



**STATE COMMITTEE OF STATISTICS  
TAJIKISTAN**

**Food Insecurity Assessment based on food  
consumption statistics derived from Tajikistan  
2005 Household Budget Survey**

Preliminary Summary Report



*Dushanbe,  
Tajikistan  
June 2007*



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## **FOREWORD**

The State Committee of Statistics (SCS) OF Tajikistan is pleased to present this Food Insecurity Assessment Report on Tajikistan which has been produced with support from the EC-FAO Food Security “Information for Action” Programme. The Programme is financed by the European Union and implemented by FAO. This report is the result of the food consumption and security analysis of the Tajikistan HBS 2005 undertaken by the SCS with collaboration of representatives of various departments of Ministry of Agriculture and Ministry of Health under the technical assistance of the FAO Statistics Division. This collaborative activity was initiated in September 2006 following the Food Security Statistics Module (FSSM) training workshop held at the SCS.

The main objective of the programme is to strengthen the statistical analytical capacity of the SCS to derive food security statistics from the available food consumption data, particularly from the HBS 2005. The report presents a suite of food security indicators including the Millennium Development Goal indicator 5 on the prevalence of undernourishment at the national and sub national levels. The summarized findings cover a wide range of food security statistics which provide the analytical background for identifying and locating the food insecure population.

I am especially grateful to FAO Statistics Division for its continuous technical support provided to the SCS for the completion of this report in addition for sharing the Food Security Statistics Module (FSSM) software. Special thanks to the FAO personnel, namely, Mr Seevalingum Ramasawmy and Ms Grazina Binkauskienė for their long support and assistance in the use of the FAO statistical programs (FSSM) which started with the FSS training in September 2006; Ms Ana Moltedo for support in preparing files and programs, Mr Ricardo Sibrián in assisting the SCS in the dissemination of the draft preliminary version of this report at the National Seminar to the national and international stakeholders in food security issues in Dushanbe, Tajikistan.

I am grateful to my staff who have participated in that programme. I recommend this report to all those who are actively involved in the fight against hunger and hope that it will provide useful inputs for practical strategies for efficient and effective implementation. The report is open to debate and we would be grateful to receive any comments or suggestions concerning its contents and findings as to improve the next report.

Dushanbe, Tajikistan,  
October 2007

Mirgand Shabozov

Chairman, State Committee of Statistics

## **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
MDER	Minimum Dietary Energy Requirement
MDG	Millennium development Goals
SSC or GKS	State Statistical Committee of Tajikistan
USDA	US Department of Agriculture
WFS	World Food Summit
WHO	World Health Organization

## **Executive Summary**

1. This report provides information about Tajikistan's food insecurity situation at the national and sub national levels based on food consumption statistics derived from data collected in the 2005 Tajikistan Household Budget Survey (2005 HBS) using FAO methodology.
2. Although, the Tajik economy has improved significantly during the last decade, food insecurity is still widespread. In 2005, estimate of the Millennium Development Goal Indicator 5, the prevalence of food deprivation (insufficient food to meet the minimum dietary energy requirement -MDER) was 43 percent at national level, 62 percent in the urban population and 38 percent in the rural population.
3. The average dietary energy consumption was 2070 kcal/person/day at national level, 1800 kcal/person/day in the urban population and 2160 kcal/person/day in the rural population.
4. One person over five was critically food poor with insufficient income to acquire the MDER at national level. The highest prevalence of critical poverty was 43 percent in Dushanbe and the lowest 13 percent in Sogd.
5. The depth of hunger (energy deficit in food deprived people) was 349 kcal/person/day (19 percent less than the MDER) at national level. The energy deficit with respect to the national energy consumption was 539 kcal/person/day (26 percent less than 2070 kcal/person/day). The MDER at national level in Tajikistan was 1880 kilo-calories.
6. More than two thirds (70 percent) of total consumption was for food (share of food monetary value in total consumption -Engel ratio) at national level and most other population groups analysed (regions, gender of household heads, etc.). The national average daily person food expenditure was 1.14 Somoni and the cost of macro-nutrient balanced 1000 kilo-calories in the lowest income quintile was 0.62 Somoni.
7. One third of acquired from was from own production at national level and more than 40 percent in rural areas. However, in Dushanbe and urban areas, purchases were almost the only source of food acquisition.
8. At national level the energy consumption was provided by carbohydrates (71%), fats (20%) and proteins (9%). The protein consumption was lower than recommended dietary guidelines (10-15%). Two thirds of energy consumption was cereals and products.
9. Nationwide the inequality in access to food as measured by the coefficient of variation of dietary energy consumption due to income was 22.8% which is equivalent to the Gini coefficient of food dietary energy consumption due to income of 12.6% at national level.
10. Food insecure population groups were in households of low income, living in urban areas with large number of members in Dushanbe and RPR.

*This document can be downloaded from: <http://www.foodsec.org>*

## I. BACKGROUND

Tajikistan is a landlocked country, largely mountainous, rich in water resources, dominated by aluminium, cotton and electricity production. Sparsely inhabited, 90 percent is mountainous and the total area splits the country into four regions (*Oblasts*) and one independent city, the National Capital *Dushanbe*. The regions are i) *Sogd*, the main industrial centre in north; (ii) *Khatlon*, which is the country's main cotton and wheat growing area; (iii) the *Regions under Republican Subordination (RRS)*, which represent the stronghold of the country's main aluminium smelter; and (iv) *Gorno-Badakhshan Administrative Oblast (GBAO)*, which is a sparsely-populated mountainous.

The 2005 Tajikistan population was about seven million, nearly 70% live in rural areas. The annual population growth is about 2%. There is a high mobility of the working population to Russia, where more than half a million of the population are currently working.

Tajikistan remains heavily dependent on two export commodities aluminium and cotton, accounting for about 75% of the country's earnings. The agriculture sector plays a vital role in the Tajikistan economy contributing about 25% of the country's export revenues (mostly from cotton) and 35% of the Government's tax revenue in 2004. Cotton accounts for almost 32% of the planted area, grown mostly on irrigated lands, while some 50% of the arable used for food crops, mainly wheat, followed by maize, vegetables and fruits.

Over two-thirds of the population are dependent on agriculture for their livelihood and employs about 67% of the working population. Tajikistan is driven by migration from the urban to rural areas, contrary to other developing countries, due to the search for jobs in the agriculture and mining sectors. Higher birth rates in rural communities were observed over the last years.

Prior to its independence, wheat was cultivated for the fodder production and grown mostly on marginal lands with limited inputs and poor seed quality. However, not much development has been

seen following the economy recovery of the country since 1997. The poor quality seeds, deteriorating machinery, inadequate access to credits and other inputs, as well as the fact that country occasionally faces severe bad weather conditions limited the growth in wheat production. Most of the local wheat consumption is imported. Tajikistan still imports more than 50% of its food (mostly wheat) and access to foreign markets, for imports as well as for exports, is still mainly through neighbouring Uzbekistan and Kyrgyzstan.

Despite much improved food supply conditions in the country and more competitive markets, most regions in Tajikistan are often in a food deficit situation, particularly the remote parts of the country, the mountainous areas, which are most vulnerable during the winter period. Per capita food availability has improved considerably since 2002 and the sharp fall in food aid in recent years has been compensated by a surge in commercial imports. However, access to food remains a major problem.



About 50% of households have monthly income less than 30 Tajikistan Somoni (US 1= .3 Somoni). However, an important source of household income is from migration work in Russia and from sales of own produced foods.

## II. INTRODUCTION

The issue of hunger and food insecurity as cause and effect of poverty has been the concern of international communities to concentrate urgent efforts to alleviate poverty at the country, regional and global levels. Objectives of the World Food Summit and the Millennium Development Goal (MDG) set halving respectively the number and the proportion of people who suffer from hunger by 2015. FAO is the lead agency for monitoring the process in achieving the proposed targets at the global level using country available food data and other complementary data on food requirement and access to food from national surveys collecting food consumption data.

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

FAO Statistics Division has developed the Food Security Statistics Module (FSSM) software to help National Statistical Organizations (NSO) to optimise the analysis of the existing NHS food consumption data for estimating the prevalence of undernourishment and a suite of food security indicators at national and sub national levels. This initiative has the objective to improve the quality, consistency and availability of key development indicators useful by the national and international communities for evaluating and monitoring progress towards hunger reduction programmes. In addition, it provides a harmonized methodological procedures and recommendations on the compilation of food security statistics (FSS) for comparability purposes at national, regional and global levels. This FSS analysis activity falls under the integrated programme of the EC-FAO food security information for action project aiming to make available the tools, materials and skills for deriving a suite of food security indicators to better identify and locate the food insecure population and their effective use in the fight against hunger.

The FSS training activity was conducted successfully in Tajikistan using the food security Statistics Module (FSSM) software for deriving FSS based on the food consumption data collected in the Tajikistan 2005 Household Budget Survey. State Statistical Committee (SSC) of Tajikistan provided all the necessary data and logistic facilities for the training of its own personnel and those from other institutions involved in food security issues.

The report presents the different FSS obtained from food consumption analysis of the 2005 HBS and may be used as a resource document for raising awareness of the food insecurity situation for more focused intervention by policy makers and other stakeholders of food security issues. The report provides a brief overview of the Tajikistan 2005 HBS in the first section. The MDG indicator 5, prevalence of undernourishment together with indicators on critical food poverty and depth of hunger are discussed in the subsequent following sections. The food consumption patterns in terms of dietary energy and monetary are analysed and is followed by an assessment of the diet diversity in terms of the quality and food consumption pattern in Tajikistan. Inequalities estimates such as coefficient of variation (CV), Gini coefficients and dispersion ratios that provide an assessment of access to food are also discussed. Finally, the income demand elasticity of food consumption in terms of expenditure and dietary energy is examined. As the objective of the HBS was not meant for a comprehensive food security analysis, the last section gives some limitations of the available food consumption data and the related recommendations for its improvement for more reliable and consistent FSS estimates.

### **III. THE TAJIKISTAN HOUSEHOLD BUDGET SURVEY**

The SSC of Tajikistan has been conducting household budget survey (HBS) based on the Soviet methodology collecting household consumption expenditure from a fixed sample of households over time. The HBS was suspended following the breakdown of the Soviet Union in the early nineties and the civil war and was resumed as from 1997 when only three districts were covered due to limited number of personnel. However, the HBS was properly re-established in January 2000 with a decrease in its sample size from 1250 pre independence to 925 households. The coverage is a national one, which however excludes the 4% of the total population that are in the mountainous regions of GBAO. The sample is a multi-stage stratification using the 2000 population census as population frame. Rural and urban areas together with criteria of mountains, valley, uplands, lowlands and country borders on the north and south are accounted for. The households are selected systematically at the last stage using the administrative data with regard to the composition of the household. Household detailed expenditure and income data are collected using daily records from the same 925 households over years. Each household receives a monthly incentive equivalent to one dollar in local currency. The total yearly sample of households was 11,092 whose food consumption data were analysed.

#### ***Food consumption data***

The HBS collects a wide range of household consumption expenditures including food through five different questions filled in different days, months or quarters. Food consumption data acquired from purchases, own consumption, obtained free or from other sources or consumed away from home are collected using diaries on a monthly basis and through quarterly questionnaires. Purchased food data were made available on a monthly basis while those from other sources (own consumption, away from home and other sources) were available on a quarterly period. The latter had to be redistributed appropriately on the month basis within that quarter using a simple average. It was not possible to apportion that quarterly food data in relation to factors of total consumption of income as such data was also provided on a quarter basis. Total consumption expenditure was also redistributed over the months using the same simple averaging method. Data on food item were collected for sixty-four food items and the quantity data converted to gram equivalent. These macronutrients values were computed using the Tajikistan food composition table.

### **IV. FOOD SECURITY STATISTICS RESULTS AND FINDINGS**

The food consumption data together with some complementary household and household member's data were analysed using the FSSM software, developed by the Statistic Division of FAO. The FSSM is interactive software having the processing, statistical analysis and integration programmes as separate modules for ease of execution of the different stages preceding the final derivation of the food consumption and security statistics. The food consumption, household and household member's data were extracted from the main HBS data files and prepared in three distinct data files according to some predefined formats. The nutrient conversion factors for the food items of the HBS was used to convert all food quantities into the four macro nutrient values, dietary energy, protein, fat and carbohydrate.



The FSS<sup>1</sup> derived from the 2005 HBS are presented below at national and sub national levels with reference to some functional population groupings such as level of income, geographical location, regional location and the size of the household by the following major food security indicators:

- *Prevalence of undernourishment*
- *Depth of hunger*
- *Critical food poverty*
- *Food availability*
- *Inequality of access to food*
- *Diet composition*
- *Income demand elasticity*

### **(A) Magnitude of food deprivation**

The magnitude of hunger (food deprivation) as measured by the prevalence of undernourishment showed that in 2005 more than two people out of five were undernourished in Tajikistan. About forty-three percent of the population had food consumption below the minimum dietary energy requirement (MDER) of the average Tajik. The daily MDER for the average Tajik was estimated on the minimum dietary energy needed to maintain body-weight and perform a sedentary light physical activity taking account of the age and sex structure of the population. The MDER was 1880 kcal per person per day at national level in 2005. MDER estimates vary with the age sex structure, height values of the any referred population groupings, and such data was not available for the population groupings under study in this report. The national MDER estimate of Tajikistan was estimated using reference height data from other sources and age sex structure from the UN population database. The national MDER was also used to estimate the prevalence of undernourishment estimates of the population groupings of area, regions, size of household, gender and age of heads of households.

***Food insecure people are those individuals whose food intake falls below their minimum dietary energy requirements.***

***Millennium Development Goal on hunger targets to halve, between 1990 and 2015, the proportion of people who suffer from hunger and is specified as Indicator 5:***

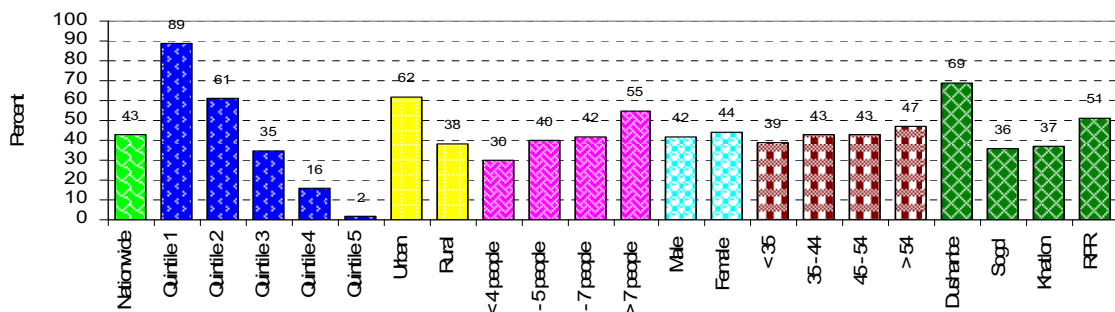
***“Proportion of population below minimum level of dietary energy consumption “***

***The Minimum Dietary Energy Requirement (MDER) is the amount of dietary energy of an average individual that is considered adequate to meet his daily energy needs for a minimum acceptable weight for attained height, light physical activity and in good health given his/her age and sex.***

<sup>1</sup> Sibrián R Ramasawmy S and Mernies J (2007). Measuring hunger at sub national levels from household surveys using the FAO approach: MANUAL. FAO Statistics Division Working Paper Series No. ESS/ESSA/005e.  
[http://www.fao.org/es/ess/faostat/foodsecurity/Papers\\_en.htm](http://www.fao.org/es/ess/faostat/foodsecurity/Papers_en.htm)

Levels of food deprivation decreased with income levels, with a food deprivation of 89% for the lowest income group to a low level of 2% of undernourished people in the highest income group (Figure 1). Urban areas have a significantly high prevalence of undernourishment of 62% compared to a level of 38% in rural regions where more than 70% of the population are living. Among regions, the capital city of Dushanbe and RPR had respectively high levels of food deprivation of the order of 69 and 51 percent. Large households in terms of members, i.e. with seven or more members had a level of undernourishment of 55%. The other population groupings showed also relatively high values of prevalence of undernourishment in the range of 30 to 47 percent. The food deprivation levels were marginally different between gender or age of the household-head.

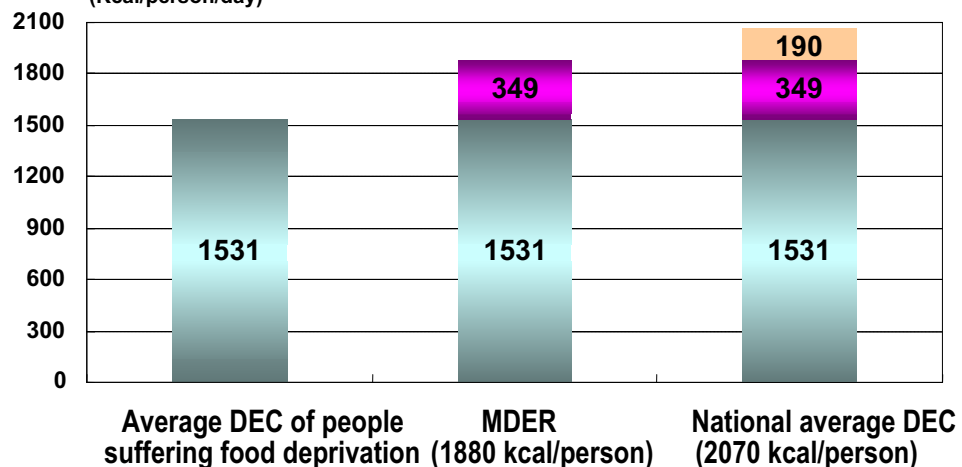
**Figure 1: Prevalence of undernourishment at national and sub national levels (Tajikistan 2005 HBS)**



**(B) Depth of hunger**

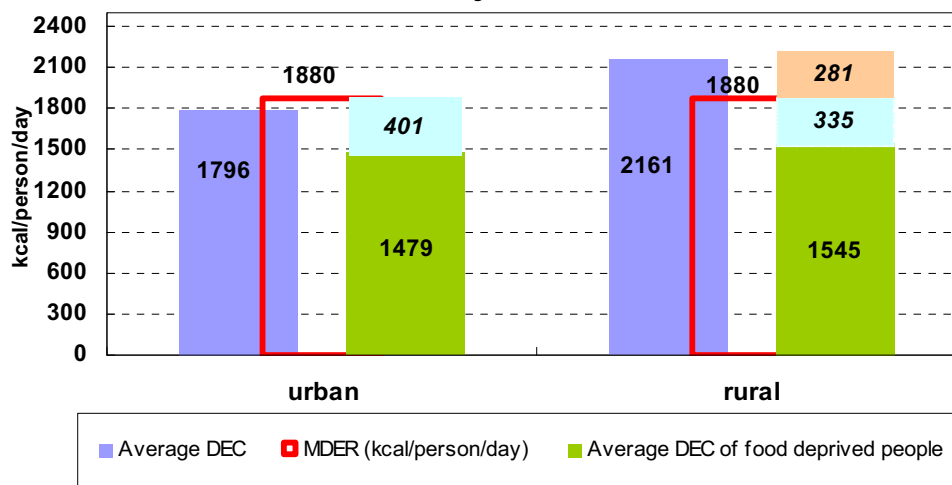
The 43 percent of undernourished people of Tajikistan had on average, a daily per person food consumption of only 1531 kcal, which was well below the MDER of 1880 kcal/person/day and the national average dietary consumption (DEC) of 2070 kcal/person/day.

**Figure 2: Depth of Hunger - Tajikistan, HBS 2005 (Kcal/person/day)**



It was then required an additional daily per person of 349 kcal (19 percent MDER) for these people to reach the MDER value. It was required an additional 539 kcal (35% DEC) to reach the national average dietary energy consumption. The rural food deprived people had higher average daily dietary energy consumption than in the urban areas. Thus, the urban Tajik has a higher daily food deficit of 401 kcal than 335 kcal for the rural Tajik. The population of urban regions had a lower daily average DEC of 1796 kcal than rural 2161 kcal and even lower than 1880 kcal MDER (Figure 3). Urban population consumed 274 kcal less than the national 2070 kcal DEC.

**Figure 3: Depth and intensity of hunger in urban and rural areas of Tajikistan 2005 HBS**

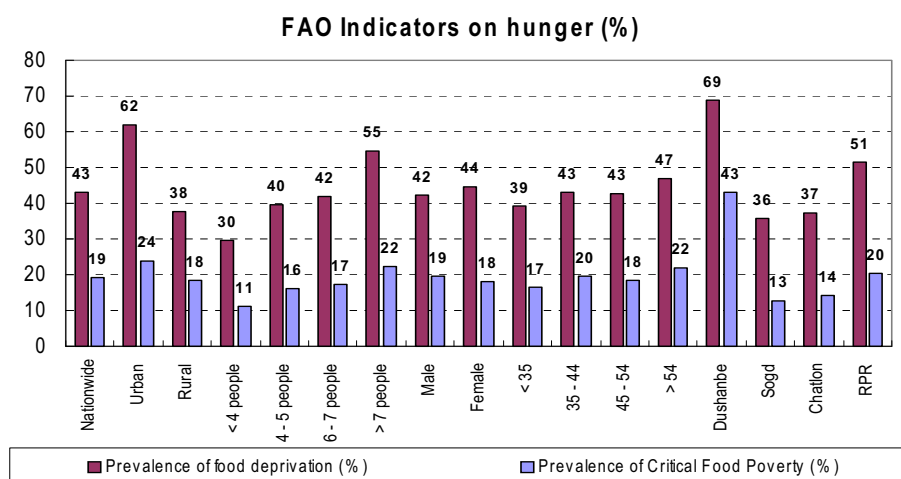


**(C) Critical Food poverty**

The prevalence of Critical Food Poverty (CFP) is the proportion of the population whose income is lower than the cost of a macronutrient-balanced food basket equivalent to the minimum dietary energy requirement (MDER). The MDER cost is valued using macro-nutrient unit costs from food consumed by households in the first income quintile. The macronutrient-balanced food basket provides 12.5, 22.5 and 65 percent energy from proteins, fats and carbohydrates respectively.

The prevalence of critical food poverty estimated was 19 percent at national level (see figure 4). The prevalence of critical food poverty estimates were different at sub national levels as the highest levels of critical food poverty were observed in Dushanbe (43%) and in RPR (20%) and the lowest levels were observed in the industrial area of Sogd (13%) and in households of small size with less than four people (11%). The prevalence of undernourishment was greater than the prevalence of critical food poverty in at national and sub-national levels.

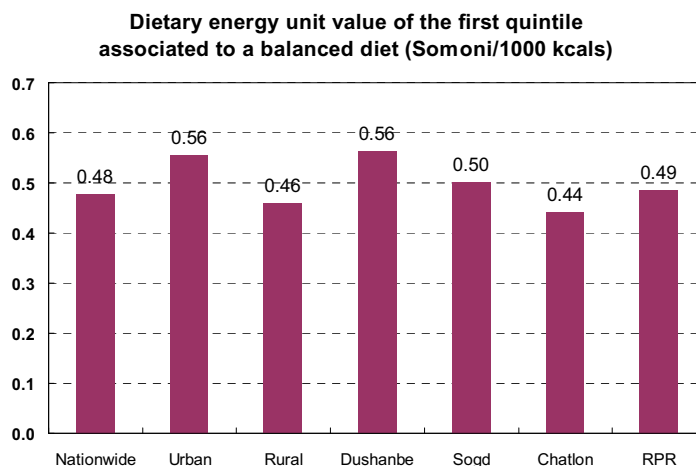
Figure 4: Food deprivation and critical food poverty at national and sub-national levels



It is important to note that the prevalence of food deprivation is based on the distribution of energy consumption, while the prevalence of critical food poverty is based on the distribution of income.

The energy unit cost of 1000 kcals from a macro-nutrient balanced food consumption pattern was 0.48 Somoni at national level and it was higher in Sogd and Dushanbe (see figure 5).

Figure 5: Unit value of energy at national and sub-national levels



The critical food poverty line based macro-nutrient balanced food baskets for the MDER of 1880 kcal/person/day was 0.9 Somoni at national level and for sub-national population groups across the country. In urban, rural and regions the cost of MDER varied with the energy unit cost of 1000 kilocalories.

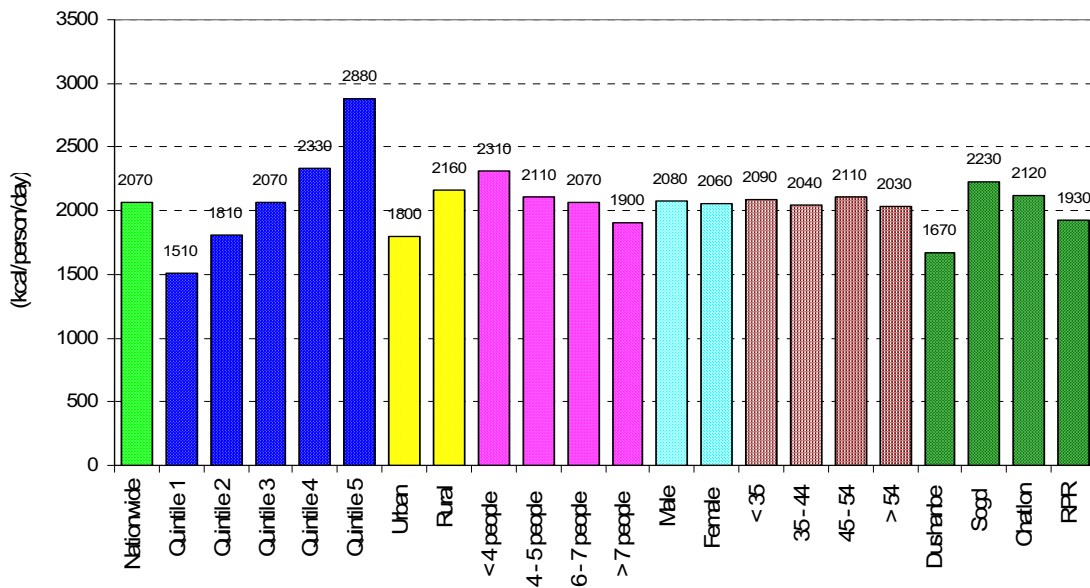
## (D) Food consumption and expenditures

### 1. Dietary Energy consumption (DEC)

The daily average dietary energy consumption (DEC) in Tajikistan was of 2070 kcal/person. The dietary energy consumption levels increased with increasing income levels ranging from 1510 kcal/person/day for people in the lowest income quintile to 2880 kcal/person/day for those in the highest income quintile. DEC for people in the first two income quintiles were respectively 1510 and 1810 kcal/person/day, lower than the MDER value of 1880 kcal/person/day and were food insecure population. People of the capital city Dushanbe and other urban regions of Tajikistan had, on average, low dietary energy consumption, even lower than the MDER. DEC of the rural population was 20% higher than the dietary energy consumption in the urban regions (Figure 6). The Sogd population lives in an industrial region in the north, consumed a significantly high DEC among all the regions and even to the national average value.

There were marginal differences in DEC between households' population headed by male and female, and among different age groups of heads of households. The low income households with a large high number of members (6.9) had a lower DEC. Higher levels of food deprivation in Tajikistan were in large size and low income households. In contrast, the highest income group with small household size of 4.9 had a higher DEC.

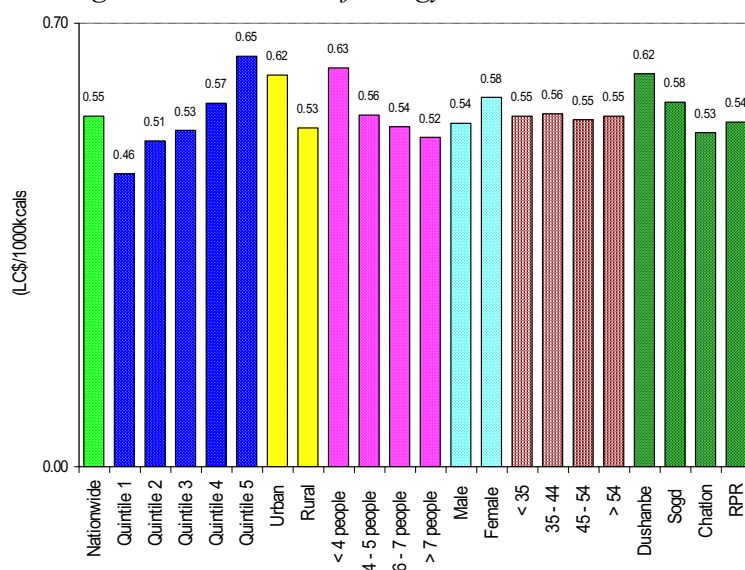
Figure 6: Dietary energy consumption at national and sub-national levels



## 2. Dietary energy unit value

The average cost of consumed 1000 kilo-calories was 0.55 Somoni at national level. This cost excluded fuel cost to make food to ready to eat. It ranged from 0.46 Somoni in the lowest income quintile to 0.65 Somoni in the highest income quintile (figure 7).

Figure 7: Unit value of energy at national and sub-national levels

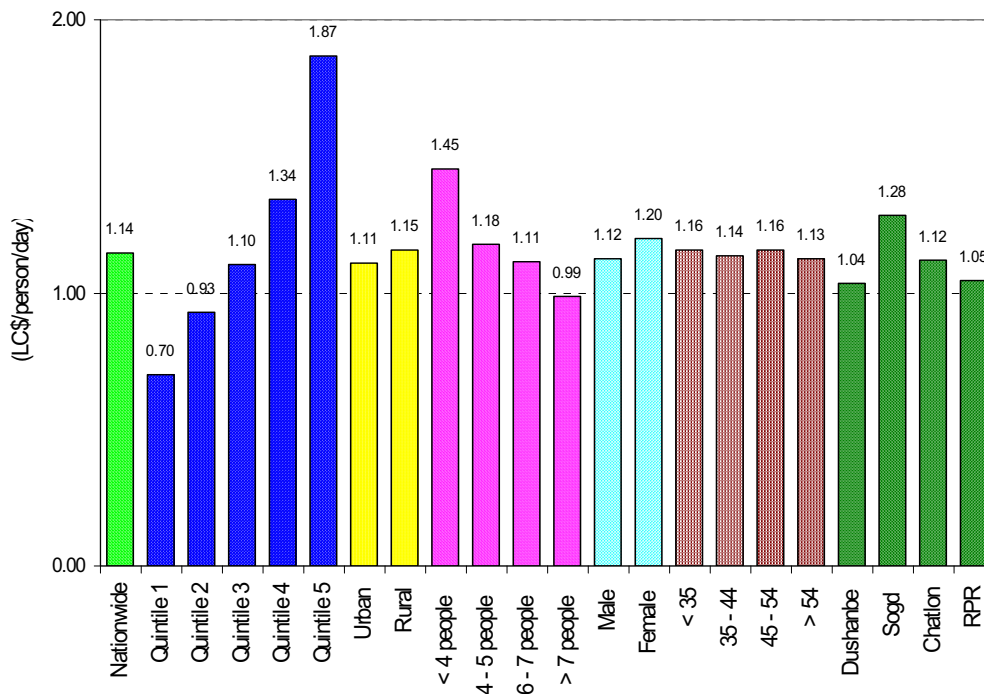


The dietary unit value was high in Dushanbe and in other urban areas. Small size households consumed more expensive energy than larger size households and female slightly more expensive than male headed households.

## 3. Monetary value of food consumed and Engel ratio

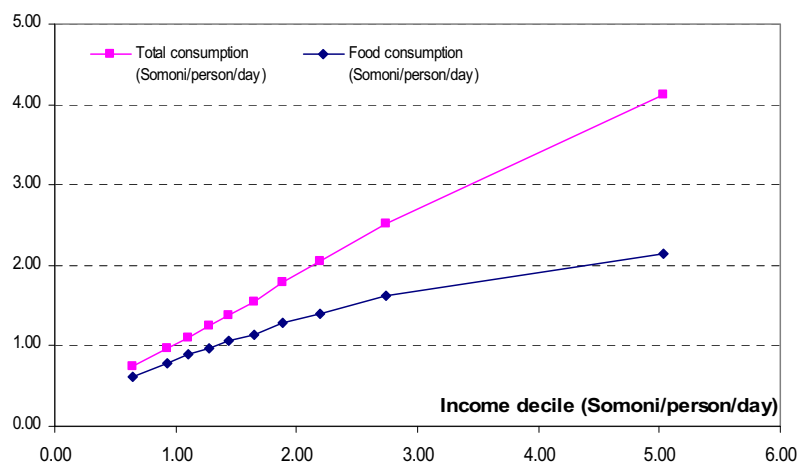
On average, it costs 1.14 Somoni a day to a Tajik to acquire a food basket providing the national consumption of 2070 kcal. Differences were found mainly between the lowest (0.70 Somoni) and the highest income quintile (1.87 Somoni). Small size households and households from Sogd spent more on food (Figure 8).

Figure 8: Monetary value of food consumption and expenditure at national and sub-national levels



The food and total consumption by income deciles are depicted in figure 9 below. The gap between the total consumption and food expenditure for the lowest income deciles was small and the opposite situation was observed for high income levels.

Figure 9: Food and total consumption and expenditure by income at national level



Hence, implied high shares of food in total consumption (Engel ratio) for low income levels and low shares in high income levels; this is shown in figure 10 with decreasing Engel ratios with higher income levels. The lowest income decile spent on food 72% of the total consumption while the highest income quintile spent 55%.

**Figure 10: Share of Food Consumption to Total Consumption Expenditure (%) Tajikistan 2005 HBS**

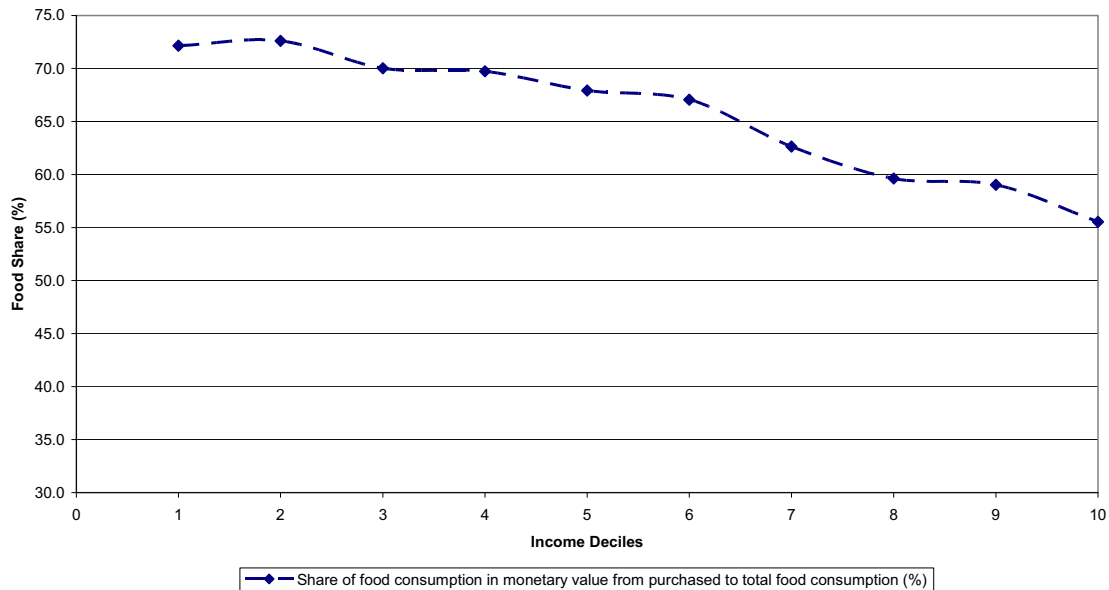
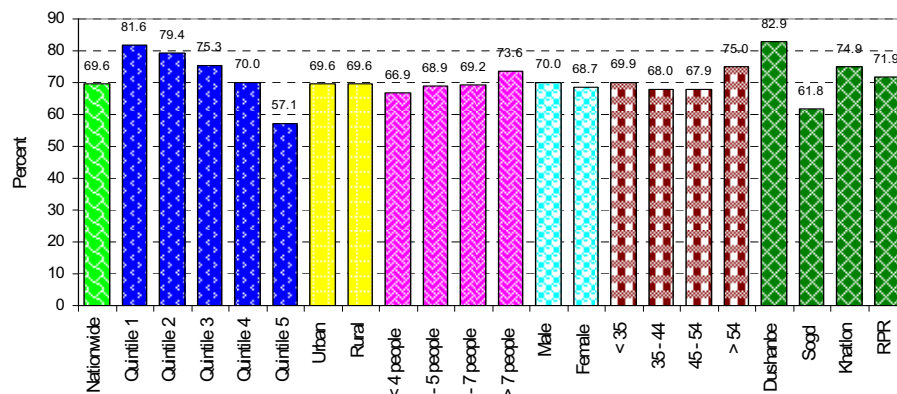


Figure 11 gives the food share for the various population groups in Tajikistan. The average Tajik had a food share of almost 70% showing that the population spent a large amount of their income to satisfy their food needs. The Engel ratios were high (over 60 percent) for all population groups, except the highest income quintile. People living in Dushanbe had a high food spending (83%) due to the high prevailing food prices which usually include transportation, import and other costs as most food are produced in rural areas or coming from neighbouring countries.

**Figure 11: Share of Food Expenditure to Total Consumption Expenditure (%) Tajikistan 2005 HBS**

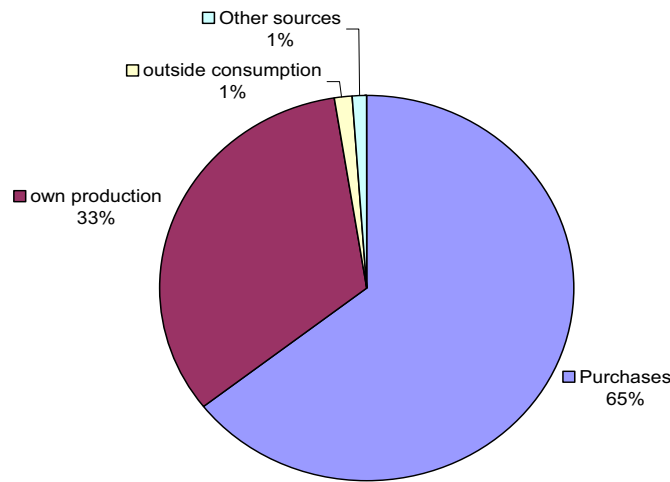




#### 4. Share of food consumption by food source

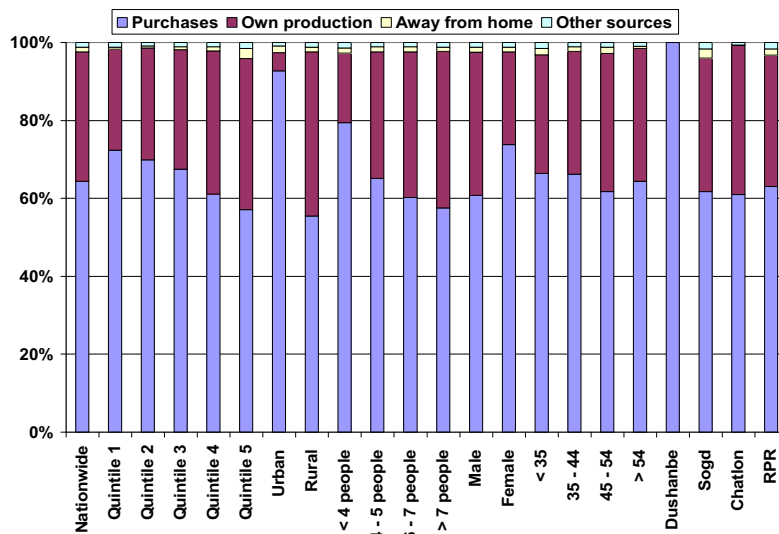
Food are acquired and consumed by the population mainly through purchases, own production and obtained free, in addition to some consumption outside home in restaurants or from street vendors, etc. At national level, the population acquired 65% of their food consumption from purchases and 33% from their own production. The latter was considered significant and probably due to the high rural population whereby people resort to have their own food production to meet their food needs. The shares of food consumption from the other two sources are marginal, particularly of the away from home consumption.

Figure 12: Share of food expenditure by food sources (%) Tajikistan 2005 HBS



The structure of food expenditure by foods sources for the categories of the different sub populations is given in figure 13 below.

Figure 13: Share of food monetary value by sources

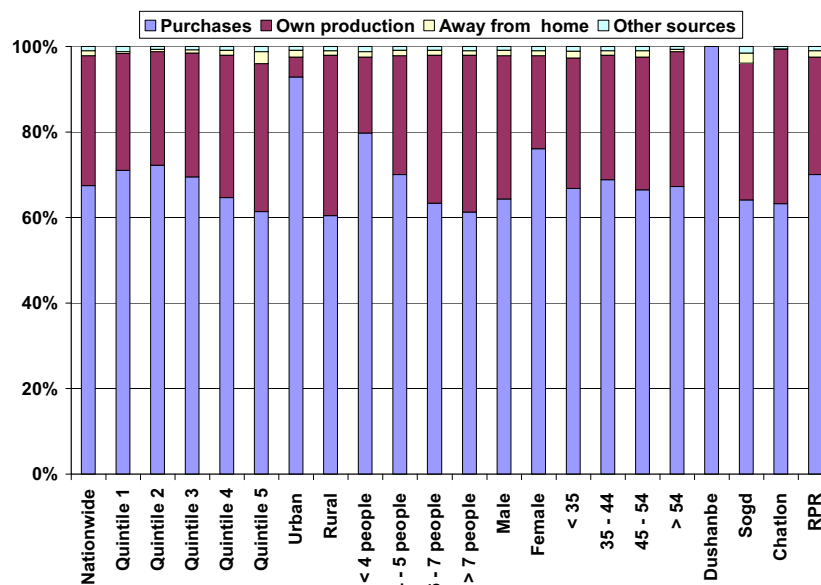


The population of the capital city of Dushanbe and urban regions acquired most their food from purchases while those of the rural areas derived a significant share of their food consumption from their own production. Own production remains an important food source for most of the population groups even in the population of the highest income quintile. Food eaten away from home was almost insignificant among most population groups. However, food aid by international organizations, which is significant in Tajikistan, was not captured in the HBS. The structure of food dietary energy consumption followed almost the same pattern as the structure of food consumption expenditure and it is depicted in figure 14 below.

The shares of purchased food in terms of monetary value were almost the same as the shares in terms of dietary energy and could be due to small variability of food prices paid by the population within and between the population groupings. The same pattern is observed as regards of own production food.

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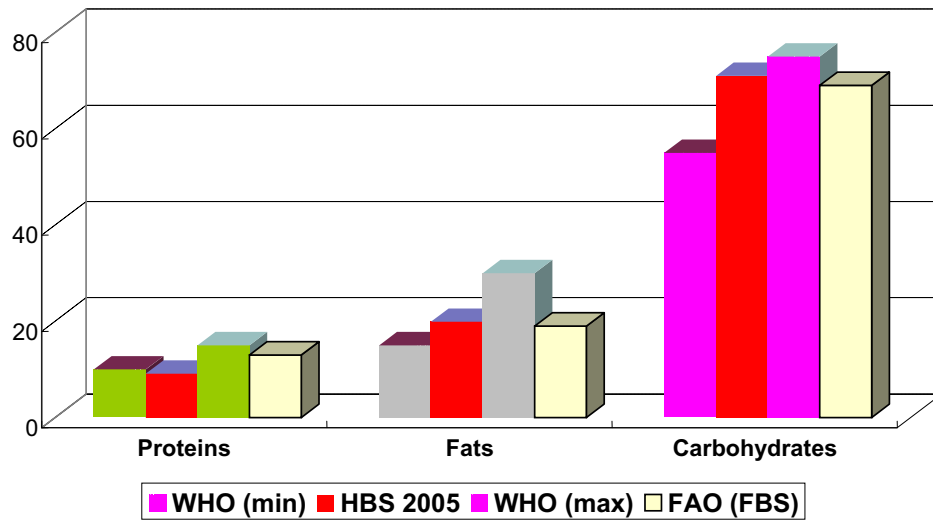
Figure 14: Share of energy consumption by sources



### (E) Dietary Diversity

About 71% of the average dietary energy consumption (DEC) of the Tajikistan was provided by carbohydrates, followed by fat with a contribution of 20%, and then by proteins with 9%, HBS 2005 in figure 15. Compared with the guidelines recommended by WHO for a balanced diet consisting in 10-15% of proteins, 15-30% of fat and finally 55-75% of carbohydrates, it is observed that there is deficiency in protein consumption in Tajikistan at national level, which was 9%. The consumption of carbohydrates was near the upper limits. However, the share in total calories derived from the food balance sheets at national level showed a better diet, FAO-FBS in figure 15.

Figure 15: Comparison of share of energy-yielding nutrients in total calories (%) (WHO and FAO) Tajikistan 2005 HBS



The consumption pattern of share of nutrients calories to total calories by area, regions and other population groups are shown in figure 16 and by income levels in figure 17.

Figure 16: Share of energy-yielding nutrients in total calories at national and sub-national levels

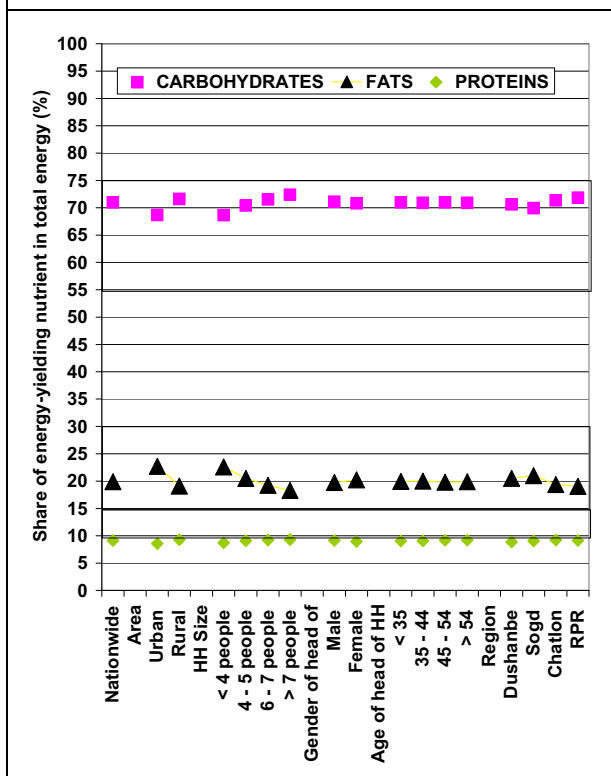
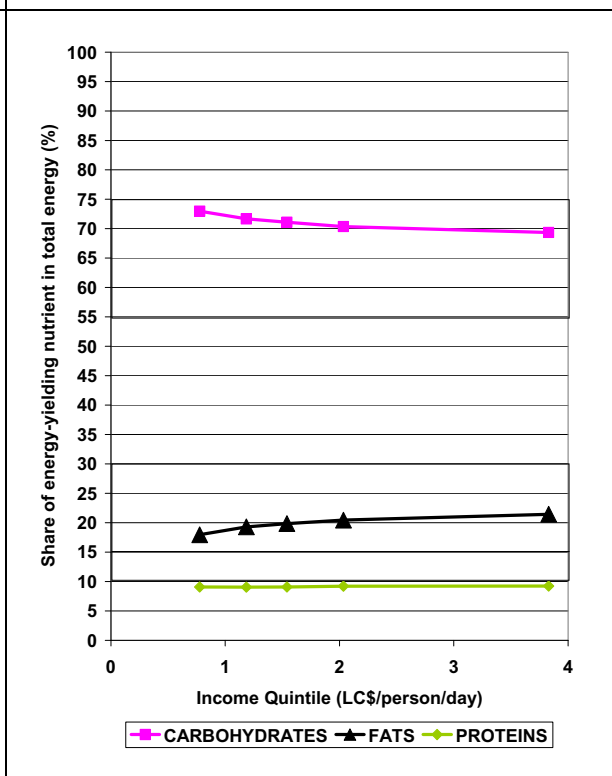


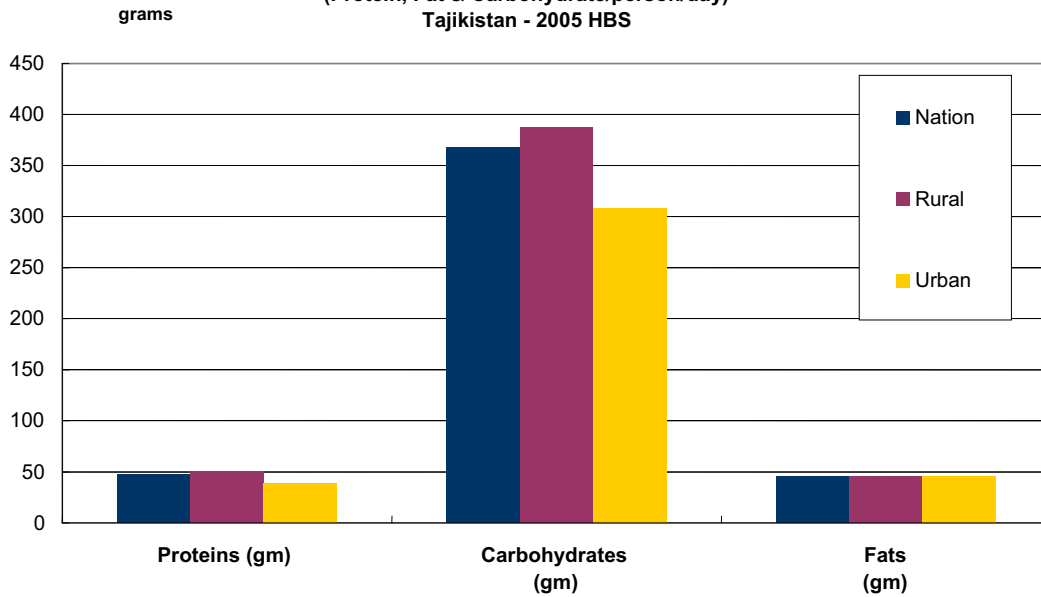
Figure 17: Share of energy-yielding nutrients in total calories by income levels (quintiles)



The deficiency in protein consumption was widespread among all income quintiles, urban and rural areas, regions etc. Fats and carbohydrates consumptions in rural and urban areas were more in line with the WHO/FAO guidelines (coloured areas). Carbohydrates consumption was higher low income groups mainly from cereals products which in rural areas was from own production.

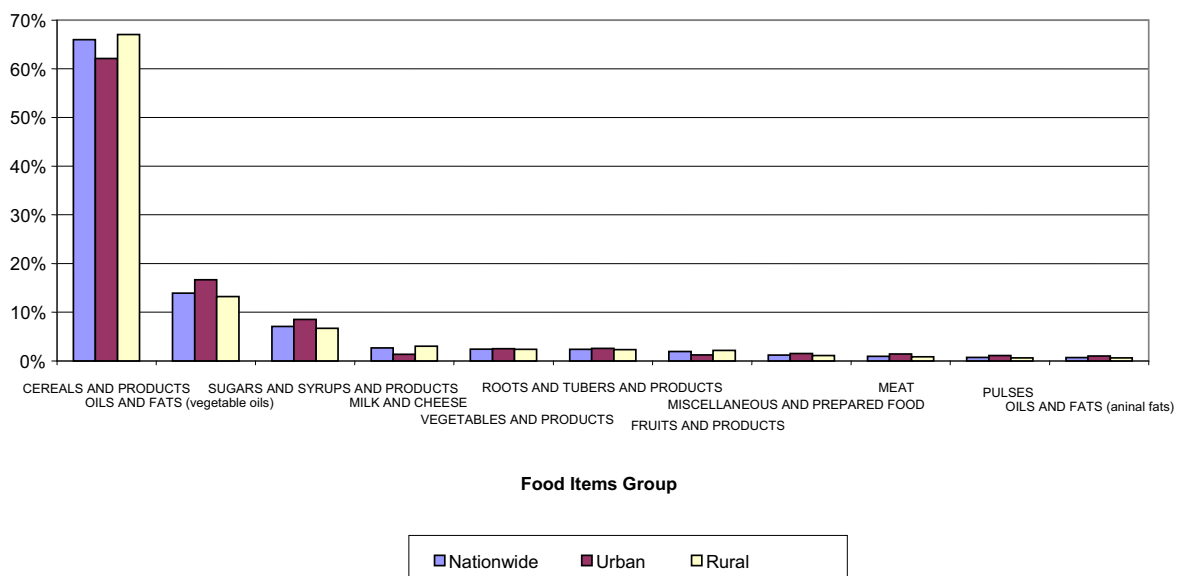
Consumption of protein was higher in rural population while the population of urban areas had a lower consumption even less than the national average. A higher consumption of 387 gram of carbohydrates was observed for rural population while the urban population consumed 308 gram per person per day (figure 18).

**Figure 18: Food Consumption at National & Subnational Levels  
(Protein, Fat & Carbohydrate/person/day)  
Tajikistan - 2005 HBS**



The percentage contribution of dietary energy consumption by main food items groups are shown in figure 19 for national, urban and rural regions. The first three food item groups were providing at least 80 percent of total energy. Cereals and products constituted the main source of energy (more than 60 percent). Oils and fats were the second food item groups with around 15 percent share contribution. As already observed, population of rural areas derived a higher percentage of their dietary energy consumption from cereals and products. Urban population obtained more energy from oils and vegetable fats, sugar and sugar products and vegetables. Meat was consumed in smaller quantities by the Tajik population.

**Figure 19: Percentage Contribution of Dietary Energy by Main Food Items Group and Area  
Tajikistan 2005 HBS**



The share contribution of the food commodity group expenditure to total food expenditure at national level is given in figure 20 for those commodities that were significant in terms of magnitude of values. More than 30% of food expenditure went to acquire cereals and cereals products. Meat, vegetables, fruits, oils, had a share contribution in the food expense around 10%. This gives a clear indication of the high level of food prices of meat and fruits as their dietary energy consumption were comparatively low.

**Figure 20:: Share(%) of Food Commodity Expenditure to Total Food Expenditure (Tajikistan 2005 HBS)**  
 Percentage share to total food expenditure

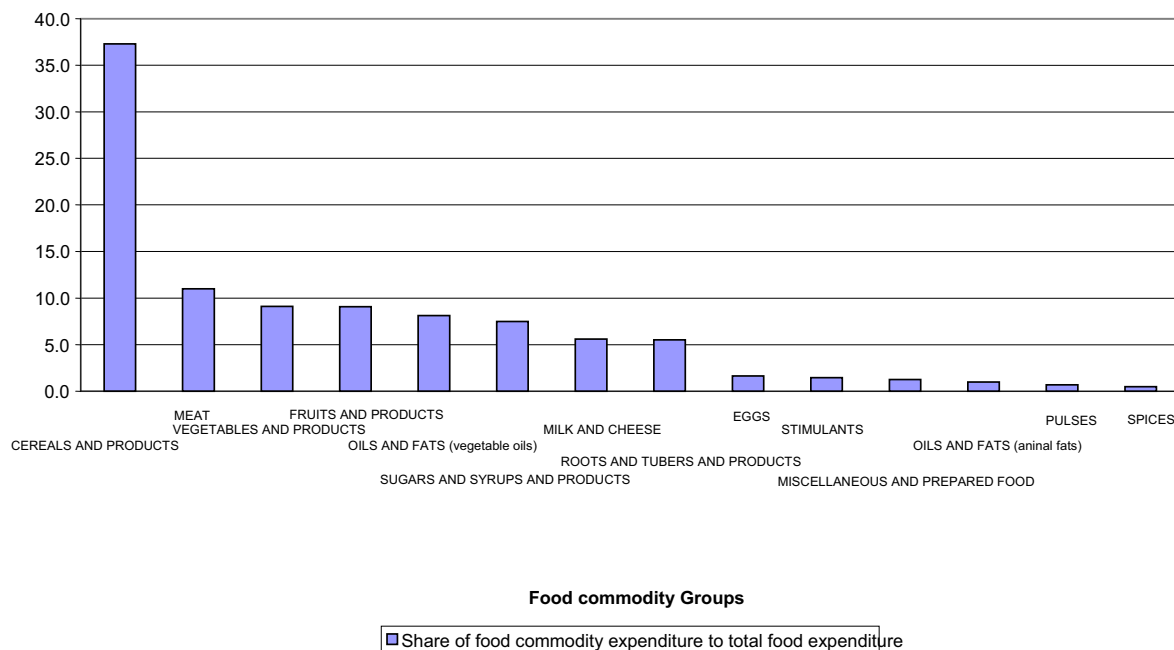


Table 1 shows the comparison of the contribution share of food commodity expenses to total food expenditure by income quintiles. Almost one half of the food expenses in the low-income quintile population went to cereals while one third in the highest income quintile population. The highest income quintile population consumed a high expense share in fish. Potatoes had a high share of food expenses among population of three high income quintiles.

Table 1: Share (%) of Food Commodity in Total Food Expenditure by Income Quintile  
Tajikistan 2005 HBS

	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	National
CEREALS AND PRODUCTS	47	40	38	35	32	37
MEAT	8	6	6	6	4	11
VEGETABLES AND PRODUCTS	9	8	8	7	7	9
FRUITS AND PRODUCTS	4	1	1	1	1	9
OILS AND FATS (vegetable oils)	9	0	0	0	0	8
SUGARS AND SYRUPS AND PRODUCTS	7	0	0	0	0	7
MILK AND CHEESE	3	10	9	9	9	6
ROOTS AND TUBERS AND PRODUCTS	6	7	8	11	12	6
EGGS	2	2	2	1	1	2
STIMULANTS	2	1	1	0	0	1
MISCELLANEOUS AND PREPARED FOOD	0	0	0	0	0	1
OILS AND FATS (animal fats)	1	9	11	12	14	1
PULSES	1	2	2	1	2	1
SPICES	1	0	0	0	0	0
NON ALCOHOLIC BEVERAGES	0	5	5	7	6	0
FISH AND FISH PRODUCTS	0	9	9	8	7	0
ALCOHOLIC BEVERAGES	0	1	1	1	2	0
TREE NUTS	0	0	0	0	1	0
OIL CROPS	0	1	1	1	3	0

Table 2 below gives the household consumption pattern by food item groups. All households purchased cereals and cereals products and vegetables. Oils and fats, sugar and sugar products, roots and tubers, stimulants and meat are those food items groups, which were regularly acquired by more than 90 percent of households. Fruits, milk and cheese, eggs and pulses were consumed in a significant percentage of Tajik households.

Table 2: Share of number of HH who consumed of each food item group in total number of HH at National and sub national level  
Tajikistan 2005 HBS

Food Item Group	Share of number of HH who consumed of each food item group in total number of HH by national and sub national level %		
	Urban	Rural	Nationwide
CEREALS AND PRODUCTS	100	100	100
VEGETABLES AND PRODUCTS	100	99	99
OILS AND FATS (vegetable oils)	96	99	98
SUGARS AND SYRUPS AND PRODUCTS	95	99	98
ROOTS AND TUBERS AND PRODUCTS	98	97	97
STIMULANTS	89	97	94
MEAT	88	91	90
SPICES	82	89	87
FRUITS AND PRODUCTS	72	81	78
MILK AND CHEESE	68	58	61
EGGS	46	41	43
PULSES	47	40	42
OILS AND FATS (animal fats)	34	19	24
MISCELLANEOUS AND PREPARED FOOD	65	23	23
NON ALCOHOLIC BEVERAGES	9	7	8
FISH AND FISH PRODUCTS	3	1	2
ALCOHOLIC BEVERAGES	0	0	0
TREE NUTS	0	0	0
OIL CROPS	0	0	0

The unit cost of nutrients by food commodity groups shows that energy from cereals and oils followed by pulses and sugar were the least expensive consumed by the Tajik population. Proteins from pulses, cereals and dairy products were the least expensive and fats from oils were the least expensive (Table 3).

<b>Table 3: Nutrient costs by food commodity groups</b>				
<b>Region: Countries in Transition</b>		<b>Country: Tajikistan</b>		<b>Year: 2005</b>
<b>Food commodity group</b>	<b>Average Dietary Energy Unit Value (Somoni/1000kcal)</b>	<b>Proteins Unit Value (Somoni/100g)</b>	<b>Carbohydrates Unit Value (Somoni/100g)</b>	<b>Fats Unit Value (Somoni/100g)</b>
CEREALS AND PRODUCTS	0.31	1.16	0.15	8.45
ROOTS AND TUBERS AND PRODUCTS	1.28	7.31	0.56	107.63
SUGARS AND SYRUPS AND PRODUCTS	0.58	16.99	0.26	5.19
PULSES	0.51	0.89	0.28	10.92
VEGETABLES AND PRODUCTS	2.09	5.93	1.00	73.51
FRUITS AND PRODUCTS	2.56	10.72	1.22	35.50
SPICES *	3769.8	12928.1	2029.9	24149.8
ALCOHOLIC BEVERAGES	2.36	283.5	7.3	0.0
MEAT *	6.43	6.8	3129.8	9.3
EGGS	85.02	105.2	1604.7	116.7
FISH AND FISH PRODUCTS	10.01	7.0	771.8	21.2
MILK AND CHEESE	1.16	2.1	1.5	2.2
OILS AND FATS (vegetable oils) *	0.32	17325.4	5197.6	0.3
OILS AND FATS (animal fats)	0.81	117.3	94.4	0.7
NON ALCOHOLIC BEVERAGES *	219.8	864.3	122.7	1087.4
MISCELLANEOUS AND PREPARED FOOD	0.6	2.6	0.3	2.5

\* Food items low in corresponding nutrients values



## **(F) Food and Income inequality**

Inequality in access to food is estimated by FAO through the Coefficient of Variation (CV) of dietary energy consumption. This CV results of two components to capture on one side the variation of DEC owing to income and on the other side the variation of DEC owing to energy requirement. This later has been set to 20%. The CV of DEC due to income was 22.8%. Hence the CV of DEC of 30%.

**Figure 21: Nationwide coefficients of variation of dietary energy consumption, food monetary value and income Tajikistan 2005 HBS**

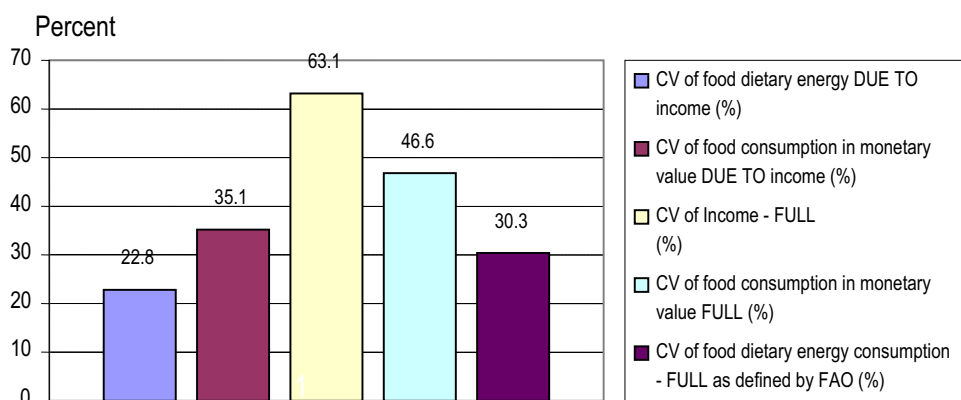


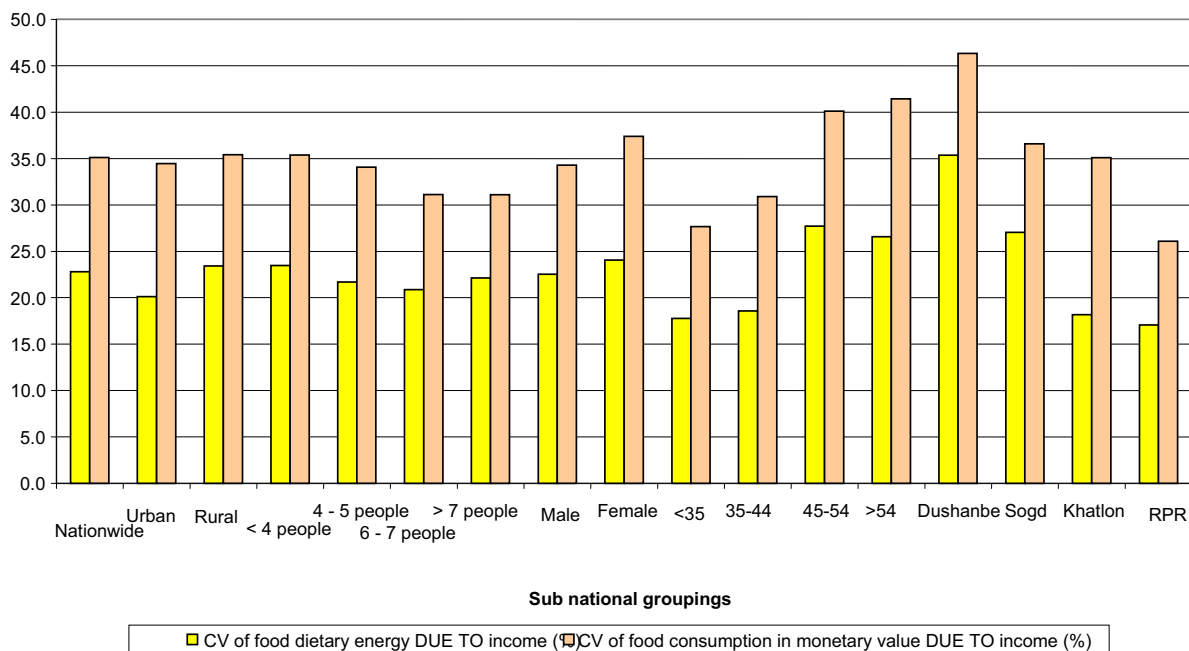
Figure 21 shows the CV of food consumption measured in terms of monetary and dietary energy due to income. The CV of food consumption in monetary value due to income (35.1%) is higher than that in dietary energy (22.8%) as the former includes the variations of food prices. CV of income was relatively high (63.1%) nearly three times the CV of DEC due to income.

### **1. Inequality in access to food consumption due to income at sub national levels**

Inequality in access to food as measured by the CV of DEC due to income was 22.8% nationwide. Low inequalities of DEC of magnitude less than 20% were observed among urban population, household heads less than 45 years and in regions of Khatlon and RPR. Dushanbe has an inequality over 35%.

The CV of food expenditure due to income showed values in the range from 26% (RPR) to 46% in Dushanbe. Region RPR and heads of households aged less than 35 years had moderate inequality of access to food that was below 30%. The other population groupings had higher inequalities more than 30%. Access to food was almost equal among rural households and urban households that were less than the national level value of 35%.

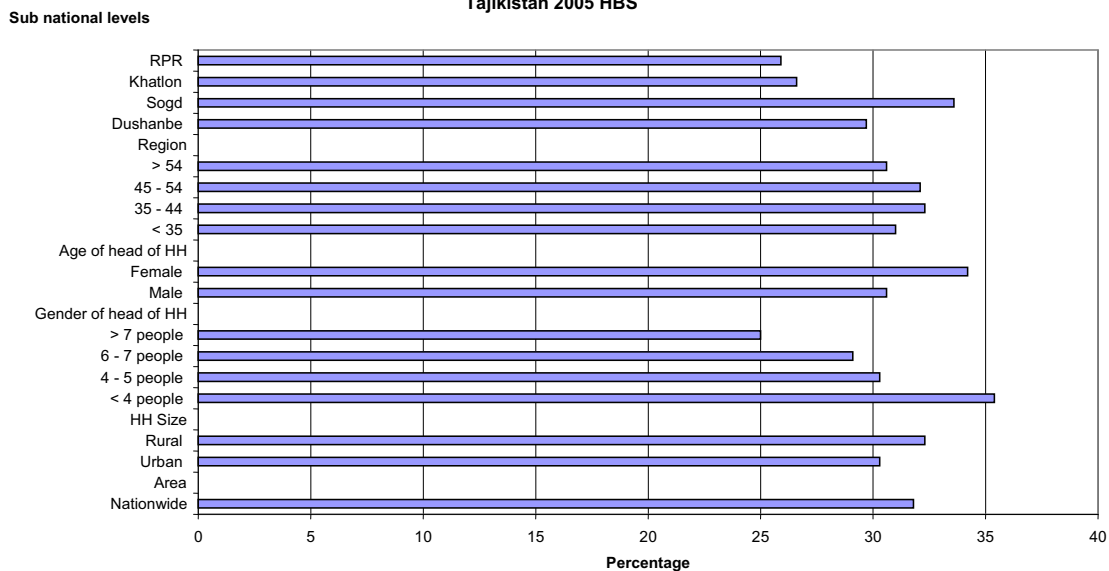
**Figure 22 : Inequality of food consumption (expenditure and dietary energy) due to income by sub national levels - Percentage**  
Tajikistan 2005 HBS



## 2. Income inequality

The Gini coefficient of 31.8%, a measure of disparity in income, was low.

**Figure 23: GINI of Income (%) by Sub national levels**  
Tajikistan 2005 HBS

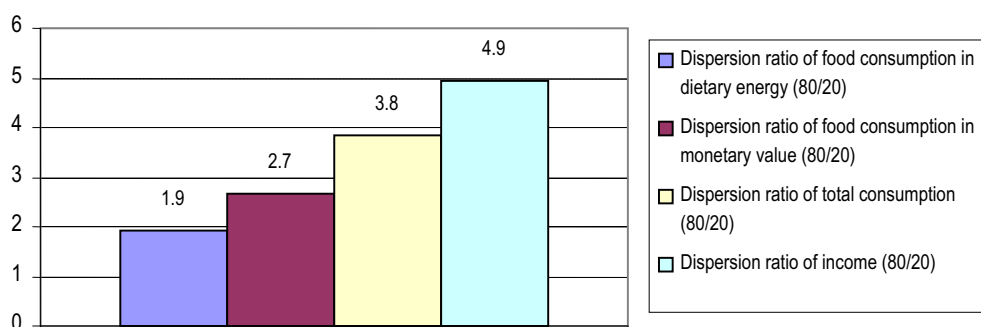


High inequalities were observed among population living in small household sizes of four or less people, female-headed households and in Sogd region. The small Gini coefficient was in large household sizes population.

### **3. Dispersion (inequality) ratios**

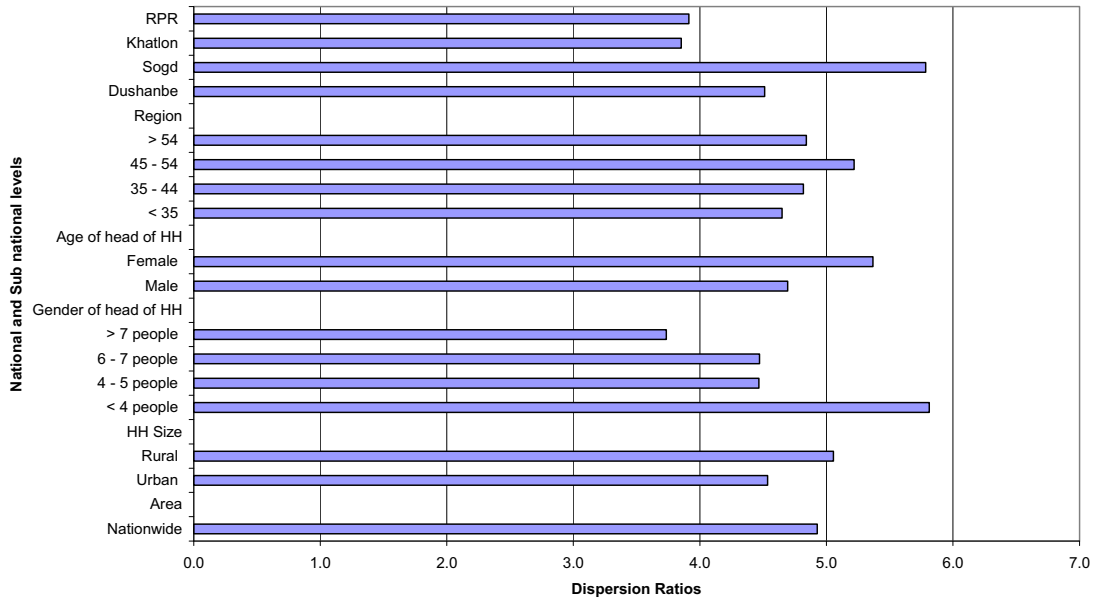
The dispersion inequality of a variable measures the disparity between the lowest and highest quintile (80/20). It is estimated for the food consumption in both monetary and dietary energy values, consumption and income. At national level, the dispersion ratio for food consumption in dietary energy was 1.9, in monetary value, 2.7, total consumption 3.8 and income 4.9. The increasing dispersion ratios for the four components reflect the variability within each component. Dietary energy consumption has variability less than food expenditure as the latter includes additional variability of food prices. Total household consumption includes variability of all commodities by types and prices. Variations in income include many components of socio economic factors. Dispersion ratios are estimated for all the sub national levels for each of the four components and are given in the annex tables.

**Figure 24: Dispersion ratios (Inequality) at National level  
Tajikistan 2005 HBS**



At national level, the dispersion ratio of income was around five. The average income for the highest quintile population was five times greater than that of the lowest quintile population. In region Sogd, that ratio was the highest (5.9) and it was the least among population in large household sizes having seven or more members.

Figure 25: Dispersion ratio of income (80/20) -Tajikistan 2005 bHBS



#### 4. Income Demand Elasticity of Food Consumption

The income demand elasticity of food consumption in terms of energy is lower than in terms of monetary value. Elasticity values of DEC decreased with higher income decile. The positive response of 0.7 % in dietary energy consumption of the lowest income decile shows that increase of 1% in income contribute substantial improvements in the nutrition of the poor. The food expenditure in the lowest decile with elasticity greater than one was sensitive to higher income. Population would respond purchasing more expensive food products. The demand elasticity of the food share was almost stabilized over the value of 0.8 revealing little sensitivity with higher income.

<b>Table 4: Income Demand elasticity by Income Quintiles</b>				
<b>Region: Countries in Transition</b>		<b>Country: Tajikistan</b>		<b>Year: 2005</b>
<b>Income level</b>	<b>Income deciles</b>	<b>Demand elasticity of food dietary energy consumption (DEC) respect to income (%)</b>	<b>Demand elasticity of food consumption in monetary value (FMV) respect to income (%)</b>	<b>Demand elasticity of Engle ratio respect to income (%)</b>
Income level				
Decile	1	0.7	1.5	0.8
Decile	2	0.5	1.0	0.8
Decile	3	0.5	0.8	0.8
Decile	4	0.5	0.7	0.8
Decile	5	0.4	0.7	0.8
Decile	6	0.4	0.6	0.8
Decile	7	0.4	0.6	0.8
Decile	8	0.4	0.5	0.8
Decile	9	0.3	0.5	0.8
Decile	10	0.3	0.4	0.7

**(G) Towards the WFS and MDG**

Tajikistan stood at a level 22% of deprivation in the benchmark period of 1993-1995 and achieving the MDG indicator 5 means that a level of 11% should be reached by 2015. FAO 2002-2004 estimates of food deprivation was 56% indicating that the situation is worsening. The MDG objective seemed out of reach unless more food interventions policies are implemented in urban and rural areas. However, the Tajikistan 2005 HBS data shows a situation less dramatic as a level of 43% of food deprivation was estimated at the national level. With those sub national estimates of food deprivation and other FSS, efforts could be better targeted for more focused interventions.

The same situation applies as regards the achievement of the WFS in terms of number of undernourished population. The target of 0.6 million of undernourished population is far from the FAO 2002-2004 estimates of 3.5 million. HBS estimates of 3 million still are revealing an upward trend. The FSS estimates need to be studied and examined for their relevance, but the magnitude are indicative that food poverty is still a matter of great concern in Tajikistan.

**Figure 26: Progress towards WFS (reduce by half number of people undernourished by 2015)**

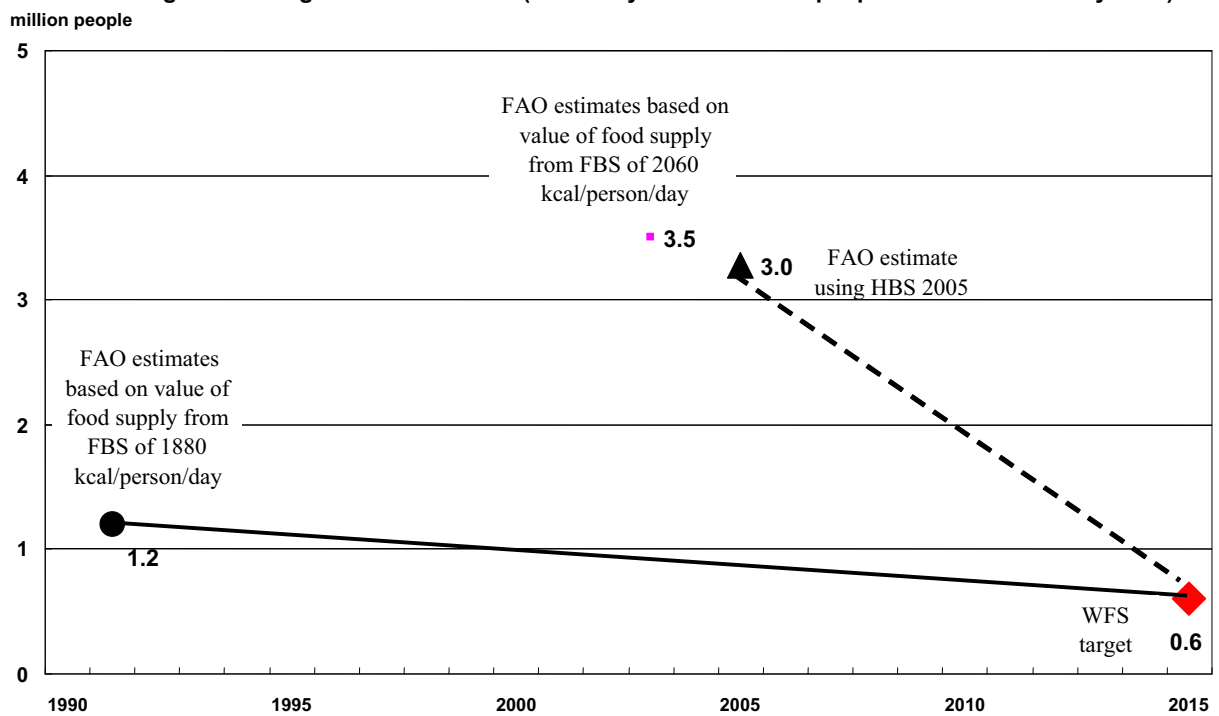
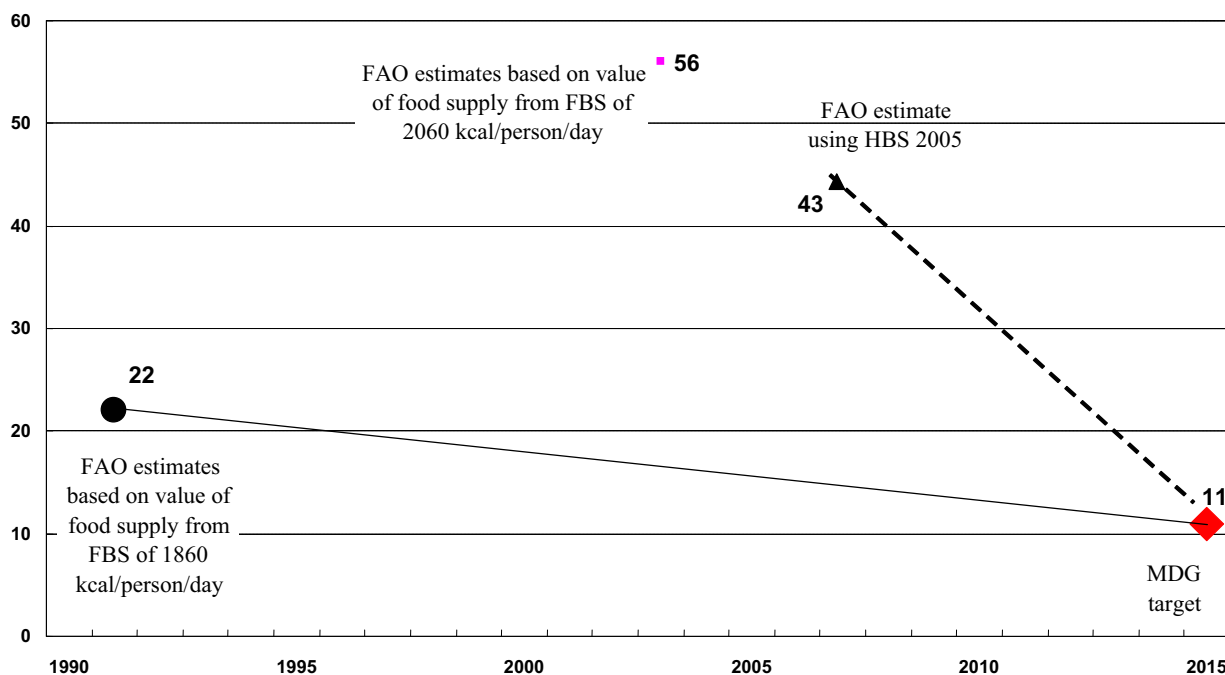


Figure 27: Progress towards MDG (reduce by half proportion of people undernourished by 2015)



#### IV. CONCLUSION

This report analyses the food security situation in Tajikistan using data on food consumption from the Tajikistan 2005 Household Budget Survey, which is an important source of data for the derivation of consistent and reliable food security indicators at national and sub national levels. The SSC of Tajikistan conducts its HBS using the longitudinal panel method and it has an important database of income and consumption (including food) expenditure over a long period from the same sample of household as to analyse the different variations (seasonal and income) and market fluctuations influencing food consumption. The SSC can easily use the FSSM to derive FSS on a regular basis for the evaluation of anti hunger policies for more effective targeted interventions. The annual estimation of the MDG indicator 5 can be performed for the assessment and monitoring of the food situation at the national and sub national levels.

The major finding in relation to the MDG indicator 5 indicates that much effort should be done in order to increase the food consumption of the population. Urban population was worse off than the rural population. Some food commodities essential to have a balanced diet have high prohibitive prices and there is a need to study the food price mechanism as to improve the Tajik diet.

The SSC is planning to introduce the updated HBS as from 2008 with a new sample size and revised set of questionnaires. Following a technical mission as to review the current HBS, a technical report (annexed) was submitted and may be used as a resource document in the process of the HBS review.

## V. GLOSSARY

### 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 and 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.

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## ANNEXES A.

***Annex Table1. Selective Statistics of food consumption***

<b><i>Selective statistics of food consumption</i></b>						
<b>Region: Countries in Transition</b>		<b>Country: Tajikistan</b>		<b>Year: 2005</b>		
<b>National and Sub national Levels</b>	<b>Number of sampled households</b>	<b>Average number of people in household</b>	<b>Average food consumption in dietary energy value (kcal/person/day)</b>	<b>Average food consumption in monetary value (LC\$/person/day)</b>	<b>Average dietary energy unit value (LC\$/1000kcal)</b>	<b>Average total consumption (LC\$/person/day)</b>
Nationwide	11092	6.1	2070	1.1	0.6	1.6
Income level						
Quintile 1	2218	6.9	1510	0.7	0.5	0.9
Quintile 2	2219	6.8	1810	0.9	0.5	1.2
Quintile 3	2218	6.2	2070	1.1	0.5	1.5
Quintile 4	2219	5.9	2330	1.3	0.6	1.9
Quintile 5	2218	4.9	2880	1.9	0.6	3.3
Area						
Urban	3597	4.9	1800	1.1	0.6	1.6
Rural	7495	6.7	2160	1.2	0.5	1.7
HH Size						
< 4 people	2906	3.1	2310	1.5	0.6	2.2
4 - 5 people	3740	5.5	2110	1.2	0.6	1.7
6 - 7 people	2763	7.4	2070	1.1	0.5	1.6
> 7 people	1683	10.6	1900	1.0	0.5	1.3
Gender of head of HH						
Male	7484	6.6	2080	1.1	0.5	1.6
Female	3608	5.1	2060	1.2	0.6	1.7
Age of head of HH						
< 35	1836	5.6	2090	1.2	0.6	1.7
35 - 44	3606	5.8	2040	1.1	0.6	1.7
45 - 54	3239	6.8	2110	1.2	0.5	1.7
> 54	2411	6.1	2030	1.1	0.6	1.5
Region						
Dushanbe	1200	4.2	1670	1.0	0.6	1.2
Sogd	3597	5.8	2230	1.3	0.6	2.1
Khatlon	3895	6.3	2120	1.1	0.5	1.5
RPR	2400	7.2	1930	1.0	0.5	1.5

***Annex Table 2. Food deprivation at national and sub national levels***

<b><i>Food deprivation and parameters by population groupings</i></b>						
<b><i>Region: Countries in Transition</i></b>		<b><i>Country: Tajikistan</i></b>		<b><i>Year: 2005</i></b>		
<b>National and Sub national Levels</b>	<b>Number of sampled households</b>	<b>Average number of people n household</b>	<b>CV (%) of food dietary energy consumption (kcal/person/day) -FULL as defined by FAO</b>	<b>Minimum dietary energy requirement (kcal/person/day) as defined by FAO</b>	<b>Average of food dietary energy consumption (kcal/person/day)</b>	<b>Proportion of food deprivation in total population (%) as defined by FAO</b>
Nationwide	11092	6.1	30	1880	2070	43
Income level						
Quintile 1	2218	6.9	20		1510	89
Quintile 2	2219	6.8	20		1810	61
Quintile 3	2218	6.2	20		2070	35
Quintile 4	2219	5.9	20		2330	16
Quintile 5	2218	4.9	20		2880	2
Area						
Urban	3597	4.9	28	1880	1800	62
Rural	7495	6.7	31	1880	2160	38
HH Size						
< 4 people	2906	3.1	31	1880	2310	30
4 - 5 people	3740	5.5	30	1880	2110	40
6 - 7 people	2763	7.4	29	1880	2070	42
> 7 people	1683	10.6	30	1880	1900	55
Gender of head of HH						
Male	7484	6.6	30	1880	2080	42
Female	3608	5.1	31	1880	2060	44
Age of head of HH						
< 35	1836	5.6	27	1880	2090	39
35 - 44	3606	5.8	27	1880	2040	43
45 - 54	3239	6.8	34	1880	2110	43
> 54	2411	6.1	33	1880	2030	47
Region						
Dushanbe	1200	4.2	41	1880	1670	69
Sogd	3597	5.8	34	1880	2230	36
Khatlon	3895	6.3	27	1880	2120	37
RPR	2400	7.2	26	1880	1930	51

***Annex Table 3. Share of food consumption in monetary value by food sources***

<b><i>Share of food consumption to total consumption in monetary value and by food sources</i></b>						
<b><i>Region: Countries in Transition</i></b>		<b><i>Country: Tajikistan</i></b>		<b><i>Year: 2005</i></b>		
<b>National and Sub national levels</b>	<b>Number of sampled households</b>	<b>Share of food consumption in monetary value to total consumption (%)</b>	<b>Share of food consumption in monetary value purchased to total food value (%)</b>	<b>Share of food consumption in monetary value from own production to total food value (%)</b>	<b>Share of food consumption in monetary value eaten away from home to total food value (%)</b>	<b>Share of food consumption in monetary value from other sources to total food value (%)</b>
Nationwide	11092	69.6	64.4	33.2	1.3	1.2
Income level						
Quintile 1	2218	81.6	72.4	25.9	0.5	1.2
Quintile 2	2219	79.4	69.9	28.7	0.5	0.9
Quintile 3	2218	75.3	67.5	30.7	0.8	1.1
Quintile 4	2219	70.0	61.1	36.7	1.2	1.0
Quintile 5	2218	57.1	57.1	38.7	2.7	1.5
Area						
Urban	3597	69.6	92.7	4.7	1.6	0.9
Rural	7495	69.6	55.5	42.2	1.1	1.2
HH Size						
< 4 people	2906	66.9	79.4	17.9	1.4	1.4
4 - 5 people	3740	68.9	65.1	32.5	1.4	1.1
6 - 7 people	2763	69.2	60.2	37.4	1.2	1.1
> 7 people	1683	73.6	57.6	40.1	1.1	1.2
Gender of head of HH						
Male	7484	70.0	60.7	36.8	1.3	1.2
Female	3608	68.7	73.8	23.8	1.2	1.1
Age of head of HH						
< 35	1836	69.9	66.4	30.4	1.6	1.5
35 - 44	3606	68.0	66.2	31.5	1.2	1.0
45 - 54	3239	67.9	61.7	35.4	1.6	1.2
> 54	2411	75.0	64.4	34.1	0.6	0.9
Region						
Dushanbe	1200	82.9	100.0	0.0	0.0	0.0
Sogd	3597	61.8	61.7	34.2	2.5	1.6
Chatlon	3895	74.9	61.0	38.2	0.1	0.7
RPR	2400	71.9	63.1	33.7	1.6	1.6

***Annex Table 4. Share of dietary energy consumption by food source***

<b><u>Share of food dietary energy by food sources to total food dietary energy consumption</u></b>					
<b>Region: Countries in Transition</b>		<b>Country: Tajikistan</b>		<b>Year: 2005</b>	
<b>Categories and Groupings</b>	<b>Number of sampled households</b>	<b>Share of dietary energy purchased to total food consumption (%)</b>	<b>Share of dietary energy from own production to total food consumption (%)</b>	<b>Share of dietary energy eaten away from home to total food consumption (%)</b>	<b>Share of dietary energy from other sources to total food consumption (%)</b>
Nationwide	11092	67.4	30.5	1.2	0.9
Income level					
Quintile 1	2218	71.1	27.3	0.5	1.1
Quintile 2	2219	72.2	26.6	0.5	0.7
Quintile 3	2218	69.6	28.9	0.8	0.7
Quintile 4	2219	64.7	33.3	1.2	0.8
Quintile 5	2218	61.4	34.6	2.8	1.2
Area					
Urban	3597	92.8	4.7	1.6	0.9
Rural	7495	60.5	37.5	1.1	0.9
HH Size					
< 4 people	2906	79.8	17.7	1.3	1.2
4 - 5 people	3740	70.1	27.8	1.3	0.9
6 - 7 people	2763	63.4	34.6	1.2	0.8
> 7 people	1683	61.3	36.6	1.1	1.0
Gender of head of HH					
Male	7484	64.3	33.6	1.2	0.9
Female	3608	76.1	21.7	1.2	1.0
Age of head of HH					
< 35	1836	66.8	30.6	1.6	1.1
35 - 44	3606	68.9	29.0	1.1	1.0
45 - 54	3239	66.5	31.0	1.5	1.0
> 54	2411	67.2	31.6	0.5	0.7
Region					
Dushanbe	1200	100.0	0.0	0.0	0.0
Sogd	3597	64.2	32.0	2.4	1.5
Khatlon	3895	63.2	36.1	0.1	0.6
RPR	2400	70.1	27.4	1.6	0.9

***Annex Table 5. FAO indicators on food deprivation and food poverty***

<b><i>FAO indicators on hunger based on income and the first quintile</i></b>									
<b>Region: Countries in Transition      Country: Tajikistan      Year: 2005</b>									
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)	Dietary energy unit value of the first quintile (LC\$/1000kcal)	Critical food poverty line of the first quintile	Income (LC\$/person/day)	CV of income - FULL (%)	Prevalence of Critical Food Poverty (%)
Nationwide	42.9	30.3	2070	1880	0.48	0.90	1.76	63.1	19.3
Area									
Urban	61.9	28.4	1800	1880	0.56	1.05	1.80	59.5	24.0
Rural	37.7	30.8	2160	1880	0.46	0.86	1.74	64.4	18.4
HH Size									
< 4 people	29.8	30.8	2310	1880	0.48	0.90	2.44	72.5	11.3
4 - 5 people	39.6	29.5	2110	1880	0.48	0.90	1.81	59.6	16.1
6 - 7 people	42.0	28.9	2070	1880	0.48	0.90	1.71	56.7	17.1
> 7 people	54.6	29.8	1900	1880	0.48	0.90	1.41	47.4	22.1
Gender of head of HH									
Male	42.5	30.1	2080	1880	0.48	0.90	1.69	60.1	19.5
Female	44.5	31.3	2060	1880	0.48	0.90	1.94	69.4	18.2
Age of head of HH									
< 35	39.4	26.8	2090	1880	0.48	0.90	1.82	61.3	16.6
35 - 44	43.0	27.3	2040	1880	0.48	0.90	1.77	64.4	19.5
45 - 54	42.6	34.2	2110	1880	0.48	0.90	1.81	63.9	18.4
> 54	46.8	33.2	2030	1880	0.48	0.90	1.61	60.1	22.1
Region									
Dushanbe	69.0	40.6	1670	1880	0.56	1.06	1.35	58.1	43.0
Sogd	35.9	33.6	2230	1880	0.50	0.94	2.31	67.8	12.6
Chatlon	37.4	27.0	2120	1880	0.44	0.83	1.57	51.0	14.1
RPR	51.4	26.3	1930	1880	0.49	0.91	1.50	49.4	20.3

**Annex Table 6. Contribution of grams of nutrient consumed in 1000 calories**

<b><u>Nutrient density per 1000 kcal</u></b>				
<b>Region: Countries in Transition</b>		<b>Country: Tajikistan</b>		<b>Year: 2005</b>
<b>Food commodity group</b>	<b>Average food dietary energy consumption (kcal/person/day)</b>	<b>Protein consumption (g/1000kcal)</b>	<b>Carbohydrates consumption (g/1000kcal)</b>	<b>Fats consumption (g/1000kcal)</b>
Nationwide	2070	22.8	177.4	22.1
Income level				
Quintile 1	1510	22.7	182.5	19.9
Quintile 2	1810	22.6	179.1	21.4
Quintile 3	2070	22.6	177.8	22.0
Quintile 4	2330	23.0	176.0	22.7
Quintile 5	2880	23.0	173.4	23.8
Area				
Urban	1800	21.5	171.5	25.3
Rural	2160	23.2	179.1	21.2
HH Size				
< 4 people	2310	21.8	171.6	25.1
4 - 5 people	2110	22.7	176.2	22.7
6 - 7 people	2070	23.1	178.9	21.3
> 7 people	1900	23.3	180.9	20.4
Gender of head of HH				
Male	2080	22.9	177.6	22.0
Female	2060	22.5	176.9	22.5
Age of head of HH				
< 35	2090	22.6	177.4	22.2
35 - 44	2040	22.6	177.4	22.2
45 - 54	2110	22.9	177.6	22.0
> 54	2030	23.0	177.3	22.1
Region				
Dushanbe	1670	22.2	176.6	22.8
Sogd	2230	22.6	174.9	23.3
Khatlon	2120	23.1	178.5	21.5
RPR	1930	22.8	179.5	21.2

The data do not consider wastage



***Annex Table 7. Dispersion ratios of income, food and total consumption***

<b><u>Inequality measures (Dispersion Ratios) of food consumption, total consumption and income</u></b>				
<b>Region: Countries in Transition</b>		<b>Country: Tajikistan</b>		<b>Year: 2005</b>
<b>Categories and Groupings</b>	<b>Dispersion ratio of food consumption in dietary energy (80/20)</b>	<b>Dispersion ratio of food consumption in monetary value (80/20)</b>	<b>Dispersion ratio of total consumption (80/20)</b>	<b>Dispersion ratio of income (80/20)</b>
Nationwide	1.9	2.7	3.8	4.9
Area				
Urban	1.8	2.5	3.7	4.5
Rural	1.9	2.7	3.9	5.1
HH Size				
< 4 people	2.0	2.6	3.9	5.8
4 - 5 people	1.8	2.5	3.5	4.5
6 - 7 people	1.8	2.5	3.5	4.5
> 7 people	1.9	2.5	3.3	3.7
Gender of head of HH				
Male	1.9	2.6	3.7	4.7
Female	2.0	2.8	4.0	5.4
Age of head of HH				
< 35	1.6	2.2	3.2	4.6
35 - 44	1.7	2.4	3.6	4.8
45 - 54	2.2	3.0	4.3	5.2
> 54	2.1	3.1	4.0	4.8
Region				
Dushanbe	2.6	3.4	4.1	4.5
Sogd	2.1	2.7	4.1	5.8
Chatlon	1.7	2.7	3.4	3.9
RPR	1.6	2.1	2.9	3.9

**Annex Table 8: Inequality measures of food consumption and income, gini coefficients**

<b><i>Inequality measures (GINI coefficients – Log normal assumption) of food consumption, total consumption and income by population groupings</i></b>									
<b>Region: Countries in Transition</b>			<b>Country: Tajikistan</b>			<b>Year: 2005</b>			
<b>Categories and Groupings</b>	<b>Number of sampled households</b>	<b>Average number of persons in household</b>	<b>GINI of Food dietary energy Consumption DUE TO income (Log Normal assumption) (%)</b>	<b>GINI of Food Consumption in monetary value DUE TO income (Log Normal assumption) (%)</b>	<b>GINI of total consumption DUE TO income (%)</b>	<b>GINI of Income - FULL (%)</b>	<b>GINI of Food dietary energy Consumption – FULL (Log Normal assumption) (%)</b>	<b>GINI of Food Consumption in monetary value - FULL (Log Normal assumption) (%)</b>	<b>GINI of Food dietary energy consumption - FULL as defined by FAO (%)</b>
Nationwide	11092	6.1	12.6	19.1	27.4	31.8	20.6	24.6	16.6
Area									
Urban	3597	4.9	11.2	18.7	26.7	30.3	17.6	23.4	15.6
Rural	7495	6.7	13	19.2	27.6	32.3	20.9	25	16.9
HH Size									
< 4 people	2906	3.1	13	19.2	29.4	35.4	24.3	26.6	16.9
4 - 5 people	3740	5.5	12.1	18.5	26.8	30.3	19.7	24	16.2
6 - 7 people	2763	7.4	11.6	17	24.9	29.1	19.8	22.3	15.9
> 7 people	1683	10.6	12.3	17	22.8	25	18.3	20.7	16.4
Gender of head of HH									
Male	7484	6.6	12.5	18.6	26.9	30.6	19.8	23.8	16.5
Female	3608	5.1	13.3	20.2	28.4	34.2	22.5	26.9	17.1
Age of head of HH									
< 35	1836	5.6	9.9	15.2	24.7	31	19.7	22.1	14.7
35 - 44	3606	5.8	10.4	16.9	27.4	32.3	18.5	22.6	15.0
45 - 54	3239	6.8	15.2	21.5	29.4	32.1	22.6	26.2	18.6
> 54	2411	6.1	14.6	22.2	26.3	30.6	21.3	26.6	18.1
Region									
Dushanbe	1200	4.2	19.2	24.5	27.9	29.7	25.8	28.4	21.8
Sogd	3597	5.8	14.9	19.8	27.9	33.6	26	27.3	18.3
Khatlon	3895	6.3	10.1	19	24.9	26.6	16	23	14.9
RPR	2400	7.2	9.5	14.4	21.2	25.9	15.8	19.8	14.5

***Annex Table 9. Inequality measures of food consumption and income – Coefficient of variation***

<b><i>Inequality Measures (CV – Coefficient of variation - Log normal assumption) of food consumption, total consumption and income by population groupings</i></b>									
<b>Region: Countries in Transition      Country: Tajikistan      Year: 2005</b>									
<b>Categories and Groupings</b>	<b>Number of sampled households</b>	<b>Average number of persons in household</b>	<b>CV of food dietary energy DUE TO income (%)</b>	<b>CV of food consumption in monetary value DUE TO income (%)</b>	<b>CV of total consumption DUE TO income (%)</b>	<b>CV of Income - FULL (%)</b>	<b>CV of food dietary energy consumption FULL (%)</b>	<b>CV of food consumption in monetary value FULL (%)</b>	<b>CV of food dietary energy consumption - FULL as defined by FAO (%)</b>
Nationwide	11092	6.1	22.8	35.1	52.7	63.1	38.1	46.6	30.3
Area									
Urban	3597	4.9	20.1	34.5	51.3	59.5	32.3	44.0	28.4
Rural	7495	6.7	23.4	35.4	53.2	64.4	38.8	47.4	30.8
HH Size									
< 4 people	2906	3.1	23.5	35.4	57.4	72.5	45.9	51.0	30.8
4 - 5 people	3740	5.5	21.7	34.1	51.5	59.6	36.4	45.3	29.5
6 - 7 people	2763	7.4	20.9	31.1	47.2	56.7	36.6	41.6	28.9
> 7 people	1683	10.6	22.1	31.1	42.7	47.4	33.7	38.4	29.8
Gender of head of HH									
Male	7484	6.6	22.5	34.3	51.5	60.1	36.6	44.8	30.1
Female	3608	5.1	24.1	37.4	55.0	69.4	42.1	51.7	31.3
Age of head of HH									
< 35	1836	5.6	17.8	27.7	46.7	61.3	36.4	41.2	26.8
35 - 44	3606	5.8	18.6	30.9	52.8	64.4	34.0	42.4	27.3
45 - 54	3239	6.8	27.7	40.1	57.4	63.9	42.2	50.0	34.2
> 54	2411	6.1	26.6	41.4	50.2	60.1	39.7	50.9	33.2
Region									
Dushanbe	1200	4.2	35.3	46.3	54.0	58.1	49.2	55.1	40.6
Sogd	3597	5.8	27.1	36.6	54.0	67.8	49.6	52.5	33.6
Khatlon	3895	6.3	18.2	35.1	47.3	51.0	29.2	43.1	27.0
RPR	2400	7.2	17.1	26.1	39.4	49.4	28.8	36.6	26.3

**Annex Table 10: Food demand elasticity with respect to income**

<b><u>Demand elasticity with respect to Income and population groupings</u></b>					
<b>Region: Countries in Transition</b>		<b>Country: Tajikistan</b>		<b>Year: 2005</b>	
<b>Categories and Groupings</b>	<b>Income deciles</b>	<b>Income (LC\$/person/day)</b>	<b>Demand elasticity of food dietary energy consumption (DEC) respect to income (%)</b>	<b>Demand elasticity of food consumption in monetary value (FMV) respect to income (%)</b>	<b>Demand elasticity of Engle ratio respect to income (%)</b>
<b>Income level</b>					
Decile	1	1	0.6	1.4	0.8
Decile	2	1	0.5	0.9	0.8
Decile	3	1	0.5	0.8	0.8
Decile	4	1	0.4	0.7	0.8
Decile	5	1	0.4	0.7	0.8
Decile	6	2	0.4	0.6	0.8
Decile	7	2	0.4	0.6	0.8
Decile	8	2	0.3	0.5	0.8
Decile	9	3	0.3	0.5	0.7
Decile	10	5	0.3	0.4	0.7
<b>Area</b>					
Urban	1	1	0.5	1.2	0.8
Urban	2	1	0.4	0.9	0.8
Urban	3	1	0.4	0.8	0.8
Urban	4	1	0.4	0.7	0.8
Urban	5	1	0.4	0.6	0.8
Urban	6	2	0.3	0.6	0.8
Urban	7	2	0.3	0.5	0.7
Urban	8	2	0.3	0.5	0.7
Urban	9	3	0.3	0.5	0.7
Urban	10	5	0.3	0.4	0.7
Rural	1	1	0.5	1.5	0.8
Rural	2	1	0.5	1.0	0.8
Rural	3	1	0.4	0.8	0.8
Rural	4	1	0.4	0.7	0.8
Rural	5	1	0.4	0.7	0.8
Rural	6	2	0.4	0.6	0.8
Rural	7	2	0.3	0.6	0.8
Rural	8	2	0.3	0.5	0.7
Rural	9	3	0.3	0.5	0.7
Rural	10	5	0.3	0.4	0.7

Source: Household Country Survey

***Annex Table 11: Diet composition - Nutrient consumption***

<b><i>Food consumption in monetary and nutrient values by national, sub national and population groupings</i></b>					
<b><i>Region: Countries in Transition</i></b>		<b><i>Country: Tajikistan</i></b>		<b><i>Year: 2005</i></b>	
<b>Categories and Groupings</b>	<b>Average food dietary energy consumption (kcal/person/day)</b>	<b>Average food consumption in monetary value of food consumed (LC\$/person/day)</b>	<b>Average food protein consumption (g/person/day)</b>	<b>Average food carbohydrates consumption (g/person/day)</b>	<b>Average food fat consumption (g/person/day)</b>
Nationwide	2070	1.1	47.2	367.4	45.8
Income level					
Quintile 1	1510	0.7	34.2	275.5	30.1
Quintile 2	1810	0.9	40.9	324.2	38.8
Quintile 3	2070	1.1	46.9	368.7	45.6
Quintile 4	2330	1.3	53.7	410.6	52.9
Quintile 5	2880	1.9	66.5	500.1	68.6
Area					
Urban	1800	1.1	38.6	308.1	45.5
Rural	2160	1.2	50.1	386.9	45.9
HH Size					
< 4 people	2310	1.5	50.4	396.1	58.0
4 - 5 people	2110	1.2	47.9	372.5	48.0
6 - 7 people	2070	1.1	47.8	370.6	44.2
> 7 people	1900	1.0	44.1	343.0	38.7
Gender of head of HH					
Male	2080	1.1	47.6	368.8	45.6
Female	2060	1.2	46.1	363.5	46.3
Age of head of HH					
< 35	2090	1.2	47.3	370.5	46.3
35 - 44	2040	1.1	46.3	362.4	45.4
45 - 54	2110	1.2	48.5	375.3	46.5
> 54	2030	1.1	46.7	360.4	44.9
Region					
Dushanbe	1670	1.0	37.1	295.1	38.1
Sogd	2230	1.3	50.5	390.7	52.1
Khatlon	2120	1.1	48.9	378.5	45.7
RPR	1930	1.0	44.0	345.8	40.8

***Annex Table 12: Total energy and macro nutrient by food commodity group***

<b><i>Food consumption in quantity equivalent, monetary and nutrient values by food commodity groups</i></b>						
<b><i>Region: Countries in Transition</i></b>		<b><i>Country: Tajikistan</i></b>		<b><i>Year: 2005</i></b>		
<b>Food commodity group</b>	<b>Average food quantity consumed (g/person/day)</b>	<b>Average food consumption in monetary value (LC\$/person/day)</b>	<b>Average food dietary energy consumption (kcal/person/day)</b>	<b>Average food proteins consumption (g/person/day)</b>	<b>Average food carbohydrates consumption (g/person/day)</b>	<b>Average food fats consumption (g/person/day)</b>
CEREALS AND PRODUCTS	427.6	0.4	1366	36.8	293.4	5.0
ROOTS AND TUBERS AND PRODUCTS	94.0	0.1	49	0.9	11.3	0.1
SUGARS AND SYRUPS AND PRODUCTS	36.9	0.1	147	0.5	32.6	1.7
PULSES	5.4	0.0	15	0.9	2.8	0.1
TREE NUTS	0.0	0.0	0	0.0	0.0	0.0
OIL CROPS	0.0	0.0	0	0.0	0.0	0.0
VEGETABLES AND PRODUCTS	216.9	0.1	50	1.8	10.4	0.1
FRUITS AND PRODUCTS	109.2	0.1	41	1.0	8.5	0.3
STIMULANTS	3.4	0.0	0	0.0	0.0	0.0
SPICES	23.4	0.0	0	0.0	0.0	0.0
ALCOHOLIC BEVERAGES	0.0	0.0	0	0.0	0.0	0.0
MEAT	18.7	0.1	20	1.9	0.0	1.3
EGGS	3.3	0.0	0	0.0	0.0	0.0
FISH AND FISH PRODUCTS	0.2	0.0	0	0.0	0.0	0.0
MILK AND CHEESE	92.1	0.1	55	3.0	4.1	2.9
OILS AND FATS (vegetable oils)	33.8	0.1	289	0.0	0.0	32.1
OILS AND FATS (animal fats)	1.9	0.0	14	0.0	0.0	1.6
NON ALCOHOLIC BEVERAGES	3.3	0.0	0	0.0	0.0	0.0
MISCELLANEOUS AND PREPARED FOOD	0.0	0.0	25	0.6	4.3	0.6

The data do not consider wastage

**Annex Table 13: Share of nutrients by food commodity group**

<b><u>Share of nutrient consumption by food commodity groups</u></b>				
<b>Region: Countries in Transition</b>		<b>Country: Tajikistan</b>		<b>Year: 2005</b>
<b>Food commodity group</b>	<b>Share of dietary energy consumption in Total Energy Consumption (%)</b>	<b>Share of protein consumption in Total Protein Consumption (%)</b>	<b>Share of carbohydrates Consumption in Total Carbohydrates Consumption (%)</b>	<b>Share of Fats Consumption in Total Fats Consumption (%)</b>
CEREALS AND PRODUCTS	66.0	77.8	79.9	11.0
ROOTS AND TUBERS AND PRODUCTS	2.4	1.8	3.1	0.1
SUGARS AND SYRUPS AND PRODUCTS	7.1	1.1	8.9	3.6
PULSES	0.7	1.9	0.7	0.2
TREE NUTS	0.0	0.0	0.0	0.0
OIL CROPS	0.0	0.0	0.0	0.0
VEGETABLES AND PRODUCTS	2.4	3.7	2.8	0.3
FRUITS AND PRODUCTS	2.0	2.1	2.3	0.6
STIMULANTS	0.0	0.0	0.0	0.0
SPICES	0.0	0.0	0.0	0.0
ALCOHOLIC BEVERAGES	0.0	0.0	0.0	0.0
MEAT	0.9	3.9	0.0	2.9
EGGS	0.0	0.0	0.0	0.0
FISH AND FISH PRODUCTS	0.0	0.0	0.0	0.0
MILK AND CHEESE	2.7	6.4	1.1	6.4
OILS AND FATS (vegetable oils)	13.9	0.0	0.0	70.0
OILS AND FATS (animal fats)	0.7	0.0	0.0	3.4
NON ALCOHOLIC BEVERAGES	0.0	0.0	0.0	0.0
MISCELLANEOUS AND PREPARED FOOD	1.2	1.2	1.2	1.3

The data do not consider wastage

## ANNEXE – B – RECOMMENDATIONS FOR FUTURE HOUSEHOLD BUDGET SURVEYS



### **EC-FAO Food Security Information for Action Program (GCP/INT/952/EC)**

**Technical report for the review of methodology and design of the current Tajikistan household budget survey (HBS) as to be able to cope with the increasing demand of food security information at national and sub regional levels.**

**Rome – September 2006**

### **Background**

The Tajikistan State Statistics Committee (GKS) is the responsible institution for conducting the Tajikistan Household Budget Survey (HBS). GKS has a well-established HBS program collecting expenditure and income data from the same sample of 925 households on a monthly basis since January 2000. The sample, though small, is considered representative of the population of Tajikistan households whose expenditure variability is very limited particularly in rural areas where nearly three quarters of the population live.

HBS has a long history in Tajikistan since under the Soviet Union, but was stopped early 1990 following the independence of some states within the Soviet Union. In 1997, HBS was resumed and had a limited coverage of only three districts due to limited number of personnel and the prevailing situation in the aftermath of the civil war. However, the HBS was re-established in January 2000 with a decrease in its sample size from 1250 pre independence to 925 households. The coverage is a national one, which however excludes the 4% of the total population, which are in the mountainous regions of GBAO. The sample is a multi-stage stratification using the 2000 population census as population frame. Rural and urban areas together with criteria of mountains, valley, uplands, lowlands and country borders on the north and south are accounted for. The households are selected systematically at the last stage using the administrative data with regard to the composition of the household. Household detailed expenditure and income data are collected using daily records from the same 925 households over years. Each household receives a monthly incentive equivalent to one dollar in local currency.

The data capture is performed at GKS using FoxPro and Microsoft Excel for publication of tables on a yearly basis. Food data are recorded in detail, - stock at the start of the month for each food item, purchases, own production, transfers, (aid, gifts, etc.) during the month on a daily basis, and closing stock at the end of the month. Income is also collected by sources on a daily and monthly basis. GKS uses a detailed Soviet nutrient conversion table including dietary energy, protein, fat and carbohydrate values for the macronutrients conversion of food quantity values. Electronic detailed HBS data are available in FoxPro format since January 2000 and up to date. By contrast, the Tajikistan Living Standards Survey of 1999 and 2003 was conducted by World Bank using GKS infrastructure, but is not considered comprehensive as the data collected relates to one week only.



## **Objective of the Assistance**

- The objective of the mission is to review the methodology and design of the current Tajikistan household budget survey (HBS) as to have a multi-integrated HBS collecting additional information relating to health, nutrition, education, etc. for sub regional and sectoral monitoring of MDG indicators and to provide inputs for the computation of the minimum consumption basket and poverty and extreme poverty lines;

## **Mission Meetings.**

In the absence of the Chairman Mr. Mirgand Shabozov, who was on leave, the Deputy Director, Ms B.Z Mukhammadieva, reiterated the Chairman's request for the review of the present methodology of the HBS. There is an urgent need to increase the coverage both geographical and subject components as to have more disaggregated statistics at national and sub national levels. She welcomed the technical assistance of FAO and meetings with the Head of HBS Mr. Kalka Otto Turaev and his assistant Mr. Dustmurod Aliev were arranged for further technical discussions on the proposed HBS

## **Recommendations**

GKS is planning to introduce the updated HBS as from 2007 with a new sample size and revised set of questionnaires. This section gives some technical recommendations for reviewing the HBS along these lines. Annex 1 gives some specific considerations for the collection of HBS food consumption data for deriving food security statistics at national and sub national levels.

### *1. Formulation of a new sample for the HBS survey*

Two scenarios for conducting the HBS were proposed: Conducting a yearly HBS every three years using an annual sample size of about 10,800 households and collecting data from 900 households during a one-month period. The annual sample size of 10,800 households will be selected proportional to size according to urban and rural areas and provinces of Tajikistan. The geographical coverage will thus be increased as to have precise statistics at regional stratum and province levels and any other post stratifications population groupings. The second scenario is to have an on going quarterly HBS with a panel sample of about 3000 households selected proportionately to size according to regional stratum and provinces with a rotational sampling scheme with partial replacement. The second option is more favourable as there is a demand for monitoring statistical information particularly on food security. The Tajikistan 2000 Population Census may be the basis for the sampling frame for a two stage stratified sampling design with census enumeration areas (CEAs) as the primary sampling units and private households as the secondary sampling units. (*References to the sampling methodology used for the 2003 Tajikistan Living Standard Survey and An optimum size of sampling units for Tajikistan Household Survey – Sham Upadhaya: Statistics in Transition -December 2004*).

## *2. Costing of HBS*

The overall costing of the HBS will be marginally greater from that of the present HBS as the number of households surveyed each month will be more or less the same at around 900 to 1000 households. However, some additional costs have to be catered for the increase of the geographical coverage, payment of field work activities and personnel, training of interviewers, data processing equipments, data editing, checking and analysis, etc. Proposed costs will have to be determined once the final sampling scheme finalizes.

## *3. Review of the present HBS questionnaires.*

There are eight different questionnaires, which are presently being used to collect data on household expenditure and income. Since the HBS collects panel data, some questionnaires collect complementary expenditure data on a daily basis, monthly, quarterly and yearly basis. Box 1 illustrates the different components of household expenditure including food that need to be covered in the different HBS questionnaires. The food consumption data collected includes information on the different types of food items, food sources and food use. There is not much to review regarding the contents of the questionnaires, but they should be harmonized and simplified into a few set of questionnaires such as daily diaries (see attached example in annex) to collect household expenditure data including food expenditure and use in both quantity and monetary values. Information on characteristics of households and their members including income can be collected using separate questionnaires to be filled at different points during the reference collection. Other relevant information relating to issues on the health, education and other economic and social aspects of the household or individual could be included as a simple separate module at certain reference period in relation to the information requests. In such case it would be important to have a multisectoral taskforce of representatives of different line ministries or institutions working on their respective subject for which information have to be collected. At the same time the frequency of the corresponding data collection needs to be defined in terms of assessment and monitoring policies.

## *4. Development of Field work data collection structure.*

Some weaknesses in the data collection network have been expressed and there is need to review the structure of field staff involved in the collecting of HBS data. The choice of having permanent or temporary field staff needs to be considered in the light of the available budget. An appropriate field staff structure with interviewers and supervisors will improve the quantity of data collected. Manuals have to be prepared accompanied with the proper training have also been proposed.

## *5. Elaboration of software for data capture of the HBS data.*

Currently, FoxPro software is used to capture the HBS data and simple excel tables are then produced. In addition, the HBS staff is not properly trained in information technology for using simple software for processing and analysis of statistical data. All data collected must be electronically captured and well documented for the processing and analysis. It is proposed to use either the widely used free CSPRO data capture software of the US Bureau Labour of Statistics or the EUROSTAT Blaise software. SPSS software should be made available for statistical data analysis. Staffs training on these softwares need to be covered under the World Bank MISP financing. The HBS questionnaires need to be tailored with the data capture software use.

#### *6. Strengthening GKS in data processing and analysis.*

GKS collects a wide variety of economic and social information in the HBS and needs trained personnel and adequate equipment for process and analysis such available data. In the first instance, FAO is providing the technical assistance for improving the processing and analysis of HBS food consumption data together with the relevant Food security statistics (FSSM) software and manual.

#### **Conclusions.**

The review of the HBS is a long process involving large amount of resources both skills and financial and it was proposed to start the data collection of the new HBS as from July 2007. In addition, the new budget will have to be increased substantially as to be sustainable. These two aspects were discussed with the WB in light of the implementation of the MISP. First, Mr. M. Dinc informed us that the financing of the MISP would review and implement a new HBS in 2007 in lieu of the originally proposed 2008 Living Standard Measurement Study in the MISP. Second, this activity would be given due priority and would start once the consortium of European statistical offices is selected. It was also informed that the implementation of the Tajikistan MISP has been tendered and bids from a few consortiums of statistical organizations have been received. The final selection is due by September 2006. In the light of these developments, the EC delegation agreed with WB that it would not be possible for FAO to get involved in the comprehensive review of the HBS given our limited available budget in the EC-FAO food security for action program.

## **Annex 1 :Recommendations for the collection of food consumption data in Household Budget Survey for deriving food security statistics.**

Monitoring the World Food Summit target of halving the number of undernourished people or the UN 2000 Millennium Development target of halving the proportion of undernourished people by year 2015 requires utilizing data already available from national household budget surveys. The information needed for estimating undernourishment and performing food security analysis is collected in household income and expenditure surveys (HIES), household budget surveys (HBS), or living standard measurement study (LSMS) surveys using international standards and recommendations provided ILO and UNSD at the respective URL address.

<http://www.ilo.org/public/english/bureau/stat/download/17thicls/r2hies.pdf#search='Recommendations%20on%20ILO%20on%20household%20expenditure%20surveys'>

<http://www.ilo.org/public/english/bureau/stat/download/17thicls/r2russ.pdf>

<http://unstats.un.org/unsd/pubs/gesgrid.asp?id=349>

Reliable and consistent statistics on food security and consumption are derived from HBS with the following features:

- National representativeness and it is desirable also for targeting purposes population-areas e.g. urban and rural, geographical or administrative regions, etc.
- Full year survey period to account for seasonal variations of income and expenditure particularly food.
- Allocation of sampled households evenly throughout the survey period to account for seasonal variations of income and expenditure over a yearly period.
- Household survey collection period at least of two -week to express usual consumption.
- Food consumption collected using account-book keeping or diary method with food item data acquired by each households in terms of :
  - a. Detailed description of all food items acquired by households;
  - b. Use of the *International Classification of Individual Consumption According to Purpose (COICOP)* for classification of food and non food items;
  - c. Quantity of food item acquired for household member consumption;
  - d. The units of quantity of measurements should be standardized in grams for solids and millilitres for liquids or semi-liquids food items;
  - e. Monetary value in local currency of corresponding acquired food quantities ;
  - f. Food sources from where food items have been acquired (purchased, own-production, received free or as gift, gathering, hunting, received as income from payment, received as institutional aid and food consumed away from home);
  - g. Food utilization as listed below be identified
    1. Household food business or industry (selling prepared or processed food),
    2. Given to workers and guests,
    3. Donations and transfers,
    4. Resale,
    5. Feeding to pets (cat, dog, etc.) and livestock (hen, pig, etc.),
    6. Losses due to storage, preparation, and processing.
    7. Waste resulting from servings, leftovers or plate waste

- h. Total household consumption (food and non-food);
  - i. Total household expenditure (consumption and non-consumption);
  - j. Total household income;
  - k. Household socio-economic variables household head (sex, age, occupation, economic activity, etc), socio-economic groups, composition, size, residential area, etc. for further targeting high risk population groups to food insecurity and household members (sex and age).
- Complementary price data collected for all available food items during the survey period at community level (lowest administrative unit of sampled household) that can be linked to household identification.
    - Those collected food items prices should then be adjusted to take care of the price variation of those items over the long period of the survey.
  - An additional module for the collection of anthropometry data from households' members less than 5 years should be included in the household survey.
  - All collected HIES data with food consumption data (quantities and corresponding monetary values) and information should be electronically entered, formatted and documented properly.

**Box 1: Components of household expenditures**

<b>HOUSEHOLD EXPENDITURE</b>				
<b>FOOD</b>			<b>NON-FOOD</b>	
<b>ACQUISITION</b>	<b>UTILIZATION*</b>		<b>UTILIZATION</b>	
<b><u>PURCHASE</u></b> - household - away from home	<b><u>CONSUMPTION</u></b>  <b>PURCHASE</b>	<b><u>NON CONSUMPTION</u></b> - HH food industry - given to workers & guests - resale - given to pets & livestock** - losses - waste	<b><u>CONSUMPTION</u></b> - durable and non durable goods - services (ed. health, transport, housing & utilities) - recreation & culture (including feed for pets)*** - etc...	<b><u>NON CONSUMPTION</u></b> - direct taxes, insurance premiums, contributions (pensions & other social)
<b><u>NON PURCHASE</u></b> - own production - received free (gift, transfer, etc. ) - received as payment - received as institutional aid	<b>NON PURCHASE</b>			

\* May be from stocks from bulk acquisitions

\*\* Food given to animals from prepared food or raw food items meant for human consumption such as maize, rice etc.

\*\*\* Expenditures to feed pets are coded as recreation and culture household expenditure, while livestock feeding items (for hens, pigs, ducks, cows, fish, horse, etc) are not considered as household expenditure but as agricultural expenditures.

Below is a proposed diary for the collection of household expenditure including food expenditure and consumption which constitute a high share of total household consumption expenditure. This questionnaire needs to be adapted to the local context and tested.

**A. DAILY PURCHASES**

**DAY 1**

Date:...../...../.....

Record all products acquired (purchases or obtained from other sources) by household and the members during the day

S/N	Office Use only CODE	Name of product	Quantity	Unit of Measure: 1. Gram 2. Kilogram 3. Unit 4. Piece 5. Litre 6. ml/cc 7. Cl 8. Other (specify)	Amount Paid	Source of acquired product: 1. Purchases 2. Own-production 3. Gift/free 4. Home stock 5. Wages 6. Own shop 7. Return food loan 8. Food aid
<b>FOOD PRODUCTS</b>						
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						
<b>NON-FOOD PRODUCTS AND SERVICES</b>						
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23				54		
24						
25						

**B. DAILY FOOD CONSUMPTION**

DAY 1

Date:...../...../.....

Record all food products consumed by household and the members during the day

S/N	<u>Office Use only</u> CODE	Name of food products consumed <i>(write only the food products used to prepare the meals)</i>	Quantity	Unit of Measure: 1.Gram 2.Kilogram 3.Unit 4.Piece 5.Litre 6.ml/cc 7.Cl 8.Other <i>(specify)</i>	Value	Source of food product: 1. Purchases 2. Own-production 3. Gift/free 4. Home stock 5. Wages 6. Own shop 7. Return food loan 8. Food aid
01						
02						
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
<b>C. Acquired food products which are given away to relatives or pets</b>						
1						
2						
3						

Number of persons, if any, outside the household (e.g. domestic servants, workers or relatives) consuming the food: .....

**D. FOOD PURCHASED AND EATEN OUTSIDE HOME**

Record all food eaten outside the home by household and the members during

S/N	<u>Office Use only</u> CODE	Description of FOOD EATEN OUTSIDE HOME <i>(Restaurants, bars, cafés, school and work canteen, fast food, street vendors)</i>  <i>Please identify the food products (drinks &amp; beverages) as far as possible, otherwise insert the type of meal</i>	Quantity	Unit of Measure: 1.Gram 2.Kilogram 3.Unit 4.Piece 5.Litre 6.ml/cc 7.Cl 8.Portion 9.Other <i>(specify)</i>	Amount spent  <i>(excl. tips)</i>
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					

*"The content of this publication is the sole responsibility of the State Statistical Committee of Tajikistan, Dushanbe, Tajikistan and can in no way be taken to reflect the views of the European Union".*