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Community Results

Household size: Households were mostly of average size, having 5 to 8 members, or were smaller in size (< 5 member) with a small percentage (8%) of households having more than 10 members.

Accessibility: More than 80% of all communities sampled across the 13 districts stated that their community was accessible by trucks or 4 Wheel Drives (4WD). *Bombali, Moyamba* and *Bonthe* were the districts with the highest percentage of communities reporting problems of access by trucks or 4WD vehicles. *Kailahun, Koinadugu, Kono* and *Pujehun* districts, surprisingly, had more than 90% of their communities reporting accessibility by vehicle as at the time of the survey. It is worth noting that the survey took place in the dry season when road conditions are generally better throughout Sierra Leone. Further discussions with key informants, however, revealed that accessibility by vehicular transport in these same four districts is worst off compared to the rest of the country during the rainy season

Key informants were also asked if the road that comes to or passes by their community was inaccessible during certain times of the year. *Kenema* district had the highest number of communities reporting problems with season access by vehicle. For the communities that reported their roads as being seasonally inaccessible (137 communities across the 13 districts), more than 60% reported that these roads were inaccessible for 3 to 6 months in a year. It can be noted here that the 2003 WFP-VAM report mentioned 60% of the roads as being impassable during the rainy season.

Markets and food availability: The majority of the communities (mostly the smaller villages) had no daily or periodic markets. On average the distances to the nearest markets (for those without access to markets) were between 5 to 10 miles. Thus, as in 2003, access to markets continues to be a problem. The most common food items available in these markets were palm oil, cassava, rice (imported and local) and fish. Seasonal shortages of food items in the market, when they occurred, were most frequent between June and September.

For all basic food items (excluding groundnuts) and for the majority of the sample communities (82%), availability of food items was insufficient between June and September while basic food items were more often available between the months of October and February. For groundnuts, half of the sampled communities felt they were insufficient to meet their demands between June and September while 44% of the communities reported this insufficiency to occur during March to May.

Education: Nearly 70% of all sampled communities reported that there was a functioning primary school in their community. Access to primary schools was highest in *Port Loko, Bo* and *Koinadugu* samples. These results are similar to those obtained in the WFP-VAM 2003 study. For most of the communities that did not report having a functioning primary school, the nearest school was 2 to 4 miles away.

The main reasons for lack of primary school attendance were the inability of parents to fund children's education and the necessity of children to work and earn income for their families. The main problems affecting schooling and education across all communities, according to the people of the community were the lack of school buildings, furniture and text books. These findings are identical to those reported in the 2003 WFP-VAM report.

For the entire sample just over half of the adult men were illiterate. Districts with the highest reported adult male illiteracy were *Bombali* (80%) and *Koinadugu* (70%). On the other hand *Western Rural* (32%) and *Kailahun* (38%) districts had the lowest illiteracy amongst its adult male population. The districts of *Bombali*, *Kambia*, *Koinadugu*, *Port Loko* and *Kono* reported a minimum of 90% illiteracy amongst its adult women population. Like the adult male illiteracy pattern, the *Western Region* had the lowest illiteracy for women (60%).

Health: Malaria is the most common health problem reported by the communities. Hernia, diarrhea and cholera are the other common problems. The latter two are most likely related to the poor access to safe drinking water and lack of good sanitation facilities throughout the country. These findings are identical to those reported in the 2003 WFP-VAM report. Additional health problems reported were sexually transmitted infections (STIs), river blindness and complications during pregnancy.

More than 60% of the women across all districts were reported to give birth at home with the help by a traditional birth attendant/mid-wife. Across all districts, three-quarters of the sampled communities reported that they had no access to health services. *Bombali, Kambia, Bonthe* and *Kono* samples had the highest percentage of communities reporting a lack of access to health facilities while *Western Rural*, *Tonkolili* and *Kailahun* communities reported the best access to health facilities. According to the key informants, the main problems affecting health services are the lack of availability (of health services, of medicines) and the lack of access (health centre is too far or due to lack of money).

Agriculture: According to the key informants upland rice was the most important crop cultivated, followed by swamp rice. Among the tree cops, oil palm was named most frequently confirming the importance of palm oil production as a contributor to household income, followed by coffee and cocoa production.

Farmers associations were often identical to the Community Based Organizations (CBOs) being promoted by aid organizations with communities receiving varying degrees of support. By far the most important function and service offered by farmer associations was the provision of communal labour.

The main reason for crop damage and losses in harvest was due to animal pests, in particular grasscutters. While damage was considerable across all districts; *Bombali* and *Koinadugu* had the highest percentage of farmers reporting rodents as the main cause for crop losses. The 2003 reports mentioned a lack of access to seeds as a major constraint to agricultural production. However this does not seem to be the case in 2005 as a very low percentage of communities reported this to be a problem.

Household Results

Language: Across the country *Mende* and *Temne* were the most common native languages followed by *Kono* and *Kuranko*. In the South for more than 80% of the communities interviewed, *Mende* was the main native language. In the West the most common languages were *Temne* and *Krio* while in the East it was *Mende* and Kono. In the North *Temne* was the most common followed by *Krio*, *Limba* and *Kuranko*. Interviews were mainly conducted in *Mende* or *Krio* especially in the West and North. For only 5% of the interviews was an interpreter required.

Household composition: On average, households had 6.5 members and 48% of a household's members were male. The South had the highest average size of 7.2 members per household while the smallest average household size was 5.9, found in the North. By district, the smallest average household size was found in *Moyamba* (5.2) and *Kailahun* (5.3) samples while the largest were found in the *Tonkolili* (8.8) and *Kambia* (8.2) samples.

Housing: Ownership of dwellings was highest in the districts of *Bombali* (88%), Kono (86%), *Kailahun* (84%), *Port Loko* (82%), *Tonkolili* (81%) and Kambia (80%) samples. More than half the households were living in houses built before 2000. The districts of *Bo* and *Bonthe* had the highest percentage of families (> 70%) living in houses built before 2000. In contrast, the highest percentage of families reporting they lived in a house built after 2002 was in *Kailahun* district (41%).

Crowding within a house was determined by calculating the number of people per room in a house. On average there were 3 people per room but households in the districts of *Kenema, Moyamba* and *Bonthe* were the least crowded with around 2 persons per room.

Water and sanitation: In 7 districts, less than 40% of the households were accessing water from improved sources (UNICEF definition) during the dry season. Households in *Western Rural, Bo* and *Kailahun* districts were most likely to access water from improved sources.

Less than one-third of the households had good sanitation (UNICEF), except in *Western Rural*, with nearly half of the families regularly defecating in the bush.

Household asset ownership: More than half of the sampled households had at least one to two household assets. The most common assets were a table and a big cooking pot with more than half of the households had at least one of these items. Over 40% of all households had at least one chair and 41% had a lantern. Bicycles and sewing machines were the least common assets. By region, the West was the most asset rich with most households having higher than average asset ownership.

Ownership of tools and implements: The most common (and therefore by implication the most required) tools owned by households were hoes (80%) and cutlasses (84%). Households in *Bombali, Bo, Moyamba* and *Pujehun* all exhibited similar levels of asset ownership for hoes, cutlasses and axes. More than 90% of households in these districts own a hoe, 93% or more own a cutlass and at least 63% or more of the households own an axe.

Access to productive/agricultural assets: Households were asked about their access to drying floors, store (for rice), rice mill, palm oil mill, cassava grinders, tractors and agricultural credit. Only 18% of all households had access to a concrete drying floor and only 14% had access to proper stores for their produce. These figures are low and demonstrate a serious lack of available basic agricultural infrastructures and facilities within the sampled communities. The highest percentage of households with access to a concrete drying floor was in *Bo* district (31%). Regarding access to store, *Bo* (28%) and *Pujehun* (25%) were the districts with the highest percentage of households with a store for rice.

Despite rice being the most common and important crop cultivated, only 4% of the sampled households had access to a rice mill. This implies that the vast majority of the sampled households are dependent on the traditional milling method, which is associated with high losses of both quantity and quality of grains. The production and sale of palm oil is clearly an important activity for many households in Sierra Leone. However less than 1% of the sample households had access to a palm oil mill.

Agricultural credit and access to tractors: Less than 10% of all households had access to agricultural credit for one season. Households in the North had the least access to credit while those in the East had the highest percentage of households having access to credit for one season. It is interesting to note that districts with a higher than average access to agricultural credit (for one season) also had higher than average access to tractors (except *Moyamba*). This could imply that these districts have a sizeable population of farmers with large areas of land (requiring the services of a tractor) and access to credit is not as much as a problem for this group since the creditor is confident of being paid back. However access to tractors his is probably a result of the community power tillers and tractors provided by the government. Less than 1% of the sampled households had access to agricultural credit for longer periods.

Tree assets: The most important tree crops grown by households were cocoa, coffee and oil palm. In the eastern districts of *Kailahun*, *Kono* and *Kenema* where, before the war over 90% of cocoa plantations in the country were located, most of the farmers have only rehabilitated a small fraction of their cocoa plantations. However, in general, the cocoa rehabilitation efforts appear to be greater in the districts of the Eastern region as compared to those in the Southern region.

Households in the three districts of the Eastern region and in the districts of *Bo* and *Pujehun* in the South reported having coffee plantations. Coffee was also grown by households in *Koinadugu* district in the North. For all of these districts, it was revealed that coffee growers are yet to undertake any meaningful rehabilitation of their plantations. This could probably be attributed a lack of interest stemming from falling prices of coffee on the world market or the fact that these cash crops are not a priority for these farmers.

Palm products contribute to household nutrition and provide a source of income for many rural households throughout the country. Unlike cocoa and coffee, oil palm plantations are in all of the regions of the country. However, farmers' effort to rehabilitate oil palm

plantations was smaller compared to coffee and cocoa. Farmers in *Pujehun* have done the most rehabilitation of their oil palm plantations, followed by those in *Bonthe, Bo*, and *Port Loko* districts.

Access to agricultural land: Of all the land tenure options available in Sierra Leone, the most common methods of accessing land were by inheritance, family/clan owned and through the permission of the chief. Households in the West were the exception where they had the lowest average area cultivated per household and the lowest percentage of households accessing land. Further, the most common method of accessing land was through short-term rentals.

Upland rice production: On average 55% of the households in the South, East and Northern regions of the country cultivate upland rice - more than 70% of the sampled households of *Kailahun, Kenema, Tonkolili* and *Moyamba* cultivate this rice. Across the sample, the average yield of upland rice per acre was approximately 10.6 bushels. Households in *Port Loko,* a district having poor soils, had the lowest yields per household – a little over 8 bushels per acre. On the other hand, districts of *Kono* and *Bombali* had a higher than average yield, at 12 bushels of upland rice per acre.

Lowland swamp rice production: The percentage of households cultivating lowland rice was less than the percentage of households cultivating upland rice. Across the sample, the average yield of lowland rice per acre was approximately thirteen (12.9) bushels. Thus the average yields of lowland rice are higher than those for upland rice. The main reason for this is the better fertility of lowland soils.

Rice consumption: It was seen that 96% of the sampled households across all districts bought 5 bags (50 kilogram bags) of rice per year. Hence every household on average buys 5 bags of rice to meet their household rice consumption needs. Households were asked the duration (in months) their harvest of rice had lasted them the previous year (2003–04). The average duration the recent rice harvests were expected to last was little over 5 months (5.3) for households in the East, South and North. This estimate of 5 months is an increase from the actual time of four and a half months that rice stocks lasted a household the previous year. Hence while sustainability of rice agriculture seems to be improving (in terms of duration), there is a definite shortfall between production and consumption at the household level.

Access to seeds and cuttings: For upland rice, the most common sources of seeds by households were through purchase followed by using own stock or from loans. It should be noted here that in the case of rice "loan" also includes government support since rice seeds is given to farmers by the government on a cost recovery basis. For groundnut the most common household source for seeds is through purchase. The highest percentages of households accessing groundnut seeds by purchase were found in *Kailahun, Western Rural* and *Kenema* districts.

For cassava cultivation, most households preferred to save and use their own cuttings rather than purchase. Own stocks, purchase and access through humanitarian aid were the 3 most common sources by which households accessed cassava cuttings. Households in *Moyamba* and *Bombali* were more likely to depend on their own stock for cuttings, which mirrors the findings of the 2003 WFP-VAM report. The most common sources for households to obtain potato vines for planting were through purchase or from their own stock with households in *Koinadugu* having the highest percentage of households relying on their own stock.

Access to agricultural labour: On average, more than 90% of the adult members of a household (defined as members above the age of 15) participated in agricultural work or activities. This translates into an average figure (for the sample) of 3 adult members per household working in agriculture. The districts of *Kenema* and *Tonkolili* had the highest average number of adult members per household participating in agricultural work – 5 per household while the *Port Loko* sample had the least number of adult household members participating in agricultural work –one member per household on average.

Livestock ownership: There were variations on livestock ownership by district but with fairly low ownership overall, with the exception of chickens. For small ruminants, goats

were owned by more households in *Port Loko* (23%) and *Moyamba* (24%) and least often in *Kailahun* (3%) and *Bo* (2%). Sheep ownership was highest in *Port Loko* (19%) and *Kambia* (18%). Cattle ownership has increased slightly from 2003, but mostly in *Koinadugu* (3%) and *Port Loko* (4%) district samples. Ownership of oxen was on the increase but in very small percentages. Chicken and duck ownership was also increasing in most districts. Increase in livestock is probably as a result of various restocking programmes initiated by the government.

Income sources: The most important sources of income were from agricultural activities in the sample households usually from the sale of field crops or cash crops. Households depended on their income from various agricultural and non-agricultural activities. However the degree of dependence on a particular income generating activity varied by district. In *Kailahun* and *Koinadugu* the main sources of income was from the sale of other crops and rice while in *Port Loko* and *Western Rural* districts, petty trade accounted for the highest contribution to household income. In the *Kenema* district sample, households earned income from sales of crops and from mining. Households in *Tonkolili*, *Pujehun* and *Bombali* earned a considerable percentage of income from a combination of various temporary activities such as the selling of livestock products, selling of firewood and charcoal; and from migratory labour.

Monthly expenditures: Households in *Tonkolili, Bombali* and *Kailahun* had the highest percentage of expenditure on food. Their main non-food expenditures were medical expenses, education, clothing and miscellaneous expenses. For households across all districts the main non-food expenditures were for medical expenses.

Households in the *Bonthe*, *Port Loko* and *Moyamba* samples had the highest share of monthly expenditure for food. Rice was the food item accounting for the highest share of food expenditure with households of *Port Loko* and *Bonthe* allocating the highest share expenditure for rice - more than 60% of the total monthly expenditure in *Bonthe* district households was for rice. After rice, fish and meat accounted for the largest percentage of food expenditure accounting for more than 10% of total monthly expenditure for households in 7 districts. With the exception of chickens, ownership of livestock was low so households would have to pay for meat, milk and dairy products. This would contribute to the higher expenditure on fish and meat for households across districts.

Meal frequency: Three-quarters of all adults in sample reported consumption of 2 meals per day with 18 % of adults eat only one meal a day and 7% enjoying 3 meals. Households in the East had the highest percentage of adults eating one meal a day (19%) while in the West this was the lowest (5%). Meal consumption patterns of children mirrored that of adults with one important difference – there was a lower percentage of children eating one meal a day and a corresponding increase in percentage of children eating 3 times a day as compared to adults. Households in *Tonkolili* district had the highest (36%) percentage of children eating 3 times a day.

Food insecurity and coping strategies: As in 2003, across all districts, nearly all sampled households reported that they had at some point or the other faced a shortfall in their food needs. The main causes of lack of food in households were due to a household member being critically sick or injured, damage of crops by animals/pests (rodents) and the lack of access to agricultural inputs to improve production.

Households that reported shortfalls in their food needs were then asked to list the activities they employed to manage the effects of that risk (coping strategies). The most common coping strategies employed by households were borrowing of food and/or money; reducing food consumption and/or eating less desirable foods and finding additional wage labour.

Maternal and child health and nutrition: The mother and child health and nutrition module of the study included interviews with 4865 mothers/caretakers, anthropometric measurements of 4274 women of reproductive age (15-49 years) and 6332 children aged 6-59 months. The prevalence of malnutrition in women encountered was around 13% for the sample as compared to 10% in the 2003 study. The districts with the lowest levels of maternal malnutrition were *Kono (6%), Tonkolili (8%), Pujehun (7%) and Kailahun (8%).*

Nearly all children in the East and the South were put to the breast within 12 hours after birth. In the North however 23% were not breastfed until at least 24 hours after birth. The best breast feeding initiation practices were found in the *Kono* and *Pujehun* samples where the highest percentages of children were put on the breast immediately after birth. A large number of mothers indicated that they had given water to their newborns before the first milk. Weaning practices seem to have improved compared to 2003. However, it is noted that many mothers still do not follow the recommended weaning practices of 4 months of exclusive breast-feeding (not even water) and introduction of liquids/solid foods after 4 months.

Overall the two-week period of prevalence of illness in children (6-59 months) was 47% for coughing, 63% for non-specific fever, 20% for malaria and 30% had experienced an episode of diarrhoea. These prevalence rates are very similar to the ones found in the VAM survey conducted in 2003.

Household food security profiling

To develop household food security profiles, information on the frequency and diversity of consumption of staple and non-staple food items was collected at household level. In order to classify the sampled households on the basis of their actual weekly food consumption and dietary diversity, multivariate and cluster analysis techniques were used the information on the frequency of consumption (0 to 7 days) for fourteen food items or food groups:

Rice;	**Groundnuts/pulses;**
Cassava;	**Fish;**
Gari;	**Meat (chicken, beef, bush meat, etc.);**
Sweet potatoes/other tubers;	**Palm oil/other oils or fats;**
Bulgur;	**Eggs;**
CSB;	**Milk;**
Vegetables, cassava/potato leaves;	**Fruits & bush crops.**

Other indicators such as sources of income, share of expenditure, access to safe water and good sanitation were also used in the analysis. The analysis produced five unique profiles of consumption for the sample households which are presented below.

Poor food consumption - worst access to food

- Eleven percent (11%) of the overall sample households have poor food consumption. They seem to have problems in accessing enough food both in terms of frequency and dietary diversity.
- Rice is consumed frequently even if not daily. Households eat cassava two to three times per week in order to complement their weekly staple consumption. Vegetables (including leaves), fish and oils are consumed only 3-4 days per week, enhancing the quality of the diet. However, the frequency of consumption is not enough to provide the minimum protein and micronutrient requirements.
- One-third of the adults in this group consume one meal per day compared to a sample average of 17%, while in 29% of the households, children consume one meal per day compared to a sample average of 11 percent.
- The most important income activities are the sale of rice together with sale of other field crops. These households also rely on remittances, other sources of income and on wage labour.

Borderline food consumption

- Seventeen percent (17%) of the households belonged to this group characterized by a diet based on a combined consumption of cassava and rice as staple foods and on a daily consumption of fish and oil or fats. Vegetables are consumed 4-5 days per week on average. This indicates that households probably barely manage to meet their nutritional requirements.
- Households in this group rely largely on sales of field crops (rather than rice) and sale of palm oil as their main income sources.

Adequate consumption with low diversity

- The largest percentage (34%) of sample households falls in this group. They present a dietary pattern based on daily consumption of staple foods which include rice,

vegetables, fish and oils or fats. Groundnuts and/or pulses are consumed about 4-5 days per week, while cassava is eaten two days per week.

- The group's dietary diversity is low in spite of regular consumption of food, which could imply that they may have specific micronutrient deficiencies. More in-depth research and nutritional surveys will need to be conducted to better understand the relationship between dietary diversity and micronutrient malnutrition in this country.
- Sales of field crops (other than rice) and the sale of cocoa and coffee are the important sources of income for households in this group.

Fairly good food consumption – with consumption of fruits and wild foods

- Seven percent of the sampled households present a fairly good food access as indicated by the frequency of their consumption of staple foods and the diversity in their diet.
- These households manage to enhance their diet with food items that are usually available "for free", like fruit or bush crops. Thus the access to natural resources is contributing to household food security.
- While income is mainly earned from agriculture as for the other groups, these households derive a higher than average contribution from skilled labour.

Good food consumption – with different dietary patterns

- Thirty-one percent of the sample households demonstrate good food consumption patterns on a regular basis. This large group constitutes four main sub-groups in which households have been divided according to four main dietary patterns.
    1. Households that eat rice and meat daily, with frequent consumption of vegetables, groundnuts or pulses, fish and oil or fats.
    2. Households that base their carbohydrates/starch intake on a seven-day rice consumption integrated by frequent consumption of cassava and other tubers. Fish and oil are consumed everyday. Vegetables and groundnuts or pulses are eaten 5 days a week.
    3. Regarding consumption patterns in the third group; rice and cassava are eaten 4-5 days per week, while groundnuts or pulses just 3 days/week.
    4. Households in the last sub-group consume rice, oil and fish every day; vegetables, gari and groundnuts 5 days per week and cassava 3 days a week.

Part I - Background, objectives and methodology

Section 1.1 - Background

Sierra Leone has moved from a situation of acute emergency that characterized the late 1990s on to a durable development path since the end of the civil war in 2001. Hence, the need for sound information system, which can capture the changes that are taking place, has become even more paramount. This cannot be more pertinent for any type of information than those on community and household food security, vulnerability and individual nutritional status. Despite improvements in economic growth over the last two years, strong evidence still remains that food insecurity, hunger, and malnutrition are significant on-going problems among a large percentage of households in rural Sierra Leone, and therefore presenting major development challenges in the country.

The Government of Sierra Leone has, however, expressed strong commitment to reducing poverty and achieving food security in the country within the short- to medium-term. This is manifested in the Sierra Leone Poverty Reduction Strategy Plan (PRSP), which contains food security as one of its key pillars.

Section 1.1.2 - History and politics

European interest in the territory presently known as the Republic of Sierra Leone dates back to 1945, when the Portuguese built a fort on the site of what is now Freetown, Sierra Leone's capital city, to serve as the trading post for gold, spices, ivory and slaves.

In 1772, following the abolition of slavery in England, 40,000 slaves were returned to Freetown (hence its name). Britain later declared the area a crown colony and developed trade with the inhabitants of the interior of the country. War later broke out between the colonists and the interior tribes led by Bai Bureh, whose defeat brought Sierra Leone under Britain's West African Empire.

Sierra Leone became an independent state in April 1961, and subsequently a republic on 19th April 1971. Since independence, the country has suffered dramatic economic deterioration and political instability through five military coups and a brutal armed conflict that lasted 11 years (1991-2001).

Section 1.1.3 -Population and natural resources

The December 2004 census, estimated the population of Sierra Leone to be 4.98 million people[1] (SSL). The population growth rate has declined from 2.3% for the last census in 1984 to 1.8% in the 2004 census. This slow down in Sierra Leone's population growth rate could be attributed to increased number of deaths and increased number of permanent and temporary migration of Sierra Leoneans outside the country during to the civil war. Population density varies greatly across the different regions of the country, but is about 70 persons, on average per sq.km. About 75% of the population of Sierra Leone is rural, and made of, mainly, subsistence farmers.

The geographical area of Sierra Leone is approximately 72000 sq.km with a total upland area of 60 650 sq.km and 11650 sq.km lowlands. Arable lands in the upland are estimated at 43020 sq.km and in the lowland 11650sq.km. The suitable land for cultivation has been estimated at 7.25 million ha. of which 6.1 million ha are uplands with relatively low soil fertility. About 1.13 million ha are more fertile swamps and grasslands with considerable potential for increased cultivation under proper management. Sierra Leone is endowed with substantial minerals resources including diamonds, bauxite, titanium dioxide (rutile), as well as more limited resources of gold, iron ore and chromites.

Section 1.1.4 -The economy

Agriculture has been and remains the largest sector of the national economy. The agricultural sector consists of crop, livestock, forestry and fisheries sub-sectors, which accounted together, for over 75% of livelihoods and, on average 47.2% of the national

[1] Statistics Sierra Leone- Provisional Result, Sierra Leone Population and Housing Census 2004

GDP[2], in the period 2000-2003. Within the agricultural sector, crop production is the main contributor of the sector GDP, though it has shown declining performance in past two decades. The fishing sub-sector has strong potential for growth, with about 20% share of agricultural GDP, on average, over the four-year period. In the same period, 2000-2003,the mining and services sectors contributed, on average, 19.5% and-22.6% of GDP respectively, while manufacturing contributed a relatively very small percentage of the National GDP.

During the 1960s, at the time of independence, Sierra Leone had emerged as one the strongest economies in Sub-Sahara Africa due primarily to the mining industry (diamond, bauxite, and iron ore). However, today it is among the poorest. Sierra Leone's poor macro-economic performance started with the stagnation of the mining sector, largely on account of declining production and export of diamonds, and the closure of the iron ore mining in the mid 1970s, and poor performance in the agricultural sector by the late 1980s. After a strong growth rate of real GDP averaging 4% per annum in the 1960s[3], the economy slipped into decline during the 1970s and 1980s as the decline in mining spread throughout the monetized economy. At the end of the 1980s, the economy was characterized by declining per capita income, rapid inflation, and severe external payments imbalance.

Civil war gripped Sierra Leone in 1991, and thereafter, the rest of the period 1991-2001 was marked by recurring outbreaks of country-wide hostilities and political instability. Growth performance during this period was however mixed, though negative overall with periods of high inflation.

During the last three years, starting 2002, Sierra Leone has had considerable gains in terms of economic growth. Real GDP increased by 27.5% in 2002[4], and 9.4% in 2003, due mostly to rapid post-war recovery in key sectors of the economy, notably agriculture and mining. This improved economic performance continued into 2004 when real GDP grew by an estimated 7.4% to accelerated recovery in agriculture and improvement in Foreign Direct Investment (FDI) and exports. Despite this impressive economic recovery, the domestic budget remains precarious as it is very much dependent of flows of foreign aid and customs duties. Inflation, youth unemployment and food insecurity have continued to be a problem.

Section 1.1.5 - **Poverty**

Sierra Leone is among the bottom of the least developed countries (LDCs). Its per capita income, which is currently estimated to be $140[5], is among the lowest of the LDCs. Poverty in Sierra Leone is widespread and multi-faceted. Life expectancy at birth is 34.3 years, infant mortality and Under-five mortality rates are estimated at 165/1000 and 284/1000 per 1000 live births, respectively[6], and maternal mortality at 1,800/100,000, one of the highest in the world. Illiteracy rate is about 81%for females and 60% for males, and gross enrollment level at primary level of education is 115% males and 103 females in rural areas; and 114% males and 134% females in the urban areas[7]. For three consecutive years, 2002- 2004 Sierra Leone has remained at the bottom of the countries listed on the UNDP's Human Development Index (HDI) ranking[8].

The integrated household survey of 2004 derived a national poverty line to correspond to daily per capita expenditure on food and basic needs, of Le2, 111[9]. An individual whose expenditure on food and basic needs falls below this level is considered to be poor. According to this definition, about 70% of the population is below the national poverty line. Also, about 26% of the population cannot afford to attain the minimum requirement of 2700 calories per adult equivalent.

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[2] GoSL: Sierra Leone Poverty Reduction Strategy Paper. Final Draft 2005
[3] GoSL: Agricultural Sector Review (ASR) Document 2003
[4] GoSL: Sierra Leone Poverty Reduction Strategy Paper. Final Draft 2005
[5] Source:
[6] MOHS Statistical Information Sheet 1, July 2002
[7] Statistics Sierra Leone: Sierra Leone Integrated Household Survey, 2003/2004
[8] The HDI does not include all countries in the world, for instance Liberia was to included in the ranking
[9] GoSL: Sierra Leone Poverty Reduction Strategy Paper. Final Draft 2005

Section 1.1.6 - Food insecurity

Food crop production in Sierra Leone is dominated by rice, which is the main staple of the people. It is cultivated by almost the totality of the small-scale farmers[10], and consumed in nearly all of the Sierra Leonean households irrespective of income levels. The per capita consumption of rice is estimated at 104kg per annum[11]. In terms of contribution of rice to total calorie intake, the country has the highest in Sub-Sahara Africa. This indicates that Sierra Leoneans are highly dependent on rice to meet their daily energy requirements and further places emphasis on the importance attached as a major staple crop.

Even before the civil war, Sierra Leone was a rice deficit nation. Available statistics from pre-war time reveal that over the past three decades (1970-2000), the country was self-sufficient in rice production only in 1975. Between the periods 1979-81 and 1999-2000, domestic paddy production fell from 504,000 to 200,000 Mt[12]. In the same period, the volume of imported rice to fill domestic production shortfalls rose from thirty percent to 60 percent of total rice consumption. The dramatic fall in production in the 1990s was caused by the pro-longed civil war and the associated insecurity throughout the rural areas. Starting 2001, however, there has occurred an impressive recovery of rice production in Sierra Leone.

A crop survey conducted by FAO, in collaboration with WFP and MAFFS in 2002, estimated that total paddy production from 2001/2002 cropping season was 420,000MT, which more than doubled the production in 2000/2001, and represents an 84% recovery compared to production estimates in the three years that immediately preceded the civil war (1988-1990). However, based on population of 4.98 million and on basis of a per capita consumption of 104 kg of milled rice, domestic production of rice in 2002 was only about 49% of the total consumption needs of the population[13].

Besides rice, the farmers in Sierra Leone also cultivate wide rage of other food crops including cassava, sweet potatoes, yams, bananas, plantains, vegetables etc. Like rice production, however, the production of all food crops in the country, except cassava, declined significantly during the warring period.

Cassava is the second most important food crop in Sierra Leone; both the leaves and tubers are consumed. Prior to the war cassava production was increasing at an estimated annual rate of 6% since 1986/87[14]. Over the two-year period 2000/2001-2001/2002, production of cassava increased by 67%, maize 47%, groundnut 550%, sorghum 460% and millet 380%[15]. Compared to rice and cassava, the other crops are not very important in terms of contributions to total consumption.

The pattern of food consumption in Sierra Leone was observed to have remained more or less the same in the period between 1969 and 1992, with cereals, mostly rice contributing on average, about 56%, root and tubers 6%, pulses 4%, animal products 5% and others 29% of the total Dietary Energy Supplies.[16]It believed that this pattern might not have change significantly since 1992. There are, however, some variations between socio-economic groupings.

An important feature of the local food system in Sierra Leone is that availability of food is not constant throughout the year, and it also varies by regions. Traditionally food consumption in the rural areas has been adjusted to the variations in domestic availability. For instance, it is estimated that 40% of a rural household's annual intake of rice is consumed in the first quarter, coinciding with harvesting of upland rice, 30% in the second

[10] There are an estimated 435,000 farm families in Sierra Leone
[11] GoSL: Agricultural Sector Review 2003
[12] GoSL: Agricultural Sector Review 2003
[13] Assuming a milling recovery rate of 60%, 422,000 Mt. of paddy will produce a milled rice equivalent of 253,000 Mt. compared to the total annual consumption requirement of the population of 518,000 Mt.
[14] GoSL Agricultural Sector Master Plan 1992
[15] GoSL Agricultural Sector Review 2003
[16] GoSL Agricultural Sector Master Plan 1992

quarter, which coincides with the harvest of swamp rice, 20% in the third quarter and 10% in the fourth quarter i.e. the hunger period[17].

Section 1.1.7 - Background and justification of the study

Prior to the outbreak of civil war in 1991, Sierra Leone had one of the best agricultural and food security data bases on the African continent with a consistent time series on production, area, yield, food consumption, input use etc. spanning the period from colonial era through 1990. This data bases, drawn from annual surveys of a nationally representative sample of farm households, was supplemented with a variety of specialized surveys conducted intermittently on topics such as nutrition, food consumption, prices, livestock production, natural resource management practices, farm labor, farm and non-farm income etc. These surveys were interrupted in 1994; following wide spread insecurity in the rural areas of the country.

Since 2001, there have been a few surveys by FAO, WFP, UNICEF and the Government, as well as NGO's focusing on food security, vulnerability, farm production, nutrition and health. However, all of these surveys either did not cover a nationally representative sample, or were carried out when much of the rural population were still displaced and therefore not able to resume their traditional livelihood activities.

In December 2004, the Government of Sierra Leone presented the final draft of its Poverty Reduction Strategy Paper (PRSP) for discussion in a meeting with the development partners and other national and international stakeholders. The PRSP has the overriding objective of attaining increased and sustained food security for the majority of the population and creating jobs for the large and growing number of unemployed people. The strategy correctly recognized that little can be achieved to reduce poverty and improve food security in Sierra Leone unless measures are taken to revive the agricultural sector, which is the largest in the economy. Attaining macro-economic stability, improving supportive infrastructure, and good governance are also given priority in attaining the high growth envisaged in the PRSP.

Stakeholders at the December 2004 meeting generally recognized that, with the PRSP finalized, there would now be a need to have up to date baseline information to guide its implementation. Regarding food security, it was suggested that a nation-wide study needed to be carried out to ascertain the present status of food insecurity, nutrition and vulnerability in the country. In essence the proposal entailed that a large sample (statistically representative) survey be conducted in rural areas of the country.

In January 2005, the Ministry of Agriculture Forestry and Food Security (MAFFS), in cooperation with the Ministry of Health and Sanitation (MOHS), requested the assistance of the development partners, in particular, WFP, FAO, UNICEF, UNDP, WHO, CORAD group, and HKI, along with Statistics Sierra Leone, to assess the food security and nutrition situation in the country.

Following discussion with all potential stakeholders on the scope and timing of possible assistance, agreement was reached on conducting an integrated three-part survey (-food security and vulnerability, nutrition and health, and farm production). Detailed Terms of Reference for the survey were elaborated and agreed upon with all the stakeholders involved at end of January 2005.

Funding for the assessment was provided by WFP, WHO, UNDP and the Government of Sierra Leone, and during the course of project implementation additional financial resources were provided by UNICEF. HKI and UNICEF also provided substantial material and technical support for the nutrition assessment.

[17] Sources: Farming Systems Research Project, Rice Research Station Rokupr, Annual Report 1994

Section 1.2 - Objectives

1.2.1 – Overall objectives

The overall objective of this survey is to provide broad and up-to-date baseline information on food production and household food security for the implementation of the Sierra Leone PRSP. The principal aspects covered by the study are local farm production, trading of food in rural areas, access of rural households to food, utilisation of food at the household level including nutrition and health aspects, and vulnerability of the rural population to the various facets of food insecurity.

This research process was divided into three separate but complementary surveys that covered the same households in sampled districts:

- Farm Production Survey
- Food Security and vulnerability survey
- Nutrition and health in women and young children

The objective of the combined surveys was to provide insight on a wide range of factors that influence the degree of food security or vulnerability to food insecurity for rural households and will provide guidance for the policies that should be implemented in order to achieve the overall targets set by the PRSP.

The Farm Production and Food Security surveys were conducted as a synchronized exercise during March 2005. The essential part of Nutrition and Health information was collected as part of the household Food Security Survey. The in-depth Nutrition and Health survey led by UNICEF will be carried out at a later stage, but is expected to cover the same households.

1.2.2 - Objectives: Farm Production Survey

- To estimate the current area and production of major food and cash crops country-wide
- To estimate the current number of livestock in the country
- To determine the changes in farm production since 2003

Note: With respect to Farm Production, it should be noted here that at the time of finalization of this report, data pertaining to the above was being "cleaned" and analyzed. This data includes primary data collected from this survey, secondary data from Statistics Sierra Leone and census / population figures from the government.These analyses will be conducted shortly by the ministry of agriculture, WFP Sierra Leone Country Office and Statistics Sierra Leone and released in the near future as a separate report.

1.2.3 - Objectives: Food Security and Vulnerability Assessment:

- To determine the food security status of each Local Council Area and document changes as compared to the situation in 2003
- To understand why conditions of insecurity and vulnerability occur and at which time of the year are these conditions most likely to occur.
- To identify groups of the population which are most likely to face conditions of food insecurity and vulnerability.
- To identify where the vulnerable population are most concentrated within the country
- To identify sectors of intervention where food aid has a comparative advantage in addressing the problems of food insecurity and vulnerability in Sierra Leone.
- To build on the capacity of Government and other partners to develop and implement various food security assessment activities
- To provide a basis for the development of a national food security monitoring system to be implemented by Government in collaboration with development partners.

Section 1.3 - Sampling

The survey used a two-stage cluster sampling strategy. Statistics Sierra Leone (Statistic SL) helped to design of the sample frame, based on recent pre-census data that provided information on settlement names, populations, household sizes. Statistics SL grouped communities, consisting either of one larger village or several smaller settlements located in close proximity, into Enumeration Areas (EAs) that could be treated as the basic

clusters. Codes were available for all EAs and GPS coordinates for the sampled communities were to be recorded during the survey.

The aim of the sampling strategy was to obtain at representative results at the district level, now known as Local Council Areas. Population figures from the recent pre-census were available only at Chiefdom level, but not for individual EAs.

Due to the lack of accurate population figures at EA level it was decided to apply the Probability Proportional to Size (PPS) method at Chiefdom level, meaning that the more populated Chiefdoms had a higher probability of selection. In each Local Council Area (LCA) approximately half of the Chiefdoms (on average 45%) were selected. The few larger urban-type settlements outside of Freetown were excluded from the selection process. In a second step, five EAs (communities) per Chiefdom were selected using simple random sampling techniques. The total number of EAs (or clusters in statistical terms) per Local Council Area was 25, with a total sample size of approximately 4500 households for food security and farm production, and 5600 for nutrition and health.

The sampling procedures used at EA (community) level are as follows:

- Within the EA, household lists were created by the survey teams with assistance from the village leaders and then a sample of 12 households was selected using a random number draw.
- As it can be assumed that a large proportion of the households were engaged in farming as primary or secondary occupation, and thus there was no need to differentiate between farming/non-farming families when selecting the households to be interviewed. If families without agriculture, livestock or fisheries activities were encountered, the farm production questionnaire was simply left blank (except for some general information).

During the planning, it was discussed whether existing information on agro-ecological zones or regional predominance of farming/livelihood systems should be used to subdivide LCAs into sub-regions which would then be considered as additional survey strata. However, this would have lead to an increase in sample size requirements and, as the classifications were based on arbitrary (index-based) criteria, would most likely have yielded inconclusive results.

Only half of the Chiefdoms were covered by the survey. As far as feasible in view of time and budget constraints, the Chiefdoms not included in the survey should be visited to make sure that conditions are reasonably similar to neighbouring Chiefdoms included in the survey.

Each of the participating institutions was free to increase the sample size for its part of the survey in accordance with its own requirements, as long as for the common part it followed the agreed procedures - most importantly that the same households would be interviewed. The MAFFS indicated that it needed to increase the sample size for the Farm Production Survey to all Chiefdoms.

Section 1.4 – Survey instruments

1.4.1 - Overview

Community interviews were conducted in every community covered by the survey. There was a checklist of information to be obtained, combined with forms to be filled out to provide the basic information on the community infrastructure and on a number of issues concerning the entire community. The group interview was designed to yield information from the community on their present situation, recent changes for the better or worse and their outlook for the future. One part of the interview that is especially important aimed to obtain information on markets and market access, trading activities and inflow/outflow of crops and other food items.

The household interviews consisted of two survey questionnaires - Food Security and Farm Production - combined into one, with the in-depth survey of Nutrition and Health to follow at a later stage. The Food Security and Farm Production interviews were conducted as one or split into separate sessions on two consecutive days. Each household received an ID number which was to appear on all questionnaires.

1.4.2 - Community questionnaire

Information to be collected through community interviews included:

- *Demographic information* – Estimates on population, number of dwellings and number of households; principal languages spoken; recent population movements.
- *Economy and infrastructure* – major economic activities of residents; changes in quality of life; accessibility; markets availability and access; in-migration and out-migration; existing community development projects.
- *Education* – Availability and access to functioning primary school; estimated enrolment and attendance by gender; primary reasons for not attending school; main constraints to good education for children in the community.
- *Health* – Availability and access to trained health professionals, family planning, traditional birth attendants, hospital, health clinic or pharmacy; main health problems of people in the community; main constraints to good health care; traditional birthing practices; recent immunization or anti-malarial campaigns (preventative services).
- *Agriculture* – Main crops produced and use of harvest; agriculture extension services; farmers' associations, use of chemical inputs; land tenure; constraints to good agricultural production; farm labour and work groups.
- *Trading of food and cash crops* – Frequency of markets, presence of traders, main products sold by local households on markets and to whom (local population in general, local traders, outside traders), main products purchased on markets and who offers them, particular problems encountered.
- *Availability and price trends* – Seasonal availability (surplus, shortage) of main food crops and price fluctuations, general price trends, opinion of locals whether on balance the village produces a surplus of food crops (which is sold to other areas) or whether they still need food crops to be brought in from elsewhere.

1.4.3 – Household food security

- *Household Demography* – Extensive information on household structure including: headship, marital status, education – past and present, migration and disability –by age and gender.
- *Housing and household facilities* – Dwelling size, age, ownership, crowding, construction materials of dwelling, damage during the war, source of lighting and cooking fuel, type of sanitation facility and source of drinking water.
- *Household asset ownership* – Ownership of productive and typical assets; *Income sources/livelihoods*
- *Main sources of household income* – Selling of agricultural produce, livestock and fish; other sources of income such as wage labour, trading; their relative contribution to total household income and which family members participate in each activity.
- *Household expenditure* – Reported monthly expenditure on: rice, roots & tubers, palm oil, fish or meat, other food, medical/health, housing/rent, alcohol & tobacco, transportation, debt, agricultural inputs, labour, utilities, education, clothing, etc.
- *Food consumption* – Number of meals eaten by adults and children; household food frequency and dietary diversity; source of each food consumed in the past week.
- *Household risks* – Past exposure to risks or shocks that would make the household vulnerable to food insecurity and strategies used to cope with the situation. Anticipated exposure to shocks or risks in the future and strategies that could be employed to prevent or mitigate effects on household food and livelihood security.

1.4.4 – Household crop production, livestock and fisheries

- *Household land ownership and use* – Agricultural land access and tenure, areas cultivated by crop including tree crops
- *Cropping system* – Shifting cultivation with pure stands or intercropping, lowland with crop sequence, tree crops; sources of seeds/cuttings/vines; participation in farming work groups; hiring of agricultural labour.
- *Crops harvested last season* – Quantities per crop, for food crops and cash crops)
- *Food crops consumed in the household* – Quantities of each
- *Food and cash crops sold* - Quantities of each, when, to whom and at what prices

- *Livestock* - Ownership & quantities of various types of livestock, livestock purchased and sold last year
- *Fisheries (where applicable)* – Fishing methods used, quantities caught, preservation methods, own consumption and sales

1.4.5 – Women and child nutrition and health

- *Maternal health and nutrition* – Age, current pregnancy or breastfeeding status; use of iron-folate tablets during pregnancy, pregnancy history, age at first birth, vitamin A supplementation, recent illness, use of mosquito nets, hand washing practices, weight, height; body-mass index.
- *Child health and nutrition* – age, gender, use of antenatal care by mother, size at birth, breastfeeding, weaning and complementary feeding practices, vitamin A supplementation, measles immunization, recent illness, weight and length/height measurement (nutritional status).

Section 1.5 - Organisational aspects

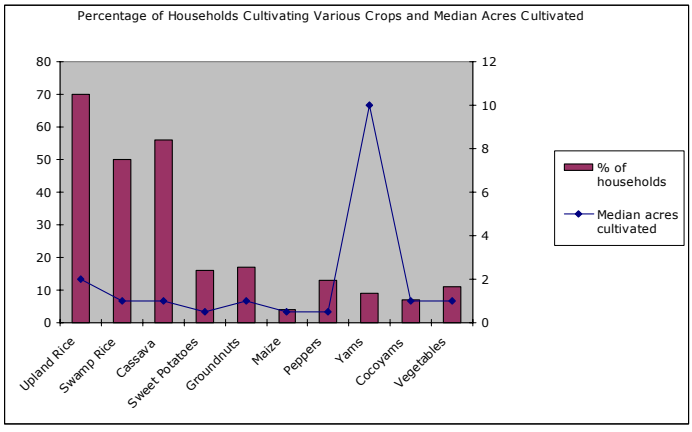
The various agencies involved in the planning and implementation of the survey are as follows:

- Lead for Agricultural Production Survey with MAFFS/FAO
- Lead for Food Security Survey with WFP
- Lead for in-depth part of Nutrition/Health with UNICEF/Ministry of Health /HKI
- Overall coordination: WFP
- Design of database, coordination of data entry: WFP
- Data entry: decentralized at each participating institution (or at entities subcontracted by them for this purpose)
- Analysis and report writing: The agricultural part is responsibility of the MAFFS, the Food Security part is covered by WFP (including basic aspects of nutrition and health).

Part II – District level results

2.1 - Kailahun District

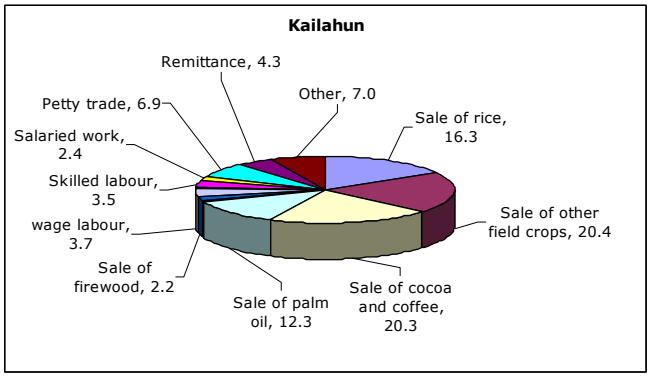
- Population (number): 358,259
- Area (in '000 Sq Km): 3.9
- Household size and composition: The average household size was 5.3 members with 44% of the household composed of males. Sampled households across this district had the lowest average household size for the entire sample.
- Language: More than 84% of the sampled households reported *Mende* as their primary native language. *Kissi* and *Kono* were the other two native languages reported as being used in this district.
- Education: Nearly 40% of the adult men and over 70% of the adult women in the sample were reported to be illiterate. The percentage of illiterate men and women were the second lowest amongst all districts. Of the remaining men, the majority had either attended primary school (28%) or had some formal Arabic/Koranic training (15%). Further, 17% of the adult men and 16% of the adult women had attained primary school education. The percentages of boys and girls between the ages of 6-14 attending primary school was almost identical – 83% of the boys and 82% of the girls.
- Housing: More than 80% of the sample households reported owning their house with most of these houses (77%) being built after 2000. The houses had an average of 3 rooms and the average number of people per house was 8 with an average of 3 people per room (crowding).
- Housing conditions: Sixty-three percent (63%) of all the sampled houses had walls made of mud or mud brick. The majority of the houses had earthen floors (83%) and a corrugated iron (48%) or a thatched roof (38%).
- Lighting, sanitation and drinking water: For more than half the households, (55%) pan lamps were the primary source of lighting. This district had one of the highest percentages of households reporting access to water from improved sources[1] – 66% of the sample households. Very few households used sanitary means of excreta disposal
- Asset ownership: Two-thirds of the households reported owning 1 to 2 household assets. The most commonly owned assets were big cooking pots or lanterns. With respect to agricultural tools and implements more than 88% of the households owned cutlasses, 76% owned hoes and 55% owned axes. One-quarter of the households had access to a drying floor and 13% to a store for rice.
- Access to land: The most common sources of accessing land for sample households were through family or clan ownership (88%). The second most common option was inheritance followed by permission from the chief. The average are cultivated per household in this district was 4.3 acres.
- Access to seeds: Sampled households mainly relied on purchase to acquire seeds. However a household's reliance on purchase to source seeds varied from crop to crop with 86% of the households purchasing groundnut seeds while a relatively high percentage of households relied on humanitarian aid for cassava cuttings and sweet potato vines. In the case of both cassava cuttings and potato vines, the main source of obtaining cuttings or vines for households were by other sources, most likely gifts from friends and relatives.
- Cultivation: The most common crop cultivated by households in the district sample was upland rice, grown by 70% of the sampled households. The average acreage of rice cultivation per household was 2 acres. Inland swamp rice was cultivated by half of the sample households on an average area of 1 acre per household. More than half of households also grew cassava and the



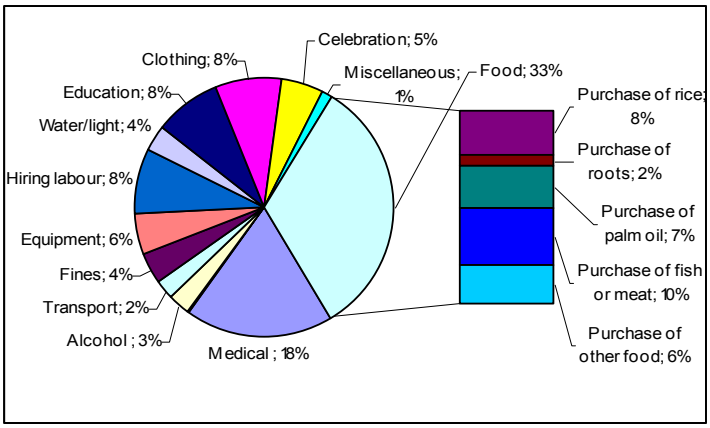
[1] UNICEF definition

average area per household was 1 acre. Only 9% of the households grew yam and a small percentage of households also grew vegetables, cocoyam, maize and peppers.

- Access to labour: Nearly 70% of a household's adults were involved in agricultural labour, translating to approximately 2 adults per household involved in this activity. Further, nearly 90% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.
- Livestock ownership: Very few households in this district are raising livestock, with the exception of chickens. A low percentage of households are raising goats or sheep and none with cattle or pigs. Ownership of these animals is basically no different than what was reported for 2003. However, in 2005 more than half the households reported owning chickens which was up from 44% in 2003 and there was also a slight increase in duck ownership although overall ownership was quite low.
- Income: Most households had between 2 to 3 income sources – 43% of the households had two sources of income and 39% of the households had three sources of income. Fifteen percent (15%) of the sampled households had four sources of income. The most common income activities for households in this district were the sales of other crops (99%), sales of cocoa and coffee (67%), sale of rice from own farm (51%), and the sale of palm oil (44%). The highest share contribution to overall income for households in this district was from the sale of other crops (20%). The other important contributions to income were the sale of cocoa and coffee (20%), sale of rice from their farms (16%) and the sale of palm oil (12%).



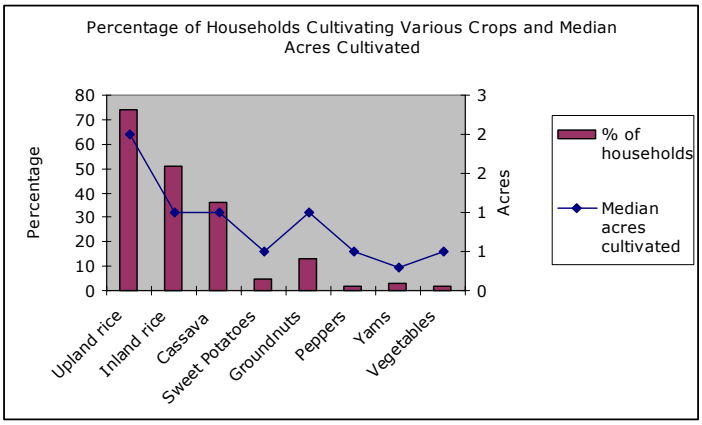
- Expenditure: On average, 33% of a household's expenditure is spent on food items. Households in this district have one of the lowest percentage expenditures on food of all districts. With respect to food items; expenditure on fish and meat accounted for 10% of all expenditure, rice accounted for 8% of expenditure and palm oil purchases for 7 percent. Percentage of expenditure on fish and meat was the second highest for all districts. The highest share of non-food expenditure was for medical expenses accounting for nearly 20% of a household's monthly expenditure. This is the highest percentage share for all districts. Households in this district also spent a greater share on alcohol & tobacco, equipment and tools as compared to the other districts. Less than half a percent of the households incurred any expenditure as rent since the majority of the houses are owned.



- Meal Consumption: Most household members eat two meals a day - 71% of the adults and 69% of the children. While children in 4% of the households eat one meal a day, 21% of adults eat one meal a day. In the rest of the households nearly 10% of the adults and 25% of children reported eating three meals a day.
- Coping strategy: The main shocks to a household food security in this district is illness or injury of a household member. Apart from this security situation preventing people from accessing their land or sourcing labour was also reported as a constraint to food security. The main coping strategies used to handle food shortages are additional wage labour, borrowing money and food, the selling of household items and reducing food consumption.

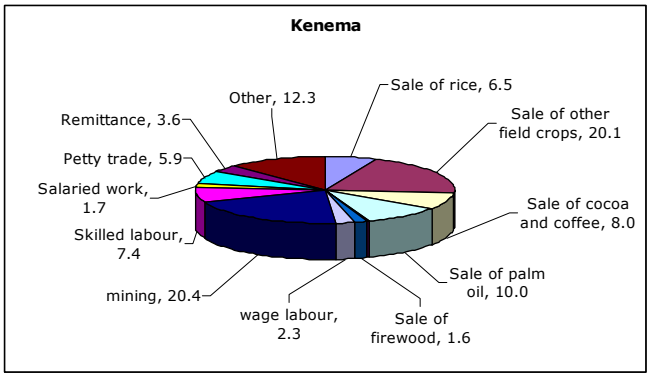
2.2 - Kenema District

- Population (number): 487,755
- Area (in '000 Sq Km): 6.1
- Household size and composition: The average household size was 6.1 members with 44% of the household composed of males.
- Language: More than 90% of the sampled households reported *Mende* as their primary native language.
- Education: Slightly more than half (51%) the sampled household's adult men and 83% of the adult women were stated to be illiterate. Of the remaining men the majority had either attended secondary school (17%) or had some formal Arabic/Koranic training (18%). Ten percent (10%) of the adult men had attended primary school and 6% of the adult women had attended primary school. It is interesting to note that there was a higher percentage of girls (aged 6–14) attending primary school than boys - 87% of the girls as compared to 83% of the boys. There was a marked difference in percentage of boys and girls receiving formal Arabic or Koranic training – 7% of the boys as compared to less than 1% of the girls.
- Housing: Nearly three-quarters of all households sampled in this district reported owning their house and most of these houses (65%) were built before 2000. Houses had an average of 5 rooms with and average of 10 people per house and number of people per room (crowding) was two. Households in this district had lower people/room than any other district excepting *Bonthe*
- Housing conditions: More than half of all the houses sampled in this district were made of mud or mud brick. The majority of the houses had earthen floors (85%) and a corrugated iron roof (62%) or a thatched roof (38%).
- Lighting, sanitation and drinking water: Almost 60% of the households depended on pan lamps for lighting. This district had one of the lowest percentages of households reporting access to drinking water from improved sources – 32% of the district's households.
- Asset ownership: One-third of the households reported owning 1 to 2 assets - one of the lowest values for the survey. Ninety percent (90%) of the sampled households owned a big cooking pot, 71% owned tables and 65% owned chairs. With respect to agricultural tools and implements, ownership was lower than most other districts with 72% of the households owned cutlasses, 60% owning hoes and 55% owning axes. Less than 25% of the households had access to a drying floor and 14% to a store for rice.
- Access to land: Forty three percent (43%) of the sampled households accessed their land by means of family or clan ownership. Further, 30% of the households gained access to land by inheritance and 8% were given permission to access their land by their chief. The average are cultivated per household in this district was 3.6 acres.
- Access to seeds: For the sample, the majority of the households farming groundnuts relied on purchase for their source of seeds – 73% of the households. In the case of vegetable seeds and cassava a higher percentage of households tended to save and use their own stock. Other sources (likely gifts) were also used by households to obtain sweet potato vines and cassava. Nearly 30% of the households undertook loans to buy rice seeds. This implies that many households were unable to store/stock rice seeds either because of low rice production or because the farmer did not farm rice the previous year and therefore hasn't a seed reserve.
- Cultivation: The most common crop cultivated was upland rice - 74% of the sampled households. Average acreage of rice cultivation per household was 2 acres. Inland rice was cultivated by 51% of the households on an average area (per household) of 1 acre. Cassava was grown by 36% of the households and the average area per household was 1 acre. Yam was

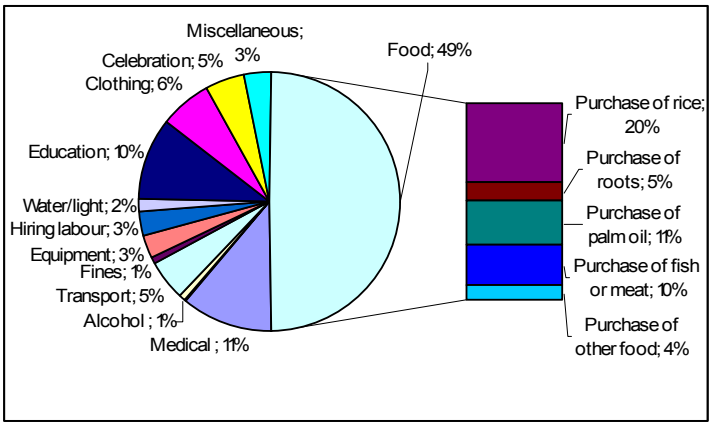


grown by 3% of the households and the average acreage cultivated was less than one. Between 13% and 17% of the households grew sweet potatoes, groundnuts and peppers. A small percentage of households also grew vegetables, cocoyam, maize and sorghum.

- Access to labour: Approximately 96% of a household's adults were involved in agricultural labour. The average number of adult males per household participating in agricultural work is highest for this district across the sample. Further, 79% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.
- Livestock ownership: Chickens were the most commonly owned livestock with 61% of the households owning chickens. This is an increase from 2003 wherein 52% of the sampled households owned chickens. Similarly there has been an increase in percentage of households rearing ducks from 6% in 2003 to 9% in 2005. Percentage of households owning pigs and oxen was less than 1%. There was also a slight increase in sheep and goat ownership between 2003 and 2005 although overall ownership was quite low.
- Income: Nearly 90% of the households in this district earn income from the sale of other crops. Other important income activities include mining (65%), sale of palm oil (55%) and sale of cacao and coffee (31%). Income from the sale of other crops and from mining contributed 20% each to total household income. The other important contributions to income were from 'other' activities (12%), sale of palm oil (10%) the sale of cocoa and coffee (8%), and skilled labour (7%). It should be noted that mining did not appear as such a important contributor to total income for any other district. More than 60% of the households had two sources of income. Further, this district had a high percentage of households that only relied on one source of income. *Kenema*, *Bonthe* and *Pujehun* were the districts which reported *no* households having four sources of income.



- Expenditure: On average, almost half of a household's monthly expenditure is for food items. The food item that accounted for the highest share of household expenditure on food was rice, at 20% of a household's monthly expenditure. Palm oil purchases accounted for 11% and fish/meat accounted for 10% of a household's expenditure. The highest share of non-food expenditure was incurred on medical expenses accounting for more than 10% of a household's monthly expenditure. This is followed by education (10%), clothing (6%) and transportation (5%). Less than half a percent of the households incurred any expenditure as rent since all houses are most probably owned.

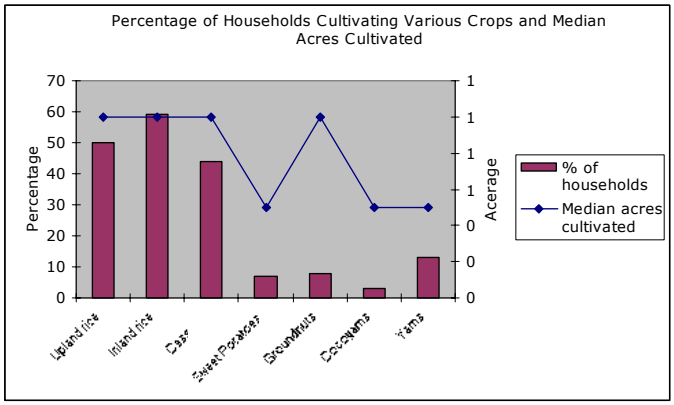


- Meal Consumption: The majority of the households eat two meals a day. More than 80% of the adults and children reported eating two meals a day. While 10% of children eat one meal a day, 13% of adults eat one meal a day. Approximately 5% of the adults and 7% of children reported eating three meals a day.
- Coping strategy: Household food security was adversely affected by death, illness and injury of household members. Loss of crops to rodents and birds resulted in further loss of food. Coping strategies used by households to improve their situation in times

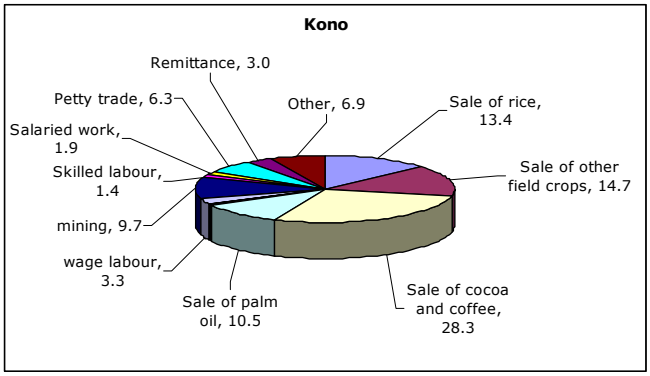
of food insecurity included wage labour in other areas, the selling of livestock and the selling of household items.

2.3 - Kono District

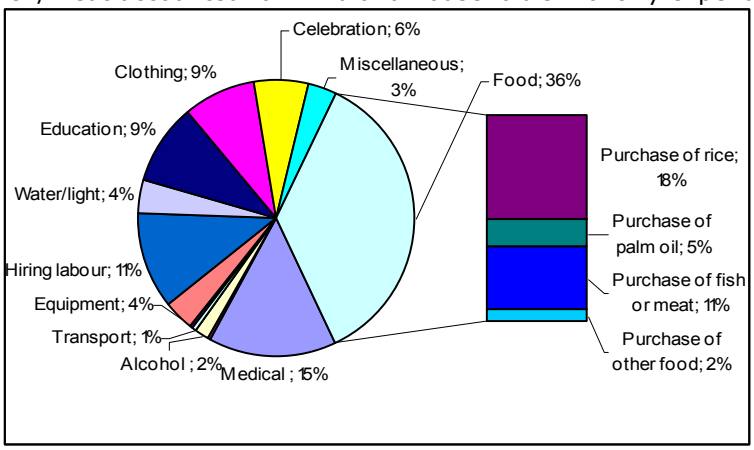
- Population (number): 341,518
- Area (in '000 Sq Km): 5.6
- Household size and composition: The average household size was 6.2 members with 52% of the household composed of males. Households in this district had the highest sex ratio amongst all districts.
- Language: Nearly 80% of the sampled households reported *native Kono* as their primary native language. *Temne* and other languages (*Krio, Kono*) were the other two native languages reported as being used in this district.
- Education: More than 65% of the sampled household's adult men and nearly 90% of the adult women were stated to be illiterate. The percentage of adult men attending formal Arabic/Koranic training at 4% was one of the lowest amongst all districts. Less than 10% of the adult men and 4% of the adult women had attended primary school. The majority of the boys attended primary school and 84% of the girls. Though percentage of girls and boys attending Arabic or Koranic studies was very low; a slightly higher percentage of girls rather than boys received this type of education.
- Housing: Eighty six percent (86%) of all households sampled in this district reported owning their house. This was the highest percentage across the sample. Further, 32% of the houses were built before 2000, 39% between 2000 and 2002 and 29% of the houses after 2002. Houses had an average of 4 rooms with 9 persons living in it for an average of 3 persons per room (crowding).
- Housing conditions: Almost all houses (95%) in this district were built of mud or mud bricks and had an earthen floor. While 44% of the houses had corrugated roof, another 43% had a roof made of thatch.
- Lighting, sanitation and drinking water: Nearly half of the households depended on pan lamps for lighting. More than 40% of the households reported access to drinking water from improves sources.
- Asset ownership: Sixty-four percent (64%) of the households reported owning 1 to 2 assets. The most commonly owned assets were lanterns, tables and chairs. With respect to agricultural tools, 92% of the households owned cutlasses, 89% owned hoes and 57% owned axes. Sixteen percent (16%) of the households had access to a drying floor and 10%to a store for rice. This district had one of the highest percentage of households having access to agricultural credit with 31% of the households having access to agricultural credit for one season. Seven percent had access to tractors. This is probably a result of the community power tillers and tractors provided by the government.
- Access to land: Inheritance was the most common method of accessing land named as main source of land by 71% of the households. Approximately 40% of the households were given permission to access their land by their chief and 35% gained access to land by family or clan ownership. The average are cultivated per household in this district was 3.6 acres.
- Access to seeds: For the sample, households mainly relied on purchase to source seeds, the exception being sweet potato. For sweet potato vines households relied on exchange rather than on purchase. A household's reliance on purchase to source seeds varied from crop to crop. Sixty eight percent (68%) of the households growing groundnut and 57% of the households growing rice depended on purchase for their seeds while 19% of the households relied on humanitarian aid for potato vines, 26% relied on their own stock for cassava cuttings and 12% for sweet potato vines.
- Cultivation: A greater percentage of households cultivated inland rice than upland rice – 59% as compared to 50%. The average acreage farmed for both these types of rice was 1 acre per household. For 44% of the sampled households cultivating cassava, the average area cultivated was 1 acre per household. Less than 10% of the households cultivated sweet potatoes, groundnuts and yams.



- Access to labour: Nearly all the adults of a household are involved in agriculture labour and 83% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.
- Livestock ownership: A lower percentage of households owned chickens as compared to other districts. Approximately 31% of the households owned chickens in 2005. This was a 3% increase in ownership from 2003. There has been very little change in the percentage of households owning ducks, goats or sheep in the period 2003 to 2005. As in 2003, less than 1% of the households owned oxen.
- Income: The most important income activities named by these households were the sales of cocoa and coffee (93%), sales of other crops (73%), sales of rice from own farm (63%), and the sale of palm oil (41%). The sale of cocoa and coffee contributed to 28% of total income for these households. No other district had a similar percentage of income contribution from the sale of these products. The other important income generating activities were the sale of other field crops (15%), sale of rice (13%), the sale of palm oil (11%) and mining (10%). The majority of the households named 3 sources of income while 34% named four sources – the highest of all districts. This district also had the lowest percentage of households that only relied on one source of income – less than 1 percent.



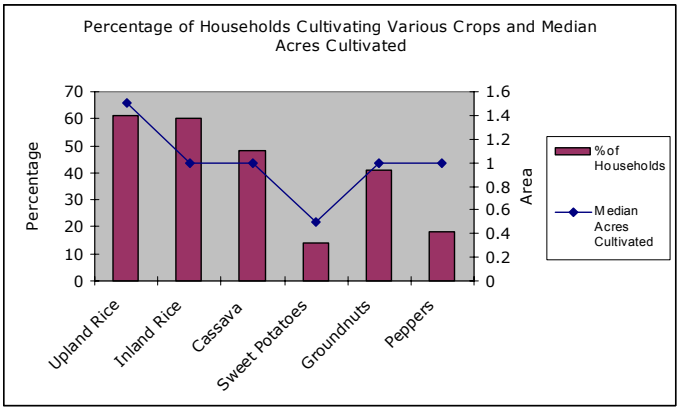
- Expenditure: On average, 36% of a household's total monthly expenditure is for food items. The food item that accounted for the highest percentage of household expenditure on food was rice – 18 percent. Palm oil purchases accounted for 5% and fish/meat accounted for 11% of a household's monthly expenditure. The highest share of non-food expenditure was for medical expenses (15%), followed by costs to hire labour (11%), education (9%) and clothing/shoes (9%). A higher percent of a household's expenditure was spent on hiring labour than in any other district.



- Meal Consumption: The majority of the households eat two meals a day – 75% of the adults and 86% of the children. While 8% of children eat one meal a day, 22% of the adults eat one meal a day. Two percent (2%) of the adults and 20% of the children reported eating three meals a day.
- Coping strategies: Loss of crops to pests and diseases and illness of household members were the main constraints to a household's food security. Coping strategies employed by households during times of food shortage were the borrowing of food and money, eating less desirable foods and additional wage labour.

2.4 - Bombali District

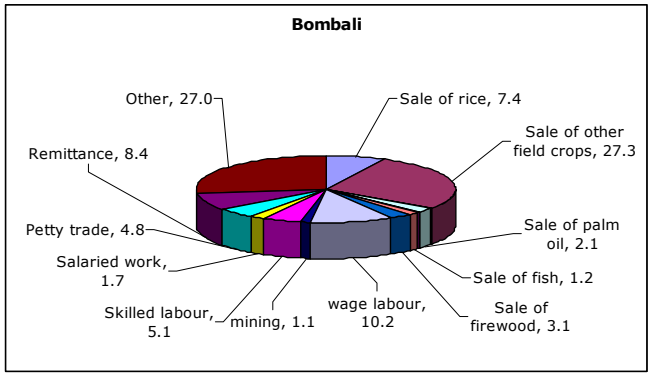
- Population (number): 406,012
- Area (in '000 Sq Km): 7.9
- Household size and composition: The average household size was 7.1 members with 46% of the household composed of males.
- Language: While 39% of the households reported *Temne* as their primary language, 38% of the households reported various other languages as their second native language with *Limba* (23%) being the other native language most often reported.
- Education: Bombali had the highest rate of illiteracy for the sampled households across all districts. More than 80% of the sampled household's adult men were stated to be illiterate. Nearly all the women (96%) from the sample of this district were reported as illiterate. In the case of adult men, only 8% had attended primary school and 7% had attended secondary school. This district had the lowest percentage of adult men who received any formal training in Arabic or Koranic studies. The percentage of boys and girls attending primary school was lowest for the sample and none of the children in the sample households had attended secondary school.
- Housing: Nearly 90% of sample households owning their own house, which was the highest across all districts. Nearly 70% of all homes were built before 2000. This district also had one of the highest numbers of people per house at 14. However average number of rooms per house was the highest for the sample at nearly 6 rooms per house, thus crowding was 2.5 persons per room.
- Housing conditions: Nearly all the houses sampled were made of mud or mud brick having earthen floors and roofs made of corrugated iron.
- Lighting, sanitation and drinking water: This district had the highest percentage of households depending on pan lamps for lighting while 36% had access to drinking water from improved sources.
- Asset ownership: This district had the highest percentage of households (relative to the sample) owning 1-2 assets. The most commonly owned assets were table and chairs. With respect to agricultural tools and implements, ownership was highest amongst all districts with more than 93% of the households owning cutlasses, hoes and sickles. However less than 1% of the households had access to agricultural credit, rice/palm oil mill or a cassava grinder.
- Access to land: More than half the sample of households accessed their land through inheritance. This was one of only two districts that listed outright ownership as a means of accessing land (17%) and 15% gained access by virtue of family or clan ownership. The average are cultivated per household in this district was 3.6 acres.
- Access to seeds: More than any other district, households in Bombali rely on loans to obtain their seeds. More than 40% of the households obtain rice and groundnut seed by taking loans. However 68% of the households relied on their own stock for cassava cuttings and 47% of the households obtained sweet potato vines by using their own stock. Also, 24% of the households obtained sweet potato vines from other sources, most likely from friends or relatives. Of the sampled households planting vegetables, more than 60% relied on purchase for their seeds.
- Cultivation: The most common crop cultivated was rice – both upland and inland swamp rice. More than 60% of the sampled households in this district cultivated rice. Average acreage of rice cultivation per household was 1.5 acres for upland rice and 1 acre for inland rice. Nearly half of the households grew cassava and 41% grew groundnuts on an average area of 1 acre per household. Less than 1% of the households cultivated yams, cocoyam or vegetables.



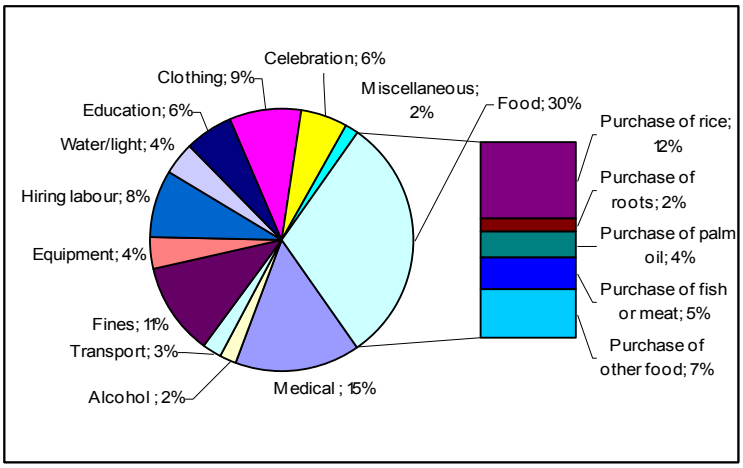
- Access to labour: On average 2 adult members per household were involved in agriculture with 60% of a household's adults are involved in agricultural labour. The

average number of adult males per household participating in agricultural work is one of the lowest in this district across the sample. Further, 55% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting. This too is one of the lowest for the sample.

- Access to livestock: Very few households in this district are raising livestock, with the exception of chickens. A low percentage of households are raising goats or sheep and none with cattle or pigs. Ownership of these animals is basically no different than what was reported for 2003. Similar to the situation in 2003, a little over half the households own chickens.
- Income: All of the households in the sample reported earning income from the sale of other crops. Other important income activities were wage labour (54%), sale of rice from own farm (45%), and remittances (36%). The greatest contributions to total income are from the sale of other crops (27%), 'other' activities (27%), wage labour (10%), remittances (8%), and the sale of rice (7%). With the exception of *Pujehun* this was the only district where households reported wage labour as an important source of income. This indicates that in some household's adult member's source income both by working in their fields and through paid labour. Most households (60%) had 2 sources of income while 23% named 3 sources of income and 15% had only 1 source if income.



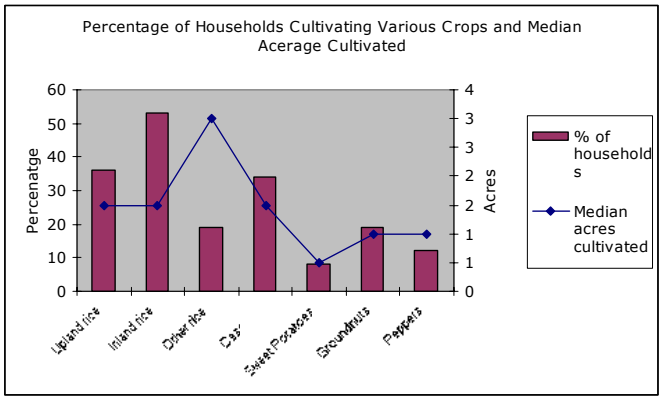
- Expenditure: On average, 30% of a household's total monthly expenditure is for food items - one of the lowest of all districts. Rice and the purchase of other food items accounted for the highest percentage of household expenditure on food. Concurrently household non-food expenditure was very high for these households with the main non-food expenditure share for medical expenses and fines or debts. As mentioned above, the percentage of households borrowing or undertaking loans to access seeds is the highest across all districts. Hence these households also have the added burden of paying the interest on loan and fines in case of defaults or late payment. Percentage expenditure on water, light and fuel was also higher than most other districts. Similarly a greater share of monthly expenditure (as compared to other districts) was incurred on clothing and celebrations.



- Meal consumption: Bombali had the lowest percentage of adults eating 2 meals a day – only 52% of the adults and 54% of the children eat two meals a day. Nearly half of the adults eat only one meal a day. The percentage of children eating only once a day at 34% is the highest for the sample.
- Coping strategies: The main causal factor of household food insecurity reported was the lack of agricultural inputs. This would be related to the other reason most often reported by households which was the loss of crops due to pests and diseases. In order to minimize the effects of periodic food shortages, households in this district used coping strategies like eating less desirable foods, sending children to work, reducing food consumption and borrowing.

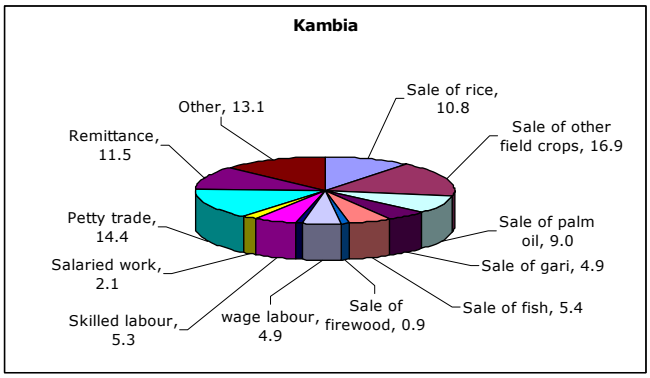
2.5 - Kambia District

- Population (number): 276,989
- Area (in '000 Sq Km): 3.1
- Household size and composition: The average household size consisted of 8 members with 50% of the household composed of males. The average size of a household in this district was the highest across the sample.
- Language: Sixty percent (60%) of the sampled households reported *Temne* as their primary native language. *Limba* was the other native language reported for this district.
- Education: While 56% of the adult men were illiterate more than 92% of the adult women were illiterate. However for the literate men, the most common level of education was Arabic or Koranic education rather than primary or secondary level education. Of the 8% of literate women in the district, the majority had received primary education only. More than 80% of the boys and 70% of the girls, between the ages of 6–14 had received or were receiving a primary school education.
- Housing: Over 80% of all households sampled in this district reported owning their house and more than 65% of these were built before 2000. Houses had an average of 5 rooms. Households in the Kambia sample had the highest number of people living in a house - on average 15 people. Houses in this district had 5 rooms on average and crowding for this district was the highest for the sample with slightly more than 3 people per room.
- Housing conditions: More than 90% of all the houses sampled in this district were made of mud or mud brick and nearly all had earthen floors. Approximately 70% of these houses had a roof made of corrugated iron.
- Lighting, sanitation and drinking water: Over 60% of the households depended on pan lamps for lighting. Compared to other districts, this district sample had one of the lowest percentages of households having access to drinking water sources from improved sources.
- Asset ownership: Thirty six percent (36%) of the households reported owning 1 to 2 household assets. More than 26% of the households owned a bicycle making Kambia the district with the highest percentage of ownership of bicycles. The most commonly owned assets were tables and chairs. Between 60–70% of the households owned hoes, cutlasses or axes and approximately 24% of the households had access to a drying floor or store for rice.
- Access to land: Ownership of land by family/clan and short-term rentals were the most common methods by which households could access land. As in the case of Bombali, 17% of the households had outright ownership of their land. The average area cultivated per household in this district was 3.6 acres.
- Access to seeds: The majority of the households cultivating crops relied on purchase to obtain seeds. In the case of groundnut, 58% of farming households purchased and 22% relied on exchange to source their seeds. In the case of vegetable seeds more than 90% of the households relied on purchase for their seeds. In the case of cassava 31% of the households purchased their cuttings and 29% of the households mainly relied on gifts from friends or relatives. Nearly 20% of the cultivating households undertook loans to buy rice seeds.
- Cultivation: In this district a greater percentage of households cultivated inland swamp rice as compared to upland rice. However the average acreage of upland rice cultivated by a household was greater than for inland rice. Approximately 36% of the households grew upland rice on an average land size of 2 acres per household as compared to 53% of the households who cultivated inland rice on 1.5 acres per household. Further, 19% of the households also grew other rice (Mangrove) on an average plot size of 3 acres per household. Cassava (34%), groundnuts (19%) and

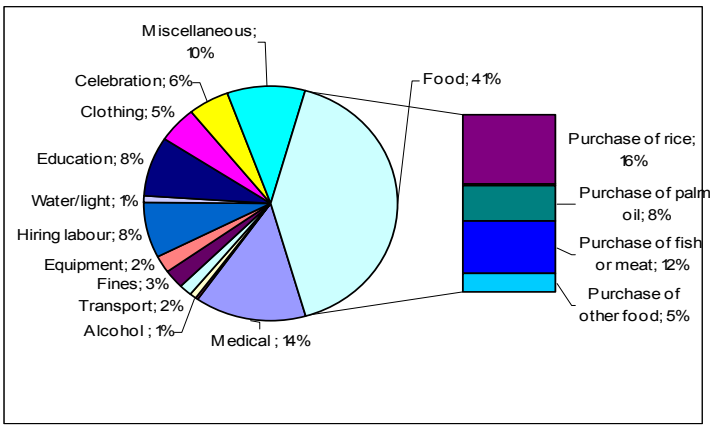


peppers (12%) were also grown by a sizeable percentage of the households.

- Access to labour: Nearly three-quarters of a household's adults are involved in agricultural labour. Further, more than 70% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.
- Livestock ownership: A greater percentage of households in this district own livestock as compared to the majority of the other districts. 18% and 16% of the households own sheep and goats respectfully. This is similar to the situation in 2003. However there has been a substantial increase in households rearing chicken – 72% of the households in 2005 as compared to 55% in 2003. Less than 1% of the households own cattle and no household reported any ownership of pigs.
- Income: The most often named income activity for these households was the sale of other crops (69%), followed by petty trade (67%), remittances (57%) and sale of rice from own production (45%). The greatest share of household income is from sale of other field crops (17%), followed by petty trade (14%), 'other' activities (13%), remittance (12%), and rice sales (11%). Sale of palm oil also contributed to about 9% of the total income for these households. Households in Kambia had the highest percentage of income contribution from remittances. Around 60% of households relied on two activities for earning income.



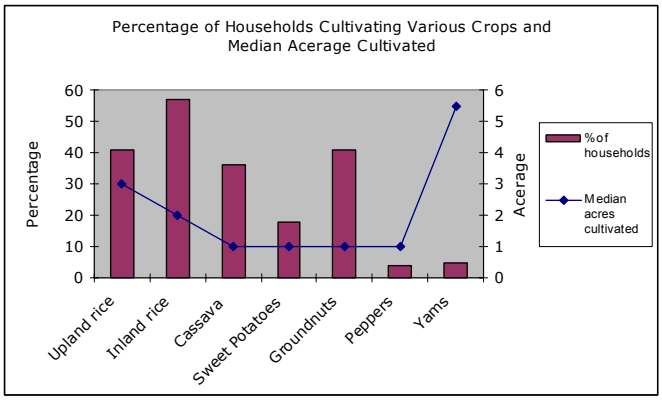
- Expenditure: On average, 41% of a household's expenditure is spent on food items, one of the highest of all districts. The food item that accounted for the highest percentage of household expenditure on food was rice followed by fish/meat purchases and palm oil. Households of this district had a higher than average expenditure (relative to the sample) on medical expenses and miscellaneous non-food expenditure.



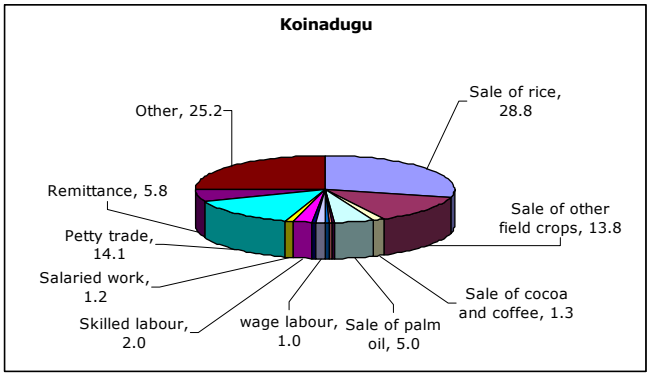
- Meal consumption: Of the overall sample, this district had the highest percentage of adults having 2 meals a day and was amongst the highest for children having 2 meals a day. Further, the percentage of adults and children who ate only one meal was the lowest across all districts while 3% of the adults and 13% of the children ate 3 meals a day.
- Coping strategies: The lack of agricultural inputs and crop losses to pests were the main threats to food security. Strategies used by households to improve their situation during a shortage of food or income included borrowing of money and/or food, additional wage labour and reducing household food consumption.

2.6 - Koinadugu District

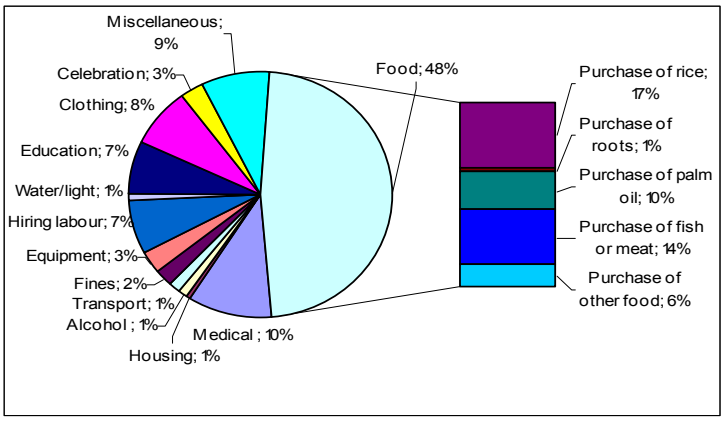
- Population (number): 234,330
- Area (in '000 Sq Km): 12.1
- Household size and composition: The average household size consisted of 6 members with 48% of the household composed of males.
- Language: The majority of the households spoke *Kuranko* followed by *Limba* and other languages, mostly *Krio*.
- Education: Approximately 70% of the sampled household's adult men and nearly all of the adult women were stated to be illiterate. Most of the adult literate men had obtained some formal Arabic or Koranic training with 7% of the adult men having attended primary school and 8% having attended secondary school. Around 70% of the boys and 66% of the girls aged 6-14 years had or were attending primary school.
- Housing: Nearly 80% of sample households in this district reported owning their house with more than half the houses being built before 2000. Houses had an average of 4 rooms and 11 inhabitants for an average of just over 3 persons per room (crowding).
- Housing conditions: Almost all houses (94%) in this district were built of mud or mud bricks and had an earthen floor. Around half the houses had a corrugated iron roof and the other half had a roof made of thatch.
- Lighting, sanitation and drinking water: More than 40% of the households depended on pan lamps for lighting. Approximately 33% of the households reported access to drinking water from improved sources during the dry season but only 2% were using sanitary means of excreta disposal.
- Asset ownership: Sixty five percent (65%) of the households reported owning 1 to 2 household assets. The most commonly owned assets were a big cooking pot and lanterns. Hoes and cutlasses were the most commonly owned agricultural tools or implements. None of the sampled households had access to cassava grinders, rice or palm oil mills. Further, less than 4% of the households had access to a store for rice.
- Access to land: Nearly 70% of the households accessed their land through inheritance In addition, 10% of the households were given permission to access their land by their chief and 9% gained access to land by family or clan ownership. The average are cultivated per household in this district was 4 acres.
- Access to seeds: For the majority of crops these households mainly relied on their own stock to source seeds. This implies that households in this district are able to grow enough to satisfy their household demands, to sell some in the local market and also keep enough to use as seed stock for the next season. For example, 60% of the households primarily relied on their own stock for rice seeds as compared to 27% of the households who purchased it. In the case of groundnuts, 51% of the families purchased seeds; and 41% used their own stock. For cassava, while a majority of the households relied on own stock, a sizeable percentage of households also relied on humanitarian aid to provide them with cassava cuttings. Own stocks were the most common source for potato vines for more than 70% of the cultivating households.
- Cultivation: For households that practiced agriculture, the most common crop cultivated was inland rice. A greater percentage of households cultivated inland rice than upland rice – 57% as compared to 41%. However the average acreage farmed for both these types of rice varied – 3 acres was the average acreage of upland rice grown per household as compared to 2 acres per household for inland rice. In addition, 36% of the sampled households cultivated cassava with the average acreage of 1 acre per household. Groundnuts were cultivated by more than 40% of the households on average plot sizes of 1 acre. Only 5% of the households cultivated yams.



- Access to labour: Nearly all of a household's adults are involved in agricultural labour but 78% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.
- Livestock ownership: A lower percentage of households owned chickens as compared to other districts. However there had been a substantial increase in percentage of households owning chickens between 2003 and 2005. - 41% of the households owned chickens in 2005 as compared to 21% in 2003. Similarly, there was a slight increase in ownership of goats, ducks and sheep although overall ownership was quite low. There were no households reporting any ownership of cattle or pigs.
- Income: For the sampled households in this district, the most common income activities were the sale of rice from own farm (100%), sale of other crops (55%), petty trade (50%), and remittances (39%). Nearly 30% of total income was from the sale of rice. No other district had a similar percentage of income contribution from the sale of rice. The other important contributions to annual income were from 'other' sources (25%), petty trade (14%), the sale of other field crops (14%), and remittances (6%). Households mostly had one or two sources of income. However there were a few households in this district that stated no sources of income (3%).



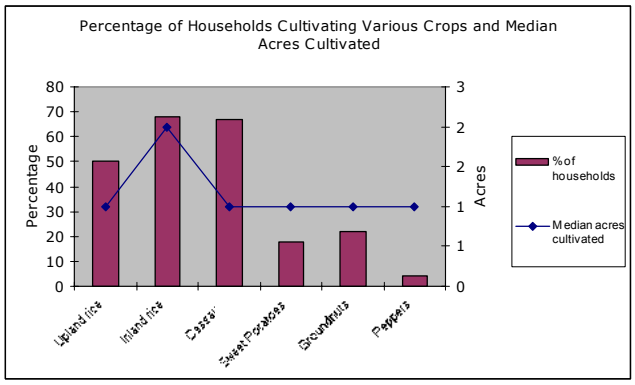
- Expenditure: Total share of monthly expenditure for food was 48% - one of the highest of all districts. Purchase of rice accounted for 17% of expenditure, followed by purchase of fish or meat (14%) and expenditure for palm oil (10%). The greatest share of monthly expenditure for non-food items was for medical expenses (10%), followed by miscellaneous (9%), clothing/shoes (8%), education (7%) and hiring labour (7%).



- Meal Consumption: The majority of the households eat two meals a day - 84% of the adults and 86% of the children reported eating two meals a day, while 7% of children eat one meal a day, 12% of the adults eat one meal a day.
- Coping strategies: The lack of agricultural inputs, price fluctuations and crop losses to pests were the main threats to food security Strategies used by households to improve their situation during times of food or income shortages included the borrowing of money and food, petty trade and additional wage labour.

2.7 - Port Loko District

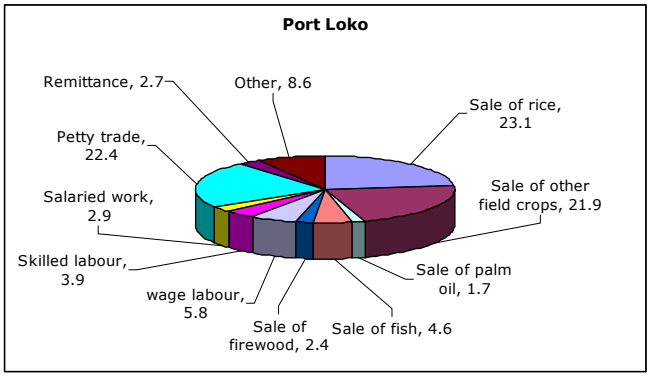
- Population (number): 455,025
- Area (in '000 Sq Km): 5.7
- Household size and composition: The average household size was 6 members with 49% of the household composed of males.
- Language: The main language was *Temne* for 92% of the households. A small percentage of households also reported *Krio* and other native languages as being spoken.
- Education: More than 60% of the sampled household's adult men and 90% of the adult women were stated to be illiterate. The percentage of adult men ever attending secondary school was 18% and for women it was 5%. More than 88% of the boys and girls had or were currently attending primary school.
- Housing: More than 80% of the households owned their house with the majority of the houses being built before 2000 or between 2000 and 2002. Though the average number of people per house was the highest for the sample at 15 people, the average number of rooms was 5, averaging about 3 persons per room (crowding).
- Housing conditions: Houses from the sample households were mainly made of mud or mud brick having earthen floors and roofs made of corrugated iron.
- Lighting, sanitation and drinking water: This district had one of the highest percentages of households depending on pan lamps for lighting. About one-third of the households used drinking water from improved water sources during the dry season. However, 10% of the sample households had access to sanitary means of excreta disposal.
- Asset ownership: For this district, 63% of the households reported owning 1-2 household assets. The most commonly owned assets were table and chairs. More than 80% of the households owned hoes and cutlasses. Further 8% of the households also reported owning boats and/or fishing nets.
- Access to land: Nearly half the sample households accessed their land through family/clan ownership. Also 26% of the households gained access to land by short-term rentals and 8% gained access by virtue of permission from the chief. The average are cultivated per household in this district was 5.6 acres. Thus households of Port Loko had the highest access to land, in terms of average acreage per household, for the sample.
- Access to seeds: Households obtained seeds by a variety of means including purchase, loans, humanitarian aid and from their own stock. For rice, 44% of the households purchased seeds while 26% undertook loans to obtain their seeds. The situation was similar for groundnuts. Nearly half of the households depended on humanitarian aid for their cassava cuttings while a lower percentage of households (37%) depended on aid for sweet potato vines. For vegetables, households depended on purchases and their own stock for seeds.
- Cultivation: The most common crop cultivated was inland swamp rice and cassava with more than 67% of the households cultivating at least one of them. However for inland rice the average acre cultivated per household was 2 acres as compared to 1 for cassava. With respect to rice, 50% of the households also reported farming upland rice on an average of one acre per household. Sweet potatoes (18%) and groundnuts (22%) were also grown by households of this district. A small percentage of households (4%) also cultivated peppers.



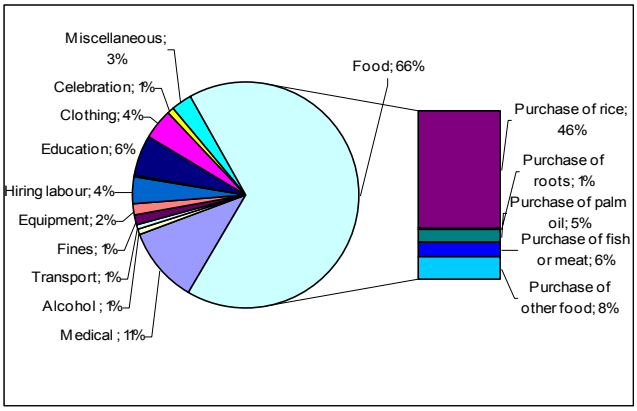
- Access to labour: Port Loko had the lowest number of people participating in agricultural work per household for the sample. On average 1 adult member per household was involved in agriculture. Further, 73% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.
- Livestock ownership: A relatively high percentage of households in Port Loko own live stock as compared to other districts. This district has the highest percentage of

households owning sheep (19%), goats (23%) and chicken (84%) for the entire sample. However there was not much change in percentages of households owning livestock between 2003 and 2005. A small percentage of households also reported owning cattle.

- Income: All households in the Port Loko sample earned income from petty trade activities. Other important income earning activities were sale of other crops (62%), sale of rice (52%) and remittances (29%). Rice sales (23%), petty trade (22%), and sales of field crops (22%) were the main contributors to overall income. Most households (49%) had 2 sources of income or 3 sources of income – 43% of the households. This was the district having the second highest number of households having 3 sources of income.



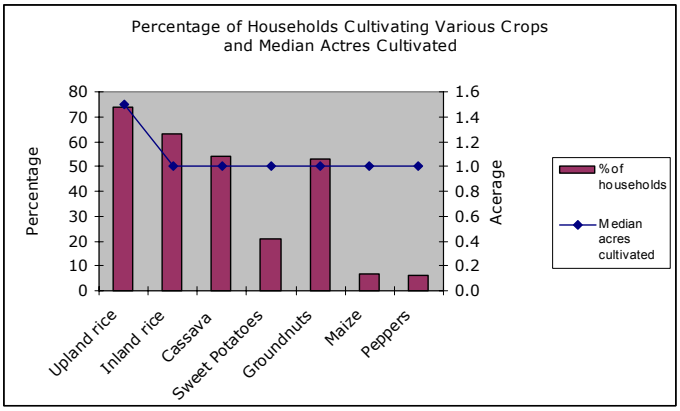
- Expenditure: The share expenditure for food was one of the highest for all the districts. On average, 66% of a household's expenditure is spent on food items. Households in this district had the highest share of expenditure on rice (46%) for the sample. It can be noted here that though families were of average size (6 members; relative to sample), on average 15 members lived in a house. This may account of the high expenditure on food and rice per household. The main non-food expenditures were for medical (11%) and education expenses (8%).



- Meal Consumption: More than 77% of the adults and 80% of the children reported eating twice a day. The percentage of adults and children eating only once a day was higher than most other districts. The percentage of children eating three meals a day at 2% is the lowest for the sample.
- Coping strategies: As in Koinadugu, the most common constraints to food security reported were loss of crops to pests, lack of agricultural inputs and price fluctuations. During times of food and income shortages, the coping strategies practiced by households of this district included the borrowing of money, reducing food consumption, additional wage labour and the selling of household items.

2.8 - Tonkolili District

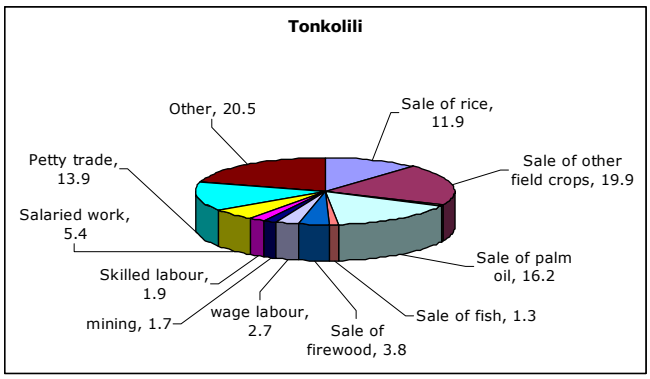
- Population (number): 345,884
- Area (in '000 Sq Km): 7.9
- Household size and composition: The average household size was 9 members with 46% of the household composed of males. Average household size in this district was the highest amongst all districts.
- Language: More than 80% of the sampled households reported *Temne* as their primary native language while 7% of the households spoke *Limba* and 6% spoke *Mende*.
- Education: Nearly half of the sampled household's adult men and 86% of the adult women were stated to be illiterate. Approximately 20% of the men had attended secondary school or had received Arabic/Koranic training. A further 12% of the men had attended primary school as compared to 9% of the women. More than 75% of the boys and girls attended primary school.
- Housing: Nearly 82%% of all households sampled in this district reported owning their house with most being built before 2000. Houses had an average of 5 rooms with an average of 13 people per house for an average of around 2.5 people per room (crowding). Houses in this district tended to be large but also having more number of people.
- Housing conditions: Nearly all the houses sampled were made of mud or mud brick having earthen floors and roofs most likely made of corrugated iron or thatch.
- Lighting, sanitation and drinking water: Less than half of the households depended on pan lamps for lighting. Only about one-quarter of the households were accessing drinking water from improved sources, one of the lowest in the survey. However, about 20% of the households had access to safe sanitation.
- Asset ownership: For this district 56% of the households reported owning 1 to 2 household assets. The most commonly owned assets were tables and radios. Also this district had the second highest percentage of households owning a bicycle (19%). Approximately 80% of the households reported owning hoes, cutlasses or sickles. This district also had a relatively high percentage of households with access to agricultural credit over one season (14% of the households) and having access to tractors (6%).
- Access to land: Nearly 40% of the households were accessing land was by inheritance while 21% accessed by permission by the chief and 18% through clan/family ownership. The average area cultivated per household in this district was 4 acres.
- Access to seeds: Most households in the *Tonkolili* sample obtained seeds by a variety of means including purchase, loans, humanitarian aid and from their own stock. For rice seeds, households relied almost equally on purchase and loans followed by own stocks. However more than half of the households farming groundnuts relied on purchase for their source of seeds. In the case of vegetable seeds a higher percentage of households tended to save and use their own stock. For cassava cuttings and sweet potato vines, more than 30% of the households relied on other sources, mainly gifts from friends and relatives.
- Cultivation: The most common crop cultivated was upland rice, cultivated by 74% of the sampled households in this district. The average size of rice cultivation per household was 1.5 acres. Inland rice was cultivated by 63% of the households on an average area (per household) of 1 acre. More than 50% of the households also grew groundnuts and cassava on plots of 1 acre (on average). Less than 7% of the households grew maize and sorghum on an acre per household on average.



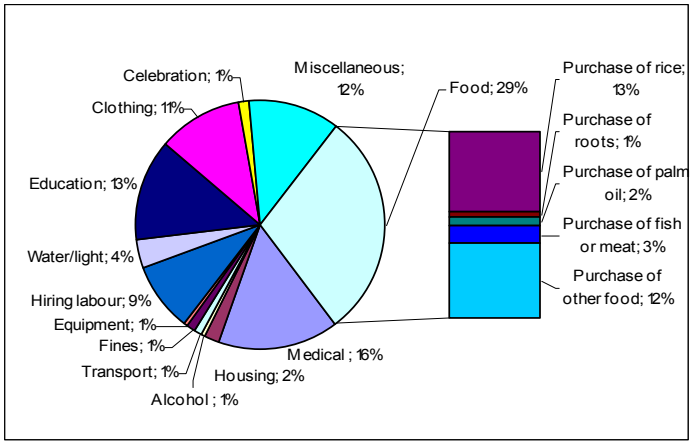
- Access to labour: Nearly all the adults of a household are involved in agriculture. Three-quarters of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.
- Access to livestock: Less than 10% of the households rear livestock with the exception of poultry. Further, there has been a decrease in the percentage of households owning

livestock (excepting poultry) between 2003 and 2005. Chickens were the most commonly owned livestock. More than 75% of the households owned chickens. This is an increase from 2003 wherein 60% of the sampled households owned chickens. Similarly there has been an increase in percentage of households rearing ducks from 15% in 2003 to 24%% in 2005. Duck ownership was the highest in this district for the entire sample. Percentage of households owning sheep and goats was unchanged with overall ownership being quite low.

- Income: The most often named income activity by households in this district was the sale of other crops (86%), followed by 'other' activities (67%), sale of palm oil (52%) and petty trade (51%). Households derived highest share of annual income from 'other' activities and the sale of other field crops (20%) and a combination of various activities. The other important contributions to households income were from the sale of palm oil (16%), petty trade (14%) and rice sales (12%). Nearly half the households sourced income from 2 sources. Further, 34% of the households had 3 sources of income.



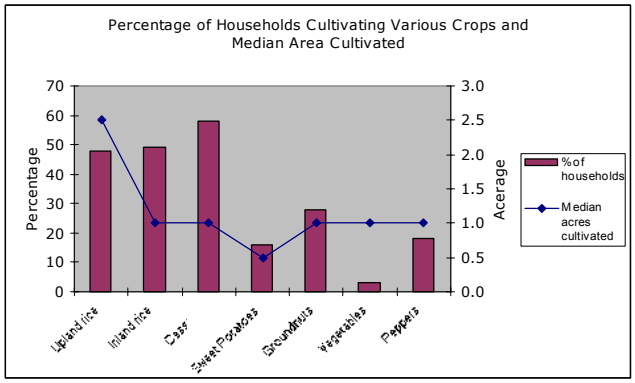
- Expenditure: On average, households in this district had the share of expenditure for food – less than 30% of a household's monthly expenditure. Rice and other food accounted for nearly all food expenditure. The highest shares for non-food expenditure were for medical expenses (15%), education (14%), clothing (11%) and hiring labour (9%). The share of total expenditure on education and clothing was the highest of all districts.



- Meal Consumption: Nearly 84% of the adults eat twice a day with 10% eating only once a day. Only 61% of the children eat twice a day. This is because of the high percentage of children eating three times a day (36%) - the highest across the sample.
- Coping strategies: Households of this district reported the main causes of food insecurity to be crop damage by pests and illness or death of a family member. Coping strategies employed by households during times of food insecurity included borrowing of money, reducing food consumption and eating less desirable foods.

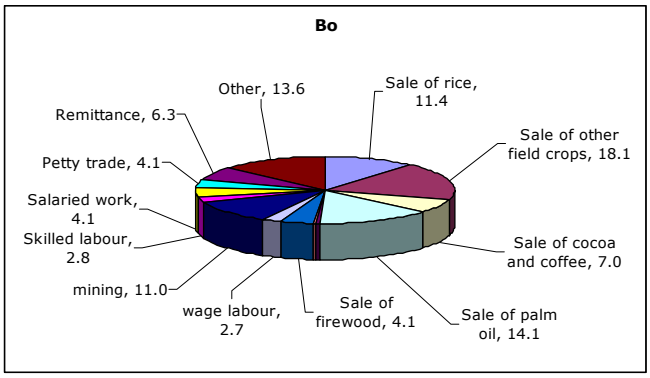
2.9 - Bo District

- Population (number): 472,919
- Area (in '000 Sq Km): 5.2
- Household size and composition: The average household size consisted of 6-7 members with 50% of the household being males.
- Language: Almost all the households reported *Mende* to be their primary native language. *Krio* was the main language for less than 6% of the sampled households.
- Education: A little more than half the adult men and more than 80% of the adult women were illiterate. This district had the second highest percentage of men and women with secondary education - 23% of the adult men and 7% of the women. However for the literate men, the most common level of education was Arabic. The percentage of girls attending primary school was markedly higher than for boys – 86% of the girls attended primary school as compared to 73% of the boys. A high percentage of boys (relative to the sample) received or were receiving Arabic or Koranic training – 11%.
- Housing: Nearly 80% of all households sampled in this district reported owning their house and more than 70% of the houses were built before 2000 which was the highest percentage of houses built before 2000. Houses had an average of 5 rooms with an average of 10-11 people per house for just over 2 persons per room (crowding).
- Housing conditions: More than 60% of all the houses sampled in this district were made of mud or mud brick and three-fourths had earthen floors. Similarly three-fourths of the houses had a roof made of corrugated iron.
- Lighting, sanitation and drinking water: Less than half the households depended on pan lamps for lighting. Nearly 60% of the households were access to drinking water from improved sources and over 20% were using sanitary means of excreta disposal.
- Asset ownership: Approximately 41% of the households reported owning 1 to 2 household assets. More than 11% of the households owned a bicycle. The most commonly owned assets were tables and big cooking pots. Almost all of the households owned hoes or cutlasses. Households in this district had the highest access to drying floors (31%), stores for rice (28%), and tractors (17%). Further more than 35% of the households had access to agricultural credit (one season).
- Access to land: The most common methods by which households could access land were through ownership by family/clan, inheritance and by short-term rentals. Unlike most other districts, in *Bo* the percentage of households accessing land by the above mentioned 3 methods was similar, between 55-65% of households. This implies that many households used more than one method to access land. Average land per household was one of the highest for the sample at 5.4 acres per household.
- Access to seeds: More than 80% of the households purchased their vegetable seeds. In addition, more than 70% of the households purchased their groundnut seeds and sweet potato vines, while a little more than half the households purchased cassava cuttings and rice seeds. The reliance of these households on humanitarian aid or exchange was minimal. Less than one-quarter of the households took loans to obtain rice seeds.
- Cultivation: In this district a equal percentage of households cultivated inland swamp rice and upland rice. Though 48% of the households cultivated both inland and upland rice, the average area cultivated for upland rice was 2.5 acres per household as compared to 1 acre for inland rice. However 58% of households cultivated cassava on an average plot of 1 acre per household. Approximately 28% of the households cultivated groundnut.

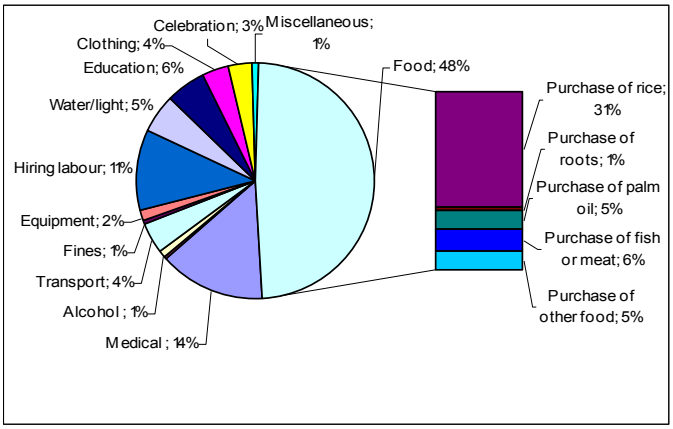


- Access to labour: A high percentage (92%) of a household's adults is involved in agricultural labour. Further, more than 80% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.

- Access to livestock: A relatively low percentage of households in this district own livestock as compared to the majority of the other districts. A low percentage of households are raising goats or sheep and none with cattle or pigs. Ownership of these animals is basically no different than what was reported for 2003.Ownership of chickens had fallen from 54% of the households in 2003 to 46% in 2005. Approximately 1% of the households reported owning pigs or oxen.
- Income: More than 80% of households were engaged in the sales of other crops for income. Other activities include sale of palm oil (53%), rice sales (42%) and mining (35%). Households are dependent on agriculture with 18% of income derived from the sale of other field crops, the sale of palm oil (14%), sale of rice (11%) and mining (11%). Most households two or more income sources – 40% of the households had two sources of income and 33% had 3 sources.



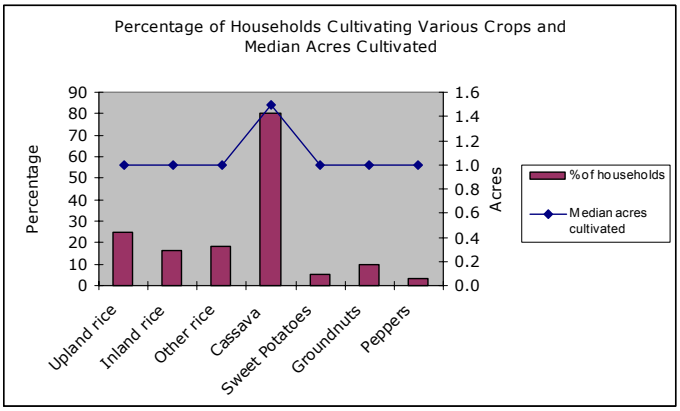
- Expenditure: On average, little less than half of a household's share of monthly expenditure is for food items. The food item that accounted for the highest share of household expenditure on food was rice (31%). The highest non-food expenditure was for medical expenses (14%) followed by hiring labour (11%). Households in the *Bo* district sample had the highest percentage expenditure on water, light and fuel and one of the highest percentage expenditure on hiring labour. This implies that households hire labour to supplement their own household labour in the fields.



- Meal consumption: For the whole sample, this district had the second highest percentage of adults and children who had 1 meal a day. Further, the percentage of adults and children who ate two meals was amongst the lowest across all districts. However 12% of the adults eat 3 meals a day and this percentage was 13% for the children.
- Coping strategies: Approximately 43% of the households reported drought to be a main reason for insufficient food for the household. However the most common reason for food insecurity reported was loss and damage to crops due to pests and diseases. In order to minimize the effects of shocks to household food security, households used coping strategies like eating less desirable foods, borrowing, and reducing household food consumption.

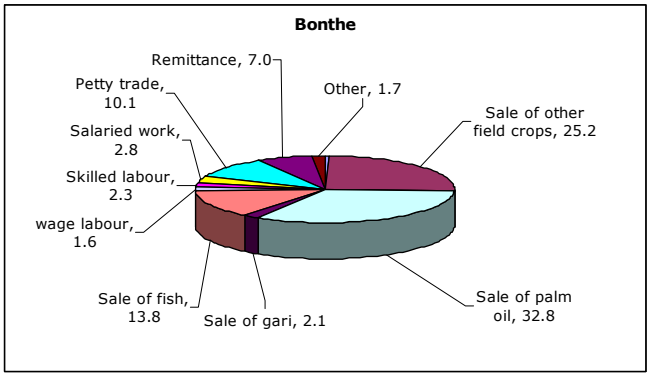
2.10 - Bonthe District

- Population (number): 130,297
- Area (in '000 Sq Km): 3.5
- Household size and composition: The average household size was 5 -6 members with 46% of the household members being males.
- Language: All of the sampled households reported *Mende* as their native language.
- Education: More than 60% of the sampled household's adult men and 84% of the adult women were stated to be illiterate. Of the remaining men the majority had either attended secondary school (13%) or had some formal Arabic/Koranic training (15%). Approximately 13% of the adult men had attended primary school and 10% of the adult women had attended primary school. There was a higher percentage of girls (76%) aged 6–14 years attending primary school than boys (67%). There was a marked difference in percentage of boys and girls receiving formal Arabic or Koranic training – 14% of the boys studied Arabic or Koranic studies as compared to none of the girls.
- Housing: This district had one of the lowest percentages of households owning their homes – less than 60% of the households. Further most of these houses (70%) were built before 2000. Houses had an average of 5 rooms with an average number of 10 people per house for an average of 2 people per room (crowding). Households in this district had the lowest crowding of any other district.
- Housing conditions: Nearly all the houses in this district were made of mud or mud brick. The majority of the houses had earthen floors (86%). However a greater percentage of houses had a thatched roof rather than one of corrugated iron.
- Lighting, sanitation and drinking water: Approximately 65% of the households depended on pan lamps for lighting and 36% of the households reported having access to drinking water from improved water sources during the dry season. None of the households were using safe sanitation.
- Asset ownership: A little more than half the household reported owning 1 to 2 household assets. The most commonly owned assets were tables and big cooking pots. Cutlasses are the most common agricultural tool, owned by more than 80% of the households. This district had the highest percentage of households owning boats/canoes (14%) and the second highest ownership of fishing nets (9%). Less than 10% of the sampled households had access to a store for rice or a drying floor.
- Access to land: The most common means of accessing land was by inheritance (40%), family/clan (25%) and short term rentals (22%). The average area cultivated per household in this district was 3.8 acres.
- Access to seeds: For all crops except cassava and sweet potato, more than 60% of the households relied on purchase for their seeds. In the case of cassava and sweet potato the majority of the households used their own stock. Around one-quarter of the households also relied on humanitarian aid for their cassava cuttings and sweet potato vines. Some households took loans to buy rice seeds. In the case of vegetables, 80% of the households purchased seeds while the remainder relied on their own stock.
- Cultivation: The most common crop cultivated was cassava, grown by 80% of the sampled households in this district. Average area of cassava cultivation per household was 1.5 acres. Upland rice was also cultivated by 25% of the households on an average area of 1 acre. Inland rice was grown by 16% of the households and the average area per household was 1 acre. Groundnut was grown by 10% of the households. A small percentage of households also grew sweet potatoes, peppers and vegetables.

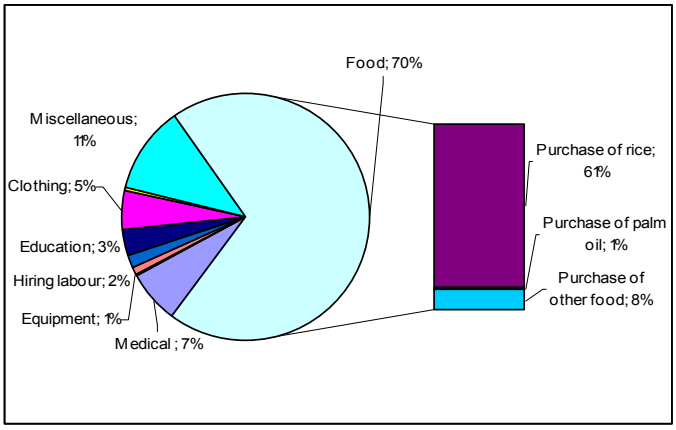


- Access to labour: A little more than 70% of a household's adults are involved in agricultural labour. More than 80% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.

- Livestock ownership: Chickens were the most commonly owned livestock with more than half the sampled households owning them. A low percentage of households are raising ducks, goats or sheep and none with cattle or pigs. Ownership of these animals is basically no different than what was reported for 2003.
- Income: All households in this district earn income from the sale of other crops – most likely cassava. Other important income activities include the sale of palm oil (82%), petty trade (40%) and the sale of fish (40%). On average the sale of palm oil contributed 33% of a household's total income - the highest of all districts. The other significant contributions to total income were from the sale of other field crops (25%), the sale of fish (14%) and pretty trade (10%). More than 60% of the households had 2 incomes sources. However, this district had a relatively higher percentage of households that only relied on one source of income. In fact Bonthe reported no households relying on four sources of income.



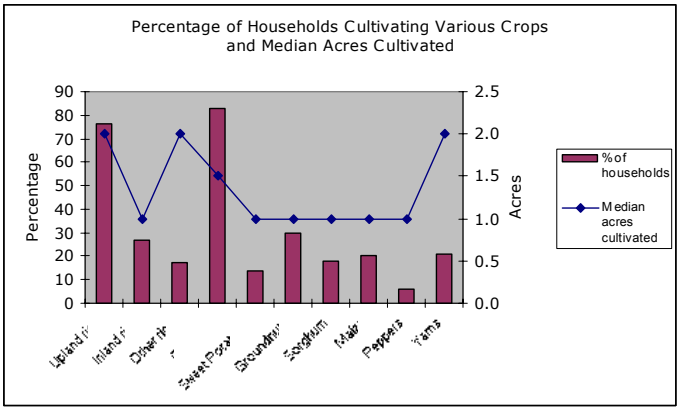
- Expenditure: For the sample, households of this district reported the highest share of monthly expenditure for food, around 70% of total. More than 60% of a household's monthly expenditure was for rice – this again is the highest across all districts. However this data should be interpreted with caution as there were likely problems in data collection. Miscellaneous expenditures accounted for the greatest share of non-food expense. However, percentage of expenditure on medical expenses, at 7%, was lowest for the sample.



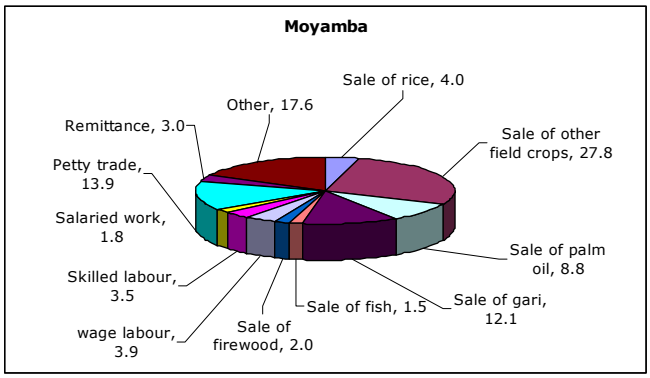
- Meal Consumption: Around three-quarters of the households eat two meals a day - 71% of the adults and 75% of the children reported eating two meals a day. Further, this district has the highest percentage of adults eating 3 meals a day at 16% and one of the highest for children eating 3 meals a day at 22 percent. Percentage of children eating one meal a day was the lowest for the sample (2%).
- Coping strategies: As in Bo, natural disasters were instrumental in causing shortfalls in food. More than 60% of the households reported floods to be a threat to their food security. As in majority of the other districts, the main problem affecting food production in Bonthe was crop damage by pests. Strategies used by households to improve their situation during times of food insecurity included borrowing money or food, eating less desirable foods and reducing consumption.

2.11 - Moyamba District

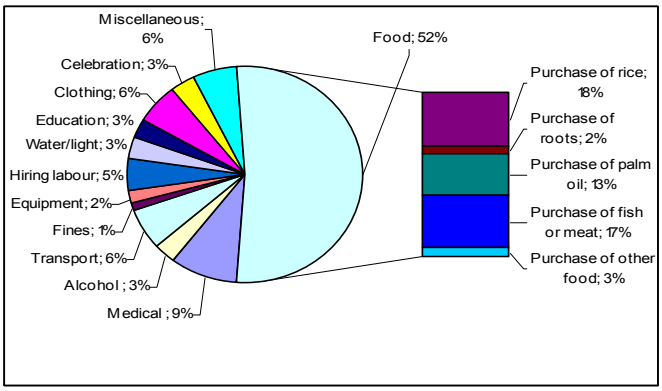
- Population (number): 259,617
- Area (in '000 Sq Km): 6.9
- Household size and composition: The average household size consisted of 5 members with half the household members being males.
- Language: A little more than half the households spoke *Mende* as their native language. *Temne* was the second most common native language, spoken by 32% of the sample households. Less than 5% of the households spoke *Limba*.
- Education: More than 65% of the sampled household's adult men and 85% of the adult women were stated to be illiterate. Less than 4% of the adult literate men had obtained some formal Arabic or Koranic training. The majority of the literate men had received only a primary school education. More than 80% of the boys and girls aged 6-14 years had attended or were attending primary school.
- Housing: A little less than 70% of the households sampled in this district reported owning their house. More than half the houses were reported as having been built before 2000. Houses had an average of 5 rooms and 10 residents for an average number of 2 people per room (crowding).
- Housing conditions: Almost all houses in this district were built of mud or mud bricks and had a earthen floor. Roughly half the houses had a corrugated iron roof and the other half had roofs made of thatch.
- Lighting, sanitation and drinking water: More than 65% of the households depended on pan lamps for lighting. This district had the lowest percentage of households having access to drinking water from improved sources during the dry season – only 18% of the sample households. None of the households used toilets or latrines.
- Asset ownership: Almost 60% of the households reported owning 1 to 2 household assets. The most commonly owned assets were a big cooking pot and tables. Hoes and cutlasses were the most commonly owned agricultural tools or implements while fewer than 5% of the households reported owning boats or fishing nets. Nearly 30% of the sample households had access to productive assets such as cassava grinders or a drying floor – the highest for the sample. Further, access to a store for rice (19%), rice mill (13%) and tractors (13%) were higher than in most other districts. However, no households in this district reported any access to agricultural credit.
- Access to land: More than 40% of the households accessed agricultural land through family/clan ownership. Households also accessed land by permission of their chiefs and by short-term rentals. The average are cultivated per household in this district was 2.6 acres - the lowest average acreage per household in the sample.
- Access to seeds: While purchase was a common method by which households accessed seeds, some also relied on exchange, loans and own stock. In the case of rice, approximately 30% of the households relied on purchase and/or exchange to access their seeds while nearly half the households cultivating groundnuts purchased seeds and 21% undertook loans. For cassava cuttings and sweet potato vines the majority of cultivating households relied on own stock but a sizeable percentage of households also relied on humanitarian aid.
- Cultivation: For households engaged agriculture activities, the most common crops cultivated were cassava and upland rice. Cassava was grown by more than 80% of the households and upland rice by over three-quarters of the households. Over 25% of the households grew inland rice while other rice (Mangrove, Boliland and Riverain) were grown by 17% of the households. Groundnuts were cultivated by than 30% of the households on average plot sizes of 1 acre. Around 20% of the households cultivated maize, sorghum and yams. As can be seen from the graph, this district has a high diversity of crops being grown.



- Access to labour: All the adults of a household are involved in agriculture. This translates into approximately 3 adults per household involved in agricultural labour. Moyamba also had the highest percentage of households paying for agricultural labour – 95% of the households. Thus despite all adult members of the household working in agriculture, for almost all the households there is still a need for additional labour.
- Livestock ownership: A high percentage of households owned chickens as compared to other districts. Further, there has been a slight increase in percentage of households owning chickens between 2003 and 2005. - 77% of the households owned chickens in 2005 as compared to 70% in 2003. Ownership of goats was higher than sheep - 24% and 7% of the households own goats and sheep respectfully. It was seen that for all poultry, sheep and goats – there had been a slight increase in percentage of ownership from 2003 to 2005. A small percentage of households also reported the ownership of pigs.
- Income: Households sourced income from both agriculture and non-agricultural activities. All of the households in the sample relied on income from the sale of other field crops. In addition, 59% of the households relied on income from petty trade, sale of gari (51%), palm oil sales (36%) and wage labour (25%). Almost half the households relied on four sources of income – the highest of all districts. The greatest share of income was from the sale of other field crops (28%), followed by 'other' activities (18%), petty trade (14%), gari sales (12%) and sale of palm oil (9%).



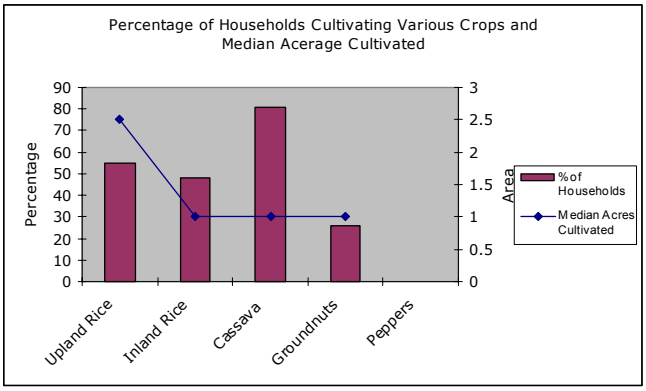
- Expenditure: Just over half a household's monthly expenditure was for food. For food items, the greatest share of expenditure was for rice (18%), followed by fish or meat (17%) and palm oil (13%). The greatest non-food expenditures were for medical (9%), followed by transport (6%), clothing (6%) and miscellaneous expenses (6%). The percentage expenditure on transportation, alcohol and tobacco was the highest for the sample.



- Meal Consumption: Approximately three-quarters of the adults and children of these households eat two meals a day. While 6% of children eat one meal a day, 15% of the adults eat one meal a day.
- Coping strategies: A combination of crop losses to pets and lack of agricultural inputs were the most common factors reported as threatening household food security. During times when households don't have enough food or money to buy good, households cope by reducing food consumption, eating less desirable foods and borrowing.

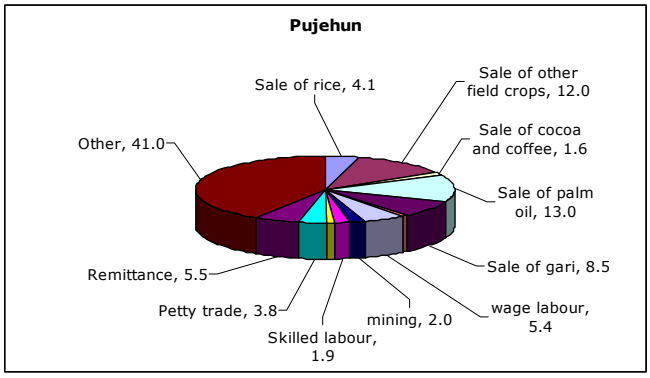
2.12 - Pujehun District

- Population (number): 234,234
- Area (in '000 Sq Km): 4.1
- Household size and composition: The average household size was 6 members with 47% of the household composed of males.
- Language: All the sampled households reported *Mende* to be their native language.
- Education: The percentage of illiterate women was almost double that of men – 42% of the adult men and 82% of the adult women were illiterate. Approximately one-quarter of the men had received Arabic/Koranic training. Thus this district had the highest percentage of adult men educated in Arabic or Koranic studies. Just over 10% of the men and women had a primary school education. However, 80% of the girls had attended or were attending primary school as compared to only 61% of the boys. A relatively high percentage of boys received Arabic/Koranic training – 24% of the boys which was the highest for the sample.
- Housing: Nearly 75% of all households sampled in this district reported owning their house and half of all the houses were built before 2000. Houses had an average of 3-4 rooms and around 8 people per house for an average number of 2 people per room (crowding).
- Housing conditions: Nearly 88% of the sampled houses were made of mud or mud brick, having earthen floors. However unlike other districts more than 70% of the houses had a thatched roof, as opposed to one of corrugated iron.
- Lighting, sanitation and drinking water: Approximately half of the households depended on pan lamps for lighting. Nearly 40% of the households reported access to drinking water from improved sources during the dry season. Only 6% of the households were using sanitary means of excreta disposal.
- Asset ownership: For this district 64% of the households reported owning 1 to 2 household assets. Nearly all households owned cooking pot while more than 90% of the households reported owning hoes and cutlasses. This district also had a relatively high percentage of households with access to storage for rice (25%) or having access to cassava grinders (19%).
- Access to land: Nearly 90% of the households accessed land by means of inheritance. Short-term rentals (5%) and ownership by clan/family (3%) were the other methods of accessing land. The average area cultivated per household in this district was 5 acres.
- Cultivation: The most common crop cultivated was cassava, grown by more than 80% of the sampled households in this district. Average area of cassava cultivation per household was 1 acre. Upland rice was cultivated by 76% of the households on an average area of 1 acre. Approximately 26% of the households farmed inland rice and groundnuts on plots of 1 acre (on average). Sweet potato was cultivated by 7% of the households. Less than 3% of the households cultivated yams, maize, peppers and sorghum.

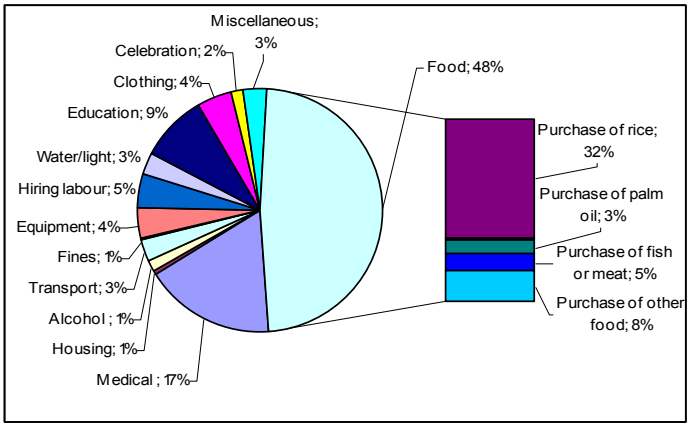


- Access to labour: On average 2 members or 60% of total adult members of a household are involved in agriculture. Nearly 90% of all the sampled households for this district pay for agricultural labour – brushing, weeding or harvesting.

- Income: Every household in the Pujehun sample indicated that they earn income from some 'other' activity, including sale of livestock/animal products, sale of charcoal, migratory labour, salaried labour. Sixty percent of the sample households earn income from the sale of other field crops, 54% sell palm oil, 39% from wage labour and 30% from gari sales. The greatest share to total income was from 'other' activities (41%) while the sale of palm oil contributed 13%, sale of other field crops gave 12% and gari sales gave 8% to total income. *Pujehun* is only one of two districts to report wage labour as a relatively important income contributing activity. Further, as most households report to be relying on 'other' sources it implies that agriculture for this district is mainly subsistence in most households. Nearly 40% of the sample households reported only one main income activity. Further, no household reported earning income from four sources.



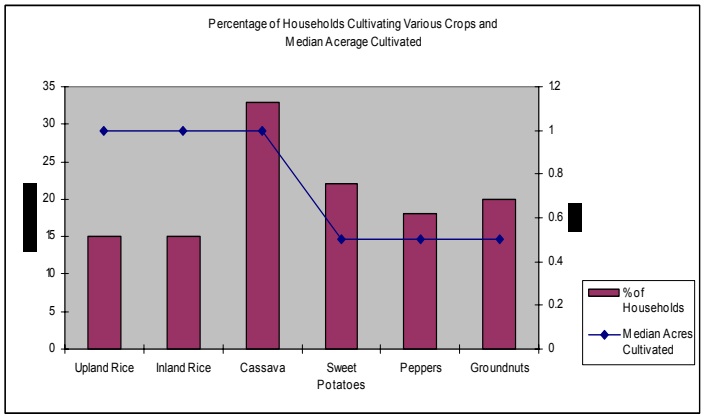
- Expenditure: As in the districts of *Bo*, *Port Loko* and *Bonthe* a high share (32%) of a household's monthly expenditure was for rice. On average, for households in this district approximately 48% of monthly expenditure was for food. Rice and 'other' foods accounted for nearly all food expenditure. Households in *Pujehun* devoted a higher than average share of expenditure medical costs (17%) and education (9%). Percentage of medical expenditure was the second highest for the sample across all districts.



- Meal consumption: Nearly 70% of the adults eat twice a day and another 20% eat once a day. For children, 64% eat twice a day and 18% of the children eat 3 meals a day.
- Coping strategies: The main shocks affecting households of this district were death, illness and injury to a member of a household. Households commonly used coping strategies such as borrowing money, selling livestock and depending on petty trade when they lacked enough food or cash to buy food.

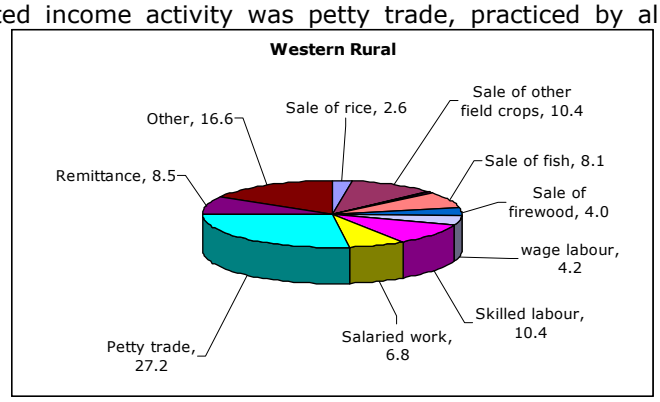
2.13 - Western Rural District

- Population (number): 358,259
- Household size and composition: The average household size consisted of 7 members with 47% of the household composed of males.
- Language: More than half of the households spoke *Temne* while 10% reported *Mende* as their native language. Other languages such as *Krio* were reported to be spoken by 23% of the households.
- Education: This district had the lowest percentage of illiteracy amongst adults and children. Around 30% of the adult men and 60% of the adult women were illiterate. Percentage of men having a primary education (20%) and secondary education (36%) was highest amongst all districts. Further, this district had the highest percentage of adult men attending college or university (3%). Similarly, percentage of women having a primary education (17%) and secondary education (20%) was highest amongst all districts. Almost 85% of the boys and girls had or were attending primary school.
- Housing: Households of this district had the lowest percentage of ownership - 55% of all households sampled in this district reported owning their house. More than half the houses were reported as having been built before 2000. Houses had an average of 4 rooms and 11 residents for an average of 3 people per room (crowding).
- Housing conditions: Around 65% of the houses in this district were built of mud or mud bricks with half of them having an earthen floor. This is in contrast to houses of other districts where the majority of which had earthen floors. More than three-quarters of the houses had a roof made of corrugated iron.
- Lighting, sanitation and drinking water: Less than 30% of the households depended on pan lamps for lighting. Nearly 80% of the households had access to drinking water from improved sources during the dry season - the highest for the sample. In addition, nearly 60% of the households were using latrines or flush toilets, also the highest of all districts.
- Asset ownership: Ownership of household assets was higher in this district as compared to all others with only 30% of the sample households owning 1 to 2 household assets. The most commonly owned assets were radios, lanterns and tables - more than 70% of the households owned at least one of these assets. Just over half the households owned hoes and cutlasses.
- Access to land: Nearly 20% of the households accessed land through short-term rentals while 14% of the households gained access to land by inheritance and 9% through family or clan ownership. The average are cultivated per household in this district was 2.7 acres. There was a substantial percentage that was not involved in agricultural activities.
- Cultivation: For households that practiced agriculture, the most common crop cultivated was cassava. The percentage of households cultivating inland and upland rice was similar at 15 percent. However the average acreage cultivated for both these types of rice varied from 2 acres for upland rice as compared to 1 acre per household for inland rice. Between 18% to 22% of the households also cultivated peppers, groundnuts and sweet potatoes.

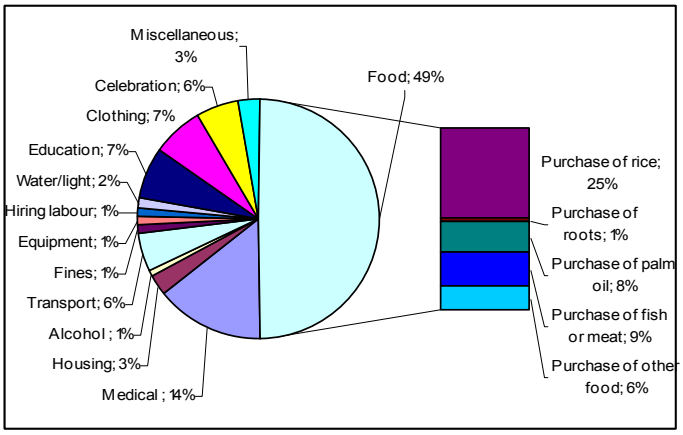


- Access to labour: On average 2 members or 57% of total adult members of a household are involved in agriculture. *Western Rural* has the lowest percentage of households paying for agricultural labour - 33% of all the sampled households in this district pay for brushing, weeding or harvesting.

- Income: The most often reported income activity was petty trade, practiced by all households in the sample. More than half the households received income through remittances, 46% from the sales of other field crops, and 35% from 'other' activities. In terms of contribution to overall income, the greatest share also came from petty trade (27%), followed by 'other' activities (17%), sale of other field crops (10%) and skilled labour (10%). Most households reported only two sources of income.



- Expenditure: About half a household's monthly expenditure is for food, with 25% of total expenditure for rice, 9% for fish or meat, 8% for palm oil and 7% for roots and tubers. The highest non-food expenditures were for medical (14% of total), education (7%), debts and fines (7%) and clothing (7%). *Western Rural* had a higher than average (for the sample) non-food expenditure on rent and transportation. Further, share of expenditure on rent was higher than for any other district.



- Meal consumption: The majority of the households eat two meals a day - 88% of the adults and 82% of the children. Households in the *Western Rural* sample had the lowest percentage of adults eating 1 meal a day (5%).
- Coping strategies: Illness and unemployment were the main shocks affecting households. In order to minimize the effects of shocks to household food security, households in this district relied on increases in petty trade activities, borrowing money and food or selling livestock.

Part III – Community summaries

Section 3.1 – Community and household size

While size of communities ranged from less than 500 inhabitants to more than 3000 inhabitants; more than 71% of the communities have 1500 or fewer inhabitants. Further, about one-third of the sample communities have less than 500 inhabitants. Only 17% of the communities had more than 3000 inhabitants and when one sees that the average number of members in a household is 5-8 persons a "large" community would typically have 375-600 households.

For the community analysis, the average household size was calculated as number of inhabitants divided by number of households in the community. The chart on the right summarizes the distribution of household sizes from the sample.

- *Larger households* – Households having 8 or more members accounted for 15% of the communities in the sample. Eight (8%) of the households (across all communities) had more than 10 members.
- *Average households* – Households of average size (relative to the sample) were the most common households across the sample - 43% of total. These households typically had between 5 to 8 members.
- *Smaller households* – More than 40% of the communities had an average household size of 5 members or less. Further, nearly 10% of households had 2 or fewer members. Such households could possibly be widow-headed households, single-women headed households, child-headed households or even a result of members leaving their homes to seek employment elsewhere or households whose members were killed during the conflict.

Section 3.2 - Population changes

Two-thirds of the communities reported a net increase in population since the year 2000 which would likely be a result of IDPs or refugees returning to their communities during this period. This would also account for the fact that while 185 communities had more arrivals only 73 communities reported to having departures.

- *Arrivals* – While many communities across the country stated that they had arrivals the North-East and Eastern region clearly had the most. All of the sample communities in *Tonkolili* district reported having more arrivals over the past five years. Similarly *Kailahun* and *Kono* districts had 24 and 22 communities having more arrivals than departures respectively. On the other hand, only one community in *Western Rural* district sample communities reported more arrivals.
  Nearly 66% of all communities stated that there were more arrivals.
- *Departures* – *Moyamba* district had the highest number of communities (19) reporting that on average there was 26% more departures than arrivals. This was followed by *Bombali* district wherein 15 communities on average had 21% more departures. This indicates that households or members of the household are probably leaving these districts to source work. Overall around one-quarter of all communities stated that there were more departures than arrivals over the past five years.
- *About the same* – Approximately 6% of all communities stated that there were an equal number of arrivals and departures. Therefore households/people were leaving and joining these communities simultaneously. Of these 18 communities, 7 were in *Kenema* district and 5 in *Bonthe* district.
- *No change* – Only three communities (< 1%) stated that there were no changes in the population over the past five years.

Section 3.3 - Migration

Key informants were asked if members of the communities left their homes at certain times of the year to search for work. Across the sample 84 % of the communities stated that people migrated seasonally for work. Of those, about 60% of the communities stated that mostly men migrated while in the rest, the leaders felt that both men and women left temporarily in search of work.

Half of all the people who migrated went to villages outside their own chiefdom to seek work. Since such migration would most probably mean moving to another rural community, the most common type of work thus sourced would be agricultural labour or

mining. About one-thirds of the people that migrated moved to the towns and cities. T his employment would necessarily be urban in nature and would also include manual labour, most likely in construction. Only 4% of people who migrated to find work left Sierra Leone to work in neighbouring countries.

Section 3.4 – Quality of life

Key informants were asked if life for them and their community was better or worse than the situation in 2000. On average half of the communities stated that life had improved since 2000, 44% believed life had got worse and the rest stated there was no change over the past five years. Very few communities in *Western Rural* and *Kenema* districts indicated that life had improved since 2000 while in *Kenema, Bonthe* and *Bo* districts more than 90% of the communities stated that quality of life had worsened since 2000. On the other hand in *Bombali* and *Moyamba* districts, all of the communities believed that life had improved in recent years.

Communities offered a wide variety of reasons for believing that life had improved or deteriorated since 2000 with the most common reason for people stating that life had improved was improved and decreased conflict. While other reasons were also offered this was the single most important factor. However, for reasons that life had worsened, the responses were far more numerous without any one particular issue taking priority.

Table 1: Self-Perception of Change in Quality of Life Since 2000

	Main Reasons that People Believed that Life for them and their Community had:	
	Improved since 2000	**Worsened since 2000**
1	Peace, security,	Lack of health facilities
2	Farming is possible without fear	Lack of shelter / housing
3	Community schools are built & functioning	High cost of food & other essential items
4	Better access to health services	Reduced access to education
5	Food availability has increased	Lack of good drinking water
6	More sources of income / better income	Lack of good roads
7	Reconstruction & reestablishment of houses	Pest & disease attacks
8	Overall recovery & development	Lowered income from cash-crop sales
9	Better access to markets / trade	Lowered agricultural production
10	Access to safe drinking water	Lack of seeds

Note: Reasons arranged in descending order of priority

As can be seen from the above table, for many of the reasons that quality of life improved over the past five years, have also, by their lack thereof, contributed to reasons for life worsening since 2000. It should be noted that the above reasons have been collated from communities across all districts; hence while improved access to education may be true for a certain community, another community may not have yet seen any such improvement. This would account for the inclusion of a factor in both columns.

Section 3.5 - Economic activities

During the interview key informants were asked to name the three main economic activities of the people in their community in order of importance. The results were then analyzed by the Local Council Area (LCA).

Primary activity – By far the most common income-generating activity was food crop farming. More than 80% of all communities across all districts stated that this was the primary source of income for members of their communities. Further, for 8 of the 15 districts, more than 90% of the communities stated that the production and sale of food crops were their main source of income. However there were some exceptions; in *Kailahun* district nearly 40% of the sample communities indicated that palm oil production and sale was the main income activity. Similarly in *Western Rural* only half of the communities relied on food crops as their primary income activity. The rest relied on income from other sources. This would probably be income from remittances and/or labour as nearly all of the migratory population in *Western Rural* district is composed of

men who leave the district and source temporary work in urban areas (mostly construction).

Secondary activity – The most often named secondary activity for income generation was the production and sale of cash crops. Most probably this would be practiced by households in communities with access to larger areas of land. For 35% of the communities this was the main secondary activity. However 20% of the communities named palm oil sale as an important secondary activity, followed by trading.

Tertiary activity – Across all districts, the most often named tertiary income activity was the sale of palm oil. This was followed by trading and animal husbandry as the main tertiary income generating activities.

Thus it can be seen that agriculture is the most important and basic economic activity. Almost all households rely on food crops for own consumption and sale. Ideally, excess food crop production would probably be sold in local community markets. Households with greater (than average) access to arable land would grow cash crops and palm oil for sale while growing some food crops for household consumption.

Income from 'other activities' also plays an important role in sourcing income. In fact for more than 40% of the communities this is a third main source of income. Such activities would most probably be temporary, sporadic and seasonal. While adult males concentrated on maximizing the gains from agriculture, children and women would most likely try and earn income from other activities as often as they can. Further, between agriculture seasons men too would indulge in such activities. These activities would include selling of firewood/charcoal, fishing and the sale of animals and livestock products.

Section 3.6 - Markets

The majority of the communities had no permanent markets. For these communities distances to the nearest markets were in the range of 5-10 miles. Hence such communities would probably rely primarily on own food production and go to markets occasionally to sell, buy or trade whenever they had surplus. Daily markets were held in 22 of the interviewed communities, whereas periodic markets were held in 27 communities and 8 communities reported the presence of both daily and periodic markets.

The most common food items available in these markets were palm oil, cassava, rice (imported and local) and fish. Seasonal shortages of food items in the market, when they occurred, were most frequent from June to September.

3.6.1 - Availability of foods in markets

Communities were asked to rate the current availability of certain food items in the market using the following categories: 'readily available', 'occasionally available' or 'not available'. The food items included imported rice, local rice, fish, palm oil, cassava, yam, plantain and salt. District level information can be found in the tables in Annex 1.

- Imported rice – This item was readily available in more than 20% of all sampled villages, occasionally available in half of the villages and not available in the remaining sampled villages. Imported rice was not available in 86% of the villages in *Bombali* and 83% of the villages of *Koinadugu while* in 72% of the villages of *Kenema* district imported rice was readily available.
- Local rice – Local rice was readily available in nearly 30% of all the sampled communities in 69% of the villages it was occasionally available and in 4% of the villages it was not available. In all the villages of *Tonkolili* and *Bo* local rice was occasionally available. *Pujehun* had the highest percentage (25%) of villages where local rice was not available.
- Fish – This item was readily available in 26% of all the sampled villages, occasionally available in 60% of the villages and not available in 14% of the villages. In approximately 70% of the communities in *Bonthe* fish was readily available. In *Kono* and *Tonkolili*, more than 90% of the communities had fish occasionally available to them in the markets. Fish was unavailable to more than 60% of the communities in *Bombali* and *Koinadugu*.
- Palm oil – More than 60% of all communities had a ready availability of palm oil in the markets while in one-third of the communities it was occasionally available. Palm oil

was not available in only 3% of all the sampled communities. Nearly all of the villages in *Kailahun* had palm oil readily available to them while the *Koinadugu* sample had the highest percentage (15%) of villages where palm oil was not available on the market.

- Cassava – 4 districts had more than 90% of its communities with cassava readily available on the market. *Western Rural*, with 80%, had the highest percentage of communities having cassava occasionally available to them.
- Yam – In 44% of the sampled communities yams were not available on the market. Yam was occasionally available in 39% of the communities and readily available in 17 percent. More than 70% of the villages in *Kenema* reported that yams were readily available while in nearly three-quarters of the *Western Rural* villages yams were not available.
- Plantain – In half of the sampled villages, plantains were occasionally available while they were readily available in 28% of the communities and not available in around 20% of the sample communities. Half of the villages in *Bombali* indicated that plantains were not available on the market while *Kenema* had the highest percentage (81%) of villages where plantain was readily available.
- Salt - This item was readily available in more than half of all sampled villages, occasionally available in 32% of the villages and not available in the remaining 13% of the sampled villages. Availability was highest in *Bo*, *Tonkolili* and *Kenema* and lowest in *Bombali*.

3.6.2 - Seasonality

Communities were asked during which times of the year the availability of food items was insufficient to meet the demands of the community. District level information can be found in the tables in Annex 1. The food items included imported rice, local rice, fish, palm oil, cassava, cultivated yam, plantains, groundnuts and salt. For all food items except groundnuts the availability of food items was insufficient between June and September, as indicated in Table 2 below. Availability of food items in the markets was most adequate between October and February. For groundnuts 50% of the sampled communities felt the item was insufficient to meet their demands between June and September while 44% of the communities reported this insufficiency to occur during March to May.

Table 2: Seasonal availability of food on the market – number of communities

Foods	Oct-Feb		Mar-May		Jun-Sept		Total
	#	%	#	%	#	%	
Imported rice	21	9%	15	6%	198	85%	234
Local rice	6	2%	16	6%	252	92%	274
Fish	2	1%	38	15%	211	84%	251
Palm oil	22	9%	9	4%	209	87%	240
Cassava	20	10%	36	18%	140	71%	196
Cultivated Yam	7	4%	40	24%	123	72%	170
Plantains	10	5%	54	26%	147	70%	211
Groundnuts	13	6%	94	44%	105	50%	212
Salt	3	2%	8	4%	168	94%	179

Some of the reasons for the widespread insufficiency of most food items across all districts during the period between June and September could be:

- An insufficiency of food during this period suggests that harvests have not been very good as households are unable to produce or store sufficient food for them to consume during this period. While June-September would traditionally be a period when food would be less easily available, bad harvests could result in exacerbating this situation. Thus a hunger gap between the months of June-September would result in insufficiency of food to meet the demands of the community.
- Access to markets due to bad roads and the rainy season could result in reduced access to food items, especially fish. Quality of roads would further deteriorate during the rainy season and would adversely affect transportation of food items. Further, as mentioned elsewhere in this report, communities reported roads being impassable for 3-6 months a year or more. This too would affect food availability.
- Both the above factors, namely lack of food and increasing transportation prices, would drive the prices of food upwards during these months. This would result in fewer households having the ability to buy/access food items.

Section 3.7 - Education

Information on access to primary schools was also collected during the community interviews. In addition, communities were asked to describe some of the problems families faced to ensure that their children receive at least primary school education.

In 197 communities or 70% of all communities sampled there was a functioning primary school in the community. In the remaining 85 communities of the sample there was no functioning primary school within the community. *Tonkolili* with 25 and *Port Loko* with 24 had the most number of communities with functioning primary schools. However *Moyamba* and *Kambia* districts had 12 and 11 communities reporting a no primary schools within their communities.

For 65% of the communities that did not have a functioning primary school, the nearest primary school was 2 to 4 miles away. For 16% of the communities the school was less than 1 mile away and for 19% of the communities, schools were 5 or more miles away. *Moyamba* district had the maximum number of communities (10) having to access primary schools 2 to 4 miles away. Both *Kono* and *Kenema* had 3 communities each for whom the nearest primary school was at least 5 miles away. For majority of the communities not having access to schools, schools were 2 to 4 miles away.

Community leaders and respondents were asked about the main reasons children were not attending primary school in their community. While across all districts a variety of reasons were put forth, the 3 most common reasons for lack of primary school attendance were:

1. The inability of parents to fund children's education
2. Children were need to work and to earn income for their families
3. Lack of parental interest in educating their child

While other factors such as distance of school and lack of interest in education by children were also put forth, the 6 most common reasons are all linked to financial constraints. The main problems affecting schooling from the point of view of the people of the community were:

1. Lack of school building (over 60% of the people across the communities stated this to a problem affecting schooling)
2. Insufficient furniture (50% of the people across the communities felt this was a problem)
3. Lack of qualified teachers / text books/stationery (30%)
4. Lack of school feeding program (30%)
5. High costs of school (21%)

More than 30% of the respondents in the districts of *Kenema, Koinadugu, Bonthe, Moyamba* and *Pujehun* believed that the most serious problem was the lack of school buildings. Lack of qualified teachers, distance of schools and the high cost of school charges were some of the other reasons put forth. However as can be seen from above, the main problems are all related to the lack of infrastructure be it buildings, furniture or stationery.

Section 3.8 - Health

Community leaders were asked about access to health services including hospitals, clinics, drugstores and pharmacies. For the entire sample, more than 70% of the communities stated that they had no access to health services. Further, more than 80% of the communities of *Bonthe* and *Kono*; and over 90% of the communities of *Bombali* and *Kambia* stated that they had no access to health services. In contrast 100% of the sampled communities in *Western Rural* stated they had access to health services. Apart from *Western Rural, Tonkolili* with 46% and *Kailahun* with 38% were the districts with relatively better access to health services.

The main diseases or health problems reported by community leaders were malaria, hernia and diarrhoea. In addition, cholera, sexually transmitted infections, river blindness and complications during pregnancy were also mentioned. These findings are identical to those reported in the 2003 WFP-VAM report.

The main problems affecting health services across all communities, according to the people of the community were:

- Lack of availability of health services in the community
- Health centre is too far
- Inability to pay for health service
- Lack of medicines and medical supplies at the health centre

Thus can be seen that the main problems affecting health services is the lack of availability (of health services, of medicines) and the lack of access (health centre is too far or due to lack of money).

More than 60% of the women across all districts were perceived to give birth at home helped by a traditional birth attendant/mid-wife. Hospital, clinics or maternity homes were used by 21% of the women and 10% of the women gave birth at home without assistance from a traditional birth attendant.

Section 3.9 - Agriculture

Village leaders were asked to list the crops (both field and tree crops) grown by the farmers in their community in order of importance. Upland rice was reported as the most important crop. Among the tree crops, oil palm was mentioned most frequently confirming the importance of palm oil production as a contributor to household income. Other important tree crops are coffee and cocoa.

Farmers associations were often identical to the Community Based Organizations (CBOs) being promoted by aid organizations and receiving varying degrees of support from them. The 4 main functions of farmer associations were:

1. Provision of communal labour
2. Provision of agricultural inputs
3. Provision of credit
4. Provision of employment

By far the most important function and service offered by farmer associations was the provision of communal labour. This would be beneficial to households without access to land who now have a source of income and could also obtain a share of the harvest. Further, households with small plots of land could now obtain more out of agriculture by including it with other fellow farmers and practicing communal agriculture. Improved access to markets and reduced transportation costs would also be some of the advantages to farmers in these associations.

Section 3.10 - Accessibility to the community

Communities were asked if they were accessible trucks or 4 Wheel Drive (4WD) vehicles. More than 80% of the communities in the sample stated that their community was accessible. Sixteen (16%) of the communities reported that they were inaccessible even to trucks or 4WDs. *Bombali* (27%), *Moyamba* (27%) and *Bonthe* (25%) were the districts with the highest percentage of communities reporting inaccessibility by vehicle. *Kailahun*, *Koinadugu*, *Kono* and *Pujehun* districts, surprisingly, had more than 90% of their communities reporting accessibility by vehicle as at the time of the survey. It is worth noting that the survey took place in the dry season when road conditions are generally better throughout Sierra Leone. Further discussions with key informants, however, revealed that accessibility by vehicular transport in these same four districts is worst off compared to the rest of the country during the rainy season. Also, most rural communities in Sierra Leone try to undertake road maintenance work (self-help projects) in the early part of the dry season in order to be able to convey their farm produce to the market. The communities in Kailahun, Kono and Pujehun districts which produce mostly, cash crops (cocoa, coffee, and oil palm) would have even better incentive to rehabilitate their roads when ever it is possible for them to do so.

A total of 31 communities reported that there were not connected by road. Almost all of these communities (28 of the 31) reported that the nearest road was between 2 and 10 miles from the community. The remaining 3 communities reported that the nearest road was more than 10 miles away.

For those communities accessible by road, a total of 137 communities answered that the road was inaccessible at certain times during the year. *Kenema* district had the highest number of communities reporting that their road was inaccessible. For these communities, more than 60% reported that these roads were inaccessible for 3 to 6 months in a year, 22% reported roads being inaccessible for less than 3 months while nearly all of the remaining communities reported access problems for 6-9 months during the year. Three communities reported that their roads were impassable more than 9 months in a year.

Part IV - Household Results

Section 4.1 - Household Demographics

4.1.1 - Language

Across the country *Mende* and *Temne* were the most common native languages followed by *Kono* and *Kuranko*. Other languages such as *Limba* and *Krio* were also spoken. *Mende* was spoken by more than 90% of the sample in 4 districts. Further, in the South more than 80% of the sample spoke *Mende* as their native language. In the West the most common languages were *Temne* and *Krio* while in the East it was *Mende* and *Kono*. In the North *Temne* was the most common followed by *Krio*, *Limba* and *Kuranko*. Interviews were mainly conducted in *Mende* or *Krio,* especially in the West and North. For only 5% of the interviews was an interpreter required.

4.1.2 - Household composition

Across the sample, the average household had 6.5 members and 48% of a household's members were male. The South had the highest average size of 7.2 members per household while the North had the lowest average size, with of 5.9 members per household. By district, households in *Moyamba* and *Kailahun* had the lowest average size (5.2 and 5.3 members respectfully) while those in *Tonkolili* and *Kambia* had the greatest (8.8 and 8.2 members per household).

4.1.3 - Education

For the entire sample 56% of the adult men were illiterate. Illiteracy was lowest in the west, where only 32% of the adult men were illiterate. The North had the highest illiteracy amongst adult males with a figure of 62 percent. Districts with the highest illiteracy were *Bombali* (80%) and *Koinadugu* (70%). On the other hand *Western Rural* (32%) and *Kailahun* (38%) districts had the lowest illiteracy amongst the adult males in the sample.

For the sample, on average 17% of the adult males had attained a secondary level of education and 12% of the adult males had studied achieved only the primary level. The average percentages for primary and secondary level education amongst adult males were higher than average for the Western region. Only 1.4 % of adult males had attended college or university and 1.3% had any kind of vocational or technical training. However 13% of the males across the sample had some kind of formal Arabic/Koranic education.

Table 3: Average Education Levels of Adult Men by Region and for the Country

	Illiterate	Primary School	Secondary	Vocational & Technical	Arabic / Koranic	College / University
West	32%	20%	36%	1%	7%	3%
East	53%	12%	20%	2%	12%	0%
North	62%	9%	13%	0%	15%	0%
South	55%	13%	15%	1%	13%	2%

For the entire sample 85 % of the adult women were illiterate which was higher than the average figure of 56% for adult men. The districts of *Bombali, Kambia, Koinadugu, Port Loko* and *Kono* reported at least 90% illiteracy amongst the adult women in the sample. Like the adult male illiteracy pattern, the Western region had the lowest illiteracy for women (60%). Only 9% of adult women had studied up through the primary level and 5% to the secondary level. The percentage of women who had attended college, vocational/technical or religious training was negligible across all regions.

Table 4: Average Education Levels of Adult Women by Region and for the Country

	Illiterate	Primary School	Secondary	Vocational & Technical
West	60%	17%	20%	1%
East	83%	10%	6%	0%
North	92%	5%	3%	0%
South	83%	10%	5%	1%

For sample households, the educational attainment of boys and girls aged of 6-14 years were very similar. For the sample, 80% of the boys as compared to 78% of the girls. Only 2% of boys and girls (6-14 years) in the sample attended secondary school. The marked difference in education of girls and boys was that while 5% of the boys attended Arabic or Koranic studies as compared to only 1% of the girls.

Section 4.2 - Housing and housing conditions

4.2.1 - Ownership and age

More than three-quarters of the sampled households owned their house. Ownership was highest in the samples from *Bombali (88%), Kono (86%), Kailahun (84%), Port Loko (82%), Tonkolili* (81%) and *Kambia* (80%). Only 56% of the sample households in *Western Rural* district owned their house. Just over half of all the houses were built before 2000 with nearly 30% built between 2000 and 2002 and 15% of the houses had been built after 2002. The districts of *Bo* and *Bonthe* had the highest percentage of families (>70%) living in houses built before 2000. In contrast, the highest percentage of families reporting they lived in a house built after 2002 was in *Kailahun* district (41%).

4.2.2 - Crowding

For the sample there was an average of 11 persons per house. Keeping in mind that the average household size for the sample is 6.5, it would mean that most probably there were several families occupying the same house. The average number of people per house was highest in the districts of *Kambia* (15 per room), *Port Loko* (15) and *Bombali* (14) while the *Pujehun* district had 8 persons per house - the lowest average. Most houses had 4 -5 rooms. Crowding was estimated by calculating the number of people per room in a house. On average there were 3 people per room but households in the districts of *Kenema, Moyamba* and *Bonthe* were the least crowded with around 2 persons per room.

4.2.3 - Construction

Most houses had walls made of mud or mud bricks – 83% of the sample. Almost all households in the districts of *Bombali, Moyamba* and *Bonthe* were made of mud or mud brick. Fifty six percent (56%) of the houses had a corrugated iron roof and 39% of the houses had a thatched roof. More than 75% of the houses in *Bo* and *Western Rural* districts had corrugated iron roofs while in *Pujehun* district more than 70% of the houses had thatched roofing. The most common floor material was earth – 84% of all the houses had earthen floors – more than 90% of all houses in *Kono, Bombali* and *Moyamba* samples had earthen floors as compared to only 48% of the houses in *Western Rural* district sample.

4.2.4 - Lighting

Pan lamps were the most common source of lighting with 54% of all households relying on them. Pan lamps were most common in *Bombali* (76%) and *Port Loko* (72%) and least common in *Western Rural* (28%) samples.

Section 4.3 - Water and Sanitation

4.3.1 - Drinking water

In recent years UNICEF has measured the percentage of households using water from improved sources. These sources include water piped into the home, from a public tap, tube well, borehole, protected dug well, protected spring or vendor. The district samples with the best access to drinking water from improved sources were *Western Rural* (77%), *Kailahun* (66%), and *Bo* (58%). The district samples with the fewest households accessing drinking water from improved sources are *Moyamba* (18%), *Tonkolili* (26%) and *Kambia* (27%).

4.3.2 - Sanitation

Safe sanitation was defined as households using a flush latrine, VIP pit latrine or a traditional pit latrine (UNICEF). Very few households were using safe sanitation with the exception of those in the Western Rural sample (56%) and some in Bo (21%) and Tonkolili

(22%). In the rest of the district samples, virtually no households were using safe sanitation.

Section 4.4 – Household asset ownership

Fifty five percent (55%) of households had at least one to two basic types of household assets. The most commonly owned assets were tables and big cooking pots. More than half of the households had at least one of these items while 42% of all households had a chair, 41% had a lantern and 40% owned a radio. Bicycles and sewing machines were the least commonly owned assets with only 10% of households owning bicycles and only 2% owning sewing machines.

Overall, the districts of *Kenema, Kambia* and *Western Rural* had higher percentage of households with assets as compared to other districts. Although nearly all the households in the *Pujehun* sample owned a large cooking pot, for all other assets, their ownership was below the sample average. Three-quarters of the households in the *Bombali* sample reporting ownership of one to two assets, the percentages households owning specific individual assets was below the overall sample averages.

Kambia (5%) and *Western Rural* (4%) had higher percentages of households owning sewing machines than the average figure (2%) for the sample while *Kono* district had less than 1% of the households owning sewing machines. More than one-quarter of the households in *Kambia* and nearly 20% in *Tonkolili* district owned a bicycle – far about the sample average of 10 percent. Only 3% of the households in the *Kono* sample owned a bicycle.

Section 4.5 – Livestock ownership

The most commonly owned livestock for rural households in the survey were chickens, followed by goats, sheep and ducks. Very few households owned oxen, cattle or pigs. Overall, ownership has increased slightly over the past two years, especially for chickens. This increase in livestock is probably in party due to the government's initiation to increase various restocking programs. More than 80% of the households in the Port Loko sample owned chickens, followed by *Moyamba* (77%), *Tonkolili* (76%) and *Kambia* (72%). Only 30% of the households in *Kono* and 40% in *Koinadugu* owned chickens although the percentage ownership among the *Koinadugu* sample doubled from 21% to 41% between 2003 and 2005.

Goats were more commonly found in *Moyamba* (24%) and *Port Loko* (23%) households while sheep were more likely to be owned by households in *Port Loko* (19%) and *Kambia* (18%). Ownership of small ruminants was lowest among households in *Bo* and *Kailahun*. The district samples with the highest ownership of cattle were *Port Loko* (4%) and *Koinadugu* (3%) while pigs were owned by 4% of the households in *Pujehun*.

Section 4.6 - Agriculture

Note: With respect to Farm Production, it should be noted here that at the time of finalization of this report, data pertaining to the above was being "cleaned" and analyzed. This data includes primary data collected from this survey, secondary data from Statistics Sierra Leone and census / population figures from the government.These analyses will be conducted shortly by the ministry of agriculture, WFP Sierra Leone Country Office and Statistics Sierra Leone and released in the near future as a separate report.

4.6.1 - Rice

Rice is the most important crop in Sierra Leone being cultivated widely across districts and being an important part of the daily diet. Upland, lowland and other varieties of rice are cultivated in some quantity in nearly all districts.

Upland Rice – On average 55% of the households in all regions except *Western Rural* cultivate upland rice. More than 70% of the sampled households of *Kailahun, Kenema, Tonkolili* and *Moyamba* cultivate upland rice. The Eastern region had a higher percentage of farmers cultivating upland rice than any other region. It was seen that households in *Koinadugu* district had the highest acreage per household for the sample – upland rice was

cultivated on 3 acres per household. However for most of the districts, average acreage of upland rice per household was 1.5 to 2 acres. When one notes that the average acreage available to each household is approximately 3.9 acres; the importance of upland rice to farmers in Sierra Leone can be appreciated. The average yield of upland rice from one acre varied from district to district. Factors such as soil fertility, length of fallow period prior to cultivation and pest management practices adopted by the households can influence and affect the yield. Across the sample, the average yield of upland rice per acre was approximately ten and a half (10.6) bushels. Districts having poor soils, such as *Port Loko* and *Kenema*, had the lowest yields per household – a little over 8 bushels per acre. On the other hand, districts of *Kono* and *Bombali* had a higher than average yield per acre at 12 bushels of upland rice per acre.

Household heads and farmers were asked about the main problems affecting their rice crop. Farmers across the districts mentioned incidences of pests, diseases and natural hazards. By far the most common problems to farmers were rodents which account for loss of crop in the field as well as loss of grain in storage. Birds were also a problem - the farmers in *Bo* and *Bonthe* samples were unique in that nearly all reported birds (as opposed to rodents) to be the main pest affecting their crop. Rice blast, smut and chlorosis were the main diseases affecting upland rice. The majority of the households in *Kono* and *Kenema* mentioned blast to be a major disease while all sampled households in *Port Loko* were affected by this disease. The main disease affecting upland rice in the South was chlorosis.

Inland Swamp Rice – On average, there were fewer households cultivating lowland rice compared to those cultivating upland rice. Approximately half of the households cultivated inland rice on an average land size of one acre. The average yield of inland rice from one acre varied from district to district but across the sample was approximately thirteen (12.9) bushels. Thus the average yields of inland rice are higher than those for upland rice most likely due to the better fertility of inland soils. However, as compared to upland rice, inland rice cultivation is more labor intensive and hence many households prefer upland rice cultivation.

The main problems affecting inland rice crops were similar to those for upland rice - rodents were the most common followed by birds. As in the case of upland rice for the districts of *Bo* and *Bonthe,* birds were the main pest. While the southern inland rice cultivating households were affected by blast and stem borer, households in the North reported gold midge, onion shoot and red ants to be the biggest threats to their crops. The majority of the households in the East and the North reported heavy rains to have caused crop losses. Further, all of the cultivating households in *Kono* and *Koinadugu* reported heavy rains as causing losses in harvest.

Other Rice – Of the 13 districts, in 7 less than 1% of the households cultivated rice in other lowland ecologies such as Mangrove, Boliland and Riverain rice. Nearly 20% of the households in the *Kambia, Bonthe* and *Moyamba* samples were cultivating other rice with average yields of 12 bushels per acre.

4.6.2 – Rice harvest/storage

Households were asked the duration (in months) their harvest of rice had lasted them the previous year (2003-04). Across the sample, rice harvests lasted for approximately 4.5 months. However duration that the rice harvests last a household is dependent on many factors such as size of household, quantity of harvest sold and quantity of harvest kept for home consumption. Keeping this in mind it was seen that households in the districts of the East and North utilized their rice for longer periods.

Households were then asked if they purchased rice the previous year and if yes, the quantity of rice purchased in bags. It was seen that 96% of the sampled households across all districts bought 5 bags (50 Kilogram) of rice. Even though rice production is higher than any other crop, it still does not meet the entire needs of the household. Nearly all of the sampled households in *Kono, Bombali, Port Loko, Tonkolili, Bo*, *Bonthe, Moyamba* and *Western Rural* purchased some quantity of rice the previous year. Households in the Eastern region purchased the least number of bags of rice per household on average.

Households were asked to estimate how long their current harvest of rice would last their family. The average duration the current rice harvests were just over 5 months (5.3) for households in the North, East and South. This estimate is an increase from the actual time of four and a half months that rice stocks lasted a household the previous year. However households in the West reported that they expect rice harvest to last only two and a half months. However it should be kept in mind that rice cultivation in the West is not as intensive as in the rest of the country.

Households were asked what they intended to do when they finish the rice from their own production. More than 70% of the sampled households stated that they would purchase more rice when their own stock was finished. Another 20% of the households reported that they would obtain food as a loan from friends or relatives. A small percentage of the households reported that they would both purchase and borrow to meet their rice needs.

4.6.3 - Cassava

The second most commonly cultivated crop was cassava, grown by more than half of the sample households. The percentage of farmers growing cassava was much higher in the south where 76% of the sampled households cultivated cassava. The average area cultivated for cassava was 1 acre per household. Cassava yields varied widely from district to district with average yields being highest in the districts of *Bombali, Bonthe and Moyamba* and lowest in *Koinadugu* and *Kono*. Planting density, practice of inter-cropping, soil fertility and household pest management practices all influence the yield and could account for the wide disparity in yields between districts.

The most commonly pest of cassava was grasshoppers where in the North and East the majority of the households reported grasshoppers to be causing the most damage to their crop. The other major pest of cassava was rodents which would cause crop loss in the field as well as during storage. The majority of the households in the East reported drought as the main natural hazard responsible for crop losses. In the North, the most common natural hazard mentioned was weeds which were reducing soil fertility, using up nutrients and causing crowding in the cassava fields. More than 80% of the households in *Moyamba* district in the South believed poor quality of soils to be the main reason for loss of yields.

4.6.4 - Groundnuts

Approximately 25% of the households cultivate groundnuts and the average size of a groundnut plot for the sample was 1 acre per household. Groundnuts were most extensively farmed in the districts of *Tonkolili* and *Bombali*. Like cassava, average yields per household varied across districts with those obtained in the south being higher than the other regions. Rodents were the biggest cause of crop losses and the main threat to farmers.

4.6.5 - Tree crops

The tree crops that were found to have a major economic importance are cocoa, coffee and oil palm. Cocoa and coffee were the two major export crops before the war and a major source of cash income to many farmers in eastern and southern provinces the country. These were grown under smallholder conditions in plantations of 0.5-2.0 hectares (Agricultural Sector Master Plan for Sierra Leone 1992). Due to many years of abandonment due to the civil war, vast areas of plantations were totally reverted to bush with over-grown weeds and epiphytes. With the cessation of violence in early 2001, farmers have returned to their communities and started to rehabilitate their plantations. In the survey, farmers were asked to indicate what proportion of their plantations they have been able to rehabilitate from 2000-02 and in the period since the end of 2002.

Cocoa - In the eastern districts of *Kailahun, Kono* and *Kenema* where over 90% cocoa plantations in the country were located before the war, on average, the farmers have only rehabilitated a small fraction (13%) of their cocoa plantations. Farmers in *Kono* and *Kailahun* districts were found to have rehabilitated the highest proportion - around 16% of their cocoa plantation, followed by those in *Kenema* district (9%), *Pujehun* (6%) and *Bo* (4%). In general, cocoa rehabilitation efforts appear to be greater in the eastern districts as compared to those in the south.

Coffee – Coffee plantations were found in all three eastern districts and in *Bo* and *Pujehun* districts in the south and *Koinadugu* district in the north. For all of these districts, it was revealed that coffee growers are yet to undertake any meaningful rehabilitation of their plantations. As with cocoa, the proportion of coffee plantations rehabilitated was greater in the east (13%) as compared to the south (5%). There seem to be a general lack of interest among coffee growers to rehabilitate old plantations or even replant new ones possibly due to falling prices of coffee on the world market.

Oil Palm*:* Palm products contribute to household nutrition as edible oil and provide a source of income for many rural households throughout the country. Unlike cocoa and coffee, oil palm plantations are in all of the regions of the country. However efforts to rehabilitate oil palm plantations were smaller compared to coffee and cocoa. For the entire sample, average area of farmers' oil palm plantation that had been rehabilitated was highest in the South, followed by the North and the East. By district, the farmers in *Port Loko, Tonkolili, Bo, Bonthe* and *Pujehun,* have rehabilitated at least 10% of their plantations.

Section 4.7 - Access to land

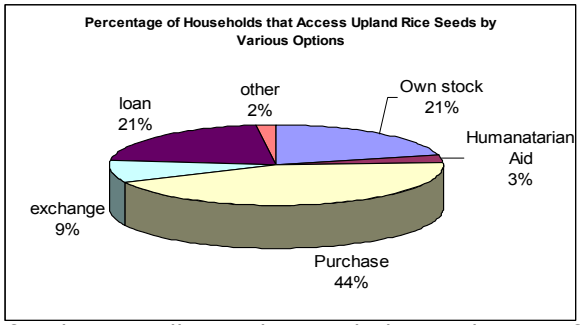
Most households accessed land thru a combination of tenure options typically, a part of a household's land was owned, a part inherited and some portions were also accessed as a result of a lease or permission from their chief.

Of all the land tenure options mentioned above for the sample, the most common methods of accessing land were by inheritance (45%) family/clan owned (36%) and through the permission of the chief (22%). It is reasonable to assume that families which accessed the bulk of their land by inheritance or outright ownership were better-off than families that had land allotted to them. Similarly, land allotted by the chief to a household would also be dependent on various social factors.

The most common source of land tenure for the East, North and South regions were inheritance. The second most common method was through family/clan ownership and then permission from the chief or short-term rentals. The West was the exception to the sample's land tenure patterns also having the lowest average area cultivated per household and the lowest percentage of households accessing land. The most common method of accessing land was through short-term rentals. It was noted that all the migratory population from this district were males leaving for the towns and cities, hence households in this region most likely have vegetable gardens cultivated by the women and children.

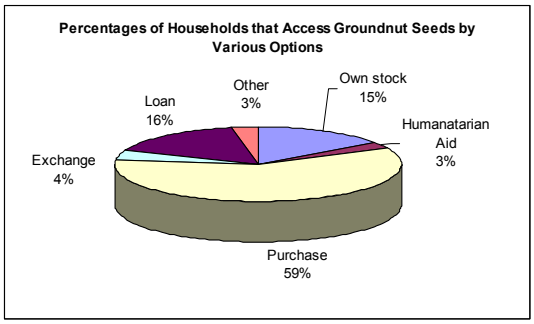
The average acreage per household was 3.9 acres. The North had the highest average acreage – 4.3 acres per household. The West had the lowest with 2.7 acres. It should be noted that the average size of a household in the North was the lowest at 5.9 members and this region has the highest acreage per household. *Port Loko* (5.6 acres) and *Bo* (5.4 acres) district samples had the highest average acreage per household while *Western Rural* (2.7 acres) and *Moyamba* (2.6 acres) had the lowest. However *Moyamba* also had the lowest average household size amongst all districts hence a lower than average acreage per household may not be affecting households as much.

Section 4.8 - Sources of seeds



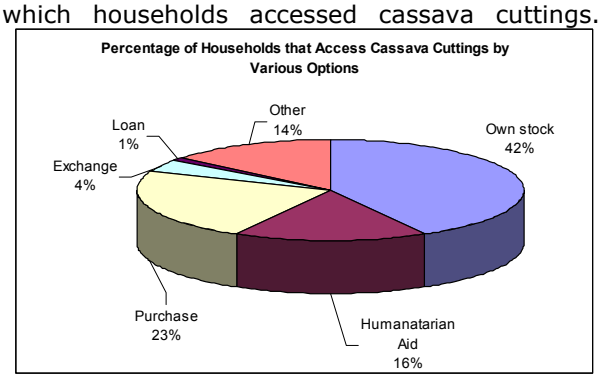
For upland rice, the most common sources of seeds by households were purchase followed by using own stock and from loans as illustrated in the adjacent graph. It should be noted here that in the case of rice "loan" also includes government support since rice seeds is given to farmers by the government on a cost recovery basis. More than 60% of the households in *Koinadugu* accessed seeds by using own stock. This is much higher than the 21% for the overall sample. Similarly nearly 9% of households in *Moyamba* depended on humanitarian assistance for rice seeds. A further

28% in this district obtained their seeds by exchange. More than 30% of the rice growing households in Kailahun used loans to buy rice seeds.

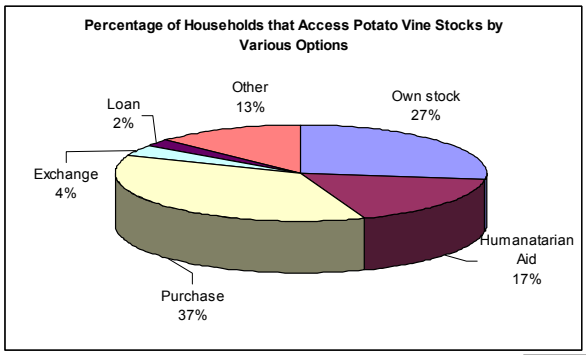


The most common source of groundnut seeds for households was purchase (59%). The highest percentages of households accessing groundnut seeds by purchase were *Kailahun* (86%), Western Rural (76%) and *Kenema* (73%). As in the case of rice, *Moyamba* district had a sizeable percentage of households depending on humanitarian assistance for groundnut seeds – 8% of the households as compared to the sample average of 3 percent. Similar to rice, *Koinadugu* had the highest percentage of households dependent on their own stock – 41% as compared to the sample average of 15%.

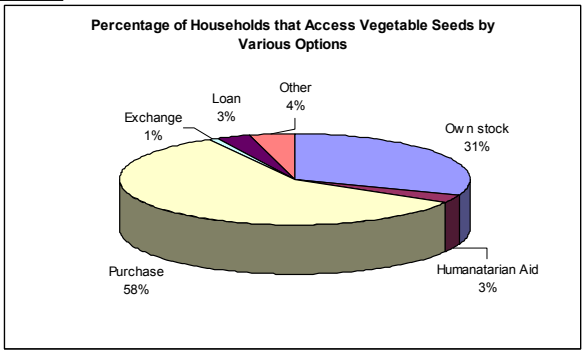
In the case of procuring cassava cuttings households preferred to save and use their own stock rather than purchase. Own stocks, purchase and access through humanitarian aid were the most common sources by which households accessed cassava cuttings. *Moyamba* (70%) and *Bombal*i (68%) had the highest percentage of households that depended on own stock for cuttings. Nearly half the cassava growing households in the *Port Loko* sample depended on humanitarian aid for cassava cuttings – much higher than the sample average (16%). More than half (55%) the households in *Western Rural* purchased their cassava cuttings. As most farmers of this district practiced farming on short-term rental plots it is unlikely that they would save their own stock (unlike farming households of other districts) to use for the next season. Further, since cassava cuttings are relatively easier to store (with respect to losses due to moisture or pests) as compared to rice or maize a higher percentage of households may tend to rely on their own stock. *Kono* (27%) had the highest percentage of households relying on exchange to obtain cassava cuttings.



The most common sources for households to obtain potato vine stocks were by purchase or from their own stock. Again, *Koinadugu* had the highest percentage of households using their own stock – 70% as compared to 27% for the rest of the sample. Sizable percentages of households in *Moyamba* (47%) and *Port Loko* (37%) depended on humanitarian aid to source potato vines. In *Bo,* 78% of the households obtain potato vines by purchase - more than double the sample average. Though the average percentage of households using loans to buy potato vines is just 2%, for *Kambia* this figure is 9 percent. Similarly 46% of the households in *Kailahun* used other sources to obtain vines as compared to 13% of all households for the entire sample.



More than half the vegetable growing households (57%) purchased their seeds. The majority of these households in *Kambia* (90%) and *Moyamba* (86%) purchased their own



vegetable seeds. Just 3% of the sample households depended on humanitarian aid for their vegetable seeds. *Tonkolili* (65%) and *Kenema* (61%) had relatively high percentages of households using their own stock of vegetable seeds as compared to the sample average of 30 percent. The percentage of households obtaining vegetable seeds by exchange, loans or other means was very low. The exception across the sample was *Bombali* district where 14% of the households used loans to source vegetable seeds while 15% of the *Western Rural* households relied on other means for their vegetable seeds.

Section 4.9 - Access to agricultural labour

On average, 94% of the adult members of a household (defined as members above the age of 15) participate in agricultural work/activities. This translates into an average figure (for the sample) of 3 adult members per household working in agriculture. *Kenema* and *Tonkolili* had the highest average number of adult members participating in agricultural work – 5 per household. *Port Loko* had the least number of adult members participating in agricultural work – on average one member per household. This is surprising since *Port Loko* has the highest average arable acreage farmed per household – 5.6 acres as compared to a sample average of 3.9 acres. Keeping in mind the relatively large areas of land accessed by households in *Port Loko*, the low average number of adults working in agriculture per household and the fact that households in *Port Loko* pay less for agricultural labour than most other districts, it can be summarized these households, despite having access to larger areas of land, are not accessing/utilizing it completely. There could be many reasons for this – land may not be very fertile/arable thus dissuading households from spending time and labour on it or land could be mainly used for grazing of livestock or other income generating activities such as fishing could be more lucrative. As expected, the *Western Rural* sample had a low percentage of adults per household participating in agriculture. Further, this district had the lowest percentage of households paying for any agricultural labour activity.

Three-quarters of the households reported paying for brushing labour. Weeding (58%) and harvesting (45%) were the next common activities for which households hired labour. Nearly 80% of all households paid for labour for any of the three activities. *Moyamba* had the highest percentage of households paying for labour for any of the activities – 95 percent. It should be noted here that *Moyamba* has the lowest average household size for the sample and thus households in this district probably would not be able to use their own adults/young adults to undertake all the agricultural work.

Section 4.10 - Access to tools/implements

The most common (and therefore by implication the most required) tools owned by households were hoes (80%) and cutlasses (84%). Nearly 60% of all households owned axes and 28% owned sickles. The least common asset owned were watering cans which owned by only 2% of the sample. The South had the highest percentage of households with access/ownership of tools and agricultural implements while the West was the most asset-poor in terms of tools and implements. There is a direct relationship between a household's dependence on farming and its ownership of hoes, cutlasses and axes. Households in the *Western Rural* district had far less hoes, cutlasses or axes than households from any other region. Households in *Bombali, Bo, Moyamba* and *Pujehun* all exhibit a similar asset ownership percentage for hoes, cutlasses and axes with more than 90% of households in these districts own a hoe or a cutlass and at least 60% owning an axe.

Section 4.11 - Access to agricultural/productive assets

Households were asked about their access to drying floors, store (for rice), rice mill, palm oil mill, cassava grinders, tractors and agricultural credit. As expected Western Rural households had the least access to productive assets because of their relatively low reliance on agriculture.

Only 18% of all households had access to a concrete drying floor and only 14% had access to proper stores for their produce. These figures are low and demonstrate a serious lack of basic agricultural infrastructures and facilities within the sampled communities. The highest percentage of households with access to a concrete drying floor was found in *Bo* district (31%) while districts with almost complete reliance on agriculture, for example,

Pujehun, Koinadugu, Bombali, had only average access to drying floors. The exception is *Tonkolili* where despite 94% of the households dependent on food crop farming only 4% of the households have access to a drying floor. This disparity between reliance on farming and access to drying floors can be seen across all districts (though not as pronounced as in *Tonkolili*). *Bo* (28%) and *Pujehun* (25%) were the districts with the highest percentage of households with a store for rice.

The low percentage of households having access to drying floor and appropriate stores for rice and other agricultural produce has profound implications in terms of post-harvest losses. Due to the lack of drying floors, farmers would have to use mud floors and sometimes tarmac roads to dry their produce, which would lead to contamination and thus affect grain quality. Similarly, the lack of improved storage facilities results in households losing significant part of their crop to pests, diseases and theft. With their traditional methods, harvested rice for example, is stored in baskets or bags stacked in huts or barns with thatched roof that provide limited protection from insects, rodents and fungi.

Rice mill- Despite rice being the most common and important crop cultivated, only 4% of the households had access to rice mill. This means that the vast majority of the sampled households are dependent on the traditional milling method, which is associated with high losses of both quantity and quality of grains. With the mortar and pestle, milling recovery rate is estimated at about 60% and the products contain 50% or more of broken grains whereas, with modern rice milling machines, recovery rates rise to about 68-70% and the proportion of broken rice drops to between 14% and 32 percent. Milling quality of domestic rice is important if it is to compete effectively with imported rice. Commercial operators own almost all of the existing rice mills in the country and provide services to small farmers in few localities within the country.

Palm oil mill – The production and sale of palm oil is clearly an important activity for many households in Sierra Leone. For 6% of the sample, palm oil production was the primary activity, for 20% of the sample it was a secondary activity and for 31% of the sample it was the third livelihood generating activity. However less than 1% of the sample households had access to a palm oil mill. Indeed, most of the palm oil produced in the country is processed manually or by traditional means. The oil extraction efficiency by this method is estimated as 40-50% of the oil content. These traditional methods are not only tedious and time consuming but also allows for very low recovery. The average extraction efficiency by the local method is estimated as 40-50% compared to 65-70% with mechanical palm oil mill. This means that farmers incur greater processing losses as result lack of access to improved milling facilities.

Section 4.12 - Agricultural credit & access to tractors

Approximately 8% of all households had access to agricultural credit for one season. The North had the least access to credit (4%) while the East had the highest percentage of households having access to credit for one season at 12 percent. In most districts, agricultural credit was not available. However, 31% of the households in *Kono* and 36% in *Bo* had access to agricultural credit for one season. It is interesting to note that districts that had a higher than average access to agricultural credit (for one season) also had higher than average access to tractors. This could imply that these districts have a sizeable population of farmers having large areas of land (requiring the services of a tractor) and access to credit is not as much as a problem for this group since the creditor is confident he will get his money back. The exception to this is *Moyamba* where none of the households have access to credit but 13% of the farmers have access to tractors. However across the country access to tractors is probably a result of the community power tillers and tractors provided by the government. Less than 1% of the households enjoyed access to agricultural credit for longer periods.The West had the least access to tractors (<1%) and the South the highest (10%). By district, households in *Tonkolili (17%), Moyamba* (13%) and *Kono* (7%) had the greatest access to tractors.

Section 4.13 – Monthly expenditure

Household expenditures have been discussed in greater detail for each district under the section titled District Overview. The below section is a brief overview on the main food and non-food expenditures. It should be noted that percentage expenditure was

estimated by the household members rather than calculated from detailed household expenditure data so it is subject to bias.

The highest share of monthly food expenditure was for rice. Further, for 6 districts, expenditure on rice was at least half (or more) of the total food expenditure. Additional analysis indicated that, on average, most households purchased about five bags of rice a year. Thus it can be seen that even though rice is the most important agricultural crop, most small-holder households cannot produce enough to feed themselves throughout the year. For districts with high percentage of rice cultivation, percentage expenditure of rice was lower.

After rice, fish and meat accounted for the largest share of expenditure for food. Fish and meat constituted more than 10% of total expenditure for seven districts. With the exception of chickens, ownership of livestock, especially sheep, pigs and cattle was low. Hence households would have to pay for meat, milk and dairy products, thus accounting for some of the high expenditure on fish and meat across districts.

On average, palm oil accounted for 6% of a household's expenditure. Households in *Moyamba*, with 13%, had the highest share of expenditure on palm oil. Households in the East and West regions incurred a greater percentage of expenditure on palm oil than the South or the North.

For households across all districts, expenditure for medicine and medical treatment was the main non-food expenditure. Households in the *Kailahun, Pujehun* and *Tonkolili* samples had the highest share of non-food expenditure on medical expenses. In contrast households in *Bonthe* district had the lowest share of monthly expenditure on medical expenses.

The main miscellaneous or other expenses were on water, fuel, lighting, alcohol and tobacco. However in nearly all districts expenditure on alcohol or tobacco was reported as negligible. Households in the districts of *Kambia, Port Loko, Bonthe* and *Moyamba* had the highest percentage of non-food expenditure on miscellaneous/other items.

Households allocated 6-7% of their non-food expenditure on education. *Tonkolili* and *Kenema* had the highest percentage of expenditure on education while those in *Bonthe* and *Moyamba* have the lowest share of expenditure for education. Households also incurred 6–7% of their non-food expenditure on clothing. Households in *Tonkolili, Bombali* and *Kono h*ad the highest percentage of expenditure on clothing while the least was found in *Pujehun a*nd *Bo* households.

4.14 - Income and livelihood strategies

This section attempts to analyse districts based on the predominant livelihood strategies employed by rural households and the dependence of these households on various sectors. Clearly, all households earn income from a combination of very similar activities (agricultural and non-agricultural). However the degree of dependence on a particular income generating activity differs between districts. It is this factor that has been taken into account when creating the below groups. Thus while households in both *Moyamba* and *Tonkolili* undertake agricultural, non-agricultural and other activities to earn income in *Moyamba* the reliance is mainly on agriculture and petty trade (Group 3) while in *Tonkolili,* it is mainly from agriculture followed by more-or-less equal contributions from labour and other activities (Group 4).

	Group	**District**
1	Households whose livelihood is dependent mainly on agriculture	*Kailahun* *Kono* *Bonthe* *Bo* *Koinadugu*
2	Households whose livelihood is dependent mainly on non-agricultural activities	*Port Loko* *Western Rural*
3	Households whose livelihood is dependent mainly on agriculture and non-agricultural activities	*Kenema* *Kambia* *Moyamba*
4	Households whose livelihood is dependent mainly on agriculture and non-agricultural activities and other sources	*Tonkolili* *Pujehun* *Bombali*

Note: Non-Agricultural activities include: wage labour, skilled labour, small business, petty trade and mining. Other activities include sale of livestock & animal products, sale of fish, remittances and sale of firewood & charcoal

1. Districts with a majority of households whose livelihood is dependent mainly on agriculture:

- This group includes the districts of *Kailahun, Kono, Bonthe, Bo* and *Koinadugu*.
- On average 64% of a household's income in these districts was derived from agriculture. In these household's at least 80% of the adult members are involved in agriculture.
- The main crops are cassava, upland rice and palm oil. It should be noted that in *Bonthe*, less than 1% of total income is from the sale of rice (for the recent cropping season). *Bonthe* has the lowest dependence on the sale of rice for income.
- Households in this group mainly accessed land by means of inheritance or by virtue of ownership of clan or family.
- The main non-agricultural income earning activities are petty trade and remittances. However, in the districts of *Kono* and *Bonthe*, mining contributed at least 7% of income.
- With the exception of *Kono*, adults migrating from districts in this group mainly migrated to other villages outside the chiefdom to source employment.
- Except for *Bonthe*, all other districts had a low percentage expenditure on food. This is probably because households can satisfy a large portion of their food needs from their own production. For *Bonthe*, as mentioned above rice was not widely grown during the current cropping season, thus households would have to purchase almost all the rice they consume accounting for the higher expenditure on food. Thus in spite of households earning 62% of their income from agricultural activities on average 70% of a household's expenditure is on food.
- The greatest non-food expenditure is for medical expenses.
- As agriculture is intensive for households of these districts, labour is the second highest non-food expenditure for this group.
- The main cause of loss of harvest was due to damage by animals/pests (rodents and birds). Other reasons included the lack of agricultural inputs and a household member being ill and therefore being unable to work in the field.

2. Districts with a majority of households whose livelihood is dependent mainly on non-agriculture activities:

- This group includes the districts of *Port Loko* and *Western Rural*.

- Nearly half a household's income is generated from non-agricultural activities with petty trade contributing the greatest share to total income.
- Agriculture, on average, contributes 23% of total income. Agriculture contributed more in *Port Loko* (as compared to *Western Rural*) where households mainly cultivated cassava, inland and upland rice, while agricultural income in *Western Rural* households was mainly derived from cassava and vegetables.
- Nearly all of migratory population in the *Western Rural* sample is composed of men who leave the district and source temporary work in urban areas, explaining a 13% income contribution from remittances.
- The percentage contribution from wage and skilled labour, at 6%, was higher than the sample average of 3 percent.
- Households in this group mainly accessed land by virtue of ownership of clan or family and by short term rentals.
- Percentage expenditure on food was the highest for the sample as majority of households would be unable to produce enough food to meet their needs.
- Medical expenses and education accounted for the highest percentage of non-food expenses.
- The main cause for shortfall of food was damage of crops by animals (in the case of Port Loko) and illness of household member and unemployment.

3. Districts with a majority of households whose livelihood is dependent mainly on agriculture and non-agriculture activities:

- This group includes the districts of *Kenema, Kambia* and *Moyamba*. Households of these districts are dependent on both agricultural and non-agriculture activities to source their incomes and livelihoods.
- On average, half of total income was obtained from agriculture and the other half from non-agricultural activities, mainly labour.
- The main crops are upland rice, inland rice, cassava and palm oil. However though majority of the households cultivated rice, income contribution from rice sales was considerably less. This implies that households consumed most of the rice they produced.
- Petty trade, remittances and skilled labour were the most common sources of non-agricultural income. Mining contributed 18% of the total income in *Kenema* district - the highest for the sample (for mining).
- More than 10% of the income of these households was generated by various activities including sales of livestock and animal products as well as firewood and charcoal sales.
- Households in this group mainly accessed land by virtue of ownership of clan or family.
- Adults migrating from districts in this group mainly migrated to other villages outside the chiefdom to source employment except in the case of *Moyamba* where the migration was to city and towns.
- Percentage of expenditure on food items was similar to districts that sourced income from mainly agriculture. This implies that these households rely on agriculture to mainly meet their household consumption needs while earning income from non-agricultural activities.
- Medical expenses and education accounted for the highest percentage of non-food expenses.
- The main cause for shortfall of food was damage of crops by animals / pests and the lack of agricultural inputs.

4. Districts with a majority of households whose livelihood is dependent mainly on a combination of agriculture, non-agriculture and other activities:

- This group includes the districts of *Tonkolili, Pujehun* and *Bombali.* Households of these districts are dependent on a combination of agricultural, wage labour and other activities to earn income.
- Approximately 46% of a household's income is sourced from agriculture. The remaining income is sourced more or less equally from labour and other activities.
- The contribution of remittances to income is the least for this group.
- The main crops are upland rice, inland rice, cassava and groundnuts.
- The sale of livestock and animal products is an important income generating activity for many households.
- On average 24% of the income of these households was generated by other activities that include the including sales of livestock and animal products, and firewood and charcoal sales.

- Wage labour was the single non-agricultural activity that contributed the most to income. Further, the highest income contribution (in terms of percentage) from wage labour for the sample was found in *Bombali* district.
- Households in this group mainly accessed land by inheritance.
- Adults migrating from districts in this group mainly migrated to other villages outside the chiefdom to source employment.
- Households in these districts had the lowest food expenditure in the sample.
- Since households in this group tend to cultivate a larger variety of crops (most probably for home consumption), the household's food expenditure is reduced.
- Percentage of expenditure on miscellaneous non-food items was the highest in these districts.
- Other significant non-food expenditure was incurred on medical expenses, education and clothing.
- *Bombal*i district had the highest percentage expenditure on debts possibly because majority of its households undertake loans to purchase seeds.
- The main cause for shortfall of food was damage of crops by animals and illness of household member.

Section 4.15 - Meal Consumption

Three-quarters of all the adults in the sampled eat 2 meals a day while 18 % eat only one meal a day and 7% eat 3 meals. The East had the highest percentage of adults eating one meal a day (19%) while in the West this was the lowest (5%). The West had the highest percentage of adults eating 2 meals a day – 88% as compared to the sample average of 75 percent. In contrast, the South had the lowest percentage of adults eating 2 meals a day (69%). However the South had the highest percentage of adults eating 3 meals a day – 13% as compared to a sample average of 7 percent.

Meal consumption patterns of children mirrored that of adults with one important difference – the percentage of children eating one meal per day was lower and there was a corresponding higher in percentage of children eating 3 times a day as compared to adults. For the sample, 74% of the children eat two meals, 11% eat one meal and 13% eat 3 meals per day. The West had the highest percentage of children eating twice a day (82%) but the lowest percentage of children eating one or three meals. The South, with 17%, had a higher than sample average of children eating 3 meals a day. It should be noted here that *Tonkolili* district had the highest percentage of children eating 3 times a day – 36 percent.

4.16 - Household risks, shortfalls and coping strategies

Households were asked if since the end of the war, their household had at anytime suffered serious problems in producing or purchasing enough food to meet their needs. Across all districts, nearly all sampled households reported that they had at some point or the other faced a shortfall in meeting their food needs. Reasons for this shortfall varied and households were affected by a combination of factors that resulted in a shortage of food over a period of time.

In times of stress, food insecure and vulnerable households will adopt strategies that hopefully allow them to mitigate the effects of these shocks on their livelihood and food security. Coping strategies may produce short term relief but may have longer term negative effects. Often, they are categorized as being sustainable (s) or non-sustainable (ns) – meaning households are negatively affecting their tangible and non-tangible assets.

Households that reported shortfalls in their food needs were then asked to list the activities they employed to mitigate the effects of that risk (coping strategies). The results for various risks, causes of shortfalls and the coping strategies employed are presented by district below:

Kailahun
Thirty percent (30%) of the households in this district reported illness of a household member being a causal factor for shortage of food. This would result in a household being unable to maximize production of their fields or the household would be forced to hire labour (to replace the ill member) thus increasing their production costs. Similarly the security situation would result in households farming their land fewer times resulting in

loss of yields especially if security situation does not permit farming during crucial periods such as the time of harvesting or weeding. Thus households of this district were vulnerable to political, health and economic risks. A small percentage of households also mentioned lack of agricultural inputs, death of family members, loss of crops due to animals/pests and chronic illness to be factors causing shortfalls in food.
In order to minimize the effects of the above shocks, households used the following coping strategies:

- Borrow money – 100% **(ns)**
- Borrow food – 68% **(ns)**
- Petty trade – 67% **(s)**
- Sell household items – 66% **(ns)**
- Additional wage labour (local) – 62% **(s)**

Kenema
For more than 50% of the households; death, injury or illness of family members was the main shock leading to shortfalls in food production and access to food. Twenty two percent (22%) of the households also reported loss of crops mainly due to animal/pest attacks (rodents, birds and grasshoppers). Shortfalls of food production and reduced access to food were mainly caused by health and economic factors.
Strategies used by households to improve their situation included:

- Borrow money – 65% **(ns)**
- Borrow food – 59% **(ns)**
- Petty trade – 48% **(s)**
- Reduce food consumption – 22% **(ns)**
- Eat less desirable foods – 21% **(s)**

Kono
Damage of crop by animals or pests (39%), illness of a family member (37%) and price fluctuations (296%) were the main shocks affecting a household's livelihood. As nearly 30% of a household's income was derived from the sale of coffee/cocoa, any adverse price fluctuations would result in reduced returns and therefore a reduced ability of the household to purchase food. Thus households of this district were mainly vulnerable to health and economic risks.
Coping strategies employed by households were:

- Borrow money – 100% **(ns)**
- Reduce food consumption – 100% **(ns)**
- Borrow food – 91% **(ns)**
- Eat less desirable foods – 91% **(s)**
- Additional wage labour (local) – 46% **(s)**

Bombali
The lack of agricultural inputs (93%) and damage of crops by animals/pests (67%) and natural hazards (rodents, weeds) were the main reasons for shortfalls in household food production. Hence risks faced by households in this district were mainly economic in nature.
In order to minimize the effects of the above shocks, households used the following coping strategies:

- Reduce food consumption – 100% **(ns)**
- Borrow money – 100% **(ns)**
- Borrow food – 83% **(ns)**
- Additional wage labour (local) – 50% **(s)**
- Eat less desirable foods – 33% **(s)**
- Send children to work – 29% **(ns)**

Kambia
Causes affecting food production and access to food of the households in this district were similar to causal factors in Bombali. The lack of agricultural inputs and damage of crops by animals / pests (rodents) were the main reasons for shortfalls in household food production. Nineteen percent (19%) of the households also reported illness of a family

member to be a factor. Thus households of this district were vulnerable to health and economic risks.
Strategies used by households to improve their situation included:

- Borrow food – 100% **(ns)**
- Borrow money – 100% **(ns)**
- Reduce food consumption – 72% **(ns)**
- Petty trade – 53% **(s)**
- Additional wage labour (local) – 40% **(s)**

Koinadugu
The main causes of shortfall in production or access to food in households of this district were due to crop damage by animals or pests (78%), fluctuations in price (54%) and the lack of access to agricultural inputs (30%). As more than 30% of a household's income was derived from the sale of rice; any adverse price fluctuations would result in reduced returns and therefore a reduced ability of the household to purchase food.
Strategies used by households to improve their situation included:

- Borrow food – 100% **(ns)**
- Petty trade – 100% **(s)**
- Borrow money – 97% **(ns)**
- Reduce food consumption – 90% **(ns)**
- Eat less desirable foods – 32% **(s)**

Port Loko
The main causes of shortfall in production or access to food in households of this district were due to crop damage by animals or pests (84%), fluctuations in price (53%) and the lack of access to agricultural inputs (29%). Shortfalls of food production and reduced access to food were mainly related to economic factors
Coping strategies practiced by households of this district included:

- Reduce food consumption – 99% **(ns)**
- Eat less desirable foods – 73% **(s)**
- Petty trade – 69% **(s)**
- Additional wage labour (local) – 69% **(s)**
- Borrow money – 65% **(ns)**
- Sell livestock – 64% **(ns)**

Tonkolili
Damage of crop by animals or pests (87%) and illness of a family member (62%) were the main shocks affecting a household's livelihood and affecting its ability to produce and access food. Shortfalls of food production and reduced access to food were mainly caused by health and economic factors.
Coping strategies employed by households include:

- Borrow money – 81% **(ns)**
- Petty trade – 78% **(s)**
- Borrow food – 52% (ns)
- Reduce food consumption – 48% **(ns)**
- Additional wage labour (local) – 31% **(s)**

Bo
Damage of crop by animals or pests (72%), drought (43%) and lack of household labour (40%) were the three most common problems affecting livelihoods of a household. The risks to a household were mainly economic, health and natural in nature.
In order to minimize the effects of the above shocks, households used the following coping strategies:

- Eat less desirable foods – 100% **(s)**
- Reduce food consumption – 100% **(ns)**
- Borrow money – 98% **(ns)**
- Borrow food – 91% **(ns)**
- Wage labour – 75% **(s)**
- Sell livestock – 69% **(ns)**

- Petty trade – 59% **(s)**

Bonthe
The main causes of shortfall in production or access to food in households of this district were due to crop damage by animals or pests (90%), the lack of access to agricultural inputs (63%) and floods (64%).
Strategies used by households to improve their situation included:

- Eat less desirable foods – 100% **(s)**
- Reduce food consumption – 100% **(ns)**
- Borrow money – 100% **(ns)**
- Borrow food – 100% **(ns)**
- Additional wage labour – 60% **(s)**

Moyamba
The main causes of shortfall of food in households of this district were; crop losses to animals or pests (94%), the lack of agricultural inputs (86%) and the lack of household labour (54%). This would result in a household being unable to maximize production of their fields or the household would be forced to hire labour thus increasing their production costs. Households in this district mainly faced economic risks.
Coping strategies employed by households were:

- Reduce food consumption – 100% **(ns)**
- Eat less desirable foods – 100% **(s)**
- Borrow money – 100% **(ns)**
- Borrow food – 100% **(ns)**
- Additional wage labour (local) – 100% **(s)**
- Petty trade – 63% **(s)**

Pujehun
For 69% of the households death or illness of a family member was the main cause of shortfall in food produced and the household's reduced access to food. Thirty-one percent (31%) of the households also reported damage of crop by animals to be a factor. Thus households in this district mainly faced health risks.
To cope the households the following:

- Additional wage labour (local) – 100% **(s)**
- Petty trade – 100% **(s)**
- Sell household items – 97% **(ns)**
- Sell livestock – 97% **(ns)**
- Seasonal migration – 97% **(s)**
- Wage labour – 58% **(s)**

Western Rural
For 35% of the households injury or illness of a family member was the main cause of shortfalls in food production and access to food. Twenty-five percent (25%) of the households reported lack of agricultural inputs and unemployment as factors causing food shortages in their household.
In order to minimize the effects of the above shocks, households used the following coping strategies:

- Borrow money – 100% **(ns)**
- Petty trade – 100% **(s)**
- Additional wage labour (local) – 76% **(s)**
- Reduce food consumption – 63% **(ns)**
- Borrow food – 52% **(ns)**

Part V - Health and Nutrition of women and children

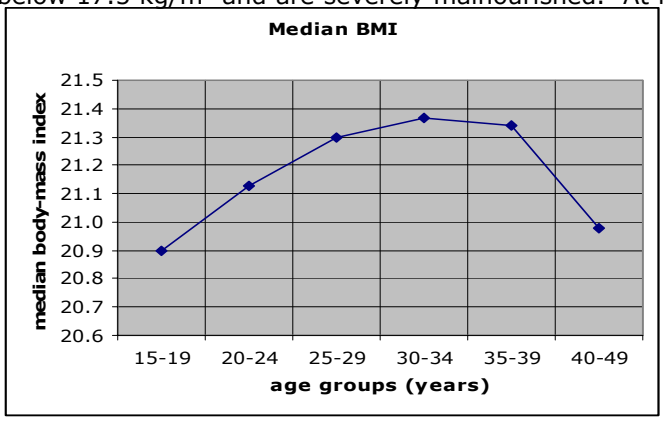
The mother and child health and nutrition module of the study included interviews with 4865 mothers/caretakers, anthropometric measurements of 4274 women of reproductive age (15-49 years) and 6332 children aged 6-59 months in rural areas and of 354 women and children in the 5 major towns of Sierra Leone (Bo Town, Freetown, Kenema Town, Koidu Town, Makedi Town). Weight was measured in kilograms using UNICEF mother-child scales while height for women was measured in centimetres by using a wall, ruler and a tape measure as no adult stadiometers were available in the country.

Section 5.1 - Maternal Health and Nutrition

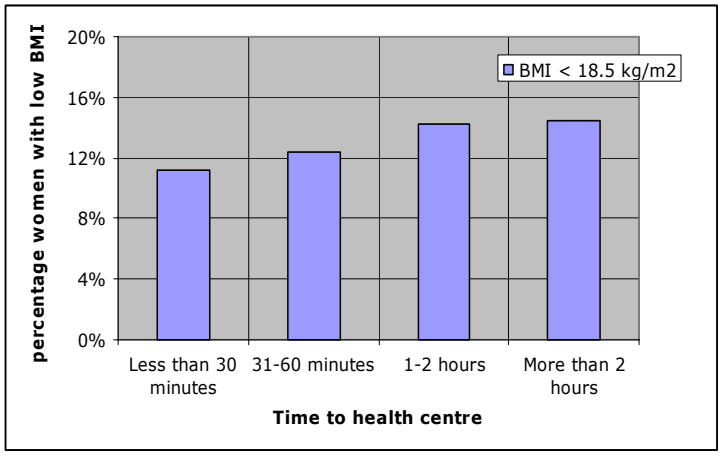
5.1.1 – Body-mass index (BMI) and malnutrition in rural women

The body-mass index was calculated for all 4274 women aged 15-49 years in the sample in the rural area. It was found that the mean BMI was 21.5 kg/m^2 *(+/- 0.1)*. When disaggregated at district level the lowest mean BMI were found in the districts of *Kenema* (20.9 kg/m^2), *Bonthe* (20.8 kg/m^2) and *Moyamba* (20.9 kg/m^2). The highest mean BMI was found among the women from *Western Rural* (22.2 kg/m^2), *Kono* (22.07 kg/m^2) and *Kailahun* (20.4 kg/m^2). In the VAM study 2003 the Western Rural also had the highest mean BMI. The chart below shows the median BMI for women by age group, indicating the lowest BMI for the age category 15-19 years.

A total of 13% of the women *(+/- 0.9)* of the women had a BMI below 18.5 kg/m^2 - 7% below 17.5 kg/m^2 and are severely malnourished. At regional level the highest prevalence of maternal malnutrition was found in the North (17%) followed by the South (13%). At district level the highest levels of malnutrition were found in *Bombali (29%), Bonthe* (23%) and *Port Loko* (17%). The prevalence of maternal malnutrition encountered is higher than the one found in the VAM study in 2003 (10%) but some of this difference could be due to a higher level of error in collecting this data in 2005. The districts with the lowest levels of maternal malnutrition were *Kono* (6%), *Tonkolili* (8%), *Pujehun* (7%) and *Kailahun* (8%).



The prevalence of maternal malnutrition is higher among women who do not have access to safe water (14.3%) than for women with access to improved sources of drinking water (11.5%). The study also indicates a correlation between malnutrition in women and the access to health services (see graph). The study did not find a correlation between illiteracy rates and maternal malnutrition - illiteracy is widespread among the women interviewed (85%), independent of their nutritional status.



5.1.2 – Body-mass index and malnutrition in urban women

The mean BMI in the urban areas was significantly higher than the one found in the rural areas with a mean of 23.0 kg/m^2 *(+/- 0.3)* and thus the level of maternal malnutrition is significantly lower in the towns compared with the rural areas. The average percentage of malnutrition is 6% *(+/- 1.3).* Freetown reported the highest maternal malnutrition rate (7.3%) and Bo and Makeni Town the lowest (< 4%). Again the study concludes that the lack of access to safe water is correlated to maternal malnutrition - 8.8% for women not using drinking water from improved sources and 5.1% for the other women. Illiteracy rates are much lower for urban women (55.6%) than for rural women (85%) but again illiteracy is not a determinant factor for the nutrition status of the women.

5.1.3 Anaemia in women

Iron is essential for the production of haemoglobin which has the primary function of transporting oxygen from the lungs to body tissues. Iron balance is determined by the body's iron stores, iron absorption, and iron loss. About two-thirds of body iron is functional iron, mostly haemoglobin within circulating red blood cells which the remaining is storage iron (ferritin and haemosiderin) which can be mobilized when needed.

- Iron deficiency anaemia is the most severe degree of iron deficiency, the result of depletion of iron stores (reduced serum ferritin) coupled with insufficient iron absorption leading to impaired haemoglobin synthesis.
- In developing countries other factors besides iron deficiency can lead to anaemia. They include: malaria and other parasitic infections, current infectious disease plus other pathologies or nutrient inadequacies that can limit haemoglobin formation.
- Iron deficiency and anaemia reduce the work capacity of individuals and entire populations, bringing serious economic consequences and obstacles to national development. To estimate iron deficiency at the global, regional, or national level, the prevalence of anaemia is used as a proxy indicator. The level of haemoglobin concentration in the blood is used as an indicator to estimate the prevalence of anaemia (see table).

Group	Categories of Anaemia			
	Total	***Mild***	***Moderate***	***Severe***
	Haemoglobin levels (g/dl)			
Adult females ≥ 15 years	<12.0	11.9 - 11.0	10.9 - 8.0	< 8.0
Pregnant Women	<11.0	10.9 - 10.0	9.9 – 7.0	< 7.0

In the survey, the haemoglobin of 1310 non-pregnant women was tested using the portable HemoCue® machine. Peripheral blood samples were collected through a finger prick (using a safety lancet). The first drop of blood was wiped away using tissue paper. The team members wore latex surgical gloves while collecting blood samples.

Using the cut-points in the above table, 66% of non-pregnant women in the sample were anaemic – 27% with mild anaemia and 39% with moderate. In addition, 176 pregnant women were tested and 74% were found to be anaemic, with 2% severely anaemic.

	Normal	Mild	Moderate	Severe
Pregnant	26.3%	23.3%	48.5%	2.0%
Non Pregnant	34.1%	26.7%	39.2%	-

The anaemia prevalence is similar to the one found in the 1998 UNICEF survey. There is an association between the haemoglobin levels and the body mass index of women. Nineteen percent of women who were moderately anaemic had low body-mass index. As far as the geographic distribution is concerned the anaemia is highest in the East (83%) followed by the North (75%) and the South (61%). The districts of *Kenema*, *Kono* and *Port Loko* are most affected. The prevalence of anaemia in the urban sample was around 78 percent.

5.1.2 – Pregnancy and antenatal care

At the time of the survey (April 2005), 11% of all women interviewed were pregnant. In the South and the North more women were pregnant (12%). At district level most pregnant women were found in *Bombali* (20%) and *Koinadugu* (14%).

Most pregnant women in rural areas do use some kind of antenatal care prior to delivery from doctor, nurse, MCH aide, village health worker, community health worker or traditional birth attendant (82%). Women in the South make least use of the antenatal care (67%). Women in the districts of *Bonthe* (40%) and *Pujehun* (38%) had the lowest reported percentages of pregnancies that received antenatal care. The highest percentages were reported in the East (96%) in the districts *Kailahun*, *Kenema* and *Kono (*96%). The use of antenatal care is widespread in the towns where 98% of pregnant women reported seeking care.

The majority of women indicated that they had received a maternal health record during pregnancy (84%). The distribution of maternal health cards is significantly lower in the North (77%) compared to the East (83%) and the South (91%). The districts with the lowest percentage of women without maternal health records are found in *Koinadugu* (60%) and *Kenema* (72%). In the towns 96% of the women reported receiving a maternal health record.

For analysis, 'skilled' antenatal care was defined as at least one visit to a doctor, nurse or MCH aide. Most rural women reported that at some stage during pregnancy they had received 'skilled' antenatal care (82%), most often from a MCH aide. Women in *Bonthe* (34%) had the lowest reported percentage of pregnancies that received skilled antenatal care, followed by *Pujehun* (36%). Women in the East were most likely to have received skilled antenatal care (87%). Nearly all urban women reported to have received 'skilled' antenatal care during pregnancy (99%).

Most rural women reported giving birth at home (76%) and with the assistance of a traditional birth attendant (63%). Home deliveries were most common in the North (87%) and least common in the East (64%). The districts of *Port Loko* (89%), *Bomba*li (94.5%) and *Koinadugu* (90%) reported the highest percentages of home deliveries. In *Bonthe, Kenema* and *Kailahun* a number of women delivered in MCH or community health centres. As indicated above most women delivered with the assistance of a traditional birth attendant. In *Moyamba* (75%) and *Port Loko* (86%) and *Bombali* (74%), the percentages of women delivering with traditional birth attendants are the highest. The percentage of women who are assisted during birth by 'skilled' personnel is 14% of the total sample. The deliveries in *Kenema* (44%) and *Bo* (34%) are most assisted by 'skilled' personnel. Many women in *Koinadugu* (31%), *Tonkoli*i (19%) *Bombali* (15%) and *Kambia* (13%) indicated that friends and/or relatives assisted the delivery. In urban settlements 60% of the children are born at home and 23% are born in the hospital. In the towns all women are assisted during the delivery by 'skilled' personnel (97%).

The large majority of the rural pregnant women take iron tablets (92%). The iron tablets are generally obtained through the health facilities. This percentage is much higher than the percentage reported in the 2003 study (44%). In the North (86%) and in the district of *Koinadugu* (68%) the iron tablets are least likely to be used during pregnancy. Most pregnant women obtain the tablets from the health centres, in *Moyamba* and *Kenema* tablets are also provided through the outreach clinics (14% and 6% respectively). In urban settings 99% of pregnant women take iron tablets. For 88% of these women, tablets are obtained through the health facilities and 10% purchase from the pharmacy.

On the other hand only 37% of the rural pregnant women take pills against worms. In the East the percentage of pregnant women consuming pills for worms is 30 percent. At a more disaggregated level the districts with the lowest percentages of pregnant women taking de-worming pills are *Kailahun (*14%), *Kenema* (28%), *Koinadugu* (23%), and *Bonthe (*23%). In the towns 60% of the pregnant women take de-worming tablets.

Malaria pills are taken by 63% of the rural pregnant women. In the North only half of the women take malaria pills, whereas 72% in the East consume them. The highest percentages are found in *Kailahun* (81%*), Kono* (78%), *Bonthe* (74%) and *Pujehun* (76%). The districts with the lowest preventive measures for malaria are *Bombali (54%), Port Loko (54%), Kambia (46%*) and *Koinadugu* (47%). Pregnant women in urban areas are more likely to use anti-malarial drugs (89%).

In the sample, rural women received at least 1 tetanus toxoid injection in 85% of the pregnancies. The percentage is higher than the percentage report in 2003 (75%). The

only exception is found in *Koinadugu* district where only 52% of the women received TT immunization. In urban areas tetanus toxoid immunization during pregnancy is more common (96%).

Impregnated mosquito nets are not well utilized in rural areas (less than 20% of the women). There is a difference between the uses of impregnated nets between the regions where women in the South are more likely to sleep under impregnated nets (30%) while only 16% of the women in the North/East reported using them. Impregnated nets are hardly used in the districts of *Bombali* (8%)*, Kambia* (6%)*, Koinadugu* (10%) and *Western Rural* (10%). In *Bonthe* (44%) *and Pujehun* (34%), pregnant women reported the use of impregnated nets. In urban areas only 14% of the pregnant women indicate the use of impregnated bed nets.

Less than a quarter of the women received vitamin A within 6 weeks of delivery. The districts with the best vitamin A distributions are *Tonkolili* (46%), *Koinadugu* (22%) and *Pujehun* (34%). In urban areas 40% of the women have received vitamin A after delivery.

Food consumption changes significantly during pregnancy. Over 71% of the rural women report to increase the consumption of green leafy vegetables. Also cassava, rice, groundnut and to a lesser extent meat and fish consumption increase during pregnancy. On the other hand, the milk and egg consumption is reduced and often not consumed at all. The latter is less common in *Western Rural*, *Tonkolili* and *Kambia* districts.

When asked whether women should work less, more, or the same during pregnancy, 50% of both rural and urban women indicated that pregnant women should work less, 33% said more and 18% thought there should be no difference in workloads. Women in *Bombali*, *Moyamba* and *Port Loko* were most likely to indicate that pregnant women should work more.

5.1.3 - Diarrhoea, water and sanitation

The survey collected information on the prevalence of diarrhoea among the women and on the household's main source of drinking water during rainy and dry season as well as type of toilet facility. The definitions for good sanitation and use of drinking water from improved sources are taken from the UNICEF definitions similar to the study in 2003.

Two-week period prevalence of diarrhoea among the rural and urban women is as high as 21 percent. Women in the North (26%) were more likely to have experienced at least one episode of recent diarrhoea than those from the East (20%) and the South (14%). Around 30% of the women in the districts *Port Loko, Kambia* and *Tonkolili* are all reported recent diarrhoea. *Bonthe* (15%)*, Moyamba* (14%)*, Pujehun* (13%) and *Western Rural* (17%) are less affected.

Safe water and sanitation sources remain scarce in rural areas in most of the districts. On average 40% of the households reported access to drinking water from an improved source and only 8% to a safe sanitation source. Nearly 80% of the households in Rural Western region were using water from improved sources as compared to only 47% in the East, 38% in the South and 31% in the North. Generally households do not treat water before use (99%). In urban settings access to safe water sources is much higher where 83% of the households reported access to drinking water from an improved source. More than half the households in the Western sample had good sanitation while it was virtually non-existent in the other regions, especially in the East where only 1% of the households were using sanitary means of excreta disposal.

The prevalence of diarrhoea is significantly higher *($p < 0.001$)* among women who do not have access to drinking water from improved sources (22% compared to 18%). This relationship was not found for similar variables like good sanitation and diarrhoea or good sanitation/safe water and diarrhoea.

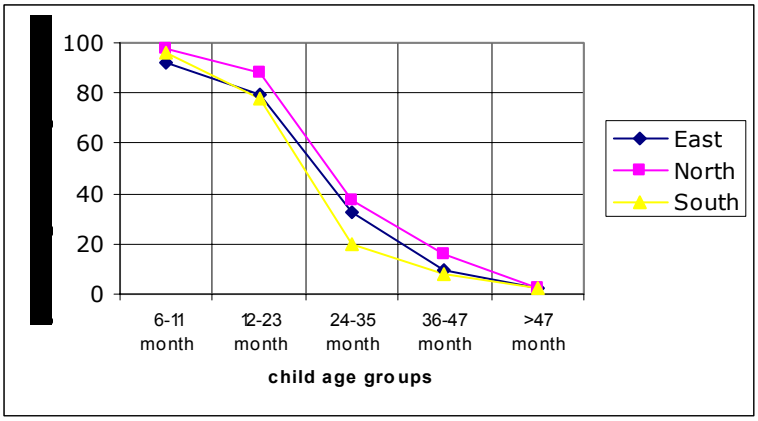
Section 5.2 - Child health and nutrition[1]

5.2.1 - Breastfeeding and weaning practices

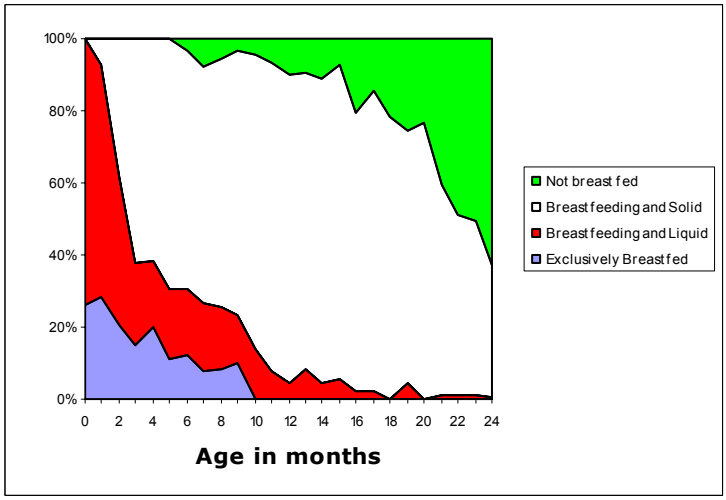
For each child in the survey, information was collected on breastfeeding initiation, duration and weaning practices. Nearly all rural children in the East and the South were put on the breast within 12 hours after birth. In the North however 23% were not breastfed until at least 24 hours after birth. The best breast feeding initiation practices were found in *Kono* and *Pujehun* where the highest percentages of children were put on the breast immediately after birth. The districts with the highest percentages of children breastfed 24 hours after birth are *Koinadugu* (42%), *Tonkolili* (14%) and *Kambia* (14%). In the towns only 12% of the children are put on the breast 24 hours after being born.

Most women indicated that they had given the colostrum to their child (77% in rural and 90.7%). However, it is noted that in *Kailahun* and *Bonthe* only 40% and 50% of the children received colostrum respectively. A large number of mothers in both urban and rural areas indicated that they ***had*** given water before the first milk. This not a recommended practice but is reported more often in the North (74%) and least in the East (30%). A large number of infants in the districts in *Kambi*a and *Koinadugu, Port Loko, Moyamba* and *Western Rural* had first received water and than milk.

Nearly all children less than 12 months in all regions were breastfed at the time of the survey (98% in both rural and urban samples). On average children are breasted for 21 months in rural areas and for 19 months in the towns. Breastfeeding continues longer in the North (average 23 months) and in *Koinadugu* (26 months), in *Bombali* (25 months) and in *Port Loko* (23 months).



Weaning practices seem to have improved compared to 2003. However, it is noted that many mothers still do not follow the recommended weaning practices, i.e. 4 months of exclusive breast-feeding and introduction of liquids/solid foods after 4 months. Although exclusive breastfeeding has become more common practice still 75% of the newborns are not exclusively breastfed (95% in VAM study 2003). For the children < 6 months, breast-feeding with other liquids is very common and solid foods are introduced as early as 2 months. The districts with the worst weaning practices are *Kenema, Koinadugu, Port Loko, Kambia, Kono, Bo and Moyamba*. Weaning practices in the towns are better than in the rural areas where fewer mothers reported the introduction of solid foods before the age of 4 months.

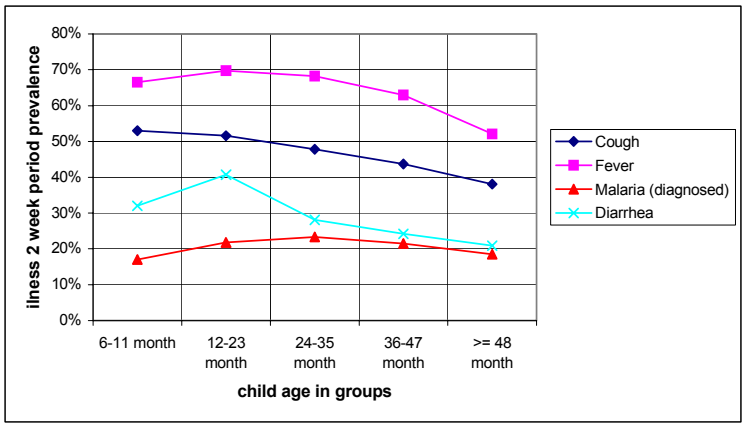


[1] Analysis of anthropometric measurements among children aged less than 59 months is under revision and will be published soon.

5.2.2 - Recent child morbidity

The mothers/caretakers were asked whether the children had experienced illnesses in the past two weeks. Overall 47% of the rural children had been coughing, 63% had a non-specific fever in the past few weeks, 20% had suffered from malaria and 30% had experienced an episode of diarrhoea. These prevalence rates are very similar to the ones found in the VAM survey conducted in 2003. Morbidity levels in towns are higher: 87% of children had been ill with a cough, 74% with unspecified fever, 47% with malaria and 37% experienced at least one episode of diarrhoea in the previous two weeks. .

When comparing regions, the morbidity rates in the North are significantly higher than the rates reported from the South and the East *(p< 0.05)*. In the North 39% of the children had suffered from diarrhoea, 58% had experienced cough, 72% reported fever and 24% malaria. Also in the North 11% of the children had reported problems with fast breathing (i.e. acute respiratory infection), this illness was not reported in the other regions. *Kono, Kambia, Port Loko, Tonkolili* and to a lesser extent *Bo* and *Pujehun* are districts with high morbidity rates. While suffering from diarrhoea only 57% of the mothers/caretakers give the child more to drink. These percentages are extremely low in *Bombali* (11%), *Kenema* (9%), and *Bonthe* (24%) districts.



The prevalence of any illness was found most common in the youngest age groups (i.e. children 6-11 months and 12-23 months). Children in these age groups are in the weaning period and considered more vulnerable due to bad weaning practices and related high morbidity rates. Generally acute malnutrition rates are highest among children aged 12-23 months (see graph representing rural children and morbidity according to age class).

5.2.3 - Child anaemia

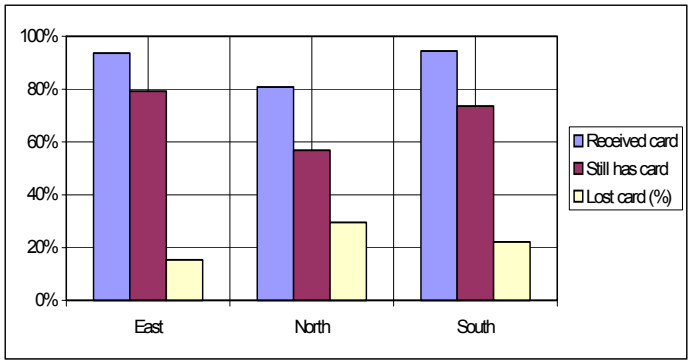
The haemoglobin levels of all children were tested for anaemia using the portable Hemocue® machines. The following table shows the results of the survey. The table also indicates the cut off points used. In general the child anaemia prevalence rate was high - in rural areas 75.4% of tested children had a haemoglobin level less than 11.0 g/dl while in urban areas the iron deficiency prevalence was 68.2 percent. The majority of these children suffered from moderate anaemia; none of the children demonstrated severe anaemia in the rural areas. The anaemia levels in the North are much higher than the ones in the South and East. At district level, children in the *Kailahun* (81%), *Kambia* (76%), *Koinadugu* (86%), *Port Loko* (82%) *and Tonkolili* (81%) districts had the highest prevalence of anaemia.

Categories of Anaemia (Children 6 - 59 months)

	Normal (>=11.0)	***Mild*** (10.0-10.9)	***Moderate*** (7.0-9.9)	***Severe*** (< 7.0)
East	24.5%	30.4%	45.1%	0
North	19.3%	26.6%	54.0%	0
South	35.5%	26.8%	37.8%	0
Total Rural	***26.6%***	***27.9%***	***45.5%***	***0***
Urban	***31.8%***	***24.9%***	***40.2%***	***3.2%***

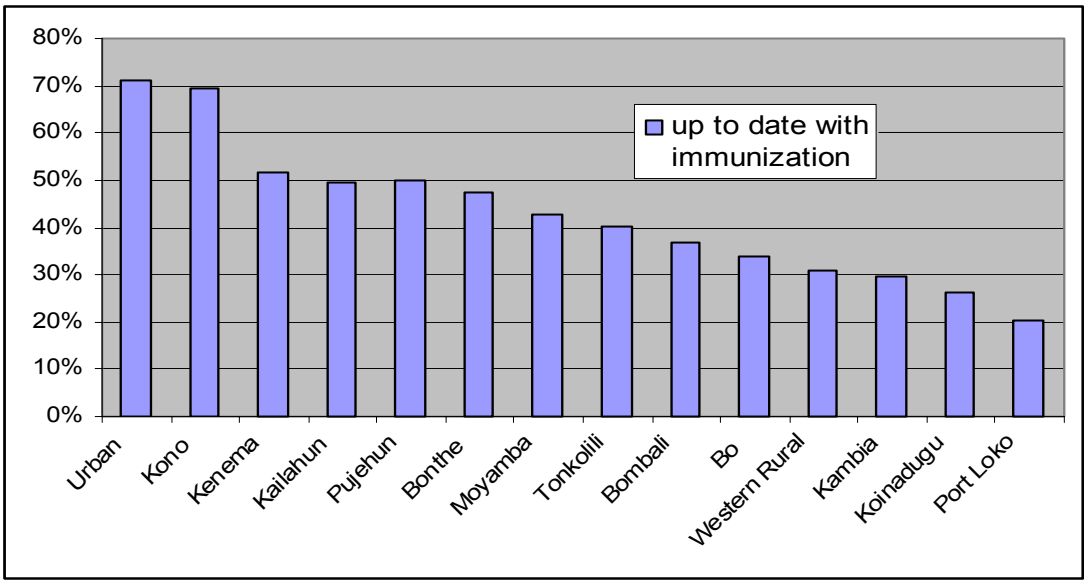
5.2.4 - Child growth monitoring and immunization

During the study the mothers/caretakers were asked whether they had been given a growth card for the child and if so whether they still had the card. The chart shows that most women in the South and East had received a growth monitoring card. The distribution of the cards is less common in the North. On average 20% of the women declared that they no longer had the card. When comparing the regions more cards were



lost in the North than in the South and the East. The majority of the women with cards knew that the card was used to monitor the growth of the child. In the towns all mothers have a growth card for their children.

For each child in the survey, information was collected on child immunization (i.e. child immunization up to date according to age of child). On average, immunization levels are low, only 41% of the rural children had an up to date immunization record. The lowest immunization levels are encountered in the North (30%), followed by the South (43%) and the East (57%). Disaggregated at district level the districts *Kono, Kenema, Kailahun*, and *Pujehun* noted the best immunization practices. *Kambia, Koinadugu* and *Port Loko* are presenting the lowest immunization rates. The immunization levels in the towns are much higher (71%).



Part VI - Household food security profiling

To develop Household Food Security Profiles, information on dietary diversity and the consumption frequency of staples and non-staple food was collected at the household level.

Section 6.1 - Food Access: frequency of consumption and dietary diversity

The number of different foods from different food groups, consumed in a household reflects the dietary diversity and it provides a measure of the quality of the household diet. The variety of foods/food groups consumed by household members is a good proxy indicator of household food security and research has demonstrated that dietary diversity is highly correlated with caloric and protein adequacy, percentage of protein from animal sources (high quality protein) and household income.

In the field of nutrition different food items are divided into a number of "food groups", of which a combination should be consumed on a daily basis to ensure a healthy diet. These key food groups are: cereals, legumes and oilseeds, tubers and roots, vegetables and fruit, animal products, oil and fats.

In order to classify the sampled households on the basis of their actual weekly food consumption and dietary diversity, the analysis used the information on the frequency of consumption (0 to 7 days) for fourteen food items or food groups:

1. **Rice**
2. **Cassava**
3. **Gari**
4. **Sweet potatoes/other tubers**
5. **Bulgur**
6. **CSB (fortified blended food)**
7. **Vegetables, cassava/potato leaves**
8. **Groundnuts/pulses**
9. **Fish**
10. **Meat (chicken, beef, bush meat, etc.)**
11. **Palm oil/other oils or fats**
12. **Eggs**
13. **Milk**
14. **Fruits & bush crops**

Because there is the need to analyze several variables simultaneously, specific multivariate statistical techniques have been used, mainly principal component analysis (PCA) followed by cluster analysis[1].

The aim of the analysis is to cluster together households that share a particular consumption pattern. The advantage of running a cluster analysis on principal components and not on the original variables is that we cluster on relationship among variables. Usually one of the main purposes of PCA is to reduce the dimensionality of the dataset removing principal components that have little explanatory power. The main purpose of PCA in WFP-VAM analyses is to describe households on the basis of the relationships among selected variables. Data reduction is a secondary objective.

PCA was run on the frequency of consumption of the above mentioned food items. However, CSB, eggs and milk were considered as supplementary variables, i.e. variables that are not considered for building the principal components, due to the very low percentage of households that consumed those items.

Under that approach, cluster analysis was run on the base of 9 principal components obtained by PCA. Those 9 new variables maintain 90% of the variance of the original dataset. Such a high level of consistency with the original complexity of the dataset ensures a good reflection of the relationships among variables. In other words, cluster analysis will group together households that have a similar relationship among the food consumption indicators as expressed in the principal components.

[1] The software used for multivariate analyses is ADDATI 5.3c, developed by Silvio Griguolo, IUAV Venice, Italy, freely available at http://cidoc.iuav.it/~silvio/addati_en.html

There are several different methods and algorithms that can be used to cluster statistical units (in our case, households) and the number of clusters produced will vary depending on the type of clustering method used. The algorithm developed in ADDATI implies random selection of initial centres (100 different partitions were asked to the software) using the non-hierarchical clustering method of Diday's dynamical clouds[2]. The best two partitions were cross-tabulated to create stable clusters, i.e. groups of households that consistently group together.

Based on this methodology, 8 distinct groups of households were mathematically identified being characterized by their different food consumption patterns.

A food security interpretation of this mathematical result led to a grouping of 4 clusters where households present good level of food access through different dietary patterns. Under this point of view, five homogeneous groups emerged with distinctly different patterns of household food access:

1. Poor food consumption (worst access to food);
2. Borderline food consumption;
3. Adequate with low diversity (few items);
4. Fairly good food consumption (due to free food access);
5. Good food consumption (different dietary patterns).

Section 6.2 - Household food consumption groups

Detailed descriptions of the households in the five (5) food consumption typologies are presented in the following sub-sections.

Poor food consumption - worst access to food – 11%

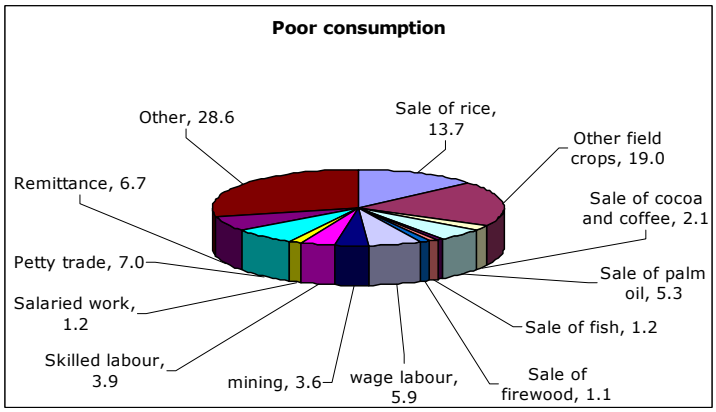
Households clustered in this group have poor food consumption and low dietary diversity. They seem to have problems in accessing food both in terms of frequency and of diversity. Rice is consumed more frequently even but not daily. Households eat cassava two to three times per week in order to complement their weekly staple consumption. Vegetables (including leaves), fish and oils are consumed only sometimes, enhancing the quality of the diet. However, their frequency of consumption is not likely high enough to provide the minimum protein and micronutrient requirements.

Adults consume one meal per day in one-third of these households while children consume one meal in 29% of households in the group. These figures are by far the highest across the different food consumption groups. The percentage of adults eating one meal per day is almost double the figure for the entire sample (18%) while the figure regarding children eating only one meal is almost three times the sample average of 11 percent.

11%	**0-1 days/week**	**2-3 days/week**	**4-5 days/week**	**6-7 days/week**
Rice				
Cassava				
Gari				
Tubers				
Bulgur				
CSB				
Vegetables				
Groundnuts/pulses				
Fish				
Oils/Fats				
Eggs				
Milk				
Meat				
Fruit				

[2] Proposed by Erwin Diday in 1971.

Analysis of income sources shows that sales of other field crops contributes nearly 20% to total income and is one of their most important sources of revenue among these households. Rice sales, which contributes nearly 14% of total income is relatively more important for this group than for the other household clusters. These households rely also on remittances (nearly 7%) and on wage labour (6%) much more than households in other groups. 'Other' sources appear to be important income earning activities for these households, accounting for nearly 30% of their total revenue, but it was not possible to determine these particular activities within this analysis.

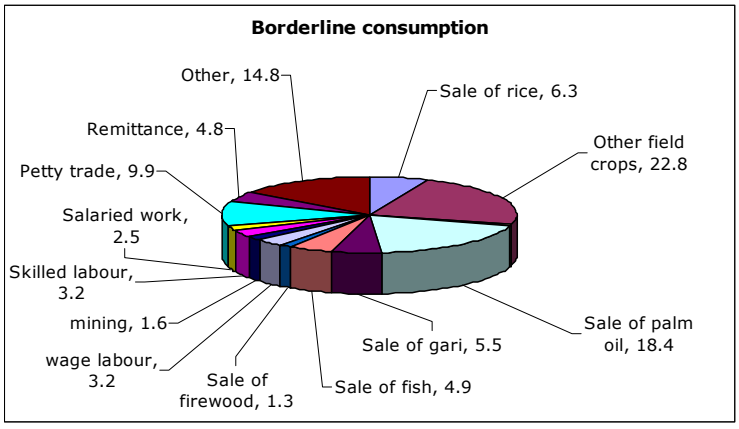


Borderline food consumption – 17%

Households clustered into this group present a diet based on a combined consumption of cassava and rice as staple foods as well as daily consumption of fish and oil/fats. Vegetables are consumed 4 to 5 days per week on average. From a conservative point of view, households in this cluster manage to eat items from the basic food groups - cereals/tubers, fats, animal products and vegetables. In other words, they probably just manage to meet their nutritional requirements. If any shock or event were to affect these households, there is the likelihood that they might shift towards a worse food consumption pattern, depending on their ability to cope.

17%	0-1 days/week	2-3 days/week	4-5 days/week	6-7 days/week
Rice				
Cassava				
Gari				
Tubers				
Bulgur				
CSB				
Vegetables				
Groundnuts/pulses				
Fish				
Oils/Fats				
Eggs				
Milk				
Meat				
Fruit				

Households in this cluster derive a large part of their income from sales of other field crops and the sale of palm oil. On average, these two activities account together for more than 40% of their total income. This information might indicate that these households are farmers which grow crops but have to sell them in order to have access to other basic needs. Having to adopt such a livelihood strategy, they tend to reduce the quality of their diet and sometimes also the quantity of food intake as well.

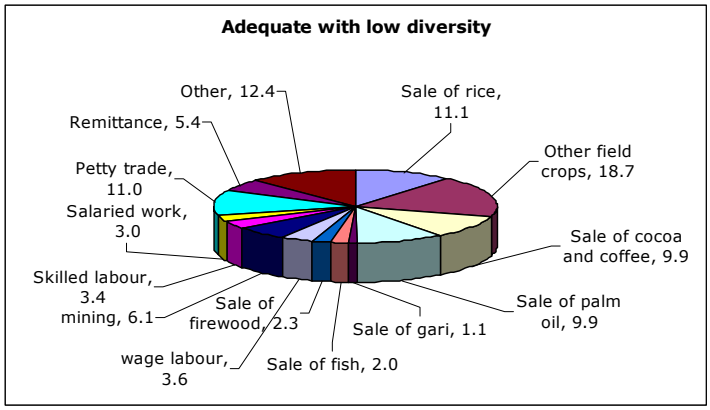


Adequate with low diversity (regular consumption based on few items only) – 34%

The largest cluster is composed of 34% of the surveyed households. They present a dietary pattern based on daily consumption of staple foods which include rice, vegetables, fish and oils/fats. Groundnuts and/or pulses are consumed frequently, on average 4-5 days per week, while cassava is eaten two days per week. The food consumption of these households seems to indicate their food access is regular in terms of frequency; it may be adequate in terms of macronutrients and probably also of micronutrient. Nevertheless, their dietary diversity is quite low, which might lead to some specific micronutrient deficiencies but this is impossible to detect through this kind of analysis.

34%	0-1 days/week	2-3 days/week	4-5 days/week	6-7 days/week
Rice				
Cassava				
Gari				
Tubers				
Bulgur				
CSB				
Vegetables				
Groundnuts/pulses				
Fish				
Oils/Fats				
Eggs				
Milk				
Meat				
Fruit				

While the greatest contribution to total income is from the sales of field crops other than rice (18.7%), the sale of cocoa and coffee appear to be very important as source of revenue among these households and it is the activity that differentiates them from the other food consumption groups. Money earned from cocoa and coffee accounts for 10% of their income, compared to an average between 1 and 5% among households in the other clusters. Other important income contributions for these households come from rice sales, petty trade and the sales of palm oil.



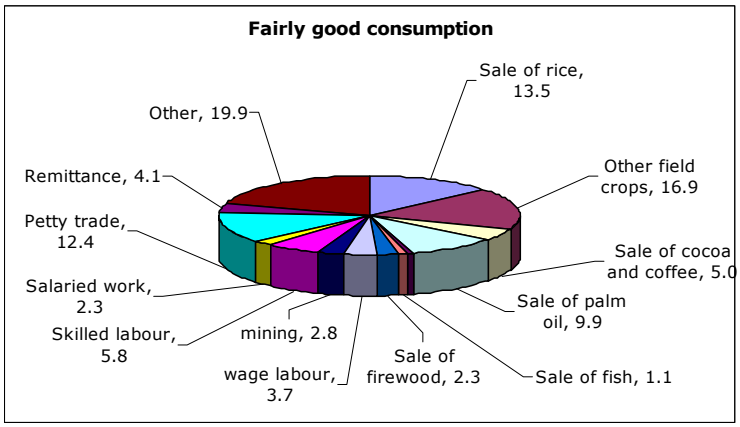
Fairly good food consumption (due to free food access) – 7%

Seven percent of the sampled households present a fairly good food access as indicated by the frequency of consumption of staple items and the diversification of their diet. While just rice and oils/fats are eaten daily, vegetables, groundnuts and/or pulses, fish, fruit and/or bush crops are consumed frequently. Cassava is eaten twice a week on average. Meat is consumed by most households just one day per week.

7%	0-1 days/week	2-3 days/week	4-5 days/week	6-7 days/week
Rice				
Cassava				
Gari				
Tubers				
Bulgur				
CSB				
Vegetables				
Groundnuts/pulses				
Fish				
Oils/Fats				
Eggs				
Milk				
Meat				
Fruit				

This good food consumption group has been considered separately from the following groups because they manage to enhance their diet with food items that are usually available 'for free', like fruit or bush crops. So, if their diet is surely good from a nutritional point of view, from a food security or a socio-economic analysis they might be less able to improve their diet if they have to access some of their non-staple foods through own production or purchase. Of course, from a food security point of view, it has to be pointed out they have access to natural food resources.

Nearly half of their income is from sales of agricultural products, namely rice and other field crops, palm oil and cocoa/coffee. They also obtain a substantial part of their income from 'other' sources and also from petty trade. While most of the income is earned from agriculture as for the other groups, these households present a higher than average share of income from skilled labour, accounting for nearly 6% of their total average income.



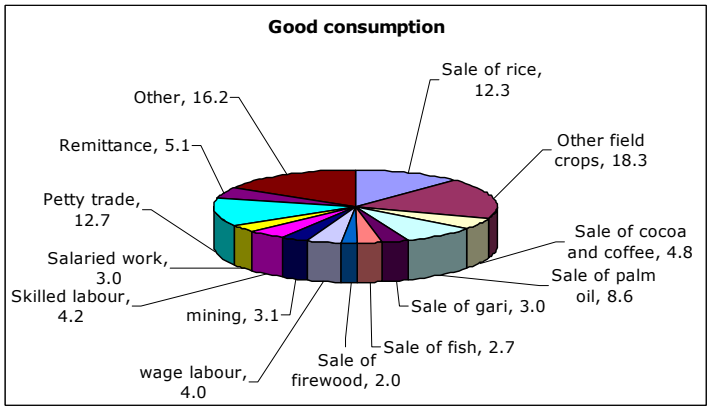
Good food consumption (different dietary patterns) – 31%

Thirty-one percent of the sample demonstrates good food consumption patterns on a regular basis. This large percentage has clustered together four sub-groups in which households have been divided according to the four main consumption patterns.

- Households in the first sub-group tend to eat rice and meat daily, with frequent consumption of vegetables, groundnuts or pulses, fish and oil/fats. They also eat cassava and fruit 3-4 times per week.
- The second sub-group bases their carbohydrates/starch intake on a seven-day rice consumption complemented by frequent consumption of cassava and other tubers. They hardly eat meat but rather they consume fish every day. Vegetables and groundnuts or pulses are eaten 5 days per week on average, while oil is consumed on a daily basis.
- Households in the third sub-group have daily consumption of bulgur, vegetables, fish and oil. Rice and cassava are eaten 4-5 days per week, while groundnuts or pulses just 3 days in a week.
- Households in the last sub-group consume rice, oil and fish every day, gari, vegetables and groundnuts or pulses five days per week and cassava 3 days per week cassava.

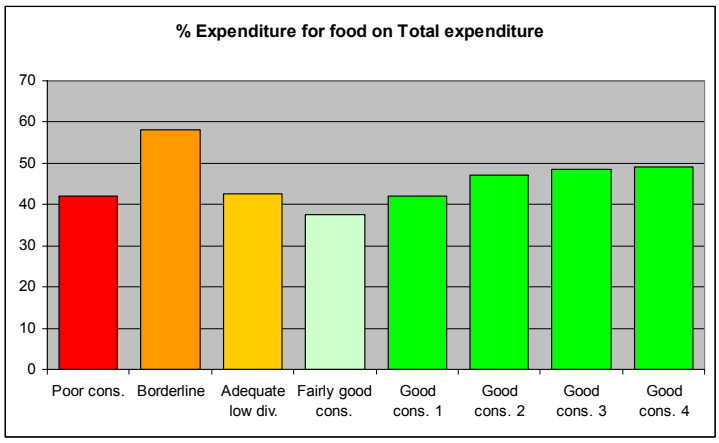
Generally, all these diet patterns appear to be good in terms of frequency (quantity) and of diversity (quality).

On average, activities related to agriculture provide the largest shares of income among these households. In addition, for a small number of households petty trade and salaried work are providing a quite important share of their income (up to 20% of the total for households in the fourth sub-group).



Section 6.3 - Expenditure analysis

Data on expenditure have been collected in order to gain an idea on the way households access their food, in particular regarding purchase versus own production.



Households with borderline food consumption present the highest share of food expenditure compared to households belonging to other consumption groups. This should indicate that these households access at least part of their food through purchase and that this way of accessing food is particularly costly for those households.

On the other hand, the group with the lowest share of expenditure for food is the one where households manage to have a fairly good food consumption improving their diet with fruit and bush crops which are usually acquired without cost.

Section 6.4 - Geographic distribution of household food consumption groups

The next stage of analysis aims to investigate the geographic distribution of the various types of households across the country. The following table was produced, showing the percentage of households in each food consumption group, by district.

	Poor cons.	Borderline	Adequate low diversity	Fairly good cons.	Good consumption			
					1 – Meat	2 – Cassava & tubers	3 – bulgur & cassava	4 – gari & cassava
Kailahun	7%	2%	34%	19%	7%	19%	7%	6%
Kenema	15%	3%	58%	3%	3%	5%	14%	1%
Kono	4%	0%	66%	1%	5%	20%	2%	1%
Bombali	50%	4%	17%	15%	3%	7%	1%	2%
Kambia	8%	4%	48%	3%	5%	10%	2%	20%
Koinadugu	28%	3%	37%	18%	9%	4%	2%	0%
Port Loko	3%	8%	14%	6%	2%	30%	8%	29%
Tonkolili	10%	10%	37%	8%	5%	13%	13%	4%
Bo	2%	30%	45%	4%	6%	4%	7%	2%
Bonthe	1%	89%	7%	0%	1%	0%	1%	2%
Moyamba	8%	55%	22%	1%	1%	6%	1%	5%
Pujehun	8%	22%	10%	3%	2%	1%	53%	1%
Western Rural	2%	2%	37%	6%	3%	7%	3%	40%

Exactly half the households in the *Bombali* sample are in the poor consumption group, indicating that there could be a serious problem of accessing food for households in that district. *Koinadugu* and *Kenema* present relatively high percentages of households having poor food consumption, scoring the second and third higher percentage of households in that category. The largest household group represented in both the districts is the 'adequate food consumption but low diversity', which accounts for 37% of all the sample households in *Koinadugu* and for 58% in *Kenema.*

Bonthe district should be carefully monitored since nearly 90% of sampled households in that district have been found having borderline food consumption. In addition, more than half the households in the Moyamba sample also had borderline food consumption.

Section 6.5 - Creating District-level Food security typologies

The percentage of households within each food consumption categories provides the basis for understanding predominant levels of food availability and access for the sampled households in each district.

The prevalence of maternal malnutrition, percentage of households using water from improved sources and percentage of households with improved sanitation was calculated for each district and has been assumed as proxies of the level of food utilization in the sample. This information was compiled together in the following table.

	Food access & availability					Food utilization		
	Poor consumption	Borderline	Adequate low diversity	Fairly good consumption	Good consumption	% of women with low BMI	% HH using water from improved sources	% HH with improved sanitation
Kailahun	7%	2%	34%	19%	38%	8%	66%	2%
Kenema	15%	3%	58%	3%	22%	15%	32%	1%
Kono	4%	0%	66%	1%	28%	6%	41%	0
Bombali	50%	4%	17%	15%	14%	29%	36%	0
Kambia	8%	4%	48%	3%	37%	12%	27%	0
Koinadugu	28%	3%	37%	18%	15%	12%	33%	2%
Port Loko	3%	8%	14%	6%	69%	17%	35%	10%
Tonkolili	10%	10%	37%	8%	35%	8%	26%	20%
Bo	2%	30%	45%	4%	20%	10%	58%	21%
Bonthe	1%	89%	7%	0%	3%	23%	36%	0
Moyamba	8%	55%	22%	1%	14%	13%	18%	0
Pujehun	8%	22%	10%	3%	57%	7%	40%	6%
Western Rural	2%	2%	37%	6%	53%	11%	77%	56%

Part VII - Conclusions and Recommendations

Today Sierra Leone is firmly on the path to development and recovery. Thanks to the efforts of the Government, international organizations, NGOs and humanitarian agencies the country is undergoing a transformation from a country ravaged by war, strife and insecurity to becoming a food secure and food sustainable nation. It is heartening to note that progress has been made in the agriculture and food security since 2003. However more efforts need to be undertaken to ensure that this recovery progress is maintained and supported and that commitment by all concerned bodies remains as strong as ever in order to achieve the goals of food security for all by 2007.

The Government of Sierra Leone has expressed strong commitment to reducing poverty and achieving food security in the country within the short to medium term. This is manifested in the Sierra Leone PRSP, which has food security as one of its key pillars. This report has attempted to furnish the concerned agencies with specific information on agriculture and non-agriculture indices. The relevant information has also been collated in easily accessible district level and also by topic. Hopefully the findings from this study can be used to improve and streamline existing development projects and to also create and implement new more efficient and effective programs. Finally there is an urgent need for a national food security monitoring system in the country and this study can provide a baseline for this system.

Section 7.1 - Food production

Upland rice, cassava, inland rice, oil palm and groundnuts are the most important crops grown by rural farmers in Sierra Leone. On average 55% of the households in the South, East and Northern parts of the country cultivate upland rice. The East region had a higher percentage of farmers cultivating upland rice than any other region. Similar to the situation described in the 2003 WFP-VAM report, households across the country cultivate cassava but with a greater intensity by farmers in the southern districts.

Farmers across the country reported crop losses due to pests as being one of the main reasons for loss of harvest and food shortages. While the types of crop pests and percentage of households affected by a particular pest varied between districts it is clear that the main pest affecting crops are rodents (grasscutters). While rodent damage was extensive throughout the country, districts in the North were particularly affected. The loss to farmers due to rodents would occur not only to the standing crop in the field but also to the harvested grain/produce in storage. Farmers mainly use cultural methods to protect their crops but clearly these are not adequate.

Overall, upland soil quality is poor as compared to inland soils (thus affecting yields of upland rice). In particular, *Port Loko* has been recorded to have poor soils. Rice blast, chlorosis and smut have also caused damage to rice crops in various districts. Pests like rats, grasscutters and grasshoppers have been reported across all districts. All of these factors are interlinked with the lack of agricultural inputs such as fertilizers, herbicides and pesticides. Most farmers are unable to improve the fertility of their soils or protect their crops as agrochemicals are either not available or if available are prohibitively expensive.

Land was most commonly accessed by inheritance, by virtue of ownership of family or clan and/or by the permission of the chief. It is reasonable to assume that families that accessed the bulk of their land by inheritance or outright ownership were better off than families that had land allotted to them. For households accessing land given to them by the clan or by the chief; size, quality and fertility of the land would be dependent on the household's social standing within the family and clan and on various social factors. This once again highlights the urgent need for households to be able to access basic agricultural inputs.

Three-quarters of the households reported paying for brushing labour. Weeding (58%) and harvesting (45%) were the next common activities for which households hired labour. Nearly 80% of all households paid for labour for any of the three activities. In other words nearly 80% of the household's incurred some agricultural production costs in the form of labour wages. Also, illness of a household member severely affects the household's ability to maximise production from their land or to source income through labour. In case of

severe illness of a household head the family is forced to pay for their labour hence increasing their production costs.

The above factors result in loss of harvest and adversely affect agricultural production. Thus many households are unable to maximise their production and continue to practise subsistence farming.

Section 7.2 - Food access

Reduced agricultural production due to a combination of various factors subsequently affects availability and accessibility of staple foods.

Increasing prices are the most obvious negative effects of lowered production. For rice, families that practise subsistence agriculture are unable to produce enough to last until the next harvest. High prices ensure that they would not be able to access the quantities required resulting in a food insecure household. The lack of access to food markets results in further lowering a household's access to food. Markets were either too far or were open only periodically for most communities. A total of 137 communities across the country reported seasonal problems of accessing their village by road. Of these communities, more than 60% reported that they were inaccessible by road for 3 to 6 months in a year.

While access and availability of food is low for many households, the most crucial time for the household with respect to food security is the hunger gap period of June to September. It was seen that sizeable portions of the population were unable to access or purchase food during the hunger gap period. On average, more than 80% of the sampled communities felt that the market availability of one or more of staple food items (rice, cassava, fish, palm oil and plantains) was insufficient during the months of June and September. Households in *Bonthe*, *Port Loko* and *Moyamba* reported the highest share of total monthly expenditure on food.

Section 7.3 - Food utilization

The utilization of a food by a household is dependent on various factors such as access to and quality of health care, safe water and sanitation. Malaria is the main health problem in the country (similar to the finding reported in the 2003 WFP-VAM report). Diarrhoea, cholera and hernia are the other common problems. In the 2005 study, the prevalence of maternal malnutrition (13%) is higher than that found in the VAM study in 2003 (10%). Access to drinking water from improved sources is lowest in the North where only 31% but best in the West (77%). Hardly any rural households were using safe sanitation except in the Western Rural region (56%).

Improvements in child and maternal health care, improved access to safe water and improved sanitation increases in access and availability of food combined with measures taken to increase production – should lead to increases in nutritional and food security of the rural households of Sierra Leone.

Section 7.4 - Household food security profiling

The number of different foods from different food groups, consumed in a household reflects the dietary diversity and it provides a measure of the quality of the household diet. The variety of foods/food groups consumed by household members is a good proxy indicator of household food security and research has demonstrated that dietary diversity is highly correlated with caloric and protein adequacy, percentage of protein from animal sources (high quality protein) and household income.

In order to classify the sampled households on the basis of their actual weekly food consumption and dietary diversity, the analysis used the information on the frequency of consumption (0 to 7 days) for fourteen food items or food groups. Because there is the need to analyze several variables simultaneously, specific multivariate statistical techniques have been used, mainly principal component analysis (PCA) followed by cluster

analysis. The aim of the analysis is to cluster together households that share a particular consumption pattern.

The PCA and cluster analyses led to the creation five homogeneous groups with distinctly different patterns of household food access:

1. Poor food consumption (worst access to food);
2. Borderline food consumption;
3. Adequate with low diversity (few items);
4. Fairly good food consumption (due to free food access);
5. Good food consumption (different dietary patterns).

Exactly half the households in the *Bombali* sample are in the poor consumption group, indicating that there could be a serious problem of accessing food for households in that district. *Koinadugu* and *Kenema* present relatively high percentages of households having poor food consumption, scoring the second and third higher percentage of households in that category. The largest household group represented in both the districts is the 'adequate food consumption but low diversity', which accounts for 37% of all the sample households in *Koinadugu* and for 58% in *Kenema.*

Section 7.5 - Food Aid Initiatives

More extensive data is needed (especially country-wide census data on agriculture) before accurate recommendations on food aid targeting with respect to number of beneficiaries and their location can be made; nevertheless this report can act as a starting point and furnishes us with key basic information.

Households are food insecure for a variety of reasons and causes. The main reasons for households being food insecure are the reduced access and availability to food and basic services. This would include basic food items and / or better quality foods; money, health services and essential non-food items (clothing, housing).

Well targeted food aid programmes will assist these households to supplement their livelihood generating activities with some assured quantity of food. This would result in diet variation, lower malnutrition and would favourably impact household food security. Also, expense, time and resources previously dedicated to the procurement of food can now be devoted (in-part) by the households on other items such as better foods (meat, eggs), clothing , medicine and education.

While poverty and food insecurity can be found across all districts in Sierra Leone; we recommend that food aid targeting specifically take into account the following areas:

Bombali – Over 50% of the households have poor food consumption. Households of this district have the lowest access to health services and high levels of malnutrition. Possible interventions could be school feeding, maternal and child health and nutrition and food for work activities.

Koinadugu – Nearly 30% of the households have poor food consumption. Like the households in Bombali, crop loss to rodents is widespread. Malnutrition levels among children under five are high. Possible interventions could be school feeding, maternal and child health and nutrition and food for work activities.

Bonthe – More than 80% of the households have borderline food consumption. Households of this district have very low access to health services and have the highest percentage expenditure on food for the sample. The malnutrition levels of women and children under five are high. Possible interventions could be school feeding, maternal and child health and nutrition and food for work activities.

Moyamba – More than half the households of this district have borderline food consumption and like households in Bonthe; have a high percentage expenditure on food. Possible interventions could be school feeding and/or food for work activities.

Bo – Approximately 30% of the households have borderline food consumption in this district. Possible interventions could be school feeding and/or food for work activities.

The households particularly vulnerable to food insecurity, which should probably be targeted first, are:

- ✓ Households whose livelihoods mainly depend on subsistence agriculture to source incomes. Such households would have one, or at maximum, two sources of income. This would mean that for food they rely mainly on agriculture and as cash income is minimal and sporadic – other foods are not consumed frequently. These households have very low access to education and heath services (as they are unable to afford it). The livelihood of these households are at high risk since natural disasters, high animal and pest incidences or crop failure can all substantially affect the household's livelihood generating capacity.
- ✓ Households with no land and no assured / regular sources of employment (for example salaried labour or petty trade). Hence these households would have to rely on various non-agricultural activities. Such income generating activities would be temporary, and would generate minimal amounts of income. Further, as there is no reliance on agriculture nearly all the household's food would have to be bought.
- ✓ Women headed households should also be targeted. However these households should not be confused with households where the males are sourcing income in another location and sending remittances home. Women headed households that would be targeted refer to households where women are bearing the responsibility of sourcing income / looking after the family.

Section 7.6 - Recommendations

1. *Increase and improve access to health services*

- Three-quarters of the sampled communities stated that they had no access to health services. A common problem reported by most communities was that health centres were too far away.
- Thus there is an urgent need to ensure that communities have access to well-equipped, functioning health centres that are open on a regular basis. These health centres could also play a crucial role in conducting campaigns like HIV awareness and anti-malarial programs.
- An improvement in health of the community/household will not only result in households being able to maximize their resources (be it agriculture or labour) but also result in an increase in overall nutritional health and food security of the country.
- The districts of *Bombali, Kambia, Bonthe* and *Kono* had the lowest access to health services.

2. *Improve infrastructure of existing primary schools while simultaneously increasing the number of primary schools*

- Approximately 70% of all communities sampled stated that there was a functioning primary school in their community. For the majority of the remaining communities the nearest primary school was 2 to 4 miles away.
- A lack of infrastructure in terms of buildings, text books and furniture were the main problems affecting primary schools.
- The districts of *Moyamba* and *Kambia* had the highest number of communities without a functioning primary school and there is a need for programmes to support construction and rehabilitation of primary schools in these districts.

3. Increase *access and availability of agrochemicals (in particular pesticides)*

- Farmers need to be able to access agricultural inputs like pesticides, fertilizers and insecticides.

  (a) Increase availability of agricultural inputs – The Government and other concerned agencies should work to ensure that essential agrochemicals and inputs are made available across the districts. This would make a great

difference in arresting crop losses due to animals/pests, diseases (especially smut and blast) and also improve fertility of soils.

(b) Access along with availability is equally important. It is not enough to ensure that inputs are available; steps should be taken to help farmers access these products in terms of affordability. Thus the Government could investigate the possibility of providing subsidies for pesticides (as rodents are the main cause of crop damage).

- It is recommended that a rapid assessment on pest and disease control be undertaken which would necessarily include sections on:
    - ✓ Minimum amounts of pesticide/rodent control required for the next immediate season
    - ✓ Proposals on the nature and frequency of potential subsidies
    - ✓ Proposals on the efficient administration and management of such a program
    - ✓ A cost analysis and estimation of cost to the government and benefits
    - ✓ The average increase in production of major food crops that such a program would realize

Following the above study, a pilot project involving subsidies could be carried out in one district, possibly either *Koinadugu* or *Bombali.*

4. *To conduct census/data collection on a regular basis*

- With the Government of Sierra Leone's firm commitment to achieving the goals of 2007 and with the aim of establishing a country-wide food security monitoring system, it is important that an agricultural census is carried out in the near future. Reliable and comprehensive data is essential for efficient planning and to obtain a realistic view of the agricultural situation in the country. Such an exercise would also ensure that progress can be documented and that changes in planning and execution are appropriate and timely.
- Census data on agricultural area, production, returns, loss, livestock access, health etc. should to be collected across the country on a periodic basis.

5. *Increased effort to address food shortages during the hunger-gap period between June and September*

- It was seen that sizeable portions of the population were unable to access or purchase food during the hunger gap period of June to September. On average, 82% of all the sampled communities felt that the availability of one or more staple food items was insufficient during the hunger period.
- It is requested all agencies in Sierra Leone including the Government, international organizations, NGOs or humanitarian agencies take additional steps to ensure greater availability and access of food for rural populations during this period.

Annex 1: Data tables for household survey

Table 1- Language

	Native language 1	Native language 2	Native language 3	Interview language 1	Interview language 2	Use interpreter
Kailahun	Mende 84%	Other 12%	Temne 3%	Mende 83%	Krio 14%	4%
Kenema	Mende 90%	Temne 6%	Other 2%	Mende 90%	Krio 8%	1%
Kono	Kono 79%	Other 11%	Temne 5%	Krio 60%	Kono 37%	2%
Bombali	Temne 39%	Other 38%	Limba 23%	Krio 59%	Temne 41%	18%
Kambia	Temne 6%	Limba 12%	Other 27%	Krio 67%	Temne 29%	7%
Koinadugu	Kuranko 60%	Limba 19%	Other 20%	Krio 97%	Other 2%	15%
Port Loko	Temne 91%	Other 6%	Krio 1%	Temne 92%	Krio 7%	< 1%
Tonkolili	Temne 81%	Limba 7%	Mende 6%	Krio 54%	Temne 40%	7%
Bo	Mende 94%	Krio 6%	Temne 1%	Mende 93%	Krio 6%	1%
Bonthe	Mende 100%	-	-	Mende 100%	-	-
Moyamba	Mende 51%	Temne 32%	Limba 5%	Mende 54%	Krio 44%	4%
Pujehun	Mende 98%	Krio 2%	-	Mende 98%	Krio 2%	-
Western Rural	Temne 56%	Other 23%	Mende 10%	Krio 95%	Temne 4%	4%

Table 2 - Household Composition

	Household size	Sex. ratio- masculine	Principal occupation of members
Kailahun	5.3	44%	Student/pupil - 25%
Kenema	6.1	48%	Farmer/Herder - 36%
Kono	6.2	52%	Farmer/Herder - 44%
Bombali	7.1	46%	Farmer/Herder - 51%
Kambia	8.2	50%	Farmer/Herder - 33%
Koinadugu	6.1	48%	Farmer/Herder - 40%
Port Loko	5.8	49%	Farmer/Herder - 41%
Tonkolili	8.8	46%	Farmer/Herder - 40%
Bo	6.5	50%	Student/pupil - 30%
Bonthe	5.6	46%	Student/pupil - Farmer/Herder - 25% each
Moyamba	5.2	49%	Farmer/Herder - 33%
Pujehun	6.4	47%	Farmer/Herder - 35%
Western Rural	6.7	47%	Student/pupil - 27%

Table 3- Education level of adult men

	Illiterate	Primary School	Secondary	Vocational & technical	Arabic/ Koranic	College/ University
Kailahun	38%	17%	22%	6%	15%	2%
Kenema	51%	13 %	17%	1%	18%	1%
Kono	66%	7%	22%	1%	4%	< 1
Bombali	80%	8%	7%	1%	4%	< 1
Kambia	56%	12%	12%	1%	19%	1%
Koinadugu	70%	7%	8%	2%	13%	< 1
Port Loko	61%	6%	18%	-	13%	3%
Tonkolili	46%	11%	20%	1%	21%	1%
Bo	54%	11%	23%	1%	9%	2%
Bonthe	62%	13%	7%	1%	15%	2%
Moyamba	66%	20%	8%	1%	4%	2%
Pujehun	42%	12%	17%	2%	26%	2%
Western Rural	32%	20%	36%	1%	7%	3%

Table 4- Education level of adult women

	Illiterate	Primary School	Secondary	Vocational & technical	Arabic/ Koranic	College/ University
Kailahun	77%	16%	6%	< 1	1%	< 1
Kenema	83%	10%	6%	< 1	1%	-
Kono	89%	4%	5%	-	2%	-
Bombali	96%	3%	1%	< 1	-	-
Kambia	93%	5%	2%	< 1	< 1	-
Koinadugu	95%	3%	1%	-	-	-
Port Loko	91%	4%	5%	< 1	< 1	< 1
Tonkolili	86%	9%	4%	< 1	1%	-
Bo	81%	10%	7%	1%	-	1%
Bonthe	84%	8%	4%	2%	1%	1%
Moyamba	85%	11%	4%	< 1	-	-
Pujehun	82%	12%	4%	2%	< 1	< 1
Western Rural	60%	17%	20%	1%	1%	< 1

Table 5- Education level of school age boys (6-14 yrs)

	Illiterate	Primary School	Secondary	Vocational & technical	Arabic/Koranic
Kailahun	9%	83%	5%	2%	1%
Kenema	9%	83%	1%	< 1	7%
Kono	7%	92%	< 1	-	1%
Bombali	25%	75%	-	-	1%
Kambia	9%	81%	1%	< 1	4%
Koinadugu	25%	71%	1%	-	3%
Port Loko	6%	89%	5%	-	1%
Tonkolili	8%	85%	3%	-	1%
Bo	8%	73%	5%	1%	11%
Bonthe	4%	67%	4%	1%	14%
Moyamba	11%	82%	1%	-	-
Pujehun	12%	62%	3%	-	24%
Western Rural	2%	85%	5%	-	1%

Table 6- Education level of school age girl (6-14 yrs)

	Illiterate	Primary School	Secondary	Vocational & technical	Arabic/Koranic
Kailahun	12%	82%	3%	2%	1%
Kenema	7%	87%	2%	1%	1%
Kono	14%	84%	1%	-	1%
Bombali	33%	67%	-	-	-
Kambia	16%	71%	2%	< 1	< 1
Koinadugu	33%	66%	1%	-	1%
Port Loko	7%	88%	6%	-	-
Tonkolili	18%	77%	1%	< 1	1%
Bo	7%	86%	4%	< 1	1%
Bonthe	4%	76%	3%	1%	-
Moyamba	14%	81%	1%	-	-
Pujehun	16%	79%	2%	2%	1%
Western Rural	7%	85%	4%	-	-

Table 7- Dwelling ownership, age and crowding

	Own house	House built….			Average number of…		
		Before 2000	Between 2000 - 2002	After 2002	People per house	Rooms per house	People per room
Kailahun	84%	23%	36%	41%	8.3	3.2	2.7
Kenema	72%	65%	27%	8%	10.3	4.7	2.2
Kono	86%	32%	39%	29%	8.9	3.5	2.7
Bombali	88%	68%	16%	16%	14.4	5.6	2.6
Kambia	80%	66%	20%	14%	15.1	5.1	3.2
Koinadugu	78%	51%	26%	23%	11.2	3.9	3.2
Port Loko	82%	58%	30%	13%	14.8	5.0	3.1
Tonkolili	81%	56%	33%	11%	13.3	4.8	2.9
Bo	80%	72%	21%	7%	10.6	4.9	2.5
Bonthe	60%	70%	25%	6%	9.7	4.8	2.0
Moyamba	66%	57%	33%	10%	10.1	4.6	2.2
Pujehun	75%	50%	40%	9%	7.8	3.5	2.3
Western Rural	56%	55%	29%	16%	10.9	3.7	3.2

Table 8- Housing quality, lighting and use of safe sanitation and drinking water

	Walls- mud/mud brick	Roof- Corrugated iron	Roof - Thatch	Floor- earth	Lighting- pan lamp	Improved sanitation	Safe drinking water – dry season
Kailahun	63%	48%	38%	83%	55%	2%	66%
Kenema	52%	62%	30%	85%	59%	1%	32%
Kono	95%	44%	43%	93%	49%	0	41%
Bombali	99%	68%	31%	98%	76%	0	36%
Kambia	91%	66%	30%	84%	62%	0	27%
Koinadugu	94%	49%	51%	90%	42%	2%	33%
Port Loko	84%	62%	23%	76%	72%	10%	35%
Tonkolili	92%	63%	36%	81%	48%	20%	26%
Bo	63%	75%	23%	75%	45%	21%	58%
Bonthe	96%	43%	57%	86%	66%	0	36%
Moyamba	99%	49%	51%	93%	66%	0	18%
Pujehun	87%	26%	71%	90%	50%	6%	40%
Western Rural	67%	77%	13%	48%	28%	56%	77%

Table 9 - Household assets

	Table	Chair	Lantern	Big cooking pot	Radio	Sewing machine	HH with 0-2 assets	Bicycle
Kailahun	31%	19%	42%	52%	35%	3%	67%	7%
Kenema	71%	65%	20%	90%	55%	1%	32%	7%
Kono	45%	40%	46%	20%	39%	1%	64%	3%
Bombali	40%	31%	27%	10%	27%	1%	76%	5%
Kambia	76%	68%	57%	46%	51%	6%	36%	26%
Koinadugu	41%	25%	46%	43%	34%	4%	65%	8%
Port Loko	53%	45%	37%	5%	42%	2%	63%	12%
Tonkolili	63%	46%	30%	38%	51%	2%	56%	19%
Bo	63%	50%	56%	63%	44%	3%	41%	11%
Bonthe	63%	49%	35%	61%	33%	1%	53%	11%
Moyamba	50%	28%	32%	97%	32%	1%	60%	6%

Pujehun	35%	33%	37%	97%	16%	4%	64%	4%
Western Rural	73%	54%	80%	39%	74%	4%	29%	7%

Table 10- Meal consumption

	Meals - Adults			Meals - Children		
	One	Two	Three	One	Two	Three
Kailahun	21%	71%	7%	4%	69%	25%
Kenema	13%	81%	5%	10%	82%	7%
Kono	22%	75%	2%	8%	86%	20%
Bombali	46%	52%	1%	34%	54%	11%
Kambia	4%	92%	3%	2%	84%	13%
Koinadugu	12%	84%	4%	6%	85%	7%
Port Loko	20%	77%	3%	17%	80%	2%
Tonkolili	10%	84%	7%	2%	61%	36%
Bo	23%	64%	12%	21%	64%	13%
Bonthe	12%	71%	16%	2%	75%	22%
Moyamba	15%	72%	13%	6%	76%	18%
Pujehun	20%	70%	10%	15%	64%	18%
Western Rural	5%	88%	6%	2%	82%	2%

Table 11 – Weekly frequency of consumption of staple foods

	Rice 6-7 days	Fish 6-7 days	Palm oil 6-7 days	Vegetables 6-7 days	Cassava 4-7 days	Groundnut 4-7 days	Rice & fish 7 days
Kailahun	91%	63%	89%	60%	27%	74%	56%
Kenema	94%	79%	82%	71%	12%	38%	72%
Kono	96%	73%	93%	48%	52%	91%	65%
Bombali	95%	36%	42%	35%	29%	24%	33%
Kambia	96%	87%	85%	51%	15%	77%	84%
Koinadugu	89%	23%	65%	24%	6%	59%	18%
Port Loko	73%	94%	77%	35%	53%	68%	56%
Tonkolili	76%	75%	87%	41%	29%	62%	58%
Bo	54%	93%	93%	87%	23%	25%	49%
Bonthe	7%	94%	98%	24%	65%	4%	6%
Moyamba	33%	82%	89%	19%	45%	20%	26%
Pujehun	30%	74%	84%	78%	57%	26%	25%
Western Rural	90%	96%	93%	52%	13%	91%	86%

Table 12 - Terms of land tenure (multiple responses) and average area cultivated per house

	Most common source	Second	Third	Average area cultivated
Kailahun	Family/clan owned: 88%	Inheritance: 87%	Permission chief: 85%	4.3
Kenema	Family/clan owned: 43%	Inheritance: 30%	Permission chief: 8%	3.6
Kono	Inheritance:71%	Permission chief: 39%	Family/clan owned: 35%	3.6
Bombali	Inheritance: 56%	Outright ownership: 17%	Family/clan owned: 15%	3.6
Kambia	Family/clan owned: 35%	Short term rental: 25%	Outright ownership: 17%	4.3
Koinadugu	Inheritance: 69%	Permission chief: 10%	Family/clan owned: 9%	4.1
Port Loko	Family/clan owned: 49%	Short term rental: 26%	Permission chief: 8%	5.6
Tonkolili	Inheritance: 38%	Permission chief: 21%	Family/clan owned: 18%	4.1
Bo	Family/clan owned: 66%	Inheritance: 61%	Short term rental: 57%	5.4
Bonthe	Inheritance 40%	Family/clan owned: 25%	Short term rental: 22%	3.8
Moyamba	Family/clan owned: 43%	Permission chief: 38%	Short term rental: 8%	2.6

Pujehun	Inheritance: 87%	Short term rental: 5%	Family/clan owned:3%	4.8
Western Rural	Short term rental: 17%	Inheritance: 14%	Family/clan owned: 12%	2.7

Table 12 - Availability of tools/instruments

	Hoe	Cutlass	Axe	Sickle	Watering can	Boat/ Canoe	Fishing net
Kailahun	76%	87%	55%	3%	1%	-	< 1
Kenema	60%	72%	55%	3%	2%	1%	< 1
Kono	89%	92%	56%	34%	2%	< 1	< 1
Bombali	93%	93%	78%	92%	3%	2%	< 1
Kambia	73%	73%	61%	45%	5%	6%	5%
Koinadugu	82%	79%	72%	16%	3%	-	15%
Port Loko	83%	84%	37%	39%	4%	8%	8%
Tonkolili	82%	84%	43%	77%	4%	< 1	1%
Bo	93%	93%	76%	2%	-	-	-
Bonthe	68%	82%	30%	2%	2%	14%	9%
Moyamba	91%	96%	73%	39%	3%	5%	5%
Pujehun	94%	95%	63%	-	-	3%	2%
Western Rural	54%	57%	38%	29%	8%	4%	5%

Table 13 - Access to productive assets

	Drying floor	Store (for rice)	Rice mill	Cassava grinder	Palm oil mill	Agricultural credit		Tractor
						One season	Longer season	
Kailahun	24%	13%	4%	2%	< 1	7%	-	5%
Kenema	23%	14%	3%	1%	-	3%	-	1%
Kono	16%	10%	8%	3%	1%	31%	< 1	7%
Bombali	23%	14%	< 1	< 1	< 1	1%	1%	< 1
Kambia	24%	23%	10%	12%	< 1	< 1	< 1	4%
Koinadugu	18%	4%	-	-	-	5%	-	3%
Port Loko	10%	6%	3%	2%	-	< 1	-	2%
Tonkolili	4%	9%	5%	2%	< 1	14%	< 1	6%
Bo	31%	28%	4%	14%	-	36%	2%	17%
Bonthe	10%	11%	< 1	5%	< 1	< 1	-	2%
Moyamba	29%	19%	13%	29%	1%	-	-	13%
Pujehun	13%	25%	6%	19%	-	1%	-	5%
Western Rural	2%	-	-	-	-	6%	-	1%

Table 14 – Households cultivating, acres cultivated and yield per acre

	Upland Rice			Inland Valley Swamp Rice			Other rice*		
	% hh	Median acres	Bushel/ acre	% hh	Median acres	Bushel/ acre	% hh	Median acres	Bushel/ acre
Kailahun	70%	2.0	10.0	50%	1.0	13.0	< 1%	-	-
Kenema	74%	2.0	8.3	51%	1.0	10.0	1%	-	-
Kono	50%	1.0	12.0	59%	1.0	15.0	1%	-	-
Bombali	61%	1.5	12.0	60%	1.0	18.0	1%	-	-
Kambia	36%	2.0	10.0	53%	1.5	11.7	19%	3.0	12.0
Koinadugu	41%	3.0	10.5	57%	2.0	11.2	1%	-	-
Port Loko	50%	1.0	8.3	68%	2.0	11.5	7%	3.0	12.5
Tonkolili	74%	1.5	11.0	63%	1.0	12.0	< 1	-	-
Bo	48%	2.5	11.3	49%	1.0	14.6	1%	-	-

Bonthe	25%	1.0	13.0	16%	1.0	12.0	18%	1.0	12.0
Moyamba	76%	2.0	10.0	27%	1.0	12.5	17%	2.0	12.0
Pujehun	55%	2.5		48%	1.0		4%	2.0	
Western	15%	2.0		15%	1.0		-	-	-

**Mangrove, Boliland & Riverain rice*

Table 15 – Households cultivating, acres cultivated and yield per acre

	Cassava			Sweet potatoes			Groundnuts		
	% hh	Median acres	80 kg/ acre	% hh	Median acres	80 kg/ acre	% hh	Median acres	60 kg/ acre
Kailahun	56%	1.0	12.0	16%	0.5	10.0	17%	1.0	4.0
Kenema	36%	1.0	8.0	5%	0.5	9.0	13%	1.0	5.0
Kono	44%	1.0	6.0	7%	0.5	6.0	8%	1.0	6.0
Bombali	48%	1.0	20.0	14%	0.5	17.0	41%	1.0	4.0
Kambia	34%	1.5	8.5	8%	0.5	5.0	19%	1.0	6.0
Koinadugu	36%	1.0	5.0	18%	1.0	5.0	41%	1.0	3.2
Port Loko	67%	1.0	11.0	18%	1.0	6.0	22%	1.0	6.0
Tonkolili	54%	1.0	10.0	21%	1.0	8.0	53%	1.0	4.0
Bo	58%	1.0	13.3	16%	0.5	10.0	28%	1.0	6.7
Bonthe	80%	1.5	20.0	5%	1.0	8.0	10%	1.0	2.3
Moyamba	83%	1.5	15.0	14%	1.0	8.0	30%	1.0	6.0
Pujehun	81%	1.0	10.0	7%	0.5	14.5	26%	1.0	6.9
Western Rural	33%	1.0	10.0	22%	0.5	15.5	20%	0.5	5.1

Table 16 – Households cultivating, acres cultivated and yield per acre

	Sorghum			Maize			Peppers		
	% hh	Median acres	Bushel/ acre	% hh	Median acres	Bag/ acre	% hh	Median acres	bag/ acre
Kailahun	1%	-	-	4%	0.5	5.0	13%	0.5	5.0
Kenema	< 1	-	-	1%	-	-	2%	0.5	10.0
Kono	-	-	-	< 1	-	-	1%	-	-
Bombali	< 1	-	-	-	-	-	18%	1.0	4.3
Kambia	1%	-	-	1%	-	-	12%	0.5	3.4
Koinadugu	1%	-	-	6%	2.0	5.5	4%	1.0	6.0
Port Loko	-	-	-	2%	-	-	4%	1.0	7.5
Tonkolili	-	-	-	7%	1.0	6.0	6%	1.0	2.5
Bo	1%	-	-	3%	-	-	4%	1.0	3.0
Bonthe	< 1	-	-	1%	-	-	3%	1.0	8.5
Moyamba	18%	1.0	1.0	20%	1.0	1.5	6%	1.0	2.0
Pujehun	2%	0.5	5.0	< 1	-	-	2%	0.75	2.5
Western Rural	1%	-	-	8%	0.5	2.0	18%	0.5	12.0

Table 17 – Households cultivating, acres cultivated and yield per acre

	Yams			Cocoyams			Okra/Tomato/Eggplant		
	% hh	Median acres	head/ acre*	% hh	Median acres	80 kgs/ acre*	% hh	Median acres	TP/ acre*
Kailahun	9%	10.0	-	7%	0.5	-	11%	0.5	-
Kenema	3%	0.3	-	1%	-	-	2%	0.5	-
Kono	13%	0.5	-	3%	0.5	-	-	-	-
Bombali	-	-	-	< 1	-	-	< 1	-	-
Kambia	< 1	-	-	-	-	-	-	-	-
Koinadugu	5%	5.5	-	5%	0.5	-	3%	1.0	-
Port Loko	1%	-	-	-	-	-	2%	-	-
Tonkolili	-	-	-	1%	-	-	1%	-	-

Bo	2%	-	-	1%	-	-	3%	1.0	-
Bonthe	-	-	-	1%	-	-	2%	-	-
Moyamba	21%	2.0	-	4%	0.5	-	8%	1.0	-
Pujehun	3%	3.5	-	1%	-	-	< 1	-	--
Western Rural	3%	0.25	-	2%	0.25	-	19%	0.625	-

**Data were not collected and/or reported correctly*

Table 18 - Source seed rice

	Own stock	Humanitarian Aid	Purchase	Exchange	Loan	Other
Kailahun	8%	5%	33%	16%	30%	8%
Kenema	35%	1%	40%	4%	15%	4%
Kono	11%	5%	57%	14%	9%	3%
Bombali	16%	-	37%	2%	44%	1%
Kambia	20%	2%	48%	9%	18%	3%
Koinadugu	60%	4%	27%	1%	6%	2%
Port Loko	15%	2%	44%	11%	26%	2%
Tonkolili	27%	4%	39%	2%	36%	2%
Bo	14%	1%	54%	2%	24%	5%
Bonthe	17%	7%	60%	3%	12%	1%
Moyamba	9%	9%	33%	28%	21%	< 1
Pujehun	10%	2%	62%	3%	19%	4%
Western Rural	12%	4%	54%	-	15%	15%

Table 19 - Source groundnut seeds

	Own stock	Humanitarian Aid	Purchase	Exchange	Loan	Other
Kailahun	-	2%	86%	2%	7%	3%
Kenema	16%	-	73%	2%	5%	4%
Kono	4%	8%	68%	8%	4%	8%
Bombali	4%	-	52%	1%	41%	2%
Kambia	6%	3%	58%	22%	8%	3%
Koinadugu	41%	2%	51%	1%	5%	-
Port Loko	2%	5%	52%	8%	30%	3%
Tonkolili	20%	4%	54%	1%	18%	3%
Bo	11%	2%	73%	1%	10%	3%
Bonthe	23%	5%	62%	5%	5%	-
Moyamba	15%	8%	47%	9%	21%	-
Pujehun	11%	1%	68%	-	14%	6%
Western Rural	7%	-	76%	-	-	17%

Table 20 - Source vegetable seeds

	Own stock	Humanitarian Aid	Purchase	Exchange	Loan	Other
Kailahun	25%	4%	60%	6%	-	5%
Kenema	61%	-	30%	-	-	9%
Kono	-	-	-	-	-	-
Bombali	19%	5%	62%	-	14%	-
Kambia	10%	-	90%	-	-	-
Koinadugu	33%	7%	60%	-	-	-
Port Loko	40%	5%	55%	-	-	-
Tonkolili	65%	-	35%	-	-	-

Bo	13%	-	83%	-	-	4%
Bonthe	20%	-	80%	-	-	-
Moyamba	9%	5%	86%	-	-	-
Pujehun	-	-	-	-	-	-
Western Rural	3%	0%	64%	-	9%	15%

Table 21 - Source cassava cuttings

	Own stock	Humanitarian Aid	Purchase	Exchange	Loan	Other*
Kailahun	7%	7%	26%	13%	1%	47%
Kenema	41%	2%	24%	-	2%	31%
Kono	26%	10%	31%	28%	-	5%
Bombali	68%	1%	12%	-	1%	18%
Kambia	16%	19%	31%	4%	1%	29%
Koinadugu	67%	24%	4%	-	-	5%
Port Loko	20%	48%	31%	1%	-	1%
Tonkolili	20%	16%	27%	1%	1%	35%
Bo	34%	8%	52%	1%	3%	2%
Bonthe	63%	24%	10%	2%	< 1	1%
Moyamba	70%	26%	3%	< 1	-	< 1
Pujehun						
Western Rural						

**Most likely gifts from friends or relatives*

Table 22 - Source sweet potato vines

	Own stock	Humanitarian Aid	Purchase	Exchange	Loan	Other*
Kailahun	15%	-	27%	10%	-	48%
Kenema	10%	-	50%	10%	-	30%
Kono	12%	19%	31%	38%	-	-
Bombali	47%	3%	24%	-	3%	24%
Kambia	21%	10%	32%	21%	5%	11%
Koinadugu	71%	19%	5%	-	-	5%
Port Loko	16%	37%	47%	-	-	-
Tonkolili	13%	21%	34%	2%	-	30%
Bo	13%	-	77%	-	4%	6%
Bonthe	57%	29%	14%	-	-	-
Moyamba	50%	47%	3%	-	-	-
Pujehun						
Western Rural						

**Most likely gifts from friends or relatives*

Table 23a – Percentage of households owning livestock

	Sheep		Goats		Pigs		Cattle	
	2005	2003	2005	2003	2005	2003	2005	2003
Kailahun	2%	3%	3%	4%	-	-	-	-
Kenema	5%	4%	7%	6%	-	-	1%	-
Kono	6%	7%	10%	11%	-	-	1%	-
Bombali	5%	6%	5%	7%	-	-	-	-
Kambia	18%	18%	16%	18%	-	-	< 1	-
Koinadugu	9%	6%	13%	8%	-	-	3%	-

Port Loko	19%	24%	23%	23%	1%	1%	4%	< 1
Tonkolili	8%	10%	9%	9%	-	-	< 1	-
Bo	1%	2%	2%	5%	1%	1%	-	-
Bonthe	2%	2%	10%	8%	-	-	-	-
Moyamba	7%	6%	24%	21%	4%	3%	-	1%
Pujehun								
Western Rural								

Table 23b – Percentage of households owning livestock

	Oxen		Chicken		Ducks		Guinea Fowl	
	2005	2003	2005	2003	2005	2003	2005	2003
Kailahun	0.5%	-	53%	44%	2%	1%	-	-
Kenema	-	-	61%	52%	9%	6%	< 1	-
Kono	0.5%	0.3%	31%	28%	3%	3%	-	-
Bombali	0.6%	-	54%	55%	2%	1%	-	-
Kambia	0.6%	-	72%	55%	6%	3%	< 1	-
Koinadugu	0.3%	-	41%	21%	2%	1%	-	-
Port Loko	-	0.6%	84%	80%	13%	11%	< 1	1%
Tonkolili	0.3%	-	76%	60%	24%	15%	1%	< 1
Bo	0.2%	-	46%	54%	6%	7%	-	-
Bonthe	0.3%	-	52%	58%	8%	7%	< 1	< 1
Moyamba	0.2%	-	77%	70%	12%	9%	< 1	-
Pujehun								
Western Rural								

Table 24 - Access to labour

	Average # of people in agriculture work	% of total adult household members	Households paying for labour			
			For brushing	For weeding	For harvesting	For Any activity
Kailahun	2	69%	85%	74%	75%	87%
Kenema	5	96%	78%	48%	41%	79%
Kono	4	98%	83%	55%	37%	83%
Bombali	2	60%	49%	43%	39%	55%
Kambia	3	73%	66%	56%	53%	72%
Koinadugu	3	98%	75%	51%	23%	78%
Port Loko	1	33%	72%	42%	47%	73%
Tonkolili	5	97%	66%	49%	38%	73%
Bo	3	92%	81%	80%	59%	82%
Bonthe	2	73%	81%	65%	24%	82%
Moyamba	3	99%	95%	95%	94%	95%
Pujehun	2	60%	88%	51%	22%	88
Western Rural	2	57%	33%	22%	11%	34%

Table 25 - Access to trees

	Cacao ≥ 50	Coffee ≥ 20	Palm oil ≥ 25	Banana ≥ 20	Kola nut ≥ 15	Citrus ≥ 10	Mango ≥ 4
Kailahun	3%	1%	2%	16%	28%	4%	2%
Kenema	39%	1%	34%	8%	9%	4%	1%
Kono	61%	1%	10%	7%	6%	1%	-
Bombali	-	-	31%	2%	< 1	2%	3%

Kambia	-	-	21%	3%	1%	8%	3%
Koinadugu	2%	< 1	19%	6%	9%	5%	12%
Port Loko	< 1	-	22%	4%	2%	3%	4%
Tonkolili	2%	-	43%	5%	3%	2%	3%
Bo	15%	-	45%	11%	6%	2%	2%
Bonthe	1%	-	55%	2%	1%	-	-
Moyamba	1%	-	15%	< 1	< 1	-	-
Pujehun	3%	1%	36%	1%	12%	1%	-
Western Rural	-	-	2%	3%	-	1%	4%

Table 26a – Rehabilitated plantations

	Cacao				Coffee			
	Before 1990	**1990-2000**	**2000-2002**	**After 2002**	**Before 1990**	**1990-2000**	**2000-2002**	**After 2002**
Kailahun	55%	3%	1%	4%	45%	1%	< 1	1%
Kenema	29%	5%	1%	2%	30%	4%	1%	< 1
Kono	52%	5%	2%	3%	62%	4%	1%	2%
Bombali	-	-	-	-	-	-	-	-
Kambia	-	-	-	-	-	-	-	-
Koinadugu	2%	1%	< 1	1%	5%	3%	2%	2%
Port Loko	-	-	-	-	-	-	-	-
Tonkolili	-	2%	< 1	1%	2%	3%	< 1	1%
Bo	13%	1%	1%	1%	21%	2%	-	1%
Bonthe	1%	-	< 1	-	3%	1%	-	-
Moyamba	< 1	-	-	1%	4%	< 1	-	< 1
Pujehun	10%	1%	-	-	18%	2%	< 1	-
Western Rural	-	-	-	-	-	-	-	-

Table 26b - Rehabilitated plantations

	Palm oil				Banana			
	Before 1990	**1990-2000**	**2000-2002**	**After 2002**	**Before 1990**	**1990-2000**	**2000-2002**	**After 2002**
Kailahun	11%	4%	1%	8%	9%	1%	1%	13%
Kenema	10%	11%	6%	10%	2%	3%	3%	1%
Kono	7%	1%	1%	3%	4%	2%	2%	1%
Bombali	3%	9%	6%	13%	1%	1%	1%	< 1
Kambia	5%	6%	5%	7%	-	2%	1%	2%
Koinadugu	7%	5%	3%	7%	5%	5%	3%	3%
Port Loko	2%	7%	6%	7%	1%	2%	2%	1%
Tonkolili	4%	18%	8%	14%	1%	3%	-	1%
Bo	10%	12%	9%	18%	5%	4%	2%	4%
Bonthe	13%	225	13%	8%	-	< 1	< 1	2%
Moyamba	3%	4%	1%	7%	< 1	-	< 1	1%
Pujehun	12%	18%	13%	12%	-	< 1	1%	1%
Western Rural	-	2%	-	1%	1%	3%	1%	1%

Table 26c - Rehabilitated plantations

	Kola nut				Mango			
	Before 1990	1990-2000	2000-2002	After 2002	Before 1990	1990-2000	2000-2002	After 2002
Kailahun	35%	1%	< 1	1%	4%	1%	-	-
Kenema	8%	1%	< 1	< 1	< 1	< 1	-	-
Kono	6%	-	1%	-	2%	-	-	-
Bombali	-	< 1	-	-	< 1	1%	< 1	1%
Kambia	< 1	1%	-	-	2%	1%	1%	-
Koinadugu	5%	4%	3%	2%	3%	5%	1%	3%
Port Loko	2%	1%	< 1	-	< 1	2%	1%	1%
Tonkolili	1%	1%	1%	1%	< 1	1%	1%	1%
Bo	8%	1%	< 1	-	1%	< 1	1%	1%
Bonthe	1%	< 1	-	-	-	-	-	-
Moyamba	1%	-	-	< 1	-	-	-	-
Pujehun	22%	3%	< 1	1%	1%	-	-	-
Western Rural	-	-	-	-	1%	1%	1%	1%

Table 27 - Main income activities (multiple responses)

Kailahun			
Other field crops - 99%	Cocoa/coffee sales – 67%	Rice sales – 51%	Sale of palm oil – 44%
Kenema			
Other field crops – 90%	Mining – 65%	Palm oil sales – 55%	Cocoa/coffee sales – 31%
Kono			
Cocoa/coffee sales – 93%	Other field crops – 73%	Rice sales – 63%	Sale of palm oil – 41%
Bombali			
Other field crops – 100%	Wage labour – 54%	Rice sales – 45%	Other – 40%
Kambia			
Other field crops – 69%	Petty trade – 67%	Remittances – 57%	Rice sales – 45%
Koinadugu			
Rice sales – 100%	Other field crops – 55%	Petty trade – 50%	Remittances – 39%
Port Loko			
Petty trade – 100%	Other field crops – 62%	Rice sales – 52%	Remittances – 29%
Tonkolili			
Other field crops – 86%	Other – 67%	Sale of palm oil – 52%	Petty trade – 51%
Bo			
Other field crops – 84%	Palm oil sales – 53%	Rice sales – 42%	Mining – 35%
Bonthe			
Other field crops – 100%	Palm oil sales – 82%	Petty trade – 40%	Sale of fish – 40%
Moyamba			
Other field crops – 100%	Petty trade – 59%	Gari sales – 51%	Sale of palm oil – 36%
Pujehun			
Other – 100%	Other field crops – 60%	Palm oil sales – 54%	Wage labour – 39%
Western Rural			
Petty trade – 100%	Remittances – 51%	Other field crops – 46%	Other – 35%

Table 28 - Number of income sources

	None	One	Two	Three	Four
Kailahun	-	4%	43%	39%	15%
Kenema	-	27%	61%	12%	-
Kono	-	1%	19%	46%	34%
Bombali	-	15%	60%	23%	3%
Kambia	-	15%	60%	21%	4%
Koinadugu	3%	20%	46%	15%	16%
Port Loko	-	7%	48%	42%	3%
Tonkolili	-	11%	48%	34%	7%
Bo	-	12%	39%	33%	16%
Bonthe	-	28%	62%	10%	-
Moyamba	-	7%	23%	25%	45%
Pujehun	-	37%	48%	16%	-
Western Rural	< 1	20%	62%	17%	1%

Table 29 - Share of total monthly expenditure for food

	Rice	Roots & tubers	Palm oil	Fish/meat	Other foods	Total food
Kailahun	8%	2%	7%	10%	6%	33%
Kenema	20%	5%	11%	10%	4%	49%
Kono	18%	< 1	5%	11%	2%	35%
Bombali	12%	2%	4%	5%	7%	30%
Kambia	16%	< 1	8%	12%	5%	41%
Koinadugu	17%	1%	10%	14%	6%	48%
Port Loko	46%	1%	5%	6%	8%	66%
Tonkolili	13%	1%	2%	3%	12%	29%
Bo	31%	1%	5%	6%	5%	48%
Bonthe	61%	< 1	1%	< 1	8%	70%
Moyamba	18%	2%	13%	17%	3%	52%
Pujehun	32%	< 1	3%	5%	8%	48%
Western Rural	25%	1%	8%	9%	6%	49%

Table 30a - Share of non-food expenditures

	Medical expenses	Housing/ rent	Alcohol & tobacco	Transport	Fines or debts	Equipment/ tools
Kailahun	18%	< 1	3%	2%	4%	6%
Kenema	11%	< 1	1%	5%	1%	3%
Kono	15%	< 1	2%	1%	< 1	4%
Bombali	15%	< 1	2%	3%	11%	4%
Kambia	14%	< 1	1%	2%	3%	2%
Koinadugu	10%	1%	1%	1%	2%	3%
Port Loko	11%	0	1%	1%	1%	2%
Tonkolili	16%	2%	1%	1%	1%	1%
Bo	14%	< 1	1%	4%	1%	2%
Bonthe	7%	< 1	0	0	< 1	1%
Moyamba	9%	0	3%	6%	1%	2%
Pujehun	17%	1%	1%	3%	1%	4%
Western Rural	14%	3%	1%	6%	1%	1%

Table 30b - Share of non-food expenditures

	Hiring labour	Water/ light/fuel	Education	Clothing	Celebration	Miscellan-eous	Total non-food
Kailahun	8%	4%	8%	8%	5%	1%	67%
Kenema	3%	1%	10%	6%	5%	5%	51%
Kono	11%	4%	9%	9%	6%	4%	65%
Bombali	8%	4%	6%	9%	6%	2%	70%
Kambia	8%	1%	8%	5%	6%	10%	59%
Koinadugu	7%	1%	7%	8%	3%	8%	52%
Port Loko	4%	< 1	6%	4%	1%	3%	34%
Tonkolili	9%	4%	13%	11%	1%	12%	71%
Bo	11%	5%	65	4%	3%	3%	52%
Bonthe	2%	0	3%	5%	< 1	12%	31%
Moyamba	5%	3%	3%	61%	3%	6%	48%
Pujehun	5%	3%	9%	4%	2%	3%	52%
Western Rural	1%	2%	7%	7%	6%	3%	51%

Table 31a - Shocks

	Drought	Flood	Crops damaged by animals	Lack of HH labour	Lack of agricultural inputs	HH member ill or injured	HH member chronically ill
Kailahun	3%	< 1	6%	10%	16%	23%	5%
Kenema	2%	3%	19%	6%	3%	15%	26%
Kono	5%	1%	22%	15%	15%	21%	1%
Bombali	2%	1%	27%	13%	38%	4%	4%
Kambia	3%	12%	23%	6%	24%	13%	3%
Koinadugu	1%	2%	40%	8%	15%	3%	< 1
Port Loko	7%	1%	33%	4%	12%	5%	1%
Tonkolili	1%	3%	40%	7%	8%	28%	2%
Bo	21%	5%	35%	19%	6%	5%	5%
Bonthe	< 1	26%	36%	12%	26%	-	< 1
Moyamba	14%	2%	32%	19%	29%	3%	1%
Pujehun	1%	< 1	18%	2%	3%	24%	8%
Western Rural	1%	-	6%	11%	17%	24%	7%

Table 31b- Shocks

	Death of HH member	Unemploy-ment	Theft of crops	Political problems	Price fluctuations	Security situation
Kailahun	7%	1%	1%	-	8%	21%
Kenema	18%	5%	2%	1%	-	1%
Kono	3%	< 1	1%	-	16%	< 1
Bombali	2%	< 1	1%	7%	-	-
Kambia	4%	2%	3%	3%	3%	1%
Koinadugu	< 1	1%	< 1	< 1	28%	-
Port Loko	< 1	4%	8%	4%	21%	-
Tonkolili	9%	1%	1%	< 1	< 1	< 1
Bo	2%	1%	1%	< 1	< 1	-
Bonthe	< 1	-	-	-	< 1	-
Moyamba	1%	-	-	< 1	-	-
Pujehun	41%	< 1	1%	< 1	< 1	< 1
Western Rural	11%	17%	1%	1%	4%	< 1

Table 32a – Coping strategies

	Kailahun	Kenema	Kono	Bombali	Kambia	Koinadugu	Port Loko
Borrow food	16%	10%	15%	15%	19%	16%	8%
Eat less desirable foods	1%	3%	12%	16%	9%	7%	5%
Reduce food consumption	12%	2%	14%	14%	10%	9%	11%
Food strategies	***29%***	***16%***	***41%***	***45%***	***38%***	***31%***	***24%***
Borrow money	21%	9%	15%	13%	20%	27%	16%
Sell HH items	10%	15%	1%	5%	2%	1%	9%
Sell livestock	1%	18%	< 1	1%	4%	1%	7%
Additional wage labour	21%	8%	11%	11%	12%	9%	11%
Wage labour in other area	5%	21%	2%	1%	2%	5%	4%
Selling firewood	2%	5%	4%	2%	7%	4%	1%
Petty trade	2%	3%	3%	1%	9%	11%	8%
Seasonal migration	< 1	< 1	1%	< 1	2%	< 1	7%
Permanent migration	-	< 1	-	-	< 1	-	-
Remove children from school	2%	< 1	< 1	1%	-	-	-
Send children to work	6%	4%	4%	12%	3%	3%	8%
Don't know	1%	-	19%	12%	1%	7%	7%
Non-food strategies	***71%***	***84%***	***59%***	***55%***	***62%***	***68%***	***76%***

Table 32b – Coping strategies

	Tonkolili	Bo	Bonthe	Moyamba	Pujehun	Western Rural
Borrow food	17%	8%	26%	12%	14%	9%
Eat less desirable foods	8%	23%	19%	17%	5%	8%
Reduce food consumption	22%	15%	17%	22%	1%	12%
Food strategies	***47%***	***46%***	***63%***	***51%***	***20%***	***29%***
Borrow money	24%	8%	28%	11%	26%	18%
Sell HH items	4%	2%	2%	6%	< 1	2%
Sell livestock	2%	5%	< 1	4%	16%	7%
Additional wage labour	7%	3%	3%	15%	21%	9%
Wage labour in other area	< 1	6%	-	< 1	1%	4%
Selling firewood	2%	4%	< 1	3%	< 1	4%
Petty trade	7%	5%	2%	6%	15%	17%
Seasonal migration	4%	1%	< 1	< 1	-	1%
Permanent migration	-	< 1	-	-	-	3%
Remove children from school	< 1	-	-	-	-	3%
Send children to work	2%	1%	1%	1%	-	1%
Don't know	-	20%	1%	4%	1%	3%
Non food strategies	***53%***	***54%***	***38%***	***49%***	***80%***	***71%***

Annex II: Data tables for Health and Nutrition

Table 2.1 – Characteristics of mothers/caretakers

	Mother	Caretaker	Literacy		
			Mother	Caretakers	Total
Kailahun	95.8%	4.2%	13%	12%	13%
Kenema	91.5%	8.5%	18%	18%	18%
Kono	95.6%	4.4%	10%	-	9%
Bombali	86.3%	13.7%	7%	2%	7%
Kambia	92.3%	7.7%	28%	23%	28%
Koinadugu	92.5%	7.5%	2%	-	2%
Port Loko	95.5%	4.5%	11%	7%	11%
Tonkolili	94.1%	5.9%	17%	-	16%
Bo	84.1%	15.9%	8%	5%	8%
Bonthe	80.6%	19.4%	28%	14%	25%
Moyamba	81.6%	18.4%	13%	7%	12%
Pujehun	95.0%	5.0%	20%	11%	19%
Western Rural	88.7%	11.3%	26%	14%	25%

Table 2.2 – Body mass index and malnutrition in women

	N	Median BMI	% BMI < 18.5 kg/m^2	% < 45 kgs	% < 145 cms
Kailahun	398	21.9	8%	15%	1%
Kenema	527	20.8	15%	20%	4%
Kono	372	21.9	6%	4%	1%
Bombali	370	20.8	29%	9%	1%
Kambia	385	21.2	12%	10%	2%
Koinadugu	332	20.8	12%	12%	-
Port Loko	309	20.8	17%	18%	3%
Tonkolili	307	21.4	8%	13%	3%
Bo	393	21.4	10%	11%	3%
Bonthe	258	20.9	23%	30%	5%
Moyamba	305	20.9	13%	12%	1%
Pujehun	354	21.6	7%	14%	5%
Western Rural	302	22.4	11%	7%	3%

Table 2.3 - Distance to drinking water source & treatment

	Distance to water source				Type of water treatment		
	Less 10 minutes	10-30 minutes	30-60 minutes	More 60 minutes	No treatment	Boiling	Adding Camphor
Kailahun	49%	45%	6%	< 1	99%	-	1%
Kenema	45%	43%	10%	3%	97%	-	3%
Kono	52%	31%	7%	10%	95%	< 1	4%
Bombali	15%	62%	15%	8%	97%	< 1	3%
Kambia	32%	39%	19%	10%	88%	-	12%
Koinadugu	14%	55%	16%	15%	95%	4%	1%
Port Loko	50%	36%	13%	1%	95%	1%	4%
Tonkolili	43%	30%	21%	7%	98%	2%	< 1
Bo	53%	35%	10%	1%	96%	-	4%
Bonthe	55%	27%	18%	-	98%	< 1	1%
Moyamba	52%	41%	7%	-	91%	< 1	9%
Pujehun	20%	50%	22%	8%	96%	2%	2%
Western Rural	46%	34%	17%	3%	88%	1%	11%

Table 2.4 – Distance to nearest health clinic

	Less 30 minutes	30 minutes – 1 hour	Between 1-2 hours	More than 2 hours
Kailahun	32%	35%	23%	7%
Kenema	22%	22%	14%	41%
Kono	12%	14%	38%	37%
Bombali	3%	6%	14%	77%
Kambia	18%	36%	20%	26%
Koinadugu	16%	19%	19%	46%
Port Loko	20%	18%	30%	31%
Tonkolili	47%	12%	20%	21%
Bo	39%	23%	26%	12%
Bonthe	25%	32%	42%	1%
Moyamba	32%	27%	32%	10%
Pujehun	8%	5%	8%	79%
Western Rural	17%	42%	26%	16%

Table 2.6 - Maternal/caretaker health

	Have you been given maternal health record?	Do you have record now?	Recent diarrhoea	If yes how many times?
Kailahun	87%	38%	20%	3.2
Kenema	72%	33%	18%	3.9
Kono	96%	76%	24%	2.8
Bombali	82%	34%	18%	2.6
Kambia	87%	32%	28%	3.2
Koinadugu	60%	32%	25%	2.2
Port Loko	78%	21%	29%	4.2
Tonkolili	79%	53%	31%	3.9
Bo	94%	34%	16%	3.6
Bonthe	77%	44%	14%	3.8
Moyamba	93%	66%	14%	3.3
Pujehun	98%	52%	13%	2.8
Western Rural	89%	36%	17%	3.8

Table 2.7 – Pregnancy and antenatal care

	Currently pregnant	If so do you see anyone?	Take iron tablets?	Tablets from health centres	Prenatal care last pregnancy	If so, number of visits	Take worm pills?
Kailahun	8%	96%	95%	96%	93%	7.0	14%
Kenema	9%	96%	99%	88%	97%	5.5	28%
Kono	7%	96%	95%	99%	97%	5.4	48%
Bombali	20%	72%	86%	94%	84%	3.8	39%
Kambia	9%	90%	93%	96%	90%	4.0	41%
Koinadugu	14%	76%	68%	98%	64%	5.6	24%
Port Loko	8%	92%	92%	98%	87%	4.6	48%
Tonkolili	8%	88%	90%	97%	90%	5.9	56%
Bo	12%	93%	96%	98%	94%	4.8	38%
Bonthe	13%	40%	88%	98%	83%	5.7	245
Moyamba	11%	93%	96%	83%	94%	7.0	54%
Pujehun	11%	38%	98%	100%	98%	4.8	31%
Western Rural	10%	87%	95%	97%	92%	5.3	48%

Table 2.8 – Antenatal care

	During pregnancy…				Received Vitamin A within 6 weeks of delivery
	Took malaria pills	Saw skilled personnel	Took TT immunization	Slept under impregnated nets	
Kailahun	81%	81%	92%	12%	23%
Kenema	60%	88%	95%	18%	24%
Kono	78%	94%	93%	16%	26%
Bombali	54%	70%	73%	8%	18%
Kambia	46%	84%	82%	6%	19%
Koinadugu	47%	62%	56%	10%	22%
Port Loko	54%	78%	83%	48%	14%
Tonkolili	65%	84%	81%	12%	46%
Bo	56%	88%	92%	13%	10%
Bonthe	73%	34%	81%	45%	21%
Moyamba	64%	89%	93%	32%	20%
Pujehun	76%	36%	96%	33%	34%
Western Rural	64%	82%	87%	10%	11%

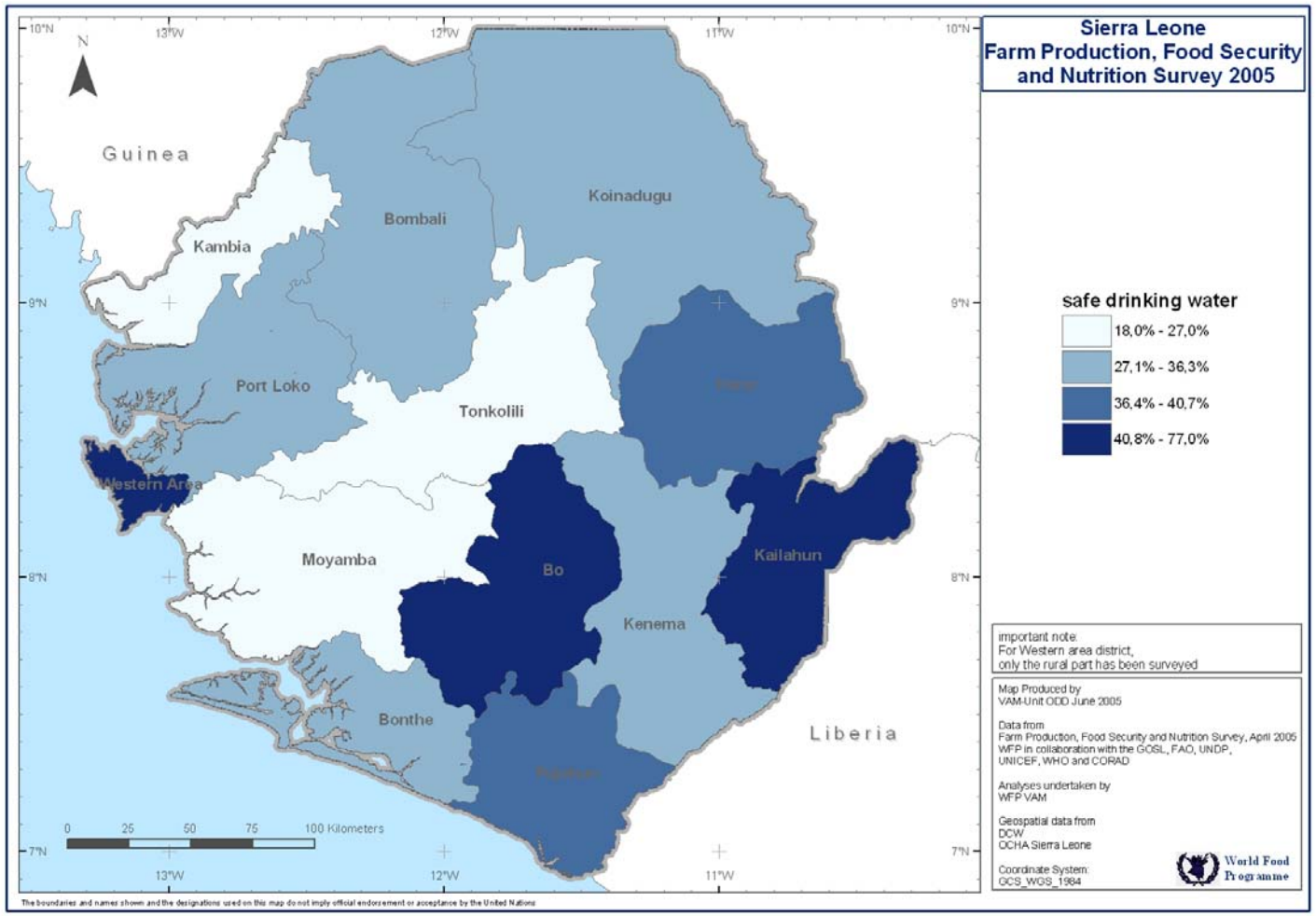
Table 2.9 – Where children were delivered

	Home	MCH post	Community health centre	Hospital	NGO mission	Other
Kailahun	59%	15%	13%	5%	6%	1%
Kenema	56%	11%	23%	6%	1%	4%
Kono	82%	11%	6%	2%	-	-
Bombali	94%	3%	1%	2%	-	1%
Kambia	86%	4%	5%	4%	1%	< 1
Koinadugu	90%	2%	2%	4%	-	2%
Port Loko	89%	3%	3%	5%	-	-
Tonkolili	71%	20%	6%	2%	< 1	1%
Bo	66%	13%	14%	4%	-	3%
Bonthe	57%	5%	4%	7%	1%	26%
Moyamba	82%	7%	4%	7%	-	1%
Pujehun	85%	3%	2%	9%	-	-
Western Rural	74%	5%	4%	10%	1%	6%

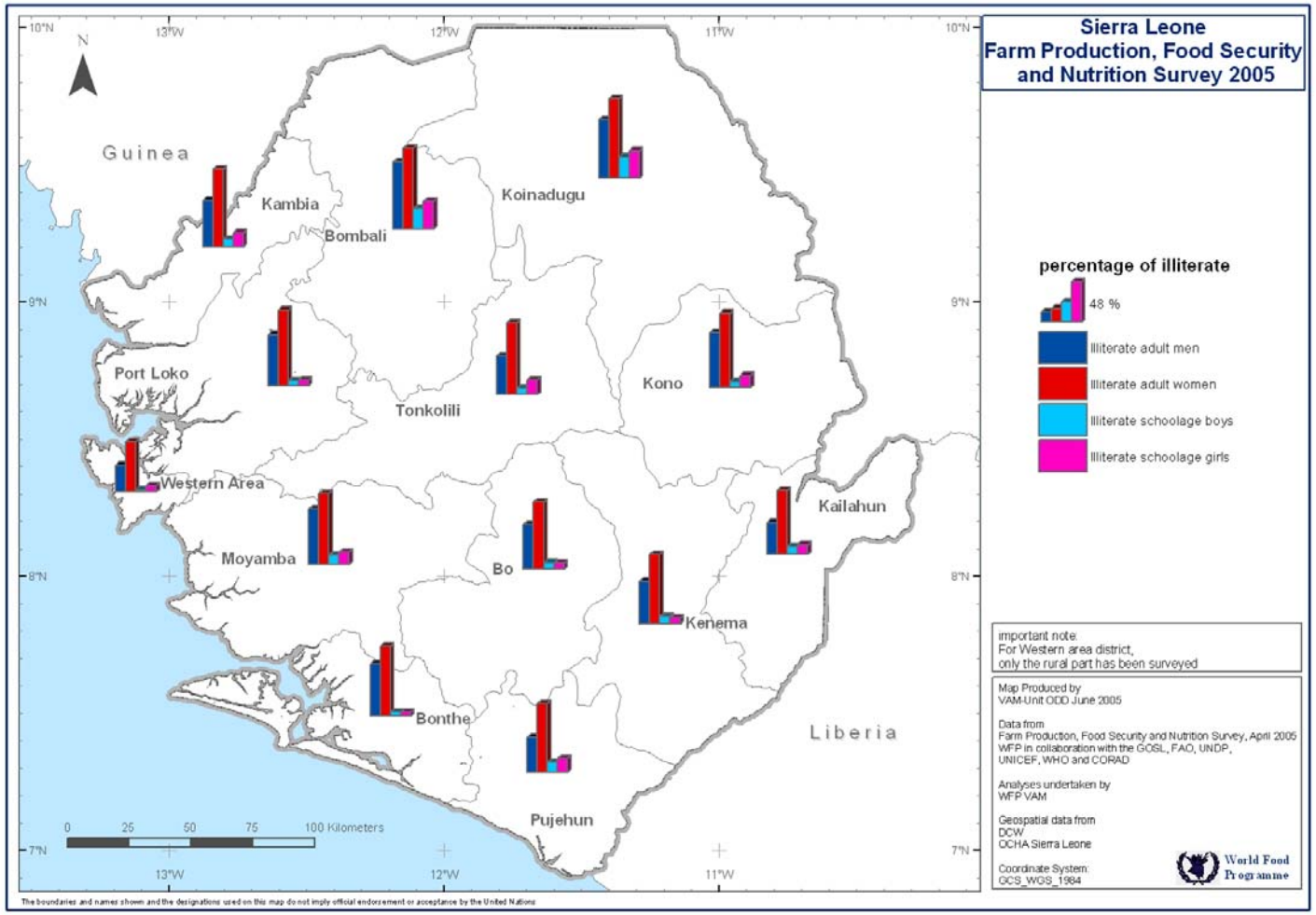
Table 2.10 – Who assisted with delivery?

	Doctor	Nurse/ midwife	MCH clinic	TBA	Relative/ friends	No one
Kailahun	1%	9%	24%	64%	1%	-
Kenema	< 1	22%	22%	50%	2%	< 1
Kono	< 1	11%	17%	69%	2%	-
Bombali	1%	2%	5%	73%	15%	-
Kambia	1%	10%	11%	62%	14%	-
Koinadugu	-	7%	6%	54%	31%	1%
Port Loko	1%	5%	7%	86%	-	-
Tonkolili	1%	3%	22%	52%	19%	2%
Bo	2%	6%	27%	59%	2%	2%
Bonthe	1%	15%	4%	71%	6%	1%
Moyamba	< 1	9%	13%	75%	1%	-
Pujehun	-	7%	5%	57%	11%	19%
Western Rural	1%	23%	9%	59%	6%	-

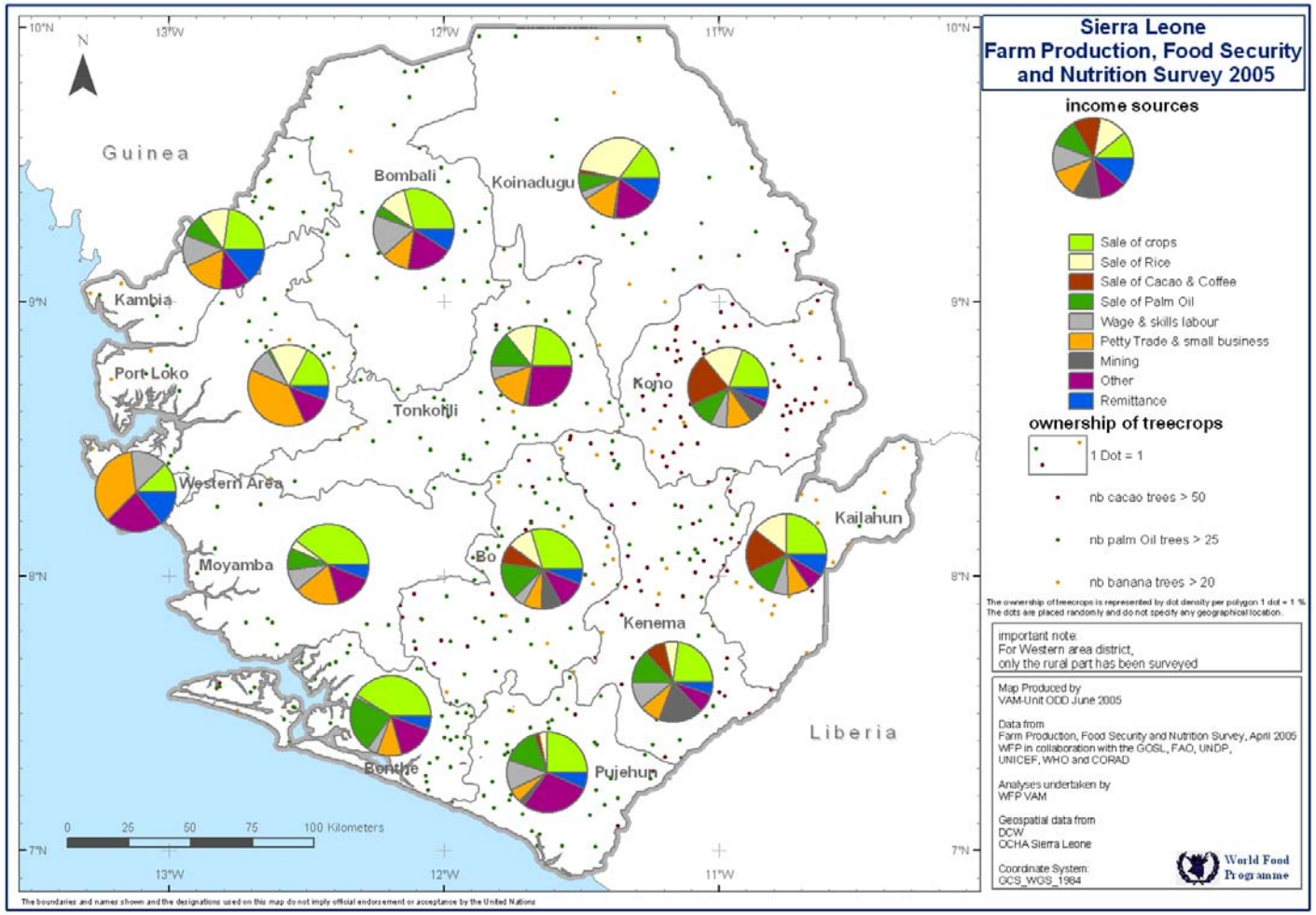
Sierra Leone – Access to safe drinking water



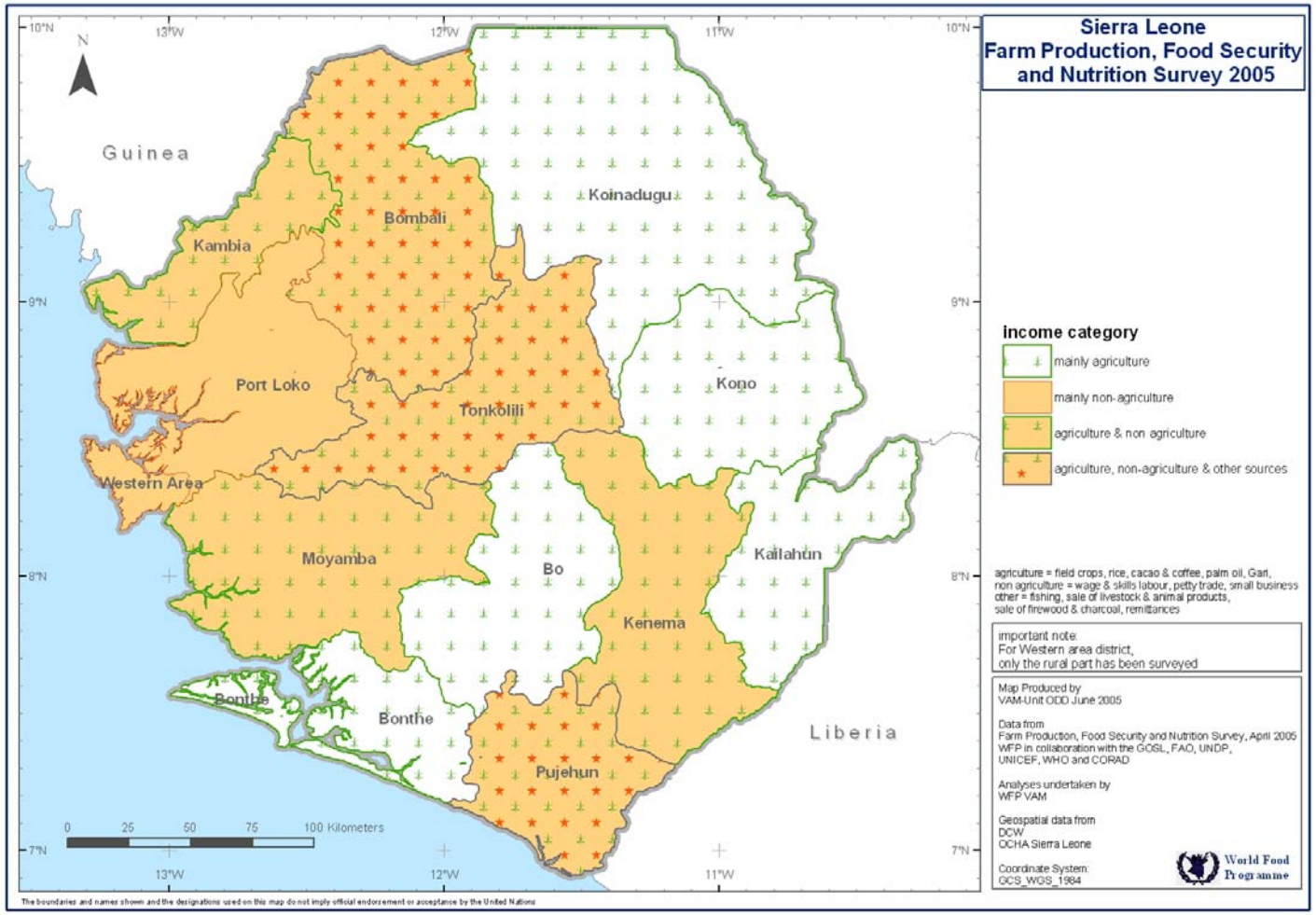
Sierra Leone – Percentage of illiteracy



Sierra Leone – District wise income sources and ownership of trees



Sierra Leone – Income category by district



Sierra Leone – Income sources and income categories by district