Committee for Planning and Investment
National Statistics Centre

SUMMARY REPORT

FOOD INSECURITY ASSESSMENT
BASED ON FOOD CONSUMPTION STATISTICS
DERIVED FROM THE 2002/03 LAO PDR EXPENDITURE AND
CONSUMPTION SURVEY

VIENTIANE
August 2007

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ACKNOWLEDGEMENT

The National Statistics Centre (NSC) is very pleased to present this report, which took roughly one year to produce, with the technical contributions of many individuals and organizations. These included the Ministry of Agriculture and Forestry, the Ministry of Public Health, Ministry of Labor and social welfare and the Food and Agriculture Organization (FAO) of the United Nations, as well as the financial support of the European Community. We thus wish to take the occasion to thank all those who were involved in its preparation.

The findings used data collected in the Lao Expenditure and Consumption Survey (LECS) conducted in 2002-03, in particular data on food consumption and expenditure, economical access to food, nutrients, and energy contained in food consumed by people according to income levels and geographical location. The results presented were obtained by using data from a sample of more than 8000 households which were then used to make estimates for all households in Lao PDR.

I am especially grateful to FAO for its substantial technical assistance, as well as for sharing the Food Security Statistics Module (FSSM) software. Special thanks is also given to Mr Seevalingum Ramasawmy and Ms Nathalie Troubat for helping in the training activities concerning the use of the FSSM, Ms Ana Moltedo for support in preparing files, Mr Ricardo Sibrián and Mr Luca Alinovi in helping with the delivery of a preliminary version made by the NSC to national and international stakeholders in food security issues in Lao PDR in National Seminar, Ms Anne Nielsen in making possible national FAO-NSC liaison and Ms Françoise Trine for the NSC-FAO liaison at FAO Headquarters level.

My thanks also go to the technical assistance of the National Statistics Centre, in particular to Mr Yavang Vachoima, Deputy Director General, Mr Sengmany Keolangsy and Mr Vilaysook Sisoulath. Also thanks to the Ministry of Health and the Ministry of Agriculture and Forestry for invaluable technical assistance in the successful completion of this report.

I hope that this report provides good, useful, general information and data to help in government policy planning concerning food deprivation and poverty eradication. We also wish to point out that we would be grateful to receive any comments or suggestions concerning the contents of this document, as this will help us to improve any future publications we make in the future conduction of such work, as well as our database.

Vientiane, Lao PDR, August 2007

DR Samaychanh Boupha

Director General, National Statistics Centre

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EXECUTIVE SUMMARY

1. Twenty three percent of the population in Lao PDR was suffering from food deprivation based on food consumption data collected in the LECS III conducted in 2002/2003. At the sub national levels, 17% of the population living in urban areas was undernourished compared to 25% in rural areas and 55% of the population having the lowest income. Food was not distributed equally among households as food deprivation situation was more dramatic in the mountainous regions of the North than in the rice growing regions of South. The most vulnerable groups were amongst households with low income who derived about 87 per cent of their dietary energy consumption from their own production (subsistence living).

2. At national level the aggregated weighted prevalence of critical food poverty was around 18 % of the population and did not have enough income to buy the necessary food to meet the daily minimum energy requirement of 1638 kilocalories.

3. The national average daily dietary energy consumption was of 2090 kcal per person. Nationwide the average daily dietary energy consumption of the food deprived population was about 1401 kcal, it would require an additional average of 237 kcal per day for this food insecure population to reach the minimum of dietary energy of 1638 kcal and an additional 452 kilocalories to reach the average dietary energy consumption of 2090 kcal.

4. On average, the Laotian paid 1413 LAK to acquire 1000 kilocalories. This cost is much higher in urban areas (1830 LAK) compared to that in rural areas (1239 LAK). The share of food expenditures in total expenditures was 52% at national level. This ratio decreases as income increases from 66% for low income households to 44% for households with the highest income. The Engel ratio was higher in rural areas (56%) than in urban areas (46%). Forty-five percent of the monetary value of food consumed was coming from own production compared to 50% acquired from purchases showing a high degree of subsistence forming in the Laotian community.

5. Carbohydrates contributed to 73 percent of total dietary energy of the food diet, followed by protein and to a less extent fat. Consumption of fats was too low according to WHO guidelines for a balanced diet. Cereals contribute to 76% and meat to 12% of the dietary energy consumption of household in rural areas. These shares fall respectively to 65% and 8% in urban areas.

6. These new indicators on food insecurity are inputs useful for planning and design of policies and interventions with impact on food security at national and sub national levels. They will allow decision makers to monitor progress towards the MDG target of halving food deprivation and poverty by 2015. Future surveys should include other dimension useful for targeting poor and food insecure population groups.

ABBREVIATIONS

ADER	Average Dietary Energy Requirement
CV	Coefficient of variation
DEC	Dietary Energy Consumption
FAO	Food and Agriculture Organization
FBS	Food Balance Sheet
FSSM	Food Security Statistical Module
LECS	Lao PDR Expenditure and Consumption Survey
MDER	Minimum Dietary Energy Requirement
MDG	Millennium development Goals
NSC	National Statistical Centre of Lao PDR
USDA	US Department of Agriculture
WFS	World Food Summit
WHO	World Health Organization

BALANCED DIET

The diet is balanced when is judged to be consistent with the maintenance of health in a population. The balance can be examined in terms of the contributions of the various energy-supplying macronutrients and other nutrients. A macronutrient-based balance food consumption pattern should contribute to total energy from proteins, fats and carbohydrates within recommended ranges as follows: proteins from 10% to 15%, fats from 15% to 30% and carbohydrates from 55% to 75% as from a technical report of a 2002 joint WHO/FAO Expert Consultation (WHO 2003).

CRITICAL FOOD POVERTY

The prevalence of critical food poverty (PCFP) refers to the proportion of persons living on less than the cost of the macro-nutrient balanced MDER (for MDER see below and for balanced diet see above) with food prices from households in the lowest income quintile. It can be estimated at national and sub-national levels.

DIETARY ENERGY UNIT COST

The dietary energy unit cost is the monetary value of 1000 kilo-calories of food consumed.

DEPTH OF FOOD DEPRIVATION

It refers to the difference between the average dietary energy consumption of an undernourished population and its average minimum energy requirement (MDER).

DIETARY ENERGY CONSUMPTION

Food consumption expressed in energy terms. At national level, it can be calculated from the FBS (see below); this estimate refers to both private and public food consumption. At sub-national levels is estimated using food consumption data in quantities collected in national household surveys; this estimate refers to private food consumption.

DIETARY ENERGY DEFICIT

Same as Depth of Food deprivation

DIETARY ENERGY REQUIREMENT

It refers to the amount of energy required by an individual to maintain body functions, health and normal physical activity.

The *minimum* dietary energy requirement (MDER) refers to the amount of energy considered adequate to meet the energy needs for normative *minimum* acceptable weight for attained height while performing *light* physical activity in good health.

The *average* dietary energy requirement (ADER) refers to the amount of energy considered adequate to meet the energy needs for normative *average* acceptable weight for attained height while performing *moderate* physical activity in good health.

FOOD BALANCE SHEETS

The food balance sheets (FBS) are derived for each commodity using data on food production and imports and opening-year food stocks after deduction of food export and end-year food stocks and all non-food consumption (animal feed, industrial use, seed, wastage and other non-food use); this estimate refers to both private and public food consumption.

FOOD CONSUMPTION DISTRIBUTION

Food consumption distribution refers to the variation of consumption within a population. It reflects both the disparities due to socioeconomic factors and differences due to biological factors, such as sex, age, body weight and physical activity levels.

FOOD DEPRIVATION

Food deprivation refers to the condition of people whose food consumption is continuously below its requirements. FAO's measure of food deprivation refers to the proportion of the population whose dietary energy consumption is below the MDER.

FOOD INSECURITY

A situation when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power or inappropriate distribution. Food insecurity may be chronic, seasonal or transitory.

FOOD SECURITY

 A situation that exists when all people, at all time, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

GINI COEFFICIENT

The Gini coefficient is a measure of inequality and ranges from 0 (perfect equality) to 1 (perfect inequality). In this document it refers to inequality of income.

GINI COEFFICIENT DUE TO INCOME

The Gini coefficient is a measure of inequality in food consumption due to income and ranges from 0 (when income has no effect on food consumption) to 1 (when food consumption depends only on income). In this document it refers to inequality in food consumption in monetary or in energy terms.

HOUSEHOLD CONSUMPTION EXPENDITURE

Total household consumption expenditure as defined in the United Nations guidelines is the sum of all monetary value or expenditure on goods and services intended for consumption, goods produced and consumed from own production or own-business stocks, including the imputed rent of owner-occupied housing, and goods and services received in kind.

HOUSEHOLD FOOD CONSUMPTION EXPENDITURE

Household consumption expenditure refers to food consumed by household members during a specified period, at home and outside the home, for example, at restaurants, bars, the work place, school, and so on. It includes food from all sources, purchased or from garden or farm. Further

deductions should be made to allow for wastage and losses occurring from acquisition to cooking and plate and kitchen wastage.

HOUSEHOLD NON CONSUMPTION EXPENDITURE

It refers to income taxes, other direct taxes, pension and social security contributions, remittances, gifts and similar transfers made by the household in monetary terms or in kind, including food such as given away raw or ready to eat.

HOUSEHOLD EXPENDITURE

Consumption plus non-consumption expenditure made by the household, including food.

HOUSEHOLD INCOME

Income is the sum of all receipts, in money or in kind, which as a rule are received regularly and are of recurring nature, including food.

INCOME ELASTICITY OF FOOD DEMAND

The income elasticity of food demand measures the responsiveness of the food demanded (quantity, monetary or nutrient terms) to a unit change of income.

INCOME INEQUALITY

Inequality refers to disparities in the distribution of income.

INEQUALITY IN FOOD CONSUMPTION DUE TO INCOME

The inequality refers to the variation of the food consumption level within a population due to disparities in the income distribution**.**

KILOCALORIE (Kcal)

Kilocalorie is a unit of measurement of dietary energy. In the International System of Units (ISU), the universal unit of dietary energy is the joule (J) but Kcal is still commonly used. One kilocalorie = 4.184 kilojoules (KJ).

MICRONUTRIENTS

The vitamins, minerals and certain other substances required by the body in small amounts. They are measured in milligrams or micrograms.

NUTRITIONAL STATUS

The physiological state of an individual that results from the relationship between nutrient intakes a requirements and from the body's ability to digest, absorb and use these nutrients. Lack of food as well as poor health and sanitation and inappropriate care and feeding practices are the major causes of poor nutritional status.

SHARE OF FOOD EXPENDITURE

The proportion of household consumption expenditure allocated to food; it is also known as Engel ratio.

UNDERNOURISHMENT

Same as Food Deprivation.

I.   Background

Lao People's Democratic Republic (Lao PDR) has a population of 5.6 million of which 65 percent are concentrated along the Mekong River and the low land areas. Lao PDR is a least developed country in the East Asia region, with an estimated yearly per capita income of US$310 in 2002. More than three-quarters of the people of Lao lives on less than US$2 a day and the country's social indicators are among the alarming in the region.

The poor economic performance of the Lao PDR can be widely explained by the geographic localization and the topography of the country. Lao PDR is the only Southeast Asian land locked country situated in the centre of Indo-China and surrounded by Thailand, Cambodia, Vietnam, China and Myanmar (Burma). The total land area is 236800 km^2 of which approximately 87% is mountainous, with elevations above 500 meters typically characterized by steep terrain, narrow river valleys, and low agricultural potential. This mountainous landscape extends across most of the north of the country, except for the plain of Vientiane and the Plain of Jars in Xiangkhuang Province. The southern of the country contains large level areas that are well suited for extensive paddy rice cultivation and livestock raising. Over 40% of Lao PDR territory is forest and more than three quarters of the country's population are still engaged in subsistence farming.

Because of its mountainous topography and lack of development, Lao PDR has few reliable transportation routes. This inaccessibility has historically limited the ability of any government to maintain a presence in areas distant from the national or provincial capitals and has limited interchange and communication among villages and ethnic groups. The Mekong and Nam Ou are the only natural channels suitable for large-draft boat transportation, and from December through May low water limits the size of the craft that may be used over many routes.

The steep mountains and lack of roads have caused upland ethnic groups to rely entirely on pack baskets and horse packing for transportation.

As described in the analytical section of this report, food security relies among other on market access facilities. In case of Lao PDR, the particular geographic characteristics of the country restrict access to markets to some groups of the population. With this respect, the food security situation using the food data from the 2002/03 Lao PDR Expenditure and Consumption Survey (LECS III) was assessed at national level but also at regional level and for sub national groups of the population.

II. THE SURVEY

The Lao Expenditure and Consumption Survey (LECS) is the largest and most important survey that the National Statistical Centre (NSC) has undertaken. It is not only large in sample size but it also covers a wide range of subject matter areas related to household living situation, and it is conducted during a period of 12 months. The LECS III survey was undertaken from March 2002 to February 2003 (12 months) following a regular five year program. The first and second LECS were conducted respectively in 1992/93 and 1997/98. Compared to previous surveys, the LECS III contains some additional modules for an improved poverty monitoring and analysis at national and sub national levels and included a sample of 8100 households.

(A) Scope and purpose of the survey

The LECS III covers the whole of Lao PDR. The study unit is the household and the survey covers economic transactions of households to estimate household income, consumption and production and a number of social indicators. LECS is a multi- purpose survey. Such surveys are designed in various ways with emphasis on particular issues. In 1992/93 the LECS was combined with a large module of social indicators, Lao Social Indicator Survey (LSIS). The 1997/98 and 2002/03 versions focused on economic activities of the households. The LECS III sample was made up of 8,100 households from 540 villages, 15 households per village, enumerated over 12 months starting 1st of March 2002 and ending 28th of February 2003. The sample was selected using the NSC village list as a sampling frame.

(B) Sample design and selection

A two-stage sampling scheme was used. At the first stage a sample of villages was selected using the method of Probability Proportional to Size (PPS) sampling. The villages were stratified in the following way. Firstly the villages were grouped by province, and secondly into urban villages, rural villages with access to road and rural villages without access to road. In all, the village population was grouped into 18 (provinces) x 3 (urban/rural classes) = 54 sampling strata. The allocation was somewhere in between equal allocation and proportional allocation, the number of sample villages in the province ranging from 12 to 48. The sample of villages in each province was allocated randomly to a survey month so that each survey month had approximately the same number of sample villages. In the second stage a systematic sample of 15 households was selected in each sample village. The selection was based on an updated list of households in the villages at the time of the survey. If the total number of households was less than 15 in four villages, all households were selected for the survey.

Data were entered into a database continuously. Data screening and editing were also done on a continuous basis as well as after all the data were entered.[1] Finally from the original sample of 8100 households, 8 households were excluded for the analysis and the final sample used for the analysis was composed of 8092 households, of which 1604 were from urban areas and 6488 from rural areas grouped into three regions as shown in table 1 below.

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[1]. For further information on the Survey methodology refer to "The Household of Lao PDR, Social and Economic Indicators, LECS 2002/03"March 2004, Committee for Planning and Cooperation, NSC.

Table 1

Sample allocation of the LECS III

		regions			economic area		Total
		Northern regions	Central regions	Southern regions	Urban	Rural	
2	**Phongsaly**	360			45	315	360
3	**Luangnamtha**	360			60	300	360
4	**Oudomxay**	360			60	300	360
5	**Bokeo**	358			44	314	358
6	**Luangprabang**	540			60	480	540
7	**Huanphanh**	539			30	509	539
8	**Xayabury**	540			90	450	540
9	**Xiengkhuang**	360			75	285	360
1	**Vientiane C**		720		540	180	720
10	**Vientiane**		540		60	480	540
11	**Borikhamxay**		359		75	284	359
12	**Khammuane**		540		90	450	540
13	**Savannakhet**		720		135	585	720
18	**Xaysomboun SR**		180		15	165	180
14	**Saravane**			539	45	494	539
15	**Sekong**			267	60	207	267
16	**Champasack**			540	90	450	540
17	**Attapeu**			270	30	240	270
	Total	**3417**	**3059**	**1616**	**1604**	**6488**	**8092**

(C) Survey operations and main contents

The statistical provincial offices were in charge of the field operations with supervision from NSC. Data on expenditure and income were collected for a whole month based on daily notation of all transaction on consumption, agriculture production and household businesses. Interviews with household heads or other household members were held during the month. At the end of the month households were asked about purchases of durable goods, e.g. furniture, TV, cars, motorcycles, etc., during the receding 12 months. In the middle of the month one 24 hour period was selected to record data on time use for all persons in the household ten years and above. LECS III contains six modules, a diary to record household transactions, household questionnaire and household time use, prices from markets, village questionnaire to village head and a primary school survey.

(D) Food data and their limitations

Data on expenditure and consumption were collected for a whole month based on daily recording of all transactions in diaries. Households were asked to report details of the household product acquired such as the name of the product, the date of acquisition, the unit of quantity measurement together with the corresponding quantity acquired and the amount paid. The source and purpose of the acquisition were also asked for. Food data were available for more than 150 food items and include food expenditures acquired from purchases and own production as well as food taken away from home. Household food consumption from own production was also collected with quantities and monetary values estimated.

The data made available for the food consumption and security analysis presented few limitations as listed below:

1) About seventeen different units of quantity of measurement were used to report quantities of acquired or consumed food ranged from the standard measures of kilogram, gram, and liters to local units such as bundles, bags, baskets, pieces. There were a large number of food products having those local units of quantity measurement of which no gram equivalent was available. Based on some assessment of those units in Khua Din market of Vientiane, it was possible to have some rough estimation for those units as to be able to obtain the equivalent gram conversion. It must be noted that these estimations varies among the different villages of the provinces and are likely to affect the corresponding nutrient values of those quantities.

2) Since Lao PDR does not have any food composition table, the nutrient conversion values for the 150 food items were obtained from the ASEAN food composition table supplemented with other references from FAO and USDA Nutrition website. Those food products are similar to that consumed in Lao PDR but not exactly the same so the energy and nutrient values may not be as precise as they should be.

3) In most cases, food consumption from own agriculture production was overestimated in both quantity and monetary terms. It is suspected that the collected food details relate more to the food production than the food consumption. These abnormal values were adjusted using the unit value of those food items at the village or province levels.

4) Some rice expenditures were reported in the diary as a monthly expenditure while in fact those expenditures were build-in stocks meant to be used either for own production or to be consumed over the year.

III. Results and Findings

The FAO uses the prevalence of food deprivation as defined by the indicator 5 of the first MDG to measure the food situation of a country at the national and sub national levels. The prevalence of food deprivation depends among others on three components. First, the amount of dietary energy contained in the food consumed; second, the inequality in access to food mediated mainly by income; and three, the minimum dietary energy consumption (MDER) for a low acceptable weight for attained heights to be healthy enough and perform a light physical activity for different groups of age and sex. MDER is estimated at the national and sub national levels using country data of height and age sex structure of the different population groupings. However, the MDER of the different groupings were estimated only with inputs of age sex structure from LECS III. Height data collected in the LECS III could not be used due to some inconsistencies in the values. At national level, the estimated MDER was 1638 kilocalories per person per day and was used as the cut-off point of the distribution function of dietary energy consumption for estimating the prevalence of food deprivation.

The Food Security Statistics Module (FSSM) developed by FAO Statistics Division for a comprehensive food consumption analysis produces a wide range of useful statistics to analyze the situation of food consumption and food security in the country at national and sub national levels. This report presents some of these statistics at national level and for five different sub groups of population: income, urban/rural areas, size of the household, age of the head of the household and regions.

(A). Magnitude of food deprivation

At national level, an average of 23 percent of the Laotian population was food deprived in 2002/03 (figure 1 below).

Figure 1

Food deprivation, national and sub national level - Lao PDR, LECS 2002/03
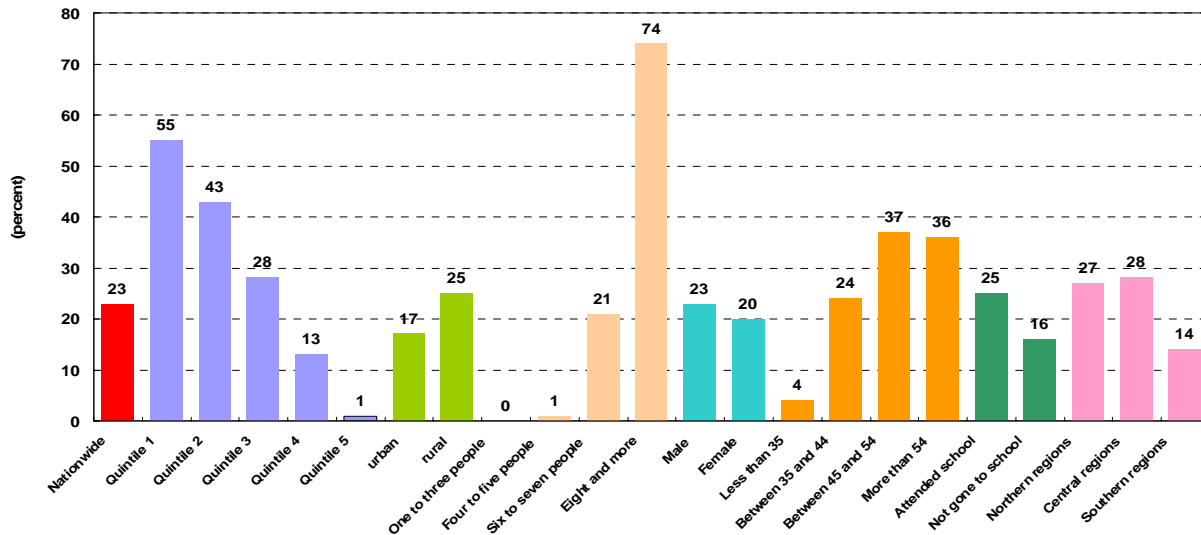
This moderate level of food deprivation did not reflect the overall situation of food insecurity in the different sub national population groupings. Significantly high levels of food deprivation were noted among the population groups living in large number of members in households (sizes of 8 or more members) and with the low income. The Laotian average household size was about 6.1 persons and households of 8 persons or more constituted of about one fourth of the household population in Laos. Population living in small households and whose heads were young were food secure having a level of food deprivation of less than 5. Seventeen per cent of the population living in urban areas was undernourished compared to 25% in rural areas. The relatively high levels of food deprivation were observed in the regions of the North (27%) and Central (28%) and those living in rural areas (25%). Low levels of food deprivation were in the southern regions and in urban areas.

(B) Depth of food deprivation

Nationwide the average daily consumption of food deprived people was about 1401 kcal, it would require an additional 237 kcal per day for this population to reach the minimum of dietary energy (MDER) of 1638 kcal needed to maintain a healthy life and perform a minimum level of physical activity, and an additional 452 kilocalories to reach the average dietary energy consumption of 2090 kcal (figure 2 below).

Figure 2.

Depth of Hunger - Lao PDR, LECS 2002/03
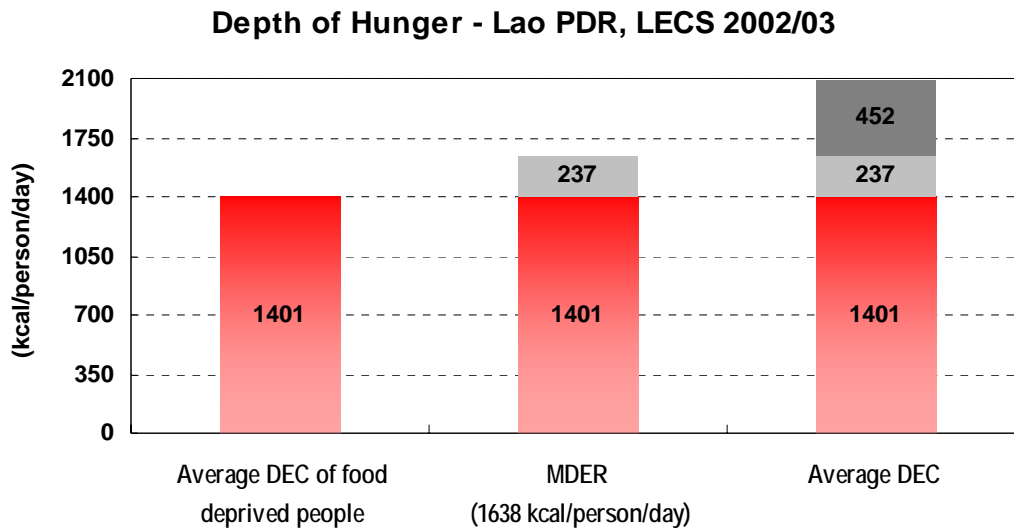
These deficits were at national level, but the intensity of food deprivation differs and widen within groups of population. For instance, the difference of food consumed in average by food deprived people in rural and urban areas was of 102 kcal per person per day but it would require 866 kilocalories for food deprived population of the urban area to reach the 2350 kilocalories (average DEC) consumed in average in urban areas while it would take less than 618 kilocalories to reach the 2000 kilocalories consumed in average in rural areas. Another interesting result is that with 2000 kcal per person per day, the average DEC in rural areas was equal the average energy required (2000 kcal/person/day) while the average level of DEC of the population in urban areas with 2350 kcal per person per day was well above its AVDER of 2152 kcal/person/day.

Figure 3

Depth and intensity of hunger in urban and rural areas of Lao PDR, LECS 2002/03
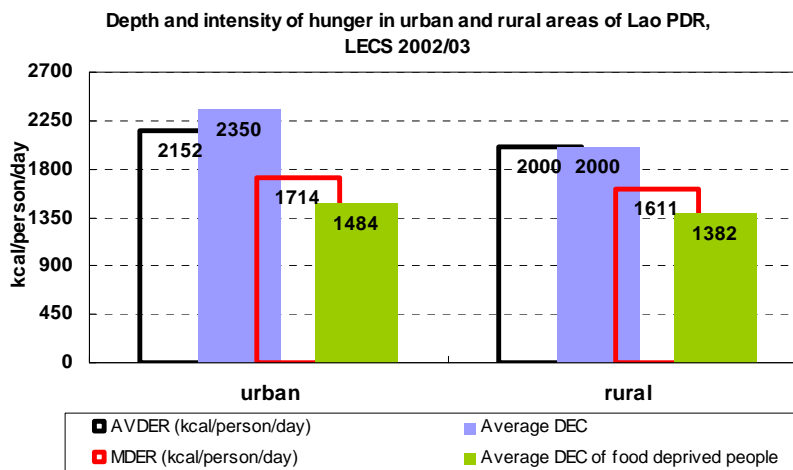
(C) Critical Food Poverty

Critical food poverty was derived using the cost of the minimum energy requirement at the unit calorie cost consumed by the lowest income quintile. The unit calorie cost was from a balanced food basket in terms of contribution to total energy from of proteins (share between 10 to 15%), fats (15 to 30%) and carbohydrates (55 to 75%) in total dietary energy consumption. Note that income deprivation was based on the distribution of total expenditures as proxy of income.

Figure 4
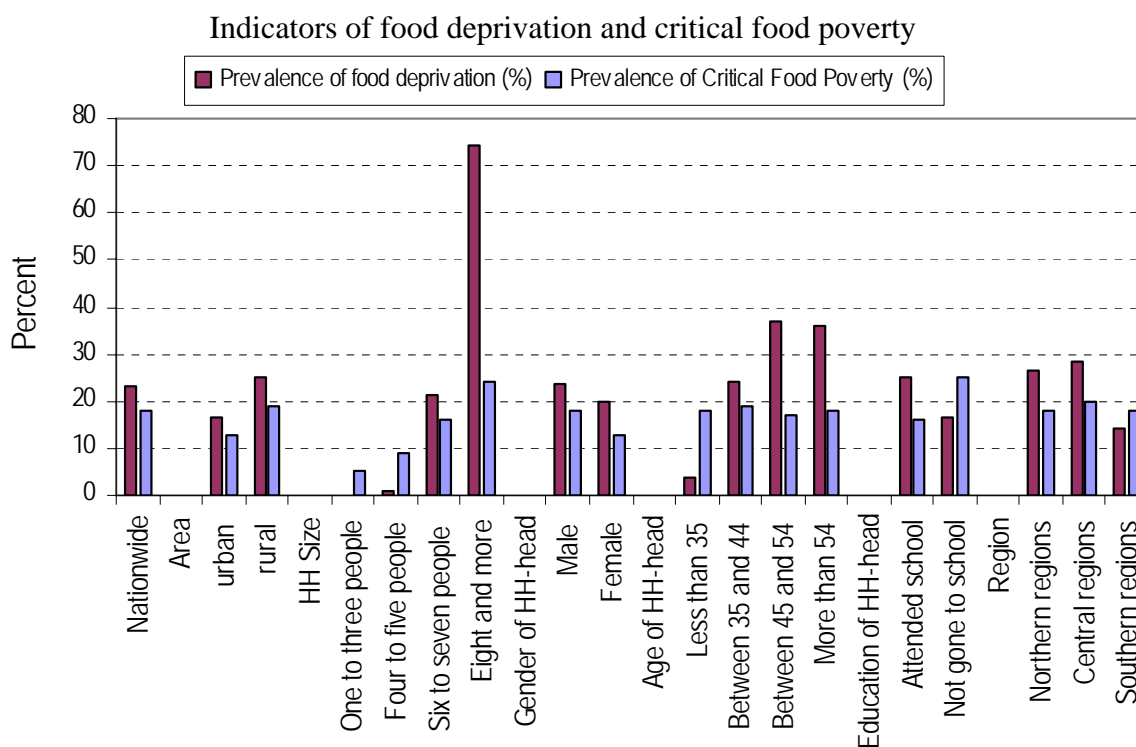
Indicators of food deprivation and critical food poverty

At national level the aggregated weighted prevalence of critical food poverty was around 18% of the population with insufficient income to buy the macro-nutrient balanced MDER of 1638 kilocalories. The prevalence of critical food poverty (18%) was lower than the prevalence of undernourishment (23%) at the national level and in most population groups, except households with heads young, not attended school and in the Southern regions.

The critical food poverty measure is based on distribution of income (proxy total expenditure) while the food deprivation on the distribution of energy consumption. The high levels of critical poverty among the sub population groupings showed high income inequalities among them. Another factor which influenced the critically food poor populations was food price, which is one of the components for evaluating the balanced minimum dietary energy requirement.

(D) Food consumption and expenditures

1. Dietary energy consumption

According to the LECS 2002/03, the average level of dietary energy consumption (DEC) was 2090 kcal per person per day. Food consumption patterns go in opposite direction than food deprivation. Population of low income households or whose head was old or with large number

of people consumed low DEC. DEC decreased with larger household sizes. A significant difference of about 2340 kilocalories was observed between household of less than four members and households with eight members and over. In addition, there were differences by regions of the south had better access to food than the regions of the north due probably to the topography of the regions as the latter are more mountainous.

Figure 5

Dietary energy consumption at national and sub national level - Lao PDR, LECS 2002/03
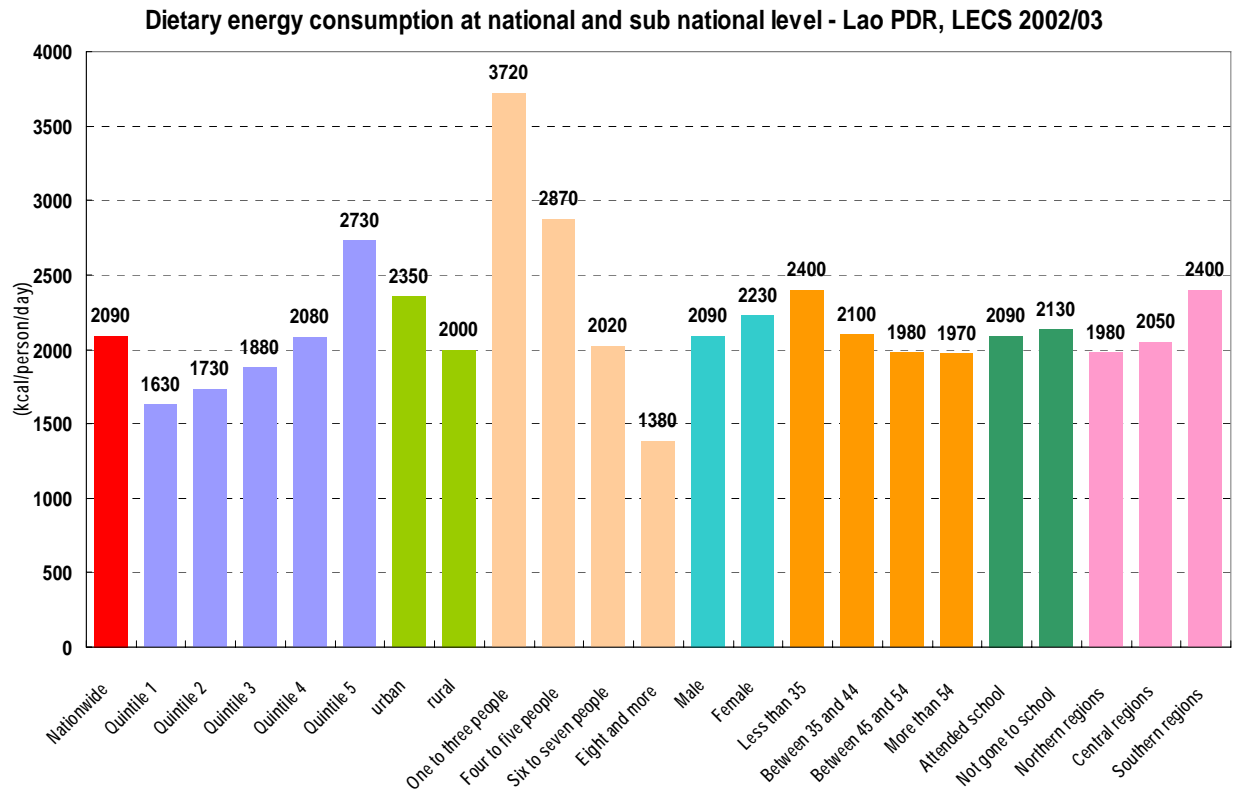
2. Dietary Energy Unit Value

It costs in average 1413 Laotian Kip for a household in Lao PDR to acquire 1000 kilocalories (the costs of energy needed to prepare the food not being included). But this value varied widely according to regions or income level of households, as for instance calories acquired by the highest income households were twice more expensive than those acquired by the lowest income households. The cost of 1000 kilocalories of poor quality in the lowest income households would increase by five percent. Also, the unit value of 1000 kilo- calories in the rice from the South regions was lower than that of the regions of the center with concentrated urban areas in which food was more diversified.

Figure 6

Dietary energy unit monetary value of food - Lao PDR, LECS 2002/03
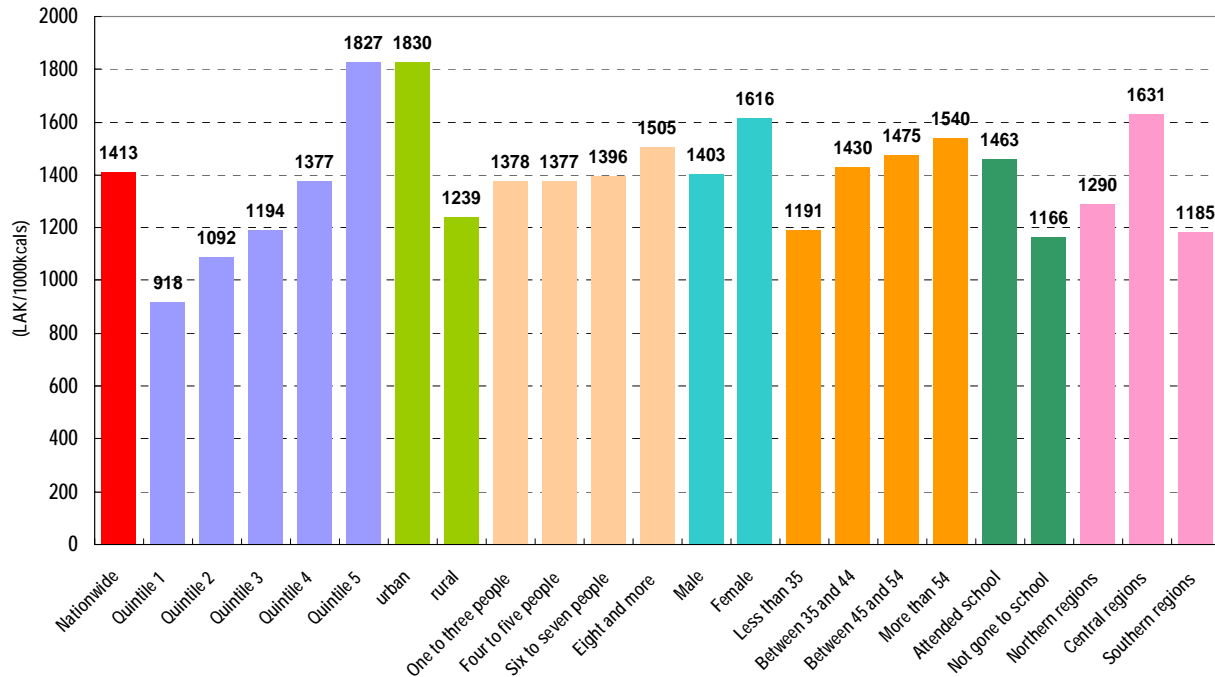
3. Monetary value of food consumed and share of food consumption in total consumption expenditure (Engel ratio)

On average the share of food expenditures in total expenditures was 52%. Again, this ratio differs according to the sub national groups of population as low income households devoted in average 66% of their budget to buy food while this share decreased to 44% for households with the highest income. These findings corroborate the Engel law according to which, the proportion of money households spend on food decreases as their income increases. However, as shown in graph below it was mainly between the 9th and the 10th docile that the impact of income was the most significant, revealing a big income inequality among households of the last deciles as discussed in previous section.

Figure 7

Share of food monetary value to total consumption (%) by Income decile
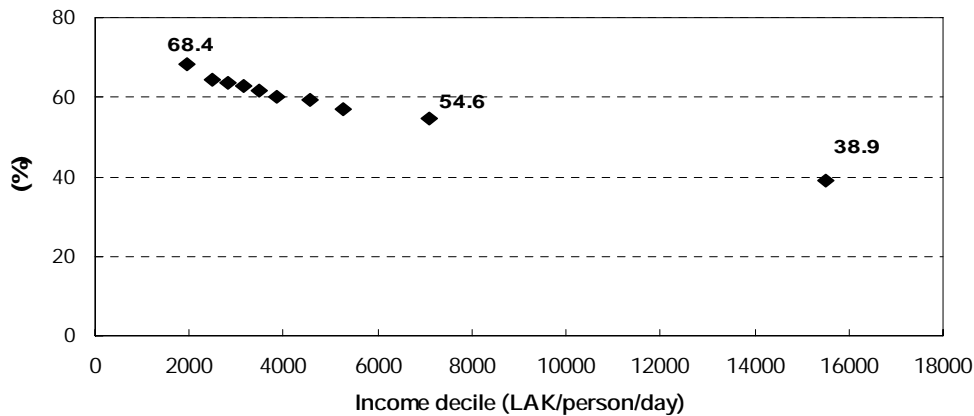
Also, as deprived households were mainly concentrated in rural areas, Engel ratio was higher in rural areas (56%) than urban areas (46%). With a share of 73%, food from purchased was the main source of food acquired in monetary value in urban areas compared to 36% in rural areas ; urban households were more exposed to market access in terms of food supply and price fluctuations.

Figure 8

Share of food expenditure in total expenditure - Lao PDR, LECS 2002/03
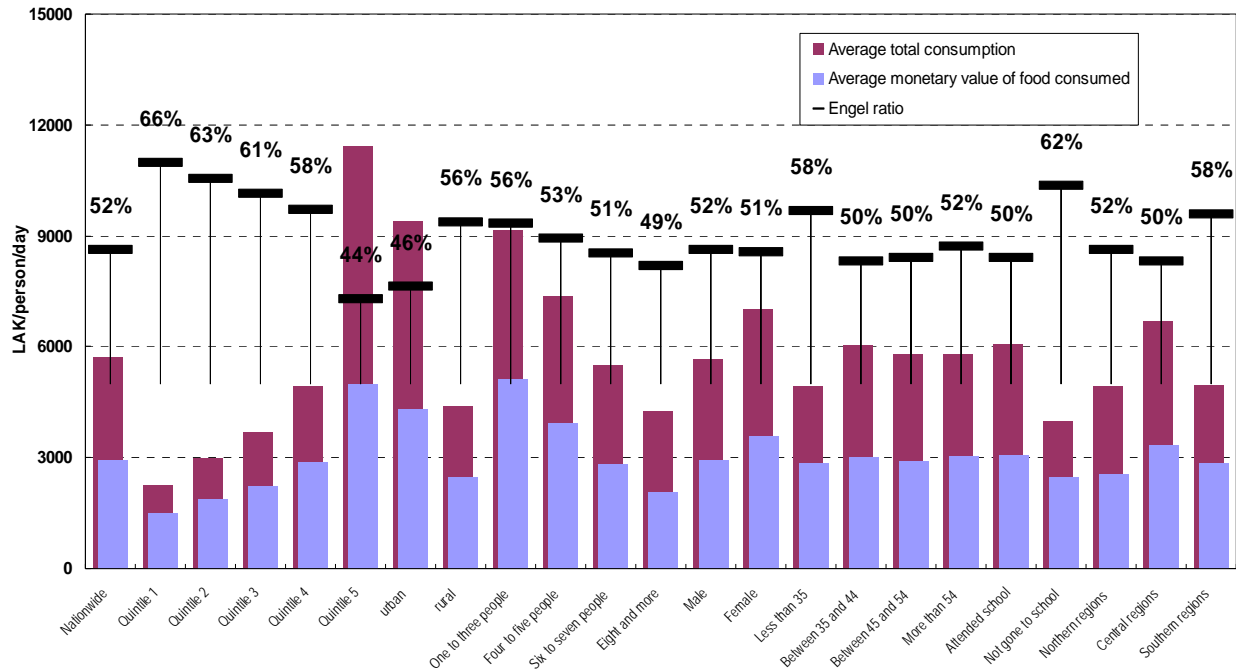
Income was a major determinant of amount of money spent on food as the food share decreased with increasing income quintile. Young households also devoted a bigger share of their budget to buy food than households with older heads. This could be explained by the fact that more than 50% of the households whose head was less than 35 year old were living in the regions of the North while households with older head were mainly located in the central and southern regions.

Figure 9

Sample distribution of households by regions according to the age of the head of the household - Laos, LECS 2002/03

18
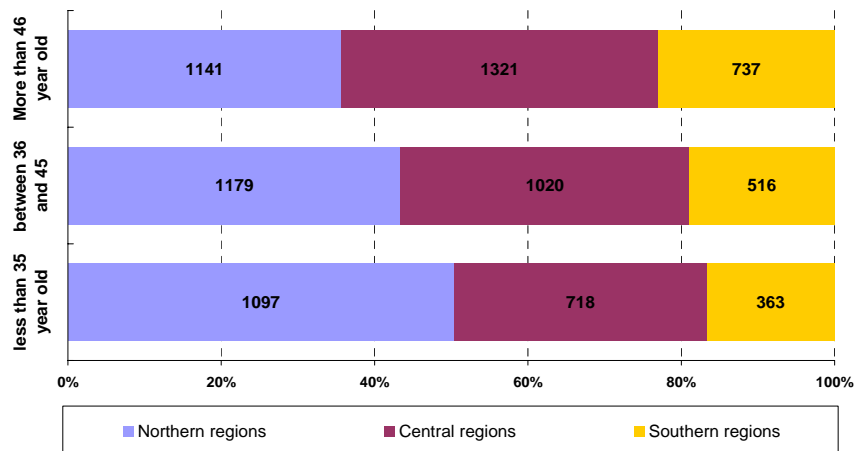
4. Share of food consumption from different sources in total consumption:

As more than 75% of the population were engaged in subsistence farming, 45% of the monetary value of food consumed was coming from own production.

Figure 10

Share of food monetary value by food sources - Lao PDR, LECS 2002/03
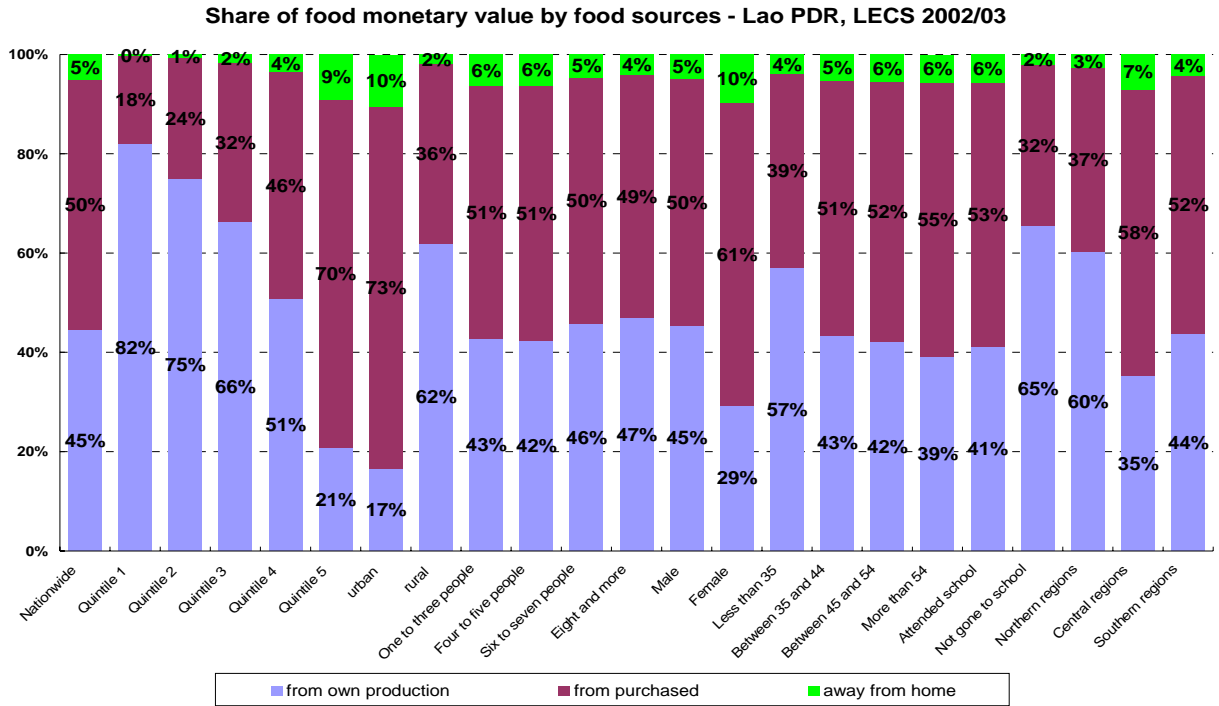
The food share varied widely within the population sub groups. Share was more important for low income households of the rural areas or regions of the North (more than 70%) than for households of the urban areas or high income.

Figure 11

Share of dietary energy consumed by food sources - Lao PDR, LECS 2002/03
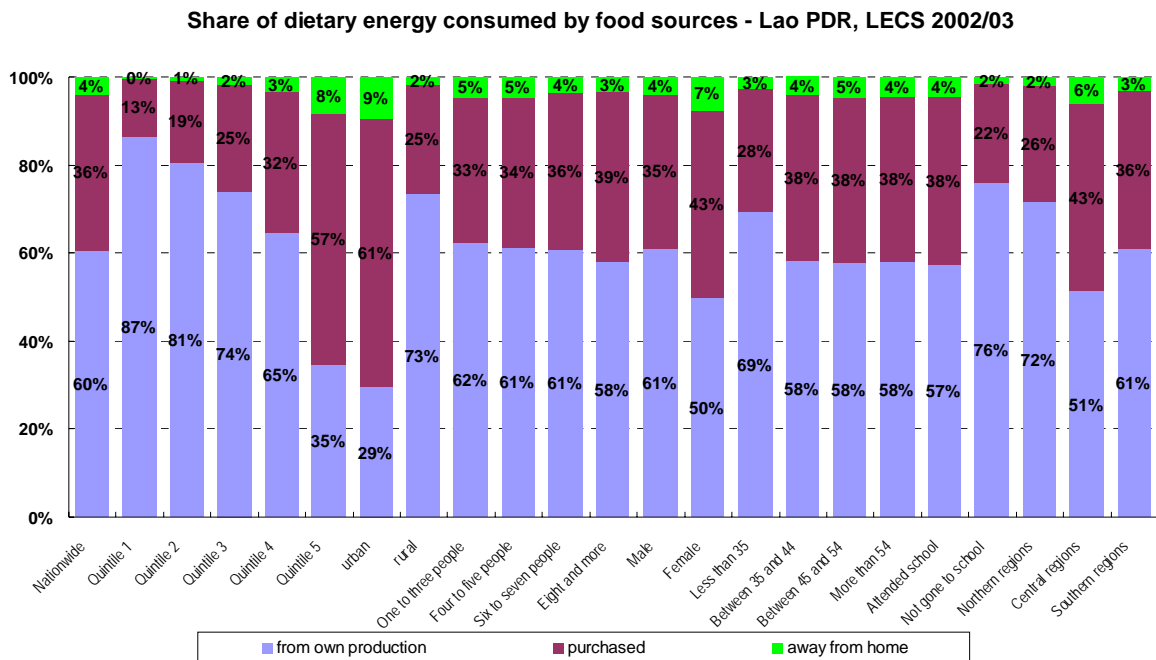
In terms of dietary energy the pattern was the same but the magnitude was exacerbated. At national level the amount of dietary energy coming from own production represented 60%. This reflected the fact that on average the food own produced was high energetic food at low cost. An important feature was that 82% of the monetary value of the food acquired by the households from the lowest income group was coming from their own production, and this share increases to 87% when looking at food consumption in dietary energy terms. These results had two implications. The first is the high dependency ratio of the lowest income group of population to their own production and any changes in their own food production may impact on their food security. The second important implication is that the unbalanced nutrient consumption pattern as more than 75% of energy was from carbohydrates and less than 15% from fats. In contrast, 57% of the dietary energy consumption of the last income group was coming from purchases, 8% were coming from food taken away from home and 35% from own production.

(E) Diet Composition:

With 73 percent of total amount of calories consumed in Lao PDR, carbohydrates represent an important part in food diet, followed by protein and to a less extent fat. Consumption of fats was too low according to WHO guidelines for a balanced diet and consumption of rice contributing to more than 75% of total consumption of cereals is already above the guidelines since there are other products providing carbohydrates.

Figure 12

Share of total calories of nutrients in total calories Lao PDR, LECS 2002/03			
	Proteins	**Fats**	**Carbohydrates**
Nationwide [1]	16%	11%	73%
Rural	17%	10%	72%
Urban	12%	14%	73%
WHO/FAO [2]	10-15%	15-30%	55-75%
FBS [3]	11%	20%	69%

Notes:
(1) as derived from the LECS III
(2) guidelines from WHO/FAO joint expert consultation
(3) as derived by FAO using data from the Food Balance Sheet.
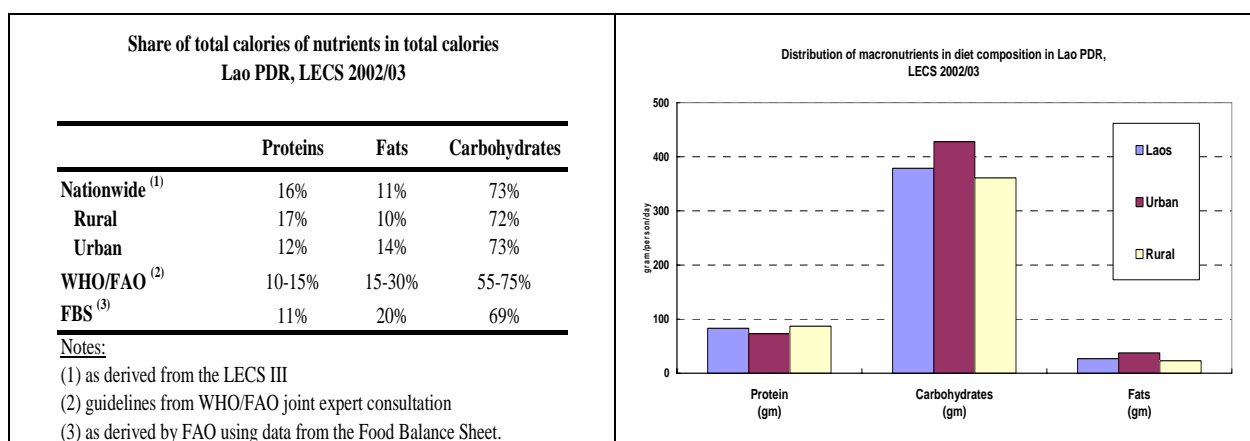
In general, people from urban areas consumed more carbohydrates and fats than people in rural area. However, when looking at the contribution of each group of food products in total dietary energy consumption, it appears that cereals and meat products contribute to 88% together (76% and 12% respectively) of the dietary energy consumption of households in rural areas while this share falls to 73% in urban areas (65% and 8% respectively). Meat contributes to only 8% of the diet of urban household to the expense of prepared food or food away from home that represent 11%. The contribution of other food is almost the same between the two areas.

Figure 13

**Contribution of each food group in total dietary energy consumption
Lao PDR, LECS 2002/03**
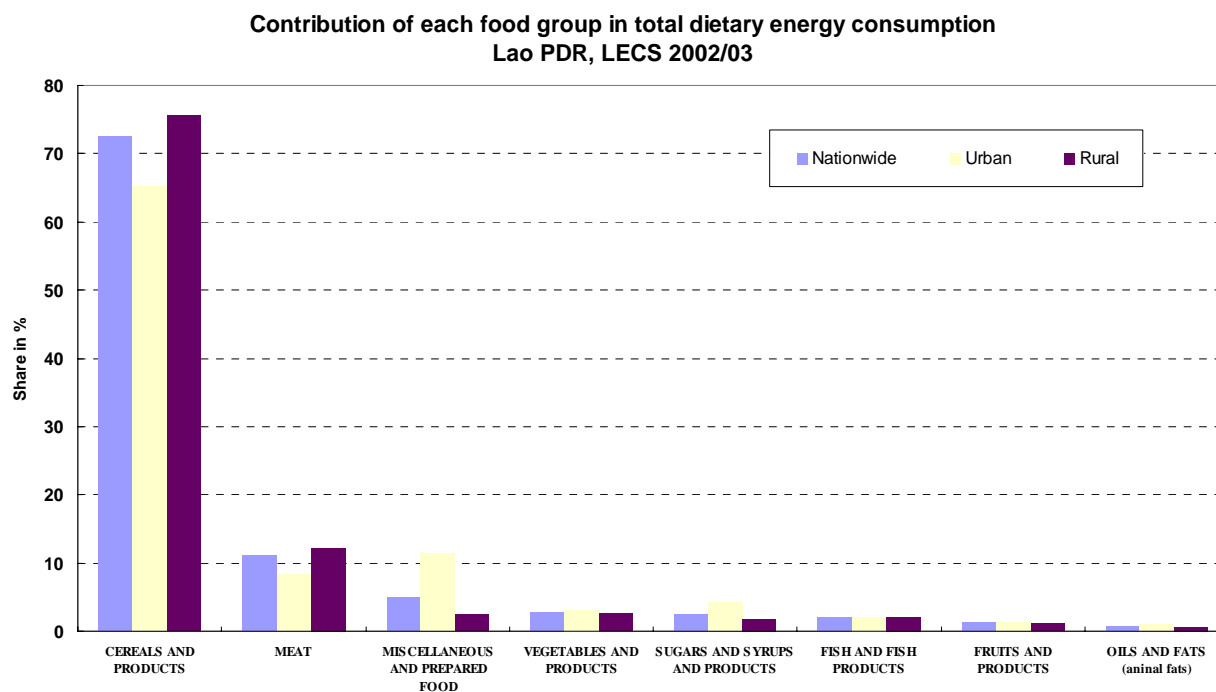
The pattern of diet composition differs widely according to regions. Households from the southern regions consumed about 400 kilocalories per person per day more than households of the regions of the North with a higher share of proteins (20% versus 15%) and lower share of carbohydrates (69% versus 73-74%). This higher share in proteins in the regions of the south can be explained by the fact that livestock is mainly raised in this part of the country so that 53% of total protein consumed in rural areas were proteins from animal products (meat, fish, eggs and dairy products).

Figure 14

**Contribution of macro nutrients to total diet at regional level -
Lao PDR, LECS 2002/03**
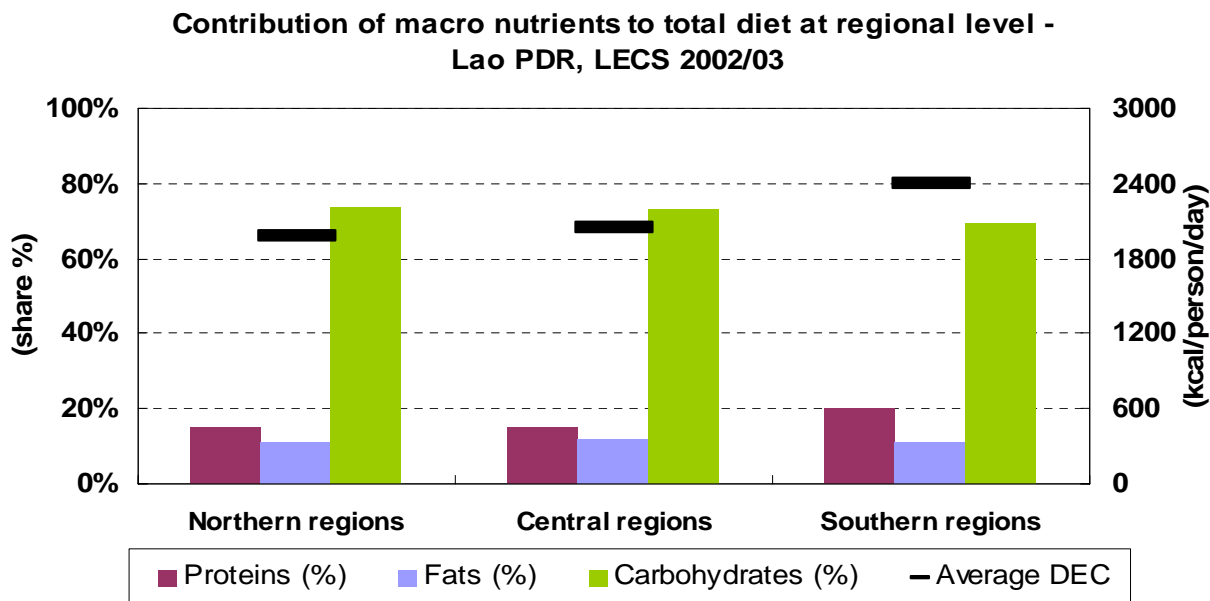
(F) Inequality in income and food consumption

The inequality of income or of access to food can be measured using various indicators. The Gini coefficient, the coefficient of variation (CV) and the dispersion ratios are amongst the indicators, the most common and easy to interpret.

1. Inequality of access to food

The value of the coefficient of variation is the measure of inequality in access to energy consumption. The higher is the inequality in access to food the higher is the food deprivation. In this context the analysis of the CV of dietary energy consumption is crucial in the analysis of food deprivation. But distribution of food depends on the propensity of people to consume food because income allows them to do so and because of their own biological requirements. Older populations do not have the same energy requirements than younger populations even if both are from the same income group.

Figure 15

Inequality in access to food as measured by the coefficient of variation - Lao PDR, LECS 2002/03
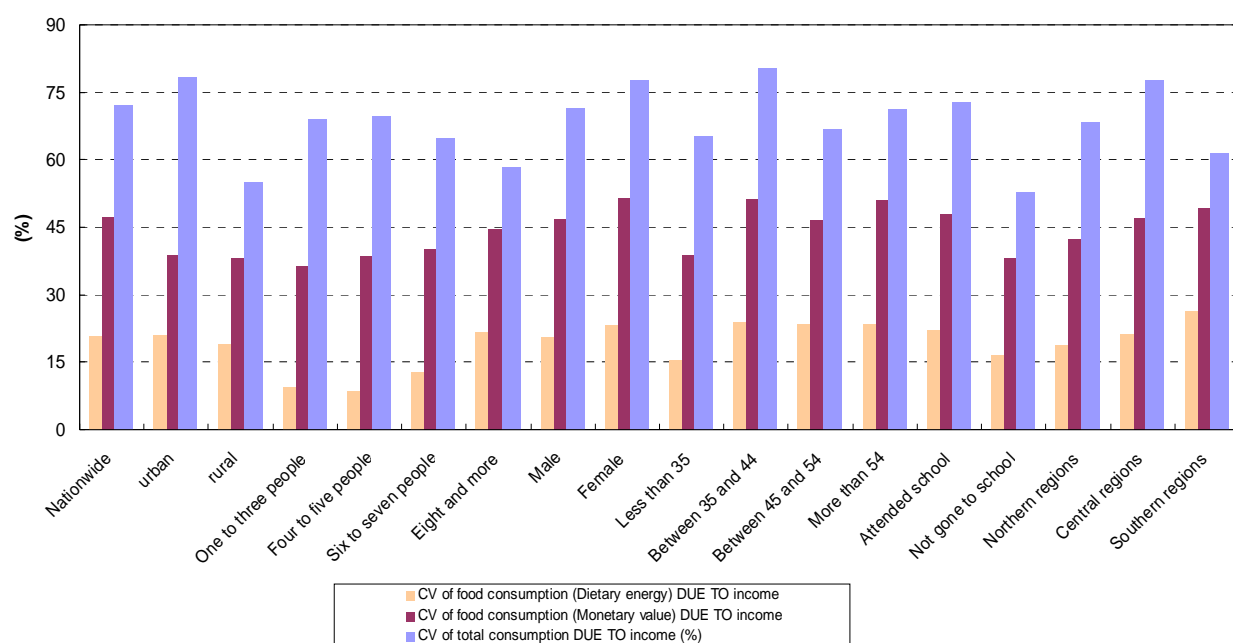
Inequality in access to food refers to both data in dietary energy consumption and data in monetary value. Inequality in access to food as given by the CV was quite high with almost no significant differences between urban and rural areas even if food deprivation in those areas differed widely (17 percent versus 25 percent). This is due to the higher level of dietary energy consumed in average in urban area compared to rural areas. The same phenomenon was observed in the southern regions were inequality was the highest but the proportion of people undernourished was the lowest of all the regions.

It was also among the young population that the inequality in access to food was the lowest and the level of dietary energy consumption the highest compared to households with older head. This can be attributed to the fact that more than 50% of the food acquired by households whose head was more than 35 year old was purchased, while 57% of food consumed by young

households was from own production, hence less vulnerable to market price fluctuations households with older heads.

In magnitude, inequality in access to food in monetary terms was higher than in dietary energy terms as it accounted for food price effects.

2. Income inequality

In Lao PDR, total expenditure was used as a proxy for income, in such a way that the inequality of total expenditure due to income is the same as inequality in income. Income inequality was higher than food consumption inequality as range of variation of income between households was higher than that of food consumption. Households were constrained by biological requirements and then variations due to income were only linked to demand elasticity. The graph bellow shows the dispersion ratio of income computed as the ratio between the incomes of the last quintile over that of the first quintile. At national level, income of the last quintile was more than five times higher than that of the first quintile, but at sub national level, trends were different as income disparities within urban households were much higher than that within rural households.

Figure 16

Income inequality as given by the dispersion ratio of income - Lao PDR, LECS 2002/03

Figure 17

Income dispersion ratio in urban and rural areas of Lao PDR - LECS 2002/03
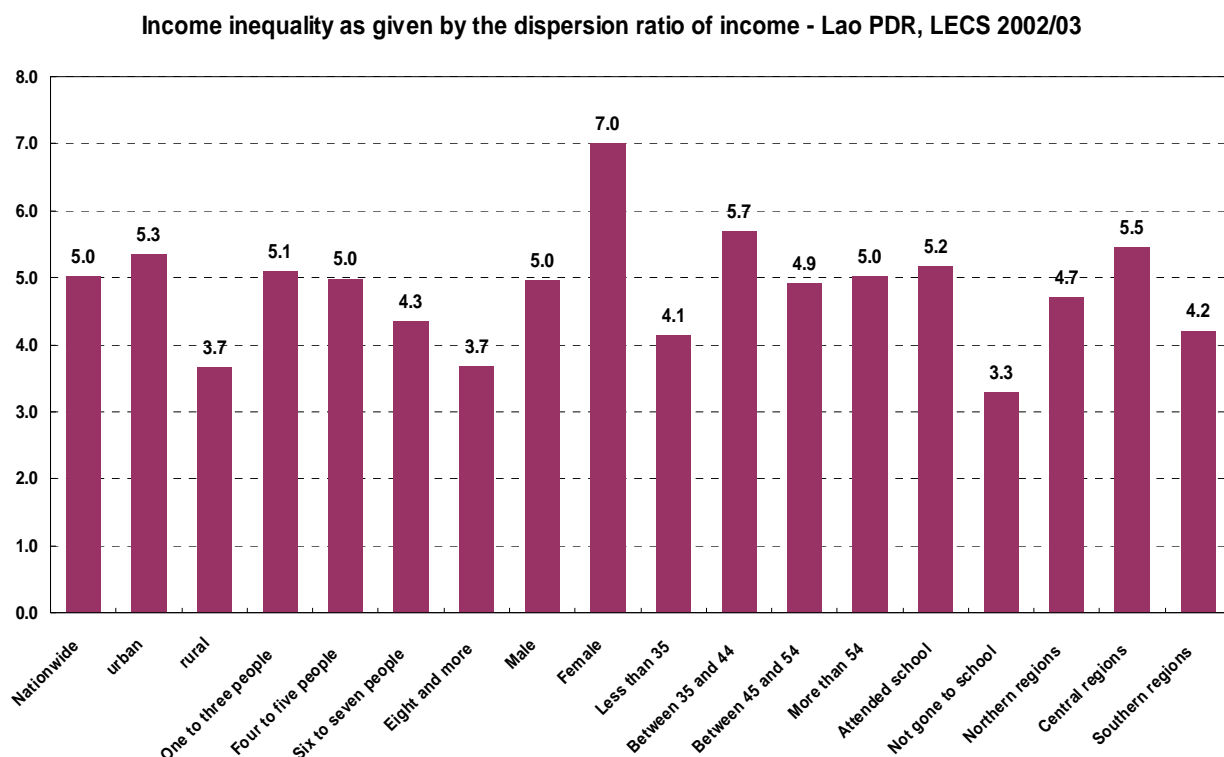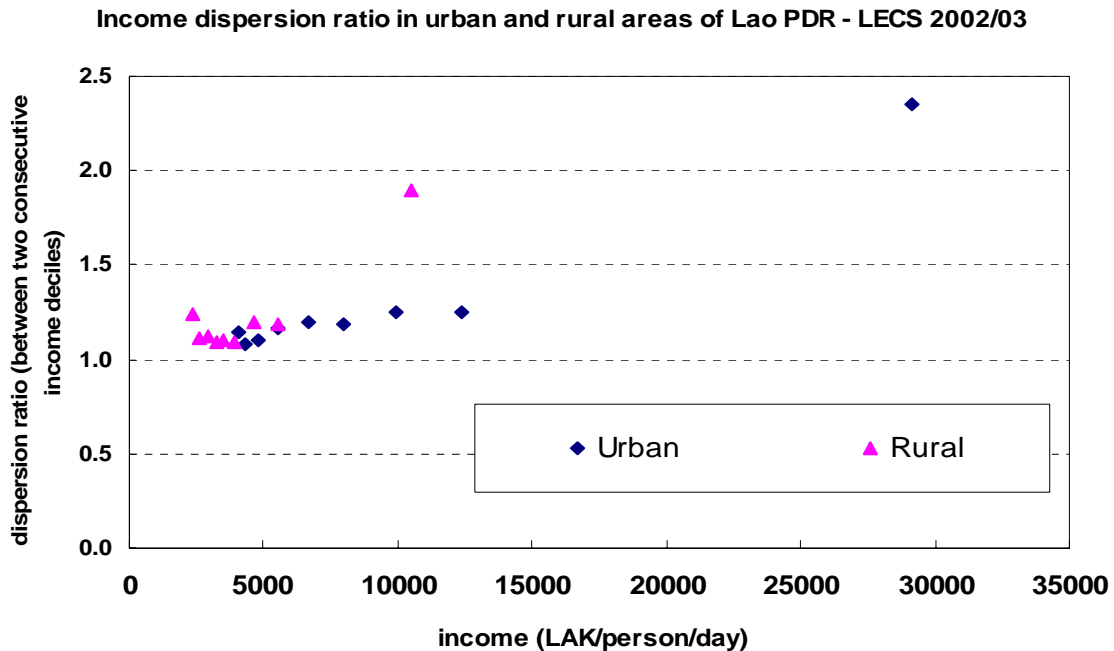
This can be easily explained when looking in depth as distribution of income in urban and rural areas. First the most striking fact was that income in rural areas was at least half of that in urban areas, for whichever deciles. So the dispersion ratio mainly reflected the fact that rural households had lower income than urban households and income inequality usually was lower among low income households. Second, the huge gap observed between the ninth and ten deciles. In other words it's among high income people that income inequalities were the highest.

The analysis of inequality in terms of CV or gini coefficient would give the same pattern. Based on the LECS 2002/03 the gini coefficient of income was 35.3 which corroborates general findings according which the gini of income in Lao PDR was around 35%[2].

3. Food demand elasticity with respect to income

Demand elasticity with respect to income is also a good indicator of inequality in access to food as it measures the variations in food demand due to a change in income. Changes in food demand are more significant when income of low income households increases than that of high income households. This is mainly due to the bigger value of Engel ratio of poor households compared to rich households. In Lao PDR, a one percent increase in income leads to a 2.4 percent increase in food expenditure of households with low income while this have a marginal impact of 0.4 percent on food expenditures of households with high income.

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[2]. The 2006 issue of the Human Development Report from UNDP gives a value of 34.6% for the gini coefficient in Lao PDR based on 2002 survey.

Figure 18

Elasticity of food demand with respect to income - Lao PDR, LECS 2002/03
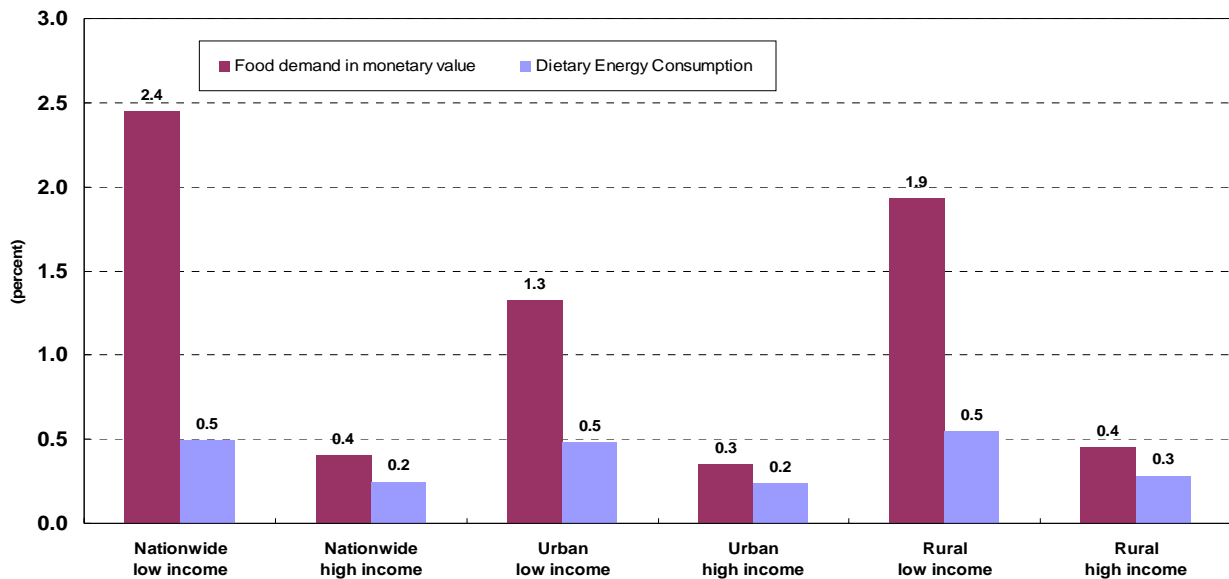
But as for inequality it is important to distinguish between income food demand elasticity expresses in terms of monetary value or in terms of dietary energy values. An increase in income will have a lower impact on dietary energy consumption than on food expenditures. This is explained by the fact that people are limited by their biological needs as once people have reached their energetic requirement following an increase in their income; any additional increase in income induces a change in the diet composition but not in the dietary energy intake. In Lao PDR, a one percent increase of income increases the dietary energy consumption of population of the first defile by 0.50% while the impact is marginal on households with higher income which, with an average consumption of 3020 kilocalories are supposed to have already reached their limit in terms of dietary requirements.

Any policy that would tend to increase income of poorer households would have positive impact on their food consumption but targeting the low income households is also of importance as a one percent increase in the income of rural households would lead to a 0.5 % and 1.9 % increase respectively of food demand in dietary energy and monetary value while this increase in urban areas is respectively 0.5% and 1.3%. On reverse, a decrease in income or an increase in price of food would have dramatic effects for this group of population.

(G) Towards the WFS and MDG targets?

Ten years ago, world leaders met in Rome for the World Food Summit (WFS) to discuss ways to end food deprivation. They pledged their commitments to an ongoing effort to eradicate food deprivation in all countries and set themselves the target of halving the number of undernourished people by 2015. Countries also committed to the Millennium Development goal (MDG) of halving food deprivation and poverty by the year 2015. The National Socio-Economic Development Plan 2006-2010, the MDG report for Lao PDR and the National Growth and Poverty Eradication Strategy (NGPES) identified food security as a priority. In this context the indicators on food deprivation and poverty derived from the LECS 2002/03 using FAO methodology can be used to assess the position of Lao PDR with respect to the MDG and WFS

targets of reaching by 2015 a level of food deprivation below 15% and number of undernourished of 600000 people. The estimate on proportion of undernourished people derived from the LECS 2002/03 slightly differed in magnitude from that derived using the Food balance sheet data (that include private and public consumption) but both estimates show an encouraging declining trend since 1990-92, from 29% to 22% in 2000-02. But additional efforts are needed to revert the increasing trend in number of undernourished. In this sense targeted food policies towards large households of the rural areas of the Northern regions or development of infrastructure in the most inaccessible areas of the country can help in this fight against food deprivation. It is also recommended that additional effort can be made in analyzing data from the LECS 2002/03 at a more disaggregated level (for instance the level of education or occupation of the head of the household) to better target population at risk of being food deprived.

Figure 19

Progress towards WFS (reduce by half number of people undernourished by 2015) - Lao PDR, LECS 2002/03

Progress towards MDG (reduce by half proportion of people undernourished by 2015) - Lao PDR, LECS 2002/03
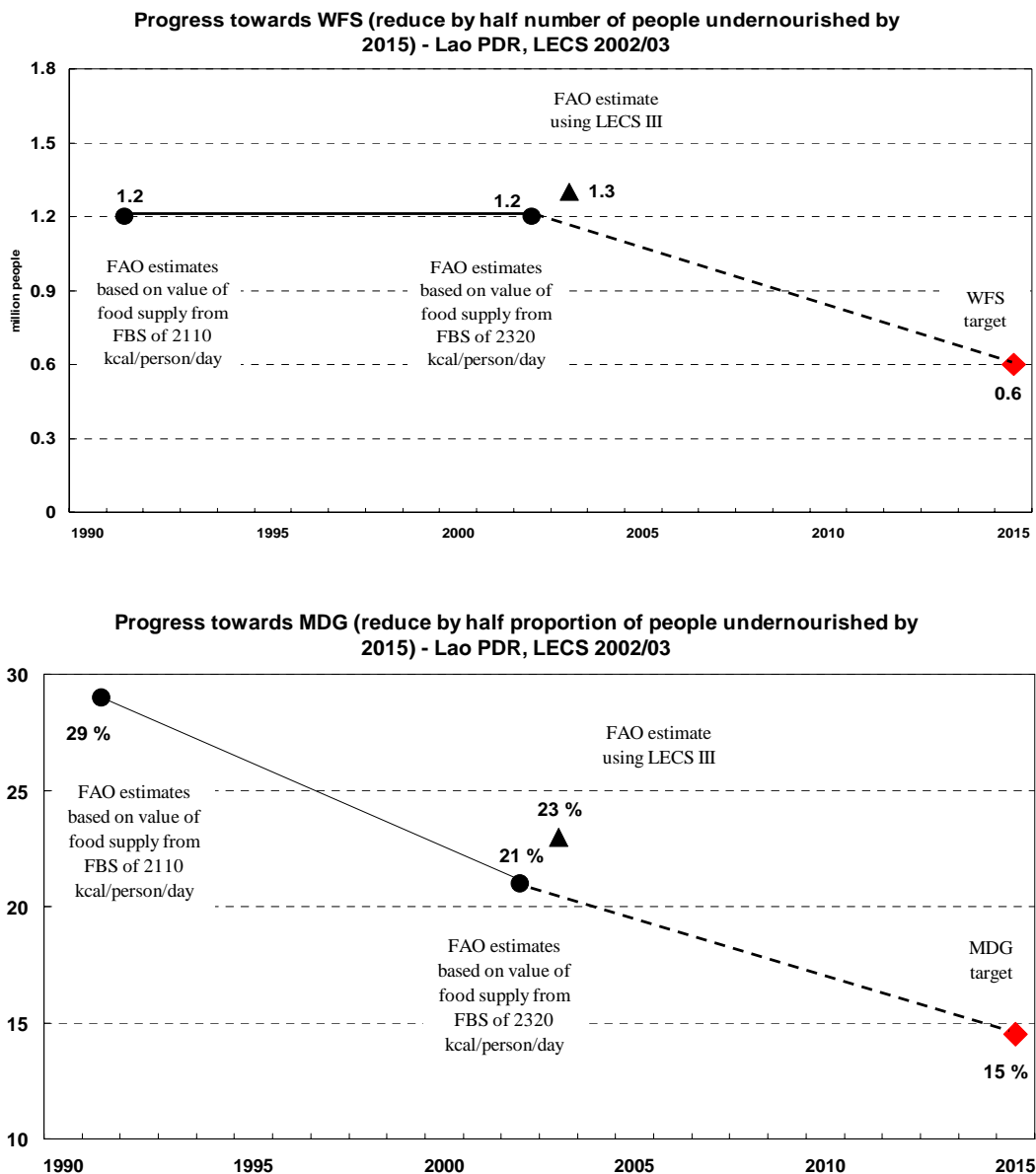
IV. CONCLUSIONS

1. Twenty-three percent of the population was suffering from food deprivation at national level being more dramatic in the North than in the South; also in low income households whose energy consumption (87%) depended on food they produced.

2. It was possible to analyze and report on the food security situation using data on food consumption from the LECS 2002/03 which was conducted with other objectives than the food security analysis; However it has been shown that this type of survey can yield reliable statistics for the assessment and monitoring of the food situation both at the country and sub national levels.

3. The data quality for food security statistics can be improved and some recommendations are listed below:

a. The number of unit of quantity measurement should be reduced and limited to the standard kilogram, gram and liter. In addition these standard units together with those local units should be appropriately converted directly in grams or milliliters during the data entry and that either the unit values at local market be used to convert specific local unit of measurement into grams or investigations could be conducted in local markets to obtain the exact equivalent of local units into gram.

b. The ASEAN food composition table supplemented by that FAO and USDA were used to build the food composition table of Lao PDR. But some additional work, done in consultancy with experts from health and nutrition service, should be carried out to revise this table and for future use.

c. Food items should be better specified instead of the broad categories used such as beef, other meat, hunted or trapped animals, fish cultivated, etc. as to be able to find the corresponding nutrients values. The broad food commodity groups have major impact on the nutrient value of food they refer to.

d. With additional information on heights of the population the minimum energy requirement at national and sub-national levels would be useful for deriving better indicators on food deprivation and critical food poverty.

e. Finally, better estimates could be obtained if questionnaires were designed to account for food stocks from own consumption.

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7. Food Security Statistics Module, Step 1 – Processing User Manual, FAO July 2006.

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ANNEX TABLES

**Results are derived from the 2002/03 Lao PDR Expenditures and Consumption Survey
using the Food Security and Statistics module (FSSM)
developed by FAO Statistics Division.**

Table 1.

			Food deprivation and parameters by population groupings			
			Region: Asia Country: Lao People's Democratic Republic Year: 2003			
Categories and Groupings	Number of sampled households	Average number of persons in household	CV (%) of food dietary energy consumption (kcal/person/day) - FULL as defined by FAO	Minimum dietary energy requirement (kcal/person/day) as defined by FAO	Average of food dietary energy consumption (kcal/person/day)	Proportion of food deprivation in total population (%) as defined by FAO
Nationwide	8092	6.1	29	1638	2090	23
Income level						
Quintile 1	1618	7.4	20		1630	55
Quintile 2	1619	6.8	20		1730	43
Quintile 3	1618	6.3	20		1880	28
Quintile 4	1619	5.9	20		2080	13
Quintile 5	1618	5.3	20		2730	1
Area						
urban	1604	5.8	29	1714	2350	17
rural	6488	6.2	27	1611	2000	25
HH Size						
One to three people	844	2.7	22	1778	3720	0
Four to five people	2711	4.6	22	1670	2870	1
Six to seven people	2543	6.5	24	1634	2020	21
Eight and more	1994	9.3	29	1600	1380	74
Gender of head of HH						
Male	7720	6.1	29	1637	2090	23
Female	372	5.0	31	1658	2230	20
Age of head of HH						
Less than 35	1890	5.2	25	1507	2400	4
Between 35 and 44	2736	6.2	31	1616	2100	24
Between 45 and 54	1986	6.5	31	1712	1980	37
More than 54	1480	6.2	31	1690	1970	36
Education						
Attended school	6544	6.1	30	1645	2090	25
Not gone to school	1548	6.1	26	1603	2130	16
Region						
Northern regions	3417	6.4	27	1615	1980	27
Central regions	3059	5.9	29	1667	2050	28
Southern regions	1616	5.9	33	1617	2400	14

Table 2.

	FAO indicators on hunger based on income						
	Region: Asia Country: Lao People's Democratic Republic Year: 2002-2003						
Categories and Groupings	Prevalence of food deprivation (%)	CV of dietary energy consumption FULL as FAO (%)	Average food consumption in dietary energy value (kcal/person/day)	Minimum dietary energy requirement (kcal/person/day)	Income (LC$/person/day)	CV of income - FULL (%)	Prevalence of Critical Food Poverty (%)
Nationwide	23	29	2090	1638	5723	72	18
Area							
urban	17	29	2350	1714	9378	78	13
rural	25	27	2000	1611	4415	55	19
HH Size							
One to three people	0	22	3720	1778	9157	69	5
Four to five people	1	22	2870	1670	7385	70	9
Six to seven people	21	24	2020	1634	5531	65	16
Eight and more	74	29	1380	1600	4238	58	24
Gender of head of HH							
Male	23	29	2090	1637	5662	71	18
Female	20	31	2230	1658	7017	78	13
Age of head of HH							
Less than 35	4	25	2400	1507	4915	65	18
Between 35 and 44	24	31	2100	1616	6037	80	19
Between 45 and 54	37	31	1980	1712	5801	67	17
More than 54	36	31	1970	1690	5804	71	18
Education							
Attended school	25	30	2090	1645	6067	73	16
Not gone to school	16	26	2130	1603	3993	53	25
Region							
Northern regions	27	27	1980	1615	4939	68	18
Central regions	28	29	2050	1667	6707	78	20
Southern regions	14	33	2400	1617	4947	61	18

Table 3.

Categories and Groupings	Number of sampled households	Average number of persons in household	Average food consumption in dietary energy value (kcal/person/day)	Average food consumption in monetary value (LC$/person/day)	Average dietary energy unit value (LC$/1000kcals)	Average total consumption (LC$/person/day)
Nationwide	8092	6.1	2090	2959.1	1413.3	5722.7
Income level						
Quintile 1	1618	7.4	1630	1495.1	918.4	2273.7
Quintile 2	1619	6.8	1730	1892.6	1092.0	2989.5
Quintile 3	1618	6.3	1880	2241.1	1194.0	3683.7
Quintile 4	1619	5.9	2080	2867.4	1377.3	4931.7
Quintile 5	1618	5.3	2730	4985.3	1827.5	11421.3
Area						
urban	1604	5.8	2350	4296.6	1829.6	9377.6
rural	6488	6.2	2000	2480.6	1238.7	4415.1
HH Size						
One to three people	844	2.7	3720	5128.5	1377.9	9156.7
Four to five people	2711	4.6	2870	3950.6	1377.3	7385.1
Six to seven people	2543	6.5	2020	2823.9	1395.6	5530.7
Eight and more	1994	9.3	1380	2076.9	1505.0	4237.9
Gender of head of HH						
Male	7720	6.1	2090	2929.1	1403.2	5662.2
Female	372	5.0	2230	3601.3	1615.8	7017.4
Age of head of HH						
Less than 35	1890	5.2	2400	2855.7	1191.5	4914.8
Between 35 and 44	2736	6.2	2100	3003.2	1429.8	6037.2
Between 45 and 54	1986	6.5	1980	2918.7	1474.8	5800.6
More than 54	1480	6.2	1970	3033.3	1540.3	5803.6
Education						
Attended school	6544	6.1	2090	3054.7	1463.4	6066.8
Not gone to school	1548	6.1	2130	2479.0	1166.1	3992.9
Region						
Northern regions	3417	6.4	1980	2555.0	1290.4	4939.4
Central regions	3059	5.9	2050	3337.1	1630.8	6706.9
Southern regions	1616	5.9	2400	2845.0	1185.2	4947.3

Selective statistics of food consumption

Region: Asia   Country: Lao People's Democratic Republic   Year: 2003

Table 4.

Categories and Groupings	Number of sampled households	Share of food consumption in monetary value to total consumption (%)	Share of food consumption in monetary value purchased to total food value (%)	Share of food consumption in monetary value from own production to total food value (%)	Share of food consumption in monetary value eaten away from home to total food value (%)
Share of food consumption to total consumption in monetary value and by food sources *Region: Asia Country: Lao People's Democratic Republic Year: 2002-2003*					
Nationwide	8092	51.7	50.2	44.6	5.2
Income level					
Quintile 1	1618	65.8	17.6	82.1	0.3
Quintile 2	1619	63.3	24.3	74.9	0.7
Quintile 3	1618	60.8	31.9	66.4	1.7
Quintile 4	1619	58.1	45.7	50.8	3.5
Quintile 5	1618	43.6	70.0	20.9	9.1
Area					
urban	1604	45.8	73.0	16.5	10.5
rural	6488	56.2	36.1	62.0	1.9
HH Size					
One to three people	844	56.0	50.8	42.8	6.4
Four to five people	2711	53.5	51.5	42.3	6.3
Six to seven people	2543	51.1	49.7	45.7	4.7
Eight and more	1994	49.0	49.0	46.9	4.1
Gender of head of HH					
Male	7720	51.7	49.6	45.4	5.0
Female	372	51.3	60.8	29.4	9.8
Age of head of HH					
Less than 35	1890	58.1	39.0	57.1	4.0
Between 35 and 44	2736	49.7	51.2	43.5	5.4
Between 45 and 54	1986	50.3	52.4	42.1	5.5
More than 54	1480	52.3	55.2	39.1	5.6
Education					
Attended school	6544	50.4	53.1	41.2	5.7
Not gone to school	1548	62.1	32.4	65.5	2.1
Region					
Northern regions	3417	51.7	37.0	60.3	2.7
Central regions	3059	49.8	57.8	35.2	7.1
Southern regions	1616	57.5	51.9	43.7	4.4

Table 5.

Inequality measures (Dispersion Ratios) of food consumption, total consumption and income			
Region: Asia Country: Lao People's Democratic Republic Year: 2003			
Categories and Groupings	Dispersion ratio of food consumption in dietary energy (80/20)	Dispersion ratio of food consumption in monetary value (80/20)	Dispersion ratio of total consumption (80/20)	Dispersion ratio of income (80/20)
Nationwide	1.7	3.3	5.0	5.0
Area				
urban	1.8	3.0	5.3	5.3
rural	1.6	2.7	3.7	3.7
HH Size				
One to three people	1.3	2.8	5.1	5.1
Four to five people	1.3	2.7	5.0	5.0
Six to seven people	1.2	2.5	4.3	4.3
Eight and more	1.3	2.7	3.7	3.7
Gender of head of HH				
Male	1.7	3.3	5.0	5.0
Female	1.8	4.4	7.0	7.0
Age of head of HH				
Less than 35	1.5	2.8	4.1	4.1
Between 35 and 44	1.8	3.5	5.7	5.7
Between 45 and 54	1.8	3.4	4.9	4.9
More than 54	1.9	3.9	5.0	5.0
Education				
Attended school	1.8	3.5	5.2	5.2
Not gone to school	1.3	2.4	3.3	3.3
Region				
Northern regions	1.7	3.2	4.7	4.7
Central regions	1.7	3.2	5.5	5.5
Southern regions	1.7	3.1	4.2	4.2

Table 6.

Inequality measures (GINI coefficients – Log normal assumption) of food consumption, total consumption and income by population groupings									
Region: Asia Country: Lao People's Democratic Republic Year: 2003									
Categories and Groupings	Number of sampled households	Average number of persons in household	GINI of Food dietary energy Consumption DUE TO income (Log Normal assumption) (%)	GINI of Food Consumption in monetary value DUE TO income (Log Normal assumption) (%)	GINI of total consumption DUE TO income (%)	GINI of Income - FULL (%)	GINI of Food dietary energy Consumption – FULL (Log Normal assumption) (%)	GINI of Food Consumption in monetary value - FULL (Log Normal assumption) (%)	GINI of Food dietary energy consumption - FULL as defined by FAO (%)
Nationwide	8092	6.1	11.5	25	35.3	35.3	29.1	28.1	15.8
Area									
urban	1604	5.8	11.7	20.9	37.5	37.5	26.1	24.3	16.0
rural	6488	6.2	10.5	20.6	28.4	28.4	31	26.2	15.1
HH Size									
One to three people	844	2.7	5.2	19.7	34	34	16.1	20.9	12.2
Four to five people	2711	4.6	4.8	20.7	34.4	34.4	18.2	22.6	12.1
Six to seven people	2543	6.5	7.2	21.5	32.4	32.4	25.8	24.1	13.1
Eight and more	1994	9.3	12	23.6	29.8	29.8	35.3	27.9	16.1
Gender of head of HH									
Male	7720	6.1	11.4	24.7	35	35	29.1	28	15.8
Female	372	5.0	12.8	26.9	37.3	37.3	27.9	29.1	16.7
Age of head of HH									
Less than 35	1890	5.2	8.5	20.9	32.7	32.7	23.7	23.4	13.9
Between 35 and 44	2736	6.2	13.3	26.8	38.2	38.2	29.6	29.6	17.1
Between 45 and 54	1986	6.5	13	24.6	33.2	33.2	31.1	28.1	16.8
More than 54	1480	6.2	12.9	26.6	34.9	34.9	30.7	30.1	16.8
Education									
Attended school	6544	6.1	12.3	25.2	35.5	35.5	29.5	28.3	16.4
Not gone to school	1548	6.1	9.2	20.7	27.4	27.4	27.5	25.1	14.3
Region									
Northern regions	3417	6.4	10.5	22.6	33.9	33.9	30.6	27.2	15.1
Central regions	3059	5.9	11.9	24.8	37.3	37.3	29.5	28.5	16.1
Southern regions	1616	5.9	14.5	25.8	31.1	31.1	28.2	28.1	18.0

Table 7.

Inequality Measures (CV – Coefficient of variation - Log normal assumption) of food consumption, total consumption and income by population groupings									
Region: Asia Country: Lao People's Democratic Republic Year: 2003									
Categories and Groupings	Number of sampled households	Average number of persons in household	CV of food dietary energy DUE TO income (%)	CV of food consumption in monetary value DUE TO income (%)	CV of total consumption DUE TO income (%)	CV of Income - FULL (%)	CV of food dietary energy consumption FULL (%)	CV of food consumption in monetary value FULL (%)	CV of food dietary energy consumption - FULL as defined by FAO (%)
Nationwide	8092	6.1	20.8	47.5	72.1	72.1	56.6	54.4	28.8
Area									
urban	1604	5.8	21.1	38.8	78.2	78.2	49.9	45.8	29.1
rural	6488	6.2	18.9	38.3	55.0	55.0	61.1	50.0	27.5
HH Size									
One to three people	844	2.7	9.3	36.4	68.8	68.8	29.4	38.9	22.0
Four to five people	2711	4.6	8.5	38.4	69.7	69.7	33.4	42.4	21.7
Six to seven people	2543	6.5	12.8	40.1	64.8	64.8	49.1	45.6	23.7
Eight and more	1994	9.3	21.6	44.5	58.4	58.4	72.3	54.0	29.4
Gender of head of HH									
Male	7720	6.1	20.6	46.9	71.5	71.5	56.7	54.1	28.7
Female	372	5.0	23.0	51.5	77.7	77.7	53.8	56.7	30.5
Age of head of HH									
Less than 35	1890	5.2	15.3	38.7	65.4	65.4	44.6	43.9	25.2
Between 35 and 44	2736	6.2	23.9	51.3	80.4	80.4	57.9	57.8	31.2
Between 45 and 54	1986	6.5	23.4	46.7	66.8	66.8	61.4	54.3	30.8
More than 54	1480	6.2	23.3	51.0	71.2	71.2	60.6	59.1	30.7
Education									
Attended school	6544	6.1	22.2	48.0	72.8	72.8	57.6	54.8	29.9
Not gone to school	1548	6.1	16.5	38.4	52.8	52.8	53.1	47.6	25.9
Region									
Northern regions	3417	6.4	18.8	42.4	68.5	68.5	60.2	52.4	27.4
Central regions	3059	5.9	21.4	47.1	77.7	77.7	57.7	55.2	29.3
Southern regions	1616	5.9	26.3	49.2	61.4	61.4	54.5	54.3	33.1

Table 8.

Share of food dietary energy by food sources to total food dietary energy consumption					
Region: Asia *Country: Lao People's Democratic Republic* *Year: 2003*					
Categories and Groupings	Number of sampled households	Share of dietary energy purchased to total food consumption (%)	Share of dietary energy from own production to total food consumption (%)	Share of dietary energy eaten away from home to total food consumption (%)	Share of dietary energy from other sources to total food consumption (%)
Nationwide	8092	35.6	60.4	4.0	0.0
Income level					
Quintile 1	1618	13.2	86.5	0.3	0.0
Quintile 2	1619	18.6	80.7	0.7	0.0
Quintile 3	1618	24.7	73.8	1.6	0.0
Quintile 4	1619	31.9	64.7	3.3	0.0
Quintile 5	1618	57.2	34.6	8.1	0.0
Area					
urban	1604	61.2	29.5	9.4	0.0
rural	6488	24.8	73.4	1.7	0.0
HH Size					
One to three people	844	33.0	62.3	4.7	0.0
Four to five people	2711	34.1	61.3	4.6	0.0
Six to seven people	2543	35.6	60.7	3.6	0.0
Eight and more	1994	38.6	58.0	3.4	0.0
Gender of head of HH					
Male	7720	35.2	61.0	3.8	0.0
Female	372	42.5	50.0	7.5	0.0
Age of head of HH					
Less than 35	1890	27.9	69.3	2.8	0.0
Between 35 and 44	2736	37.6	58.4	4.0	0.0
Between 45 and 54	1986	37.5	57.8	4.7	0.0
More than 54	1480	37.6	58.1	4.3	0.0
Education					
Attended school	6544	38.2	57.3	4.5	0.0
Not gone to school	1548	22.5	76.0	1.6	0.0
Region					
Northern regions	3417	26.4	71.7	1.9	0.0
Central regions	3059	42.7	51.3	6.0	0.0
Southern regions	1616	35.7	61.1	3.3	0.0

Table 9.

Food consumption in monetary and nutrient values by national, sub national and population groupings				
Region: Asia Country: Lao People's Democratic Republic Year: 2003				
Categories and Groupings	Average food dietary energy consumption (kcal/person/day)	Average food consumption in monetary value of food consumed (LC$/person/day)	Average food protein consumption (g/person/day)	Average food carbohydrates consumption (g/person/day)	Average food fat consumption (g/person/day)
Nationwide	2090	2959.1	83.1	378.7	26.8
Income level					
Quintile 1	1630	1495.1	71.4	300.1	15.7
Quintile 2	1730	1892.6	77.4	313.9	18.5
Quintile 3	1880	2241.1	86.8	330.7	22.6
Quintile 4	2080	2867.4	85.1	374.6	26.6
Quintile 5	2730	4985.3	87.8	499.1	40.8
Area					
urban	2350	4296.6	73.0	427.7	37.4
rural	2000	2480.6	86.8	361.1	22.9
HH Size					
One to three people	3720	5128.5	140.4	680.9	47.4
Four to five people	2870	3950.6	105.0	531.4	35.0
Six to seven people	2020	2823.9	81.3	364.9	25.9
Eight and more	1380	2076.9	61.3	240.4	18.8
Gender of head of HH					
Male	2090	2929.1	83.1	377.8	26.5
Female	2230	3601.3	83.8	397.8	33.0
Age of head of HH					
Less than 35	2400	2855.7	93.9	442.0	27.6
Between 35 and 44	2100	3003.2	80.7	382.9	26.7
Between 45 and 54	1980	2918.7	80.8	352.5	26.7
More than 54	1970	3033.3	80.9	350.9	26.3
Education					
Attended school	2090	3054.7	82.6	375.6	27.6
Not gone to school	2130	2479.0	85.7	394.2	22.6
Region					
Northern regions	1980	2555.0	71.7	367.5	24.3
Central regions	2050	3337.1	76.9	371.0	27.6
Southern regions	2400	2845.0	117.3	415.4	29.3