood supplies 93% of households with cooking fuel. Other cooking sources, such as coal, are used by only 2.4% of the households and stoves of any type are limited to 7%. Gas is a very limited energy source used by just 0.2% of households.

5.2.3   Drinking Water

Households rely on the environment (i.e. river and spring) for drinking water. Rivers are the main source of drinking water for 50% of the households with a maximum in the northern *planalto* (Zone 5), where 70% of households obtain drinking water from the river.

Almost all (96%) of the households live within 30 minutes of a water source and 66% within 15 minutes.

5.3 ASSETS

A great majority of households have access to agricultural inputs, but what is available is low-tech and highly inefficient. The hoe is the most common implement, and for households in Zones 3 and 7, it is the only agricultural tool.

Figure 5 illustrates the access to productive and non-productive assets: 96% of the households own a hoe, 30% a radio and other asset types are owned by less than 7%. Asset diversity is illustrated in Figure 6 shows that

Figure 5 Household asset ownership by type
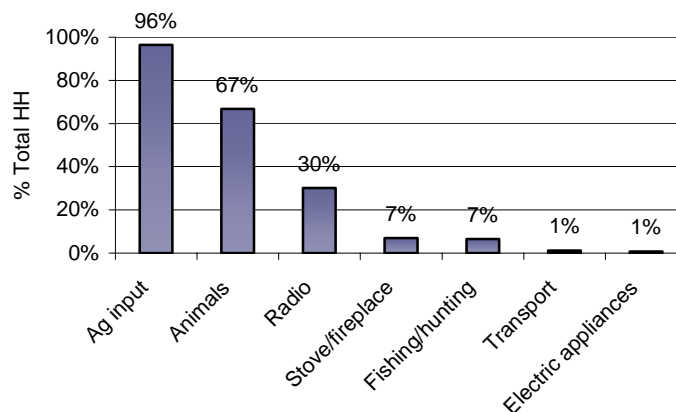
Figure 6 Asset Diversity
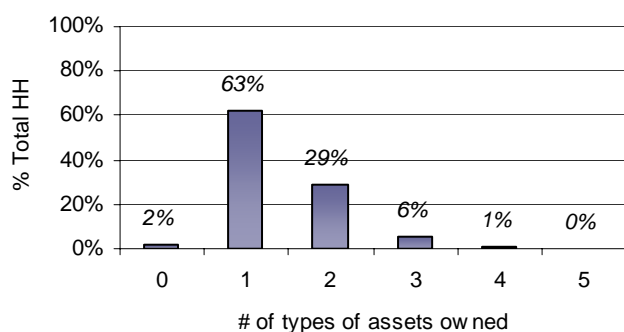
92% of the households have 2 assets or less (excluding livestock ownership, typically a hoe and a radio). Few households own any type of electric appliances or means of transportation.

Ownership of oxen for animal traction is extremely limited: besides Zone 4 and to some extent Zone 2, less than 5% of the household's own oxen.

Table 5 illustrates asset ownership in more detail. Zone 4 has a higher than average proportion of households with fishing and hunting equipment (16% vs. 7% respectively)

Table 5: Asset Ownership by Type

Asset Type	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Planalto
Ag Inputs	97%	97%	99%	97%	96%	92%	97%	96%
Hoe	97%	97%	99%	96%	96%	91%	97%	96%
Oxen	3%	10%		20%	2%	4%		6%
Charrua	2%	8%		20%	2%	9%		6%
Sprayer	0%	0%		0%	0%	-		0%
Radio	29%	37%	25%	32%	24%	36%	21%	30%
Stove/Fireplace	6%	10%	1%	10%	1%	13%	6%	7%
Fish/Hunt Equip.	5%	3%	8%	16%	4%	6%	6%	7%
Transport	2%	2%	-	2%	1%	0%	1%	1%
Electric App	1%	2%	-	1%	-	0%	1%	1%

5.4 LIVELIHOODS

Agriculture is the primary livelihood practiced for 94% of the population (Table 6). In addition to agriculture, 65% of the households are also engaged in raising livestock and just 5% are also involved in fishing. Very few households depend for their livelihoods on livestock or fishing alone.

Table 6 Livelihood strategies

Livelihoods	%HH
Agriculture	93.9
Agriculture + Livestock	64.4
Agriculture + Fishing	5.3
Livestock Only	2.2
Fishing Only	0.4

Other income diversification opportunities are extremely limited and 60% of households have no additional income source to supplement their agriculture activities (Figure 7). Where additional income sources are available, salaried and casual on-farm work accounts for, respectively, 56% and 48% of the employment. Permanent work is only available to 7% of households, 13% are engaged in the sale of goods and 18% in trading of natural resources, mainly cutting wood and firewood for charcoal fabrication.

In particular in Zone 5, this type of income is limited and 75% of the households depend solely on agriculture and raising animals for their livelihoods; paid permanent or casual agricultural work is limited here.

Figure 7 Additional sources of income (farm and off-farm)
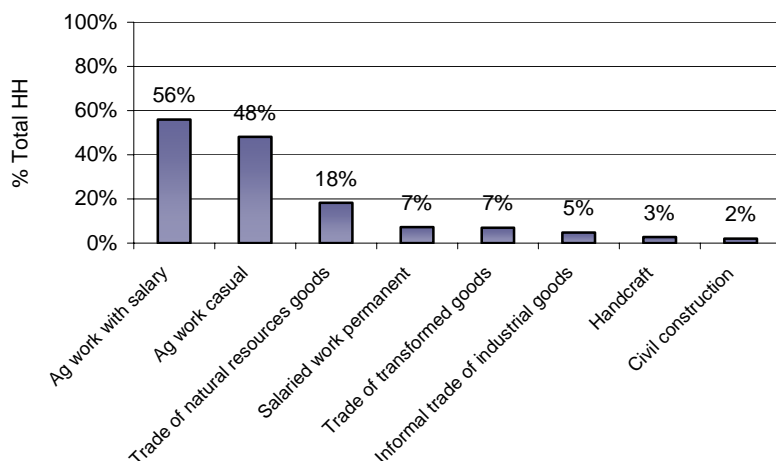
Households in Zone 1, 6 and 7 generally have at least one additional source of income, despite having smaller proportion of livestock ownership.

Livelihood diversity (Table 7) is relatively higher in Zone 6, where 20% of the households have two or more additional sources of income, followed by Zones 3 and 4, where approximately 40% of the households have 1-2 sources of income.

Table 7: Livelihood Diversity

# of Add'l Income Sources	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Planalto
0	55%	67%	57%	54%	75%	58%	50%	60%
1	38%	27%	32%	30%	20%	19%	40%	29%
2	6%	2%	10%	14%	3%	10%	7%	7%
3	1%	3%	2%	1%	1%	11%	2%	3%
4	-	1%	-	1%	-	1%	2%	1%
5	-	0%	-	-	-	-	-	0%

Table 8 below illustrates the importance of additional income sources by zone. Besides agricultural work, salaried work has only some significant importance in Zone 6 and trade in Zones 3 and 7.

Table 8: Breakdown of Additional Income by Source

Source of Add'l Income	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Planalto
Agr work with salary	58%	58%	49%	60%	38%	66%	60%	56%
Agr work casual	50%	53%	47%	38%	32%	59%	56%	48%
Salaried work permanent	5%	10%	3%	8%	4%	16%	3%	7%
Trade of transformed goods	7%	2%	15%	3%	9%	3%	13%	7%
Informal trade (industrial goods)	6%	5%	4%	1%	4%	10%	5%	5%
Handcraft	2%	2%	7%	2%	1%	1%	6%	3%
Civil construction	2%	2%	4%	3%	0%	1%	3%	2%

In the focus groups discussions on livelihoods, men and women agreed on the lack of tools for agricultural work, insufficiency of seeds and fertilizers and their high cost in the market.

> *"We have the will to work but seeds we don't have. A banana doesn't have money, even harvested it's only good for baking and eating"* (referring to the distance to markets and the low price fetched by agricultural products), **Isabel Domingas**, Andulo (Bié).
>
> *"The farmer is harnessed, the farmer is useless, only people with money are of use. The farmer is useless but no one works without food"*. **Felix Pedro,** Andulo (Bié).

However, men and women have different views and/or priorities in terms of agricultural production: men referred the lack of oxen and ploughs as a main constraint to enlarge productive areas whereas women worried more about the lack of vegetable and potato seeds, i.e. of cash crops and about the lack of, or low, dynamism of markets as the major constraint to the acquisition of capital.

To compensate for the low fertility of soils and the inability to buy fertilizers in the markets, households adopt negative coping strategies such as tree felling for new plots. Another strategy to compensate the habitually low cereal production is the opening of new plots for tubers, such as cassava and sweet potatoes, but even then there is an acute need for appropriate vegetative materials.

Another problem referred to by both men and women is the low germination power of local seeds and the inadequacy of donated ones.

5.4.1 Livestock ownership

Two thirds of the population own livestock (Figure 8), but livestock diversity is low. Excluding poultry, the proportion of livestock-owning households drops to 22% with 13% of the households reporting pigs and 8% goats. Large animals, such as cows, are raised by only 5% of households. Livestock use for agricultural cultivation is insignificant with only 4% of households having an ox.

Households in Zones 4 and 6 have a relatively high livestock diversity[3], which includes larger animals such as pigs, goats and cows. In Zone 3, despite the high percentage of livestock ownership, animal husbandry activities are limited to poultry (Table 9).

Figure 8 Livestock ownership

Table 9: Breakdown of Livestock Ownership by Animal Type

Large Animal	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Planalto
Cows	4%	9%	0%	19%	2%	18%	0%	8%
Ox	3%	10%	-	20%	2%	4%	-	6%
Small Animal								
Chicken	95%	87%	92%	90%	96%	87%	87%	91%
Pigs	6%	15%	16%	28%	10%	52%	17%	20%
Goats	6%	15%	8%	19%	13%	15%	6%	12%
Rabbits	3%	3%	2%	1%	1%	1%	3%	2%
Other	7%	1%	6%	2%	3%	2%	6%	4%

Small animal ownership is increasing, though farmers do not generally consider it a strong asset base yet. In some areas credit schemes for goats were mentioned, but diseases are a main constraint to credit repayment.

Traction animals are amongst the most commonly mentioned needs and priorities in all zones. Farmers sometimes mention owning old ploughs but have no animals for them. No institution gives credit to buy these types of animals. At the same time, households don't have enough financial capital to rent ploughs and animals as prices are very high. Only few households are able to

> *"If you have a chicken it's like you don't have one, because then the sickness comes and the chicken dies and you have none. Fowl are affected by disease (tchiefo) in June and July and goats are affected by boils (tchingumba) throughout the year"*. **Pedro Zumbi,**

---

[3] Livestock diversity is the sum of of animals owned by households – including chickens, goats, cows, pigs, ox, rabbits and others.

do it in association.

5.4.2   Income sources

The analysis of the household income for the different economic activities shows that permanent salaried jobs bring the highest average income, followed by informal trade of industrial goods and civil construction. However, most households are engaged in temporary activities related to the agricultural sector, such as casual agricultural labour (13%) or trade of natural resources (18%), which are relatively less paid activities.

There are mainly two sources of income for the household:

(i)   Income from the sale of agriculture products and animals; and

(ii)   Income from paid work, in the agricultural sector.

Most of the agricultural goods produced are used for self-consumption. About 20 to 25% of the agricultural products are saved as seeds, while only a small proportion is sold in the markets. Figure 9 summarizes the total income received either from own production and salary. It shows that Zone 5 is the poorest in terms of total income. Zones 1, 3 and 6 have a slightly higher income, while Zones 2 and 4 are the wealthiest. Zone 7 is in an intermediate group.

Casual agricultural labour is the main additional source of income mentioned by focus groups. However, this is done on a daily-hire basis, usually in exchange for food or to pay for immediate health or education expenses. Women strongly felt that the market favours male labour and also that it is a seasonal source of income with high levels of competition.

Figure 9 Monthly average income from labour and revenue from sales by economic sector

Other sources of income mentioned are the local manufacture and sale of beverages and the sale of firewood and charcoal. The first is said to be in much demand, but as households are generally poor they cannot afford to pay much for the drinks.
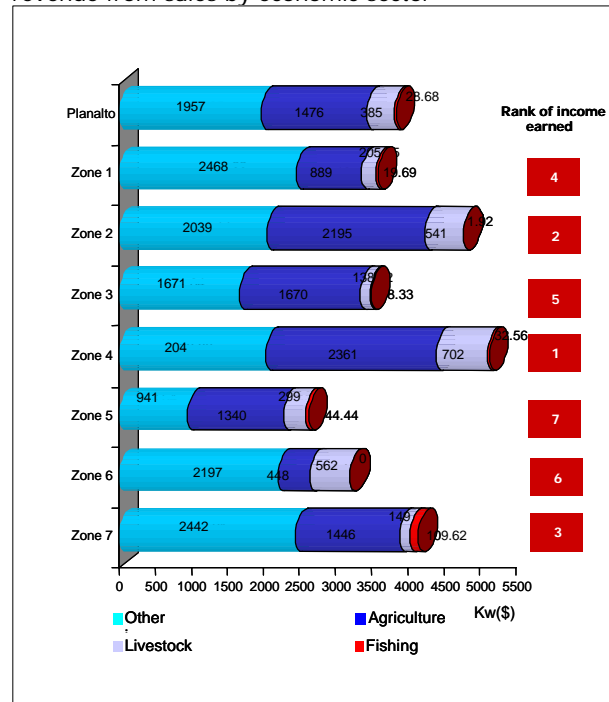
"With the bag of charcoal on your head you twist your neck", **Domingos Ngongo**, Cunhinga (Bié)

"Everyone works, everyone goes to the same place to cut, everyone sells at the same market. That's why the prices are so low!", **Severina Neta**, Cassumbe, Andulo (Bié).

"The bush is finishing, if you go there you can't cultivate, you can't go see your children, how do you manage?" **Josefa Ngueve**, Huambo.

Firewood and charcoal sales are seen as more and more difficult as forests are farther and farther and require a lot of time and effort for limited returns. Most people said that the maximum they can manage is two bags (50 kg) a week, each of which can only be sold for 300 Kz on the main road near the village. They cannot afford to go to large markets to sell at better prices.

Maize and beans are the common agriculture products sold by 27% and 23% of the households. Generally, potatoes, beans and vegetables generate the highest sales revenues. In Zones 2, 3 and 4, beans and coffee are in the first place. In Zones 5 and 6, maize and beans are the most important categories. Vegetables play an important role in Zones 1 and 7.

In general, there is an inverse relationship between income earned and the level of displacement. This trend is particularly significant in Zone 4 where the households that presented the highest percentage of displacement are located. It is worth noting that even though this zone is among the richest areas in terms of income earned, it takes the third place in the ranking of food aid received. This could be an indicator of bad targeting but this zone presents the highest percentage of displacement and the difference of the income earned between displaced and not displaced

households is the highest, meaning that displaced households indeed need special attention in terms of food support (Figure 10)

Figure 10 Monthly average total income of the household by aid received
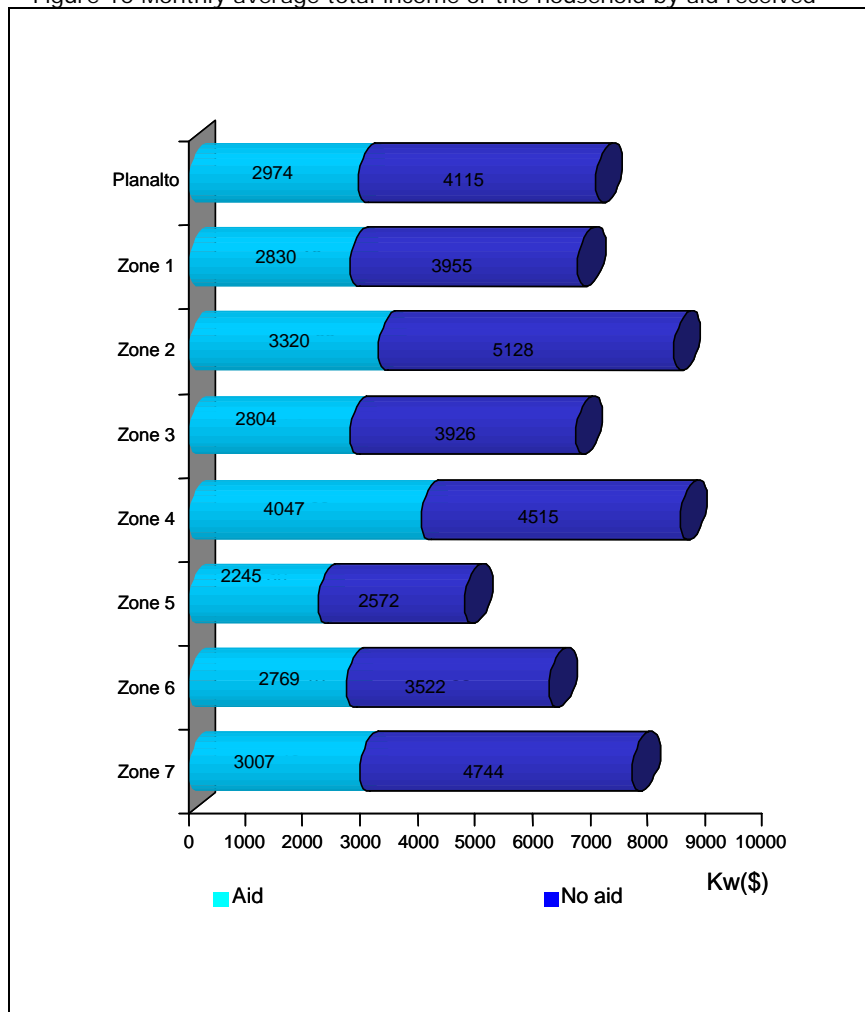
5.5   THE WEALTH INDEX

This section describes the construction of a Wealth Index, which represents a proxy for the household's long-term income. It is assumed that this measure of wealth better represents the household's capacity for overcoming emergency situations.

Total income can be considered as a short-term component of household wealth while asset ownership is a rather long-term component. The total income variable was defined directly from the survey data as the sum of income from work and revenue from sales. Households that are wealthier in terms of assets are more prepared to face emergency needs, since in these situations there is a collapse in the job market that generate the short-term income and the household cannot count on this source of income anymore.

The wealth index appears to be statistically more robust than the total income, because the first variable is explained by 95% of the household characteristics, while the second variable is explained by only 18% of the common household features.

Table 10 shows the results of the wealth index calculation versus total income (in Kz) by zone (higher values for the index are better). Zones 5, 7 and 3 are, respectively, the most vulnerable in terms of the wealth index, meaning that households have relatively less assets, and consequently, will face more difficulties to overcome emergency situations. Those results correspond to the household level clustering where Zones 3, 5 and 7 appear to be having the highest proportion of

vulnerable households, as well as the households with a high dependency ratio, high exposition to risks, receiving aid, recently returned from displacement and headed by young or divorced persons.

Table 10: Asset indices and average monthly income

Variables	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
Total income (in Kz)	3,412.9	4,335.3	3,318.4	4,642.9	2,406.1	2,911.3	3,854.2
Wealth index	0.14	0.72	-0.26	0.03	-0.59	0.07	-0.33
Rank of wealth index	2	1	5	4	7	3	6
House quality index and access to water*	0.35	0.85	-0.09	-0.21	-0.49	-0.12	-0.75
Ownership of goods and equipments index	-0.05	0.31	-0.18	-0.02	-0.13	0.07	-0.09
Ownership of livestock index	-0.40	0.06	-0.23	0.44	-0.27	0.60	-0.14

* Sources of energy used for lighting and cooking were also included in this category.

Housing conditions are an important component of the wealth index in Zones 5 and 7. In Zone 3, the scarcity of livestock for consumption is the main source of vulnerability. Zones 1 and 2 are the wealthiest, while Zones 4 and 6 are in an intermediate group. The housing index has the most positive impact on the wealth index in Zones 1 and 2, while Zones 4 and 6 are more positively affected by the ownership of animals. This last result is explained mainly by the relatively high livestock diversity existing in those areas.

Classification of vulnerable population groups in Chapter 6 is based on the regression coefficients of the wealth index. The idea of estimating this regression is to capture how the household characteristics are related to its wealth.

Households headed by young people, with a high dependency ratio, recently returned from displacement, and higher exposure to risks tends to have a smaller wealth index. Households headed by women tend to be wealthier, which might indicate that women are more concerned with providing the households with a livelihood guarantee. Among those we highlight households with smaller wealth index, receiving aid, more exposed to risks and headed by a divorced person.

Figure 11 Absolute Expenditure in Kz by zone
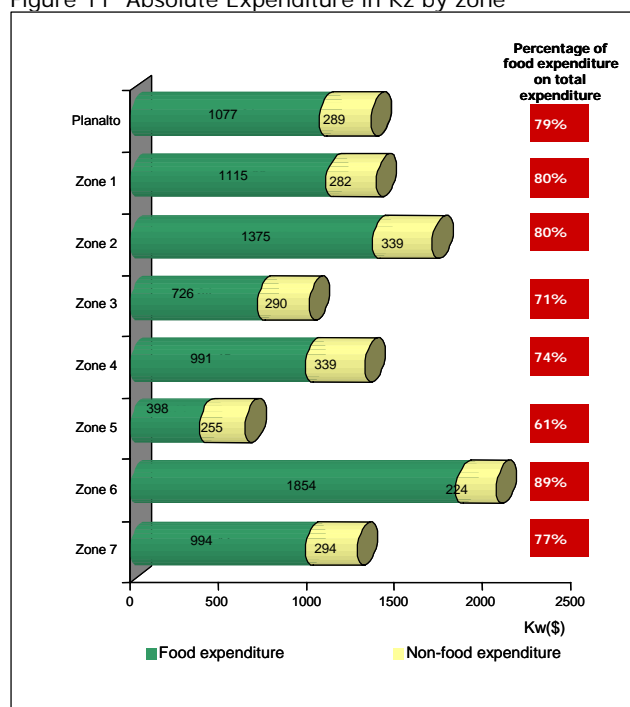
5.6   EXPENDITURES

There is a coherent link between income and expenditures, with the wealthiest zones having the highest expenditure levels (Figure 11). The only exception is Zone 6, which is one of the poorest, but presents the highest monetary expenditure, especially on food. This situation can be explained by the fact that this zone has the smallest participation in the agricultural sector and it should be expected that the agricultural surpluses for self-consumption are insufficient for the average household dietary needs. Therefore, these households need to buy relatively more food.

The percentage of food expenditure on total expenditure is very high (80%). Zone 5 is among the poorest regions, but has the smallest proportion of food expenditure. This can probably be

explained by the fact that this zone, receives more food aid, as will be discussed below.

5.7 NUTRITIONAL STATUS OF UNDER FIVE CHILDREN

The physical growth of children (up to five years of age) is an accepted indicator of the nutritional well-being of the population they belong to. The youngest individuals are most at risk. The assessment of acute malnutrition (wasting) will highlight that children are more vulnerable to adverse environments and respond rapidly to dietary changes. The assessment of chronic malnutrition will show that children, during their growth years are subject to skeletal growth failure in ways that adults are not, and, as for chronic malnutrition (stunting), it is a good reflection of long-term nutritional issues. Anthropometric indices are expressed in standard deviations (z-score) from the norm. Expression in standard deviations is the preferred method to express prevalence as determined by survey results.

Anthropometrics indicator scores were calculated using Epi Info 2000, based on the surveyed of height (cm), weight (kg), age (month), and gender. Boundaries for flagging outlying data are < -5.0 to > +5.0. Cases scoring out of this range were excluded from analysis along with children taller than 110 cm (15 of 2954 children) and outside an age range of 6 to 59 months (572 of 2,954 children).

Table 11 Prevalence of malnutrition among under five children by agro-economic zone

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Planalto
Underweight (<-2 Z)	49%	41%	46%	46%	34%	62%	47%	**46%**
Stunting (<-2 Z)	50%	42%	46%	38%	36%	55%	51%	**45%**
Wasting (<-2 Z)	11%	10%	8%	27%	9%	21%	7%	**13%**
Global Acute Malnutrition	15%	20%	10%	28%	19%	26%	8%	**19%**
Severe Acute Malnutrition	6%	14%	2%	11%	12%	8%	1%	**8%**
Severe Acute Wasting	*2%*	*2%*	*2%*	*11%*	*1%*	*4%*	*0%*	***3%***
Oedema	*4%*	*12%*	*0%*	*0%*	*11%*	*4%*	*1%*	***5%***
Diarrhoea (last 2 mo)	18%	18%	8%	27%	19%	25%	11%	**18%**

There are significant differences between the zones (Table 11). Zone 6 has the highest underweight and stunting prevalence. Zone 5 has significantly lower values for these indicators. Wasting rates in each zone are very high, especially in Zones 4 and 6. Possible factors may include a correlation with high diarrhoea rates in the last two months. Given that this study was conducted from November to January, during the worst period of the year, it was expected that the prevalence of acute malnutrition, which is very sensitive to seasonal changes, would be higher.

Oedema rates were found to be very high in some zones. This may be due to insufficient training of surveyors in identifying bilateral oedema. A more accurate indicator of severe acute malnutrition may be severe acute wasting in this survey. WFP and partners are currently investigating if wasting and oedema rates have continued to be high in certain zones and what interventions are best to address their potentially serious causes.

The stunting trend is almost independent of child age (Figure 12). There is an increasing trend from 6 to 20 months, but after this age, the chronic malnutrition rates range between 40 and 60%. Acute malnutrition rates generally decrease with age, once the child reaches 20 months of age.

A maximum of over 20% of wasting is reached between 14 and 18 months, but before and after this age range, the total acute malnutrition rate ranges between 10 and 20%. The global rate decreases below 10% when the child reaches 3 years of age.

Figure 12 Malnutrition by age class (moving average).
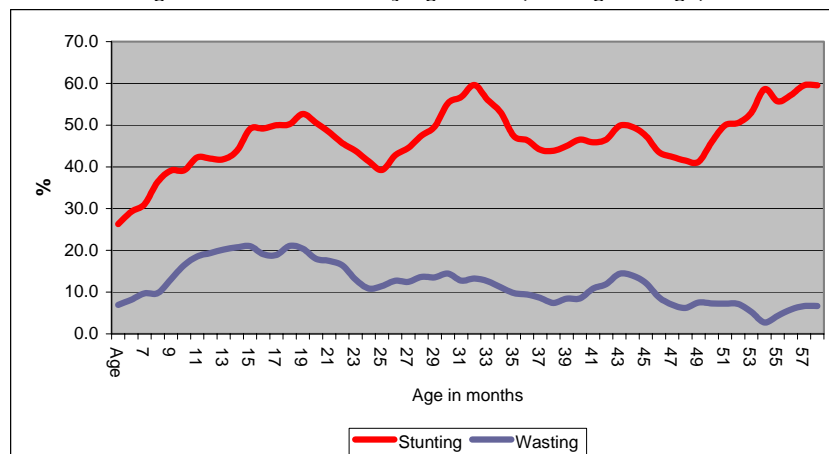
Based on the results of the anthropometrics study the global results of under-five child malnutrition are as follows:

Table 12 Global malnutrition figures

Wasting	Underweight	Stunting
13.4%	46.4%	45.5%

According to the classification of severity of malnutrition in a community for children under five years of age[4], the situation in the *planalto* is considered critical concerning chronic malnutrition and underweight, and serious for acute malnutrition.

Table 13 illustrates the results of the short-term analysis of the nutrition information: wasting versus illnesses and vaccination of the child. Generally, wasting is slightly higher for boys than girls (15.1% versus 13.3%).

Table 13 Child Nutrition – Short-term analysis

Zones	*Planalto*	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
% of children who are moderately or severely malnourished (WHZms)	**13%**	11%	11%	8%	27%	9%	21%	7%
Average number of vaccines the child received	**3**	3	4	3	2	3	3	4
Average number of diarrhoea incidence in the last two weeks	**1**	1	1	0	1	1	0	0
Average number of medical assistance during pregnancy	**3**	4	4	2	2	2	2	2
% of mothers without vaccination during pregnancy	**58%**	49%	51%	69%	49%	72%	67%	53%
% of mothers not receiving iron or folic acid during pregnancy	**53%**	48%	46%	64%	35%	67%	62%	48%

Zones 4 and 6 present the highest percentage of malnourished children and without immunization. Zone 4 also presents the highest concentration of mothers without vaccination or receiving iron/ folic acid during pregnancy. Mothers in Zone 6 and 3 are not well assisted, in medical terms, during pregnancy.

5.8   DIETARY FOOD INTAKE

The most often-consumed food groups during the week preceding the interview were cereals (87% of households), followed by tubers (76%), and pulses (55%). Very few households had eaten meat (12%) or dairy products (2%). Analysis of the frequency of intake of the 11 food groups shows that Zone 3 and Zone 7 were among the zones with highest number of food groups.

---

[4] Physical status, WHO 1995.

As seen with the other indicators, Zone 5 showed the least number of food groups eaten. Zones 1, 4 and 6 present the highest percentage of households eating 1 or less meal per day. Zone 5 has a higher proportion of households eating 2 to 3 meals per day.

Table 14 Food frequency and diversity by zone

Dietary information	Planalto	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
Eating <=1 meal/day	16%	24%	16%	8%	20%	6%	27%	9%
Eating 1<meal/day<2	21%	21%	21%	16%	20%	13%	30%	24%
Eating 2<=meal/day<=3	63%	55%	63%	76%	60%	81%	43%	67%
Average # of meal/day	1.85	1.7	1.87	1.92	1.79	2.13	1.69	1.83
Food diversity (average # of food products consumed)	6.70	6.62	6.44	7.98	6.05	6.24	6.41	7.52

Table 14 provides results of short-term analysis of hunger groups. The highest incidence of households eating 1 or less meal/day is among workers only (40%), followed by farmers well integrated into the market without food or financial aid (28%). Farmers who sell less eat more meals and buy less food. Farmers who sell more eat less and have to buy their food. For the first group of farmers, the food expenses represent 55% to 56% of their total expenses, while for the second one this portion ranges from 60% to 61%. The groups eating one or less meal/ day more frequently are also the least food diverse.

Table 15 Dietary information by groups – Short-term analysis

Different profiles of household		Eating <=1 meal/day	Eating 1<meal/day<2	Eating 2<=meal/day<=3	Average # of meal/day	Food diversity (average # of food products consumed)
Farmer without Food aid/Money aid	Not integrated into the market	4%	10%	86%	2.16	7.63
	Badly integrated	11%	20%	70%	1.92	6.98
	Well integrated into the market	28%	24%	48%	1.67	6.04
Farmer/worker with Food aid/Money aid	Not integrated into the market	3%	14%	83%	2.08	7.54
	Badly integrated	12%	21%	67%	1.87	6.83
	Well integrated into the market	18%	25%	56%	1.76	6.39
Worker only		40%	24%	36%	1.62	6.36

Table 16 Access to staple foods by Zone

Origin of staple	Staple	Region
Bought	Maize	41%
	Cassava	21%
Produce/collect	Maize	42%
	Cassava	66%
Mix	Maize	2%
	Cassava	2%
Donated	Maize	0%
	Cassava	3%
Exchange	Maize	1%
	Cassava	0%
Work for food	Maize	7%
	Cassava	7%
Food aid	Maize	8%
	Cassava	0%

Even tough there is no clear concentration of the groups by zone, Zones 1 and 6 present the highest percentage of producers that sell their production, have to buy food and do not receive aid.

Access to staple foods is illustrated in Table 16. Households that have to buy their own staple foods are concentrated in Zones 1, 4 and 6. Zones 3, 4 and 7 have the highest percentage of households getting their staples from food aid. Cassava consumption from donations is important in Zone 6. Most of households buy the rice they consume.

The focus groups referred to the high prices of food and depletion of food reserves during the lean season (September to November); yet the worst period, from December to March, seems to be the main risk for households and a major burden for women, as it is also characterised by intestinal problems for children.

In the lean and hungry periods women do casual work, mainly paid in maize, to ensure at least one meal per day. This is a burden, mainly for women as they are responsible for feeding the household. Most women reported that, in those periods food is of very low quality: mainly squash, cassava, sweet potatoes, wild herbs, lombi (leaves) and boiled banana, without oil or salt and resulting in worm infestation and swollen stomachs in children.

> "*They only eat oil for Christmas: the oil is a beer bottle, fuel is a beer bottle, that's how they manage (indicates the poverty of the purchases). What suffering!... shopping to please the spirit*", **Esperança Nonjamba**, (Bié).
>
> "*In September the women no longer grind on the stone*", **Hipólito Chissingui. Cunhinga**

5.9   ACCESS TO SOCIAL INFRA-STRUCTURE AND SERVICES

5.9.1   Road and Transportation

82% of the communities are connected to the road network, but 31% of those remain isolated for at least five months per year. Zones 3 and 5 have the least dense road network. In villages where there are no roads, the average distance to the nearest road is 5 Km.

Mobility restrictions due to mines were mentioned by 11% of the communities. The availability of public transportation is limited and available to just half of the communities (better in the dry season with 59% than in the rainy season 47%).

5.9.2   Health infrastructure

The region has very poor health infrastructure. None of the communities visited had a hospital and only 13% had a health post/clinic. The average distance to the nearest health facility is more than 20 km and 60% of the communities rely on unqualified health providers, such as traditional midwives, while only one third of the health structures in the area are staffed with qualified health professionals.

Most women deliver with traditional midwives (47%) or at home (36%). Only 13% deliver in maternity and general hospitals or clinics. 70% of the communities had vaccination campaigns during the last three months.

> "*If someone is very sick and taken to Caconda by foot, he can die along the way…*", **Caconda** (Huila).
>
> "*Here there are no traditional doctors or private nurses. Ourselves, when we can, we buy medicines in the market because in the pharmacies they don't sell medicines without a prescription. Sometimes we use roots or leaves*", **Ebanga**, Ganda.

Health was a major concern for women in all focus groups. Most villages do not have health facilities and the distances to the nearest one can easily reach 20 km. This increases the households' health expenditures, as they have to pay a high price for transportation or go by foot.

As medicines are re-sold by nurses, prices are high and households have to do extra work or sell assets to deal with health problems. The situation is worse for poorer groups that have small asset base and limited income diversity. Most people referred to making their own medication, buying medicines directly on the markets, etc.

Availability of water does not seem to be a problem, but the often poor quality influences children's health as mothers only boil water for babies under the age of 3 months).

Women do a lot of casual work to buy medicines or to pay for transport to a health facility. They also pay the nurses with agricultural work in his/her plot or with chickens or otherwise rely on traditional healers.

5.9.3   Markets

Only 6% of communities have a market in the village. Additionally, the frequency of the existing markets is low, with only 22% working on a weekly basis. In combination with the poor road infrastructure, market dynamics are very poorly developed.

5.10   RISK EXPOSURE AND MANAGEMENT

The majority of households face one to three hazards. Livelihoods are highly dependent on agriculture and, to lesser degree, livestock, lack of seeds, crop infestation and death of animals are the primary risks encountered by the population. Crop infestation and death of animals have a direct and severe impact on households' ability to meet food requirements. Other risks such as the death of a productive household member, fluctuation in food prices, and sudden adverse weather causing drought or flooding also negatively impact household food security (Table 17).

Table 17 Common Risks and Percent Household Affected

Risk	% HH Exposed to Risk	% HH with Reduced Capacity to Meet Consumption Needs*
Lack of seeds	47%	90%
Death of animals	42%	83%
Plague attacks on crops	39%	94%
Sudden increase in purchasing price of food	25%	97%
Flood	23%	97%
Death/ illness of HH member	14%	92%
Death/ illness of other HH member	14%	88%
Termination/delay of aid	11%	95%

* % within households exposed to particular hazard

In general, the number of coping strategies increases with exposure to risks, but excessive exposure to risks, in this case over six, erodes households' ability to cope. Dietary adjustments and capacity enhancing strategies, such as seeking aid and/or employment or commerce, are the most common coping strategies practiced by the households
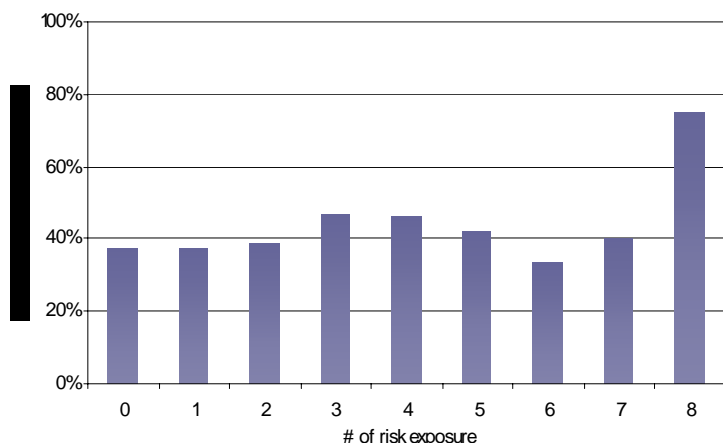
Figure 13 Risk Exposure versus aid

Figure 13 shows that although 75% of households exposed to multiple risks are currently receiving aid, less than half of households facing medium to high number of risks (5-7) are under assistance programmes. Further analysis is required to determine whether further aid coverage is warranted for those households with medium-high risk exposure.

Table 18 shows that households in Zones 6 and 4 are the most active in managing their exposure to risks by practicing multiple risk management strategies; Zone 5 is the least active. Dietary change, such as reducing the number and/or the quality of meals, is the most common coping strategy deployed in all zones. The majority of households in Zones 4 and 6 mitigate risks through capacity enhancing mechanisms, including seeking jobs, aid or small commerce opportunities, although aid is likely the main cushion for households in Zone 6, where a high percentage face sustainability problem by selling off assets (income degradation).   A small but significant proportion of households in Zone 6 cope with risks by taking children out of school or by marrying a daughter off early. These practices suggest economic/coping difficulties among those households.

Table 18: Coping Strategy

Coping Strategy	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Planalto
Dietary change	42%	38%	43%	38%	25%	68%	48%	43%
Capacity enhancing	32%	27%	34%	51%	18%	67%	30%	37%
Income degradation	9%	19%	6%	17%	6%	54%	14%	18%
Child/girl impact	9%	10%	12%	9%	2%	24%	13%	11%
Environment degradation	14%	9%	8%	8%	5%	13%	22%	11%

5.10.1 External Aid

Around 36% of communities have benefited from some type of aid programme. Construction of religious centres, construction/maintenance of roads and school infrastructure are mentioned as the three main types of programmes existing in the region. Construction of wells has a very low priority but the dense river network of the region can explain this.

About 44% of the surveyed households are currently receiving aid. Although returnees receive the majority of aid (70%), it covers only 45% of the displaced households. More than half of the displaced households receiving aid have been re-settled for between one and three 3 years. Between 41-45% of new returnees (<1 year) are on aid. Food aid is the most common type of aid received by 73% of the households on assistance programmes. Agricultural aid accounts for 34%, non-food 18% and cash 5%. Most of the households receive one type of aid, usually in food.

Overall aid activities appear to concentrate in Zones 5 and 6 (Table 19). Zone 6, in particular, has a high prevalence of aid as well as more diverse aid programming: 22% of the households in Zone 6 receive two or more types of aid. In contrast, aid is limited in Zones 1 and 2. Food aid is by far the most common assistance in all regions. 96% of aid recipients in Zone 4 receive food aid, compared to the 55-56% in Zones 2 and 3, on the low end. Agricultural aid, mostly in the form of seeds and tools, is the second source of aid. Zones 3 and 6 have received a larger proportion of agricultural aid.

Table 19: Distribution of Aid by Type (% of households on aid)

Types of aid	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Planalto
Food	74%	55%	56%	96%	79%	67%	89%	73%
Agriculture	18%	35%	56%	22%	32%	45%	29%	35%
Non-food	16%	24%	7%	13%	16%	28%	11%	18%
Cash	9%	12%	1%	4%	4%	1%	6%	5%

Targeting of food aid

A majority of households (67%) have been displaced at least once, which had a significant negative impact on asset accumulation. Targeting of food aid during the last years has been oriented towards returnees. Zones 5 and 6 have received food donations more frequently, which indicates a coherent targeting, given their relatively low levels of income.

Table 20 Food aid versus displacement

Food aid received	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	*Planalto*
Yes	32	37	41	48	53	57	38	44
No	68	63	58	52	47	42	62	56
Rank of food received	**7**	**6**	**4**	**3**	**2**	**1**	**5**	
Displacement								
Yes	61	73	61	87	63	57	72	67
No	39	27	39	13	37	42	28	33
Rank of displacement	**5**	**2**	**6**	**1**	**4**	**7**	**3**	

Another indication that food aid has been well targeted is that the families receiving aid have a relatively smaller income than the families that do not receive it. Furthermore, Zone 5, the second highest in the rank of food aid received, is one of the few where displaced households have a higher income than those not displaced. This might indicate that food donations are permitting the households to sell more of their own agricultural production without needing to reserve as much surplus for own consumption.

The focus groups showed that the traditional agricultural solidarity schemes (*ondjuluka*) have almost disappeared. Men and women agreed that households have small plots and production is not enough to sustain such schemes. Restrictions to solidarity should be understood in this context of poverty. The main source of help is the church or help from neighbours or relatives, as social capital is very limited. Help is restricted to situations of acute crisis such as death or diseases. Contacts with formal institutions occur rarely and are mainly through traditional authorities.

NGOs usually limit their work to distribution of inputs or organization of participants or beneficiaries for a project; development work seems to have gained little ground.

6. VULNERABILITY PROFILES OF HOUSEHOLD GROUPS

Vulnerability profiles of the households in the survey were constructed by clustering the major indicators related to food security and poverty. These are:

- Sex of the head of household
- Dependency ratio of the family
- Displacement and time of resettlement
- Education parameters, (literacy of household head, % of children attending school)
- Living conditions (access and quality of water source)
- Food intake and food diversity (number of meals, food types)
- Assets
- Livestock ownership and diversity
- Livelihood and income source diversity (off-farm and on-farm)
- Risk exposure and risk management.

Classification of the households according to these criteria resulted in the following four groups:

Group 1: Food Insecure Households. This group includes households that are chronically food deficient. They eat one meal per day and consume less than three food groups. These households have the highest risk exposure, rely exclusively on agriculture as source of food and have the least diverse income sources. They have almost no assets.

Group 2: Highly Vulnerable Households. Households who eat one meal per day and only three food groups. They are generally unable to manage medium risk exposure, and have just one additional source of food and income besides their own agriculture production. They have low asset ownership and diversity.

Group 3: Moderately Vulnerable Households. Households who eat at least one meal per day and consume more than three food groups. They are exposed to more than three risks, but with more than one food or income sources outside their own agricultural production.

Group 4: Low Vulnerability Households. Households who have the best dietary intake and consume more than three food groups. These households are exposed to few risks, with many sources of income. They have, relatively, the best animal and other asset ownership and diversity.

Figure 14 illustrates the proportional distribution of vulnerable groups by zone. The *planalto* has 19% food insecure households, 30% highly vulnerable, 19% moderately vulnerable, and 32% with low vulnerability. Each zone has a minimum of 12% (Zone 6) of food insecure households, with a maximum of 28% in Zone 2. Zone 5, which covers about 14% of the *planalto* area, registers the highest relative concentration of food insecure and highly vulnerable households (70%). According to this classification, Zones 4 and 6 have the lowest relative proportion of food insecure and highly vulnerable households.

Figure 14 Relative distributions of household groups

Table 21 shows absolute numbers of households according to these four groups with different
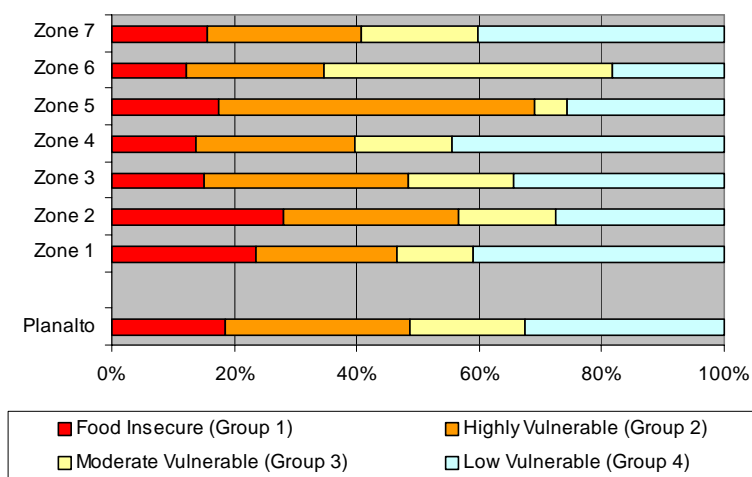
vulnerability levels. For the area under investigation, with a total area of 74,972 km^2, the total rural population is estimated at 1,782,000 persons.

Table 21 Absolute numbers of food insecure persons

	Area in km2	Total rural population (estimate)	Food Insecure population	Highly Vulnerable population
Zone 1	14,510	365,000	85,775	84,315
Zone 2	10,640	310,000	87,420	88,350
Zone 3	10,950	215,000	32,250	72,025
Zone 4	16,120	309,000	42,333	80,340
Zone 5	10,240	170,000	29,580	87,720
Zone 6	7,629	168,000	20,496	37,632
Zone 7	4,883	245,000	37,975	61,985
Total	**74,972**	**1,782,000**	**335,829**	**512,367**

A total of 335,829 persons are considered food insecure (group 1) and 512,367 persons (group 2) are highly vulnerable. Zones 1 and 2 have more than 160,000 persons belonging to the most vulnerable groups 1 and 2 because of their higher population density and their proximity to Huambo town. Zones 3, 4, 5 and 7 each have over 100,000 persons in these most vulnerable groups.

6.1   HOUSEHOLD PROFILES

This section describes the four household groups, with selected statistics given in Table 22.

6.1.1   Food insecure Households (Group 1)

The food insecure household group covers about 19% of surveyed households distributed through all zones. 72% of these have been displaced and 20% of them are newly resettled within the last three years. Given the poor harvest of 2004 due to excessive rainfall in the area, these households have only had one or two normal harvests. This group relies exclusively on agriculture as the main source of food and income, with extremely limited alternative income options. Besides poultry, they do not raise animals and asset ownership is extremity low. They have almost no capacity to respond to risks.

Daily food intake diversity is very low with almost all households eating less than three food groups (maize, tubers and pulses) and they only take one meal a day.

This group has the highest proportion of households receiving aid, with 35% receiving food aid. This group is considered food insecure.

Table 22 Selected characteristics of household groups

	Group 1	Group 2	Group 3	Group 4
Demography:				
HH female headship	35%	38%	47%	27%
HH ever been displaced	72%	64%	18%	68%
New re-settled (<= 3 years)	20%	20%		15%
Living conditions:				
Food diversity: less than 3 food groups	26%	30%	9%	13%
Assets ownership:				
Animal ownership	13%	24%	24%	31%
Risk exposure:				
High risk exposure (>3)	27%	37%	73%	32%
Aid:				
Receiving food aid	35%	34%	38%	23%

6.1.2   Highly vulnerable Households (Group 2)

30% of the surveyed households are found in this group with the highest concentration in Zone 5 where 52% of the households are considered highly vulnerable.   The group has 38% female-headed households with up to 50% in Zone 3.   About 22-25% of the households are returnees, except in Zones 1 and 7 where the proportion is between 12-14%. Besides their own agricultural production and some fishing, they no do not have other sources of income. Selling cereals is the most common response to risk, and the households have reasonable coping strategies based on "small businesses". This group also has very limited animal ownership. The worst-off concentration is found in Zone 1, where only 8% of households own animals. None of these have animals for agricultural production.

Dietary food intake is poor, with households eating less than 3 food groups and almost all have just 1 meal per day, as group 1, based on maize, tubers and pulses. Around 37% of the households are exposed to more than 3 risks. Food aid benefits 34% of the households.

These households are considered highly vulnerable, meaning that any shock occurring to their livelihood can result in food insecurity due to poorly developed coping strategies.

6.1.3   Moderately Vulnerable Households (Group 3)

About 19% of the households can be found in this group, with the highest concentration in Zone 6 were they reach 47% of the households. Up to 47% of the households are female headed with a maximum in Zone 7 where they constitute 62% of the households. 18% are resettled within the last three years. The households in this group have relatively good income diversification options, besides their own agricultural production. Most permanently employed people are found in this group.

The majority (73%) of the households in this group are exposed to more than three risks, and often use negative coping strategies such as diet changes or activities resulting in environmental degradation. It also happens that their coping strategies have negative impact on children and girls or on their productive capacity.

6.1.4   Low Vulnerability Households (Group 4)

The female headed household proportion is the lowest of all groups - 27% - but a very high proportion of the households have been displaced – 68%. Of these returnees, 20% have returned during the last three years. Almost 33% of households in the *planalto* are found within this group, which is almost equally distributed in Zones 3, 4 and 6. The highest proportion is in Zone 7 with 40%. Compared to the other groups, this group is better off because of income diversification and better coping strategies.

Asset ownership is higher than other groups with 31% of the households raising animals. The highest concentration is found in Zones 2 and 4 with more than 45 % of the households raising animals. In Zone 4, for example, up to 25% of the households own animals for agricultural production.

The group has the best dietary intake. Over 87% of the households eat more than three food groups and over 85% has more than one meal per day. Exposed to fewer risks, the group adopts fewer negative coping strategies.

6.2   DISTRIBUTION OF THE HOUSEHOLD GROUPS

6.2.1   Highly at risk area - Zone 5

The most vulnerable area is Zone 5 with the highest proportion of recent returnees (<1 year: 8% of households). Almost 87% of people have been displaced, in particular during the last years of the war. Only 15% of the households had more than two harvests at the date of the survey.

Zone 5 – Characteristics←DECIMALS

Displacement
- RET < 2 harvests: 14%
- RET > 2 harvests: 15.5%
- Arrived 6m-1year: 4.3%
- Resettled 1-3 years: 30%

Participation by economic sector
- Agriculture: 96.5%
- Livestock: 74%

Average Income by economic activity
- Agriculture: 7.64% HH
- Trade of goods: 8.68% HH

Working status of HH:
- 64% has 3 occupations

Asset diversity:
- 1 asset – 75.5% HH

Income sources diversity:
- Agricultural work for 69.5% HH

Consumption diversity: smallest

Wealth Index: -0.59

Risk Exposure
- Death of animals: 40.5%
- Pest attacks on crops: 35.7%
- Lack of seeds: 33.1%
- Food prices: 16%

Risk Management
- Dietary Change: 24.8%
- Capacity enhancing: 18.2%
- Least diversity of response

Aid
- Food aid: 78.9% HH
- Aid diversity: 3 types

The households rely heavily on agriculture and livestock for livelihoods, and have the worst ranking in terms of agricultural inputs: only 13% of the households are working in the lowlands, and only 8% and 4% use fertilizers and pesticides, respectively.

The zone has a very poor road infrastructure with 25% of them not passable during at least seven months of the year. The zone is also the most deficient in terms of availability of health infrastructure and qualified health professionals.

A high proportion of the households in this zone receive food aid (79%).

6.2.2 Moderately at risk area – Zones 1,2 and 6

Zones 1, 2 and 6 are in a relatively better situation. In **Zone 1**, the households are more self-sufficient with a better asset base to cope with risks. Only 3% of the households had more than two harvests (since return) at the time of the survey, but 32% rely on vegetable cash crops. This zone has the best road infrastructure, but also the highest related road mobility restrictions during the wet season. Only 4% of the communities have a permanent or periodic market. Water supply during the dry season is problematic because the households have almost no options other than natural water sources.

Zone 2 has a higher proportion of displaced than Zone 1 (93% of the households) and more households are engaged in agriculture and livestock. However, occasional work is regularly available. This zone has a relatively good road network and with less mobility restrictions than Zone 1, and no mine restrictions. There are better health facilities than in Zone 1, even if average distance to the nearest facility is more than 20 km.

Households in **Zone 6** do not rely as much on agriculture as in other zones. The zone has the highest percentage of female-headed households (40%) and one of the highest percentages of displaced people. Households have few productive assets but have the most diverse income sources. 57% of the households are receiving aid, of which, 69% are getting food aid.

### 6.2.3 Medium to low risk areas – Zones 3, 4 and 7

Zone 3 has the most diverse diet and nutrition indicators are relatively better. However, households are generally asset-poor and have a limited income diversification. The area has some income diversity besides the main livelihood strategies. Overall, 41% of the households are on aid, of which 23% receive food aid.

Zone 4 has the highest percentage of displaced households but with relatively better short and long-term income perspectives. The access to productive and non-productive assets is generally better as well.

Zone 7 has a relatively good diet variety but poor nutrition indicators. The majority of the households are engaged in agriculture, 54% in agriculture and livestock, 7% in agriculture and fishing. Households have some income diversity besides these main livelihoods and have lower

risk exposure. Although it has a high proportion of displaced population, the proportion of new returnees is low. 38% of the households are currently aid recipient, of which 33% are on food aid.

Figure 15 Spatial distribution of relative vulnerability levels
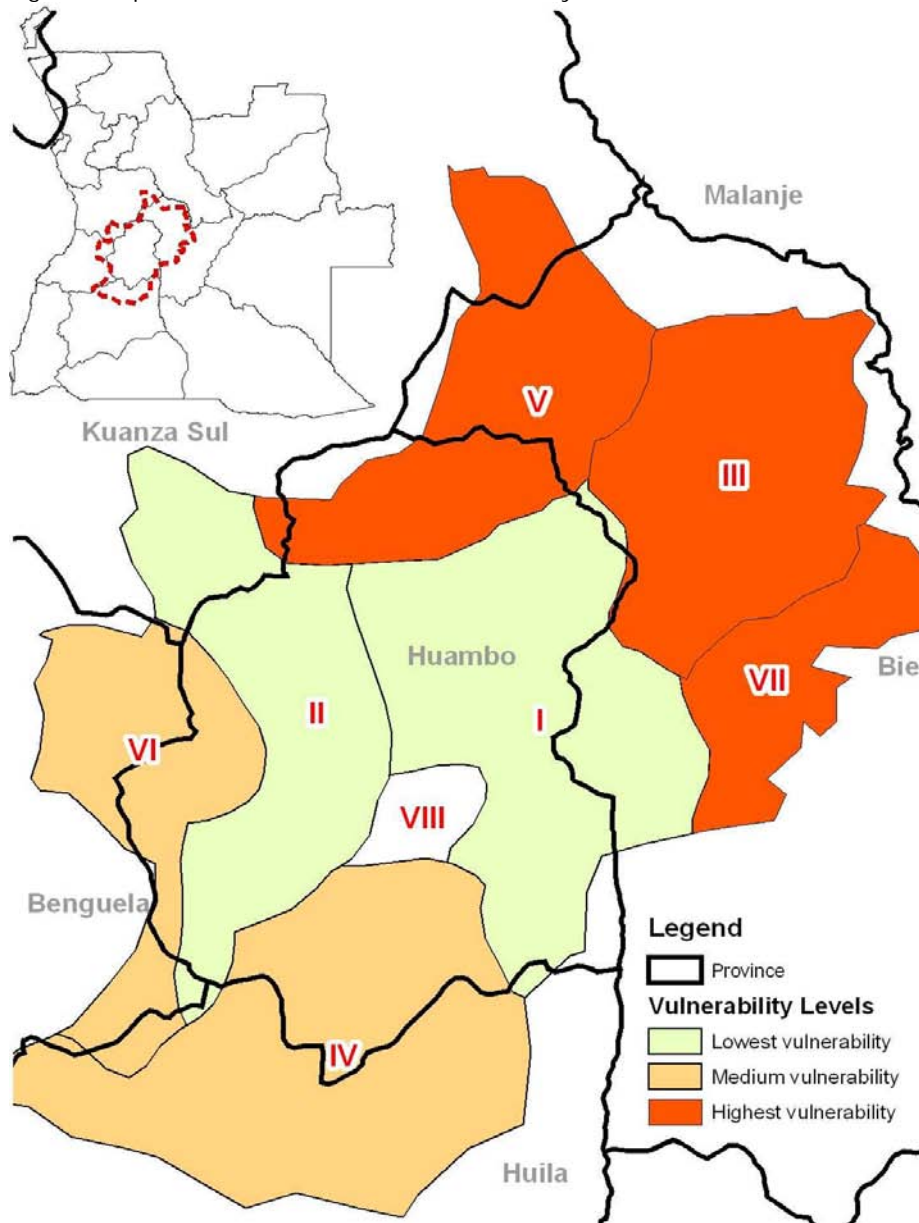
7. IMPACT ON WFP INTERVENTIONS

The analysis shows that food aid can play an important role in improving the living conditions of households. The table below summarises the main objectives and programming components that have come out of the analysis and gives an indication of the priority intervention areas based on risk.

Table 23 WFP Intervention Strategies

Strategic objectives	Justifications	Programme components	Priority intervention area
Social Rehabilitation and Protection	High level of illiteracy among the population (60%) and education embeds in it a potential gender-bias. The lack of education is likely to extend to the next generation, as children also have one of the lowest primary and secondary enrolment rates.	School Feeding	Zones 3 (Bié) and 6 (East of Benguela)
	High malnutrition rates	Nutritional rehabilitation of children (Safety Nets)	Zones 3, 4 and 6
Maternal and Child Health	High percentage of malnourished children and without immunization. Also high concentration of mothers without vaccination or receiving iron/ folic acid during pregnancy and not well assisted, in medical terms, during pregnancy	Support to maternal educative health programmes	Zones 3,5 and 7 (Bié)
		Support to basic hygienic practices	
		Support to HIV programmes (awareness campaigns and assistance to infected people)	In main towns
		Support to medical programmes	Zones 1 and 2
Rural environmental protection and extension	The redistribution of population during the war has resulted in accelerated degradation of vegetation and land. Deforestation is still continuing due to the high population pressure	Reforestation of degraded areas	Zones 1 and 2
		Environmental education in schools (through school feeding)	Follow school feeding, but important in Zones 1 and 2
		Support to rural extension programmes	Zones 3, 5 and 7 (Bié)
Social and economic promotion	The major livelihood system since independence did not change but the degrading road system and the impact of the war with resulting displacement, seriously affected rural livelihoods.	Rehabilitation of infrastructure (roads and bridges)	
		Support to gardens for women	Zones 3, 5 and 7, following maternal educative programmes
		Infrastructure rehabilitation (small irrigation, etc.)	

ANNEX 1 - WHAT HOUSEHOLDS THINK ABOUT THEIR OWN FOOD SECURITY

AGRICULTURE PRODUCTION

"*…cultivar com as mãos não adianta…*", **Manuel Escritório**, Balombo, Benguela

"*…farming with the hands is no good…*"

"*…tudo que tiramos morre no prato…*", **Laurindo Catanga**, Balombo, Benguela

"*…everything we harvest ends up on the plate…*"

"*com os bois uma pessoa não tem uma lavra apenas*", **Maria Talako**, Balombo, Benguela

"*with oxen a person doesn't have only one field*"

"*Os que têm adubo têm comida*", **Julieta Tchipuco**, Bailundo, Huambo

"*Those who have fertilizer have food*"

"*o café nos deu os telhados e o ensino dos filhos…a batata rena e o tomate enchiam os carros…agora…*", **Lucelia Ninalasso**, Bailundo, Huambo

"*coffee gave us roofs over our heads and schooling for our children… the potato and the tomato filled the carts…now…*"

"*se pensar comprar os bois os filhos em casa morrem. Os bois estão muito caros, é preciso ajuda como noutrora, vamos pagar o dinheiro todo porque sabemos trabalhar*", **Adriano Cinco**, Balombo, Benguela

"*if we think about buying oxen the children at home die* (of hunger)*. Oxen are very expensive, we need help like in the past, we will pay the money back because we know how to work*"

"*A grandeza de uma casa mede-se pelo tamanho da disponibilidade e variedade da sua dispensa/celeiro*", **Emilia Naquina**, Balombo, Benguela

"*the wealth of a house is measured by the size, availability and variety of its pantry/granary*"

"O *sofrimento está semeado aqui*", **Laurinda Ovideo**, Cassongue, Kuanza Sul

"*suffering is sown here*"

MARKETS AND PRICES

"Se o que nós produzimos não chega para comermos, quanto mais para se vender! Não vendemos nada porque a maioria cultiva com enxadas. Quando chega o mês de Setembro tem que ir no biscato", **Maria do Rosário**, Caconda, Huila

"what we produce is not enough to eat, let alone to sell! We don't sell anything because the majority work with hoes. When September comes we have to get off-farm work"

"Quando vais na praça já encontras as quinguilas; elas compram tudo para revenderem depois porque elas são as que têm lugar. Elas são as que ganham mais, nós só trabalhamos. O feijão e a ginguba rendem mais, mas não temos sementes", **Júlia Socope** Chipindo, Huila

"When you get to the market you already find the tradeswomen; they buy everything to resell later because only they have the space. They are the ones who earn more, we only work. Beans and peanuts yield more but we don't have seeds"

"2 kilos de massambala custam 5.00 KZ; com este preço quando é que vais comprar aquilo que desejas se tudo está caro", **Rui Newele,** Ebanga, Benguela

"2 kilos of millet cost 5.00 KZ; at this price when are you going to buy what you wish if everything is expensive"

"Quando o preço estiver alto (entre Setembro e Janeiro*), já não temos nada (*reservas*)"*, **Sabino Raposo**, Ebanga, Benguela

"When the price is high (between September and January*), we don't have anything left anymore (*reserves*)"*

ADDITIONAL SOURCES OF INCOME

"*Biscatos é o nosso inicio, nada podemos fazer mais*", **Manuel Escritório**, Balombo, Benguela

"*Off-farm work is our beginning, we can't do annything else*"

"O que sai mas é só um bocado, o resto vem mesmo do biscato", **Rui Newele**, Ebanga, Benguela

"What we grow is only a little, the rest comes from off-farm work"

"*Aqui todos é biscato, às vezes ficas só assistir"*, **Mariana Chipemba**, Bailundo, Huambo

" *Here we all live from off-farm work, but sometimes even that is not available"*

"*Não estudaste, vais fazer mais quê? É só enxada e viver o dia"*, **Justo Camoço,** Londiumbali, Huambo

"If you didn't study, what are you going to do? It's only the hoe and living from day to day"

THE LEAN SEASON

*"Neste tempo (*Abril*) a comida já acabou"*, **Julieta Tchipuco**, Bailundo, Huambo

*"At this time (*April*) the food already finished"*

"Tem que repousar se não quiseres agravar a fome", **Julieta Jambela**, Bailundo, Huambo

"You have to rest if you don't want the hunger to get worse"

"Se a massambala falhar, a banana é que nos ajuda – fervemos ou fazemos fuba; isto faz mal ao organismo (provoca prisão de ventre) principalmente as crianças", **Catarina Salumbije**, Ebanga, Benguela

"If the millet fails, bananas help, we boil them or make them into flour; it's bad for the system (it causes constipation) mainly for children"

"Vamos continuar mesmo assim com esta vida; se chuvas continuarem a ser regulares, pelo menos durante dois anos consecutivos, assim já será normal", **Russo**, Ebanga, Benguela

"We will continue like this with this kind of life; if the rains continue to be regular, at least for two consecutive years, then it will be back to normal"

EXTERNAL AID

"A aldeia Chicambi recebe muita ajuda, se nós também tivéssemos esse apoio, estaríamos já mais avançados", **Rosário Tropa**, Caconda, Huíla

"The village of Chicambi receives a lot of aid, if we also had that support we would already be more advanced"

"Precisamos mesmo de apoio, a produção não deu nada porque os nossos solos sem adubo parecem saco roto (sem fundo)", **Laurindo Catanga**, Balombo, Benguela

"We really need help, our farming resulted in nothing because our soils without fertilizers are like a torn bag (bottomless)"

"Mesmo no tempo colonial, tínhamos acesso ao crédito de tracção que era pago depois da colheita e assim as pessoas tinham mais facilidade de fazer poupanças e adquirir seus próprios bens. A melhor ajuda seria a tracção animal porque chegamos há pouco e as lavras são pequenas", Caconda, Huíla

"Even during the colonial times, we had access to traction credit which was paid after the harvest and like that people found it easier to save and acquire their own goods. The best aid would be animal traction because we arrived did not arrive long ago and the fields are small"

ORGANISATION AND SOLIDARITY

"*Sem poder dos bois não adianta ter associados porque nada ajuda*", **João Vasco**, Bailundo, Huambo

"*Without any oxen there is no point in having associates because nothing helps*"

"*Esses dias não são de ajuda, são de desenrascar, aguentar vivo para assistir a tua desgraça*", **Jeremias Tondele**, Andulo, Bié

"*These are not days of help, they are days of getting by, staying alive to watch your own misery*"

"*Hoje mesmo se quiserem dar uma volta pelo bairro não verão um único bêbado porque ninguém tem dinheiro, só vontade*", **Faustina Netile**, Balombo, Benguela

"*Today for instance if you were to take a walk around the neighbourhood you won't see a single drunk because no one has the money, only the desire*"

HEALTH

"*Se a pessoa estiver muito doente, ao ser transportado para Caconda a pé, pode morrer pelo caminho. O preço dos medicamentos é muito elevado*", **Josefa Lipune**, Caconda, Huíla

"* If the person is very sick and is carried to Caconda by foot, he can die on the way. The cost of medicines is very high*"

"*Aqui não há curandeiros ou enfermeiros privados. Nós mesmos, quando podermos, compramos medicamentos no mercado porque as farmácias não vendem medicamentos sem receita médica. As vezes usamos raízes/folhas*", **Lucrécia Sapenge**, Ebanga, Benguela

"*Here there are no traditional doctors or private nurses. We ourselves, when we can, buy medicines in the market because in the pharmacies they don't sell medicines without a prescription. Sometimes we use roots or leaves*"

EDUCATION

"se ele também quer vestir tem que ir na lavra porque a vida agora é assim, pai", **Florinda Ngila**, Balombo, Benguela

"if he also wants to wear clothes he has to go to the fields because that how life is now"

"Embora estiver com a tia a carga é mesmo dos pais se não tens como fazer volta", **Julieta Ninalasso**, Bailundo, Huambo

"Even if the child is with the aunt the financial burden still the parents', if they can't afford it they take the child back"

"Os professores estão muito sobrecarregados e assim não conseguem ensinar bem as crianças porque enquanto estiverem numa turma, abandonam a outra. Algumas crianças da turma abandonada chegam mesmo a sair da sala de aulas", **Maria Soleta**, Ebanga, Benguela

"The teachers are overloaded and like this they can't teach the children properly, because when they are with one class, they abandon the other. Some children in the abandoned class even leave the classroom"

"Esta semana os professores não estão a dar aulas por falta de giz. Os alunos da terceira vão à outra aldeia", **Mariquinhas Francisco**, Chipindo, Huila

"This week the teachers aren't working for lack of chalk. The third class pupils go to another village"

ANNEX 2 - METHODOLOGY OF PRINCIPAL COMPONENTS (WEALTH INDEX)

The theoretical assumption that justifies the use of asset index in economic analysis of households is that it represents a proxy of its long-run wealth. There are several possible ways to construct an asset index and among those there is the method of Principal Components that was used in this study. The following description about this method was based on Filmer and Pritchet, 2001[5].

The method principal components *(Aij)* describes a linear combination of common variables (eg.: ownership of assets) to all households in the sample such that:

$$A_{1j} = f_{11} \cdot a_{1j} + f_{12} \cdot a_{2j} + ... + f_{1n} \cdot a_{nj}$$

...

$$A_{nj} = f_{n1} \cdot a_{1j} + f_{n2} \cdot a_{2j} + ... + f_{nn} \cdot a_{nj}$$

j = 1, …, J households

i = 1, …, N assets

(1)

Where $a_{ji} = 1$ means that the household j owns the asset i and $a_{ji} = 0$ means the opposite.

The term f_{ij} reflects the scoring factor ("weight") assigned to asset i. The higher this weight, the higher should be the contribution of this asset to the principal component.

The construction of an asset index based on such method relies on the assumption that the higher the variance in the total assets owned by a household the higher its wealth. For example, if only a group of households owns a TV and a car but another group doesn't have them, the variance will be larger than if everybody would own both assets. The fact that everybody has both goods is not differentiating people in terms of wealth.

The first principal component, expressed in terms of the original (non-normalized) variables, is therefore an index for each household based on the expression

$$A_{1j} = f_{11} \cdot (a_{1j}^* - a_1^*)/(s_1^*) + ... + f_{1n} \cdot (a_{nj}^* - a_n^*)/(s_n^*) \qquad (2)$$

Where *a** is a solution to this equation that represents the maximum variance of assets; a_1^* is the mean of a_{1j}^* across households and s_1^* is its standard deviation.

To see an intuitive interpretation of how the value of the asset index changes from having ($a_{ji} = 1$) or not having an asset ($a_{ji} = 0$), we can use equation 2 in variation terms.

$$\Delta A_{1j} = [f_{1i} \cdot (1 - a_i^*)/(s_i^*)] - [f_{1i} \cdot (0 - a_i^*)/(s_i^*)] = f_{1i}/s_i^* \qquad (3)$$

From this equation it is possible to understand the role of the scoring factors in a household index. A move from 0 to 1 changes the index by f_{1i}/s_i^* .

The construction of our Wealth Index was based on the ownership of three types of assets:

---

[5] Filmer, D. and Pritchett, L. H. "Estimating wealth effects without expenditure data – or tears: an application to educational enrollments in states of India" Demography,, vol 38, n. 1, February, 2001: 115-132.

1. Goods and equipments for consumption (section D, items 1-8). Dummy variables were created with value 1 if the household owned the good and value 0 otherwise;

2. Housing characteristics (section C). Dummy variables were created with value 1 if the house had a certain characteristic and value 0 otherwise. For example, for the "type of lodging" variable, three dummy variables were created: one for living in individual house, the other for living in a tent and the last for living in part of house. The same type of dummies was created for the several characteristics of the house. The continuous variables like "how many divisions has the house" were kept without modifications;

3. Livestock for consumption (section E). Dummy variables were created with value 1 if the household owned the animal and value 0 otherwise. Since we were interested only in animals for consumption, ox of traction and ox were excluded from the sample. Also we established that farmers with a large amount of animals were probably using them for production and those cases were also out of the calculus of the wealth index.