



Central Statistics Organization  
Ministry of National Planning and Economic Development

# MYANMAR FOOD SECURITY STATISTICAL ANALYSIS

Myanmar Household Income and Expenditure Survey, 2006

Nay Pyi Taw  
June 2012



With the generous support of the European Union  
through the EC-FAO Food Security Programme

*Linking Information and Decision-Making  
to Improve Food Security (GCP/RAS/247/EC)*

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## Foreword

It is with great pleasure that we present the inaugural report on food security in the Republic of the Union of Myanmar, based on food consumption data from the 2006 Household Income and Expenditure Survey (HIES). This represents the first such report produced by the Central Statistical Organization with the collaboration of FAO, and represents an important step forward in the Republic of the Union of Myanmar's efforts to strengthen its reporting on food security.

With a substantial dataset covering some 32,000 households across all regions and states of Myanmar, the 2006 Household Income and Expenditure Survey provided our analytical team with extensive information pertinent to food security. With the data organized according to the guidelines and formats required by FAO's Food Security Statistical Module, Myanmar is now able to report on household level consumption data in fine detail, including analysis of kilocalorie consumption, household expenditure, and macronutrient data.

This report is the culmination of a collaborative process involving the Central Statistical Organization, the Ministry of Agriculture and Irrigation, and the National Nutrition Center of the Ministry of Health, with technical support provided from the EC-FAO Food Security Programme on *Linking Information and Decision Making to Improve Food Security*. We are most grateful to our colleagues in Government who have participated in this process over the course of 2012.

With the successor exercise to the 2006 HIES in an advanced stage of preparation, we look forward to the chance to replicate the statistical analysis and this report in future. It is hoped that as the 2012 HIES data become available, that the second such report on food security in Myanmar will be able to generate a trend analysis across the two reports, with the present document established as a baseline.

With our gratitude to all who have participated, we present for your consideration and review the report that follows. We welcome feedback on this report, which will no doubt serve to improve future planning and decision-making processes to improve food security in the Republic of the Union of Myanmar.

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Director-General  
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Ministry of National Planning and Economic Development  
Nay Pyi Taw  
The Republic of the Union of Myanmar

## Acknowledgements

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From FAO, the statistical analysis was facilitated by Statistician Mr. Seeva Ramasawmy. Mr. Jannie Armstrong, Food Security Analyst from the EC-FAO Food Security Programme, supported the interpretation and reporting of the results. The efforts of Mr. Bruce Isaacson, Chief Technical Adviser of the EC-FAO Food Security Programme, who supported the process from the outset, are also recognized.

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## List of Acronyms

<b>ADER</b>	Average Dietary Energy Requirement
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>CPI</b>	Consumer Price Index
<b>CSO</b>	Central Statistical Organization
<b>CV</b>	Coefficient of Variation
<b>DEC</b>	Dietary Energy Consumption
<b>DED</b>	Dietary Energy Deficit
<b>DES</b>	Dietary Energy Supply
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FBS</b>	Food Balance Sheets
<b>FCT</b>	Food Composition Table
<b>FDI</b>	Foreign Direct Investment
<b>FMV</b>	Food Expenditure/Consumption in Monetary Value in Kyat
<b>FPI</b>	Food Price Index
<b>FSSM</b>	Food Security Statistics Module
<b>GDP</b>	Gross Domestic Product
<b>HIES</b>	Household income and Expenditure Survey
<b>MOAI</b>	Ministry of Agriculture and Irrigation
<b>MDG</b>	Millennium Development Goals
<b>MDER</b>	Minimum Dietary Energy Requirement
<b>MoH</b>	Ministry of Health
<b>MNPED</b>	Ministry of National Planning and Economic Development
<b>NNC</b>	National Nutrition Centre, MoH
<b>WFP</b>	World Food Programme
<b>WHO</b>	World Health Organization

## Executive Summary

This report presents a summary analysis of food security and food consumption data derived from the 2006 Household Income and Expenditure Survey (HIES) for the Republic of the Union of Myanmar. Covering more than 32,000 households including 6,473 female headed households in 604 locations across all regions and states of the country, the HIES is a key source of information for both government and its development partners alike.

Using the Food Security Statistics Module (FSSM) developed by FAO, an understanding of food consumption, including dietary energy deficit, household expenditure, inequality of access, dietary composition and macro-nutrient consumption emerges. Data are presented by income quintiles, size of household, and for both male and female headed households, as applicable.

The 2006 HIES was conducted during a stable period in Myanmar. However, in the interim between data collection and the synthesis of this report, important developments internationally and domestically are likely to have affected the results presented in this report. On the international level, the financial, food and fuel price crises of 2007-2009 had implications on the cost of rice and fuel, impacting Myanmar exports of rice and imports of fuel. Within the country, the dramatic impacts caused by Cyclone Nargis in May 2008, as well the political and economic rapprochement regionally and internationally over 2011-2012 are likely to have had impacts on food security conditions in Myanmar over the short and medium term.

Some of the changes have been reported in more recent exercises such as the Integrated Household Living Conditions survey (2009-2010), the Multiple Indicator Cluster Survey (2009-2010) and the Crop and Food Security Assessment Mission (2009). Analysis contained in this report recognizes the data contained in those exercises, and should be viewed in the context of the data contained therein. It is expected that the 2012 HIES food security analysis will provide better insight about food security in Myanmar and its states, and how conditions have changed since 2006.

Key indicators for food security for Myanmar, including the MDG target of reducing the proportion of the undernourished population, and the 1996 World Food Summit target of reducing the overall number of the undernourished population, suggest that Myanmar has made important progress on both counts, with reductions of 31 percent and 12 percent respectively (against the benchmark period of 1990-92). Dietary Energy Supply (that is, how much food there is available for consumption) has improved by 26 percent, and the intensity of food deprivation (the magnitude of dietary energy deficit of the undernourished population) has reduced by 26 percent.

However, the report is unable to improve on data included in the FAO State of Food Insecurity in the World 2011 report, due to the absence of Food Balance Sheets for Myanmar. Food Balance Sheets are the key data source for Dietary Energy Supply, and are the global standard reference for overall food availability at the national level, and is usually produced on an annual basis by Ministries of Agriculture using agricultural and food data pertaining to production, trade, utilization and losses. When analyzed with the Minimum Dietary Energy Requirement, this generates information on undernourishment, indicating, in essence, how overall food supply corresponds to overall food requirements in a given population. The Recommendations section of this report proposes that this be addressed as a priority concern for food security information needs in Myanmar.

In terms of specific data, the overall trend of the 19 indicators analysed in this report suggest that food consumption expressed as Dietary Energy Consumption (DEC) was within WHO standards for macronutrient consumption, with carbohydrates making up 70.9 percent, fats 18.4 percent and proteins at 10.7 percent. The overall range of foods consumed contained a wide variety of food items implying a diversified diet. However, dietary energy deficit values and overall DEC indicate that gross intake of kilocalories is low, and that food insecure populations are not accessing adequate quantities of food. Kilocalories consumption is variable between regions and states, ranging from a low of 1,720 kcal/person/day in Shan State East to 2,490 kcal/person/day in Kayin State.

The report also shows that food consumption patterns in rural and urban areas have different characteristics, with urban populations spending more and consuming less. This should however be considered in the context

of the physical demands of rural livelihoods, where additional kcal intake is required to meet the demands of labour intensive agricultural livelihoods, as well as lower food costs for locally produced foods.

Food expenditures represent a major share of household spending, with 57.7 percent of household expenditure at the national level going to food purchases, jumping to 74.9 percent of household expenditure among the poorest households. This applies to both urban and rural populations, with rural households reliant on market purchases for 85 percent of their requirements. This is necessarily an important dynamic of the Myanmar food security context, deserving of further study. A recommendation to that effect is included in the Recommendations section.

Access to food, as measured by the coefficient of variation of dietary energy, was noted to be consistent for both rural and urban, and male and female populations, with the range of values for the coefficient of variation of DEC (per the FAO definition) between 26 and 28 percent for all populations.

This report concludes by recommending further research into the role of markets in rural food security, and the need for more disaggregated data which would provide information on macronutrient consumption by food source. Finally, it is proposed that the Ministry of National Planning and Economic Development's Central Statistics Organization (CSO) maintain its focus on food security related issues as it proceeds with HIES 2012.

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## 1. Introduction

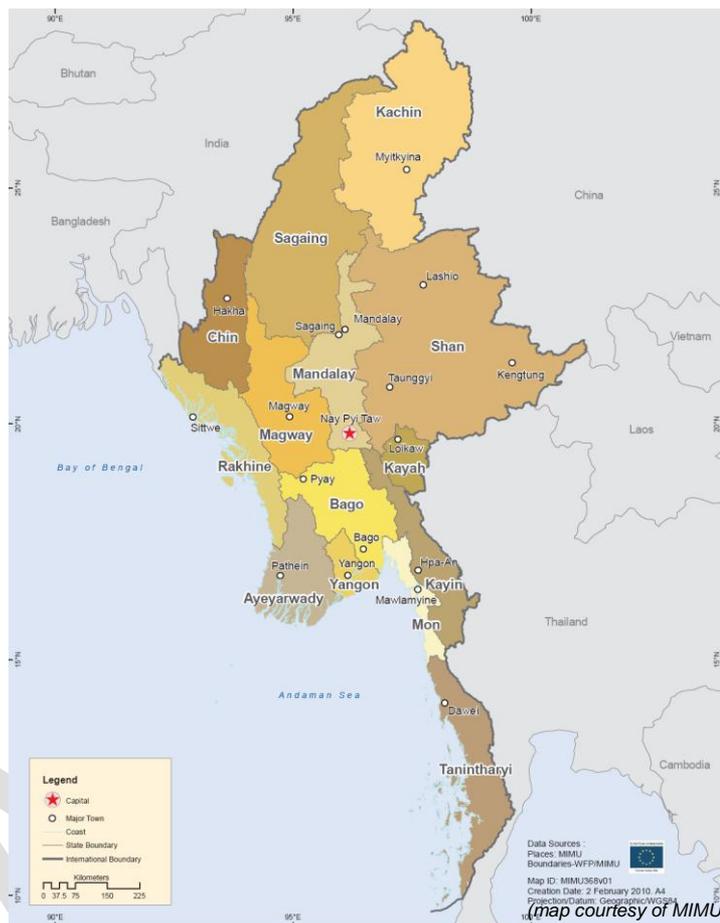
The Republic of the Union of Myanmar (referred to hereafter as Myanmar) is one of the most populous countries in Southeast Asia, with some 59.7 million inhabitants in 2010, of which some 18.3 million live in urban areas. The country is characterized by wide variations in climate and geography, from the Ayeyarwady delta to the foothills of the Himalayas. Myanmar contains extensive cultural, social and linguistic diversity, reflected in the wide variety of livelihoods, traditions and languages found across its territory. Over the past five years, diversified economic growth in infrastructure, gas exports, manufacturing, gems and minerals have decreased economic reliance on agriculture as the engine for growth, although agriculture's share of GDP remains among the highest in the region. Rice is the most important crop in terms for domestic food consumption and exports.

The International Monetary Fund (IMF) estimates that GDP growth rates will be between five and six percent in 2011 and 2012. Between 2006 and 2011, GDP per capita rose from 227 to 724 USD. However, serious development challenges continue to require focused national attention. Myanmar is ranked 149 of 187 countries in the UN's Human Development Index. Although the overall poverty incidence has dropped from 32 to 25.6 percent between 2005-2010, higher incidence of poverty is noted among rural populations (29 percent) compared to urban populations (15 percent). Poverty rates vary dramatically between states and divisions, from 73 percent in Chin State to just over 10 percent in Kayah.

Rural livelihoods are centred on subsistence production of rice. In 2006/7 some 40 percent of the total area cultivated was sown with rice, with a total harvest of 30.4 million tonnes. The 2003 Agricultural Census indicates that although total land in use for agriculture and overall yields of key crops are increasing, rural plot sizes among smallholders are diminishing, with an increase of 67 percent of holdings under one hectare since 1993 (totalling 155,000 acres), and an increase of 174 percent in holdings less than 0.4 acre (513,000 acres). This suggests that agricultural output at the household level is increasingly a function of access to land.

Malnutrition also remains a challenge for Myanmar, with 28.2 percent of children moderately or severely underweight in 2009, down from 31.8 percent in 2003. In 2009, moderate stunting was recorded at 35 percent, and severe stunting at 12 percent. Wasting stands at 8 percent nationally with a further 2 percent severely wasted. Underweight and stunting are more prevalent in rural areas, while wasting is equally present in both rural and urban contexts. Localized spikes in malnutrition rates follow shocks at the household or community level.

The 2006 Household Income and Expenditure Survey (HIES) was conducted during a stable period in Myanmar. However since 2006, important developments internationally and domestically are likely to have affected the data contained in this report. On the international level, the financial, food and fuel price crises of 2007-2009 had implications on the cost of rice and fuel, impacting Myanmar exports of rice and imports of fuel. Within the country, the dramatic impacts caused by Cyclone Nargis in May 2008, as well the political and economic rapprochement regionally and internationally over 2011-2012 are likely to have had impacts on overall food security conditions in both the short and medium terms. Some of the changes have been reported in more



recent exercises such as the Integrated Household Living Conditions survey (2009-2010), the Multiple Indicator Cluster Survey (2009-2010) and the Crop and Food Security Assessment Mission (2009). Analysis contained in this report recognizes the data contained in those exercises, and should be viewed in the context of the data contained therein. It is expected that the 2012 HIES food security analysis will provide better insight about food security in Myanmar and its states, and how conditions have changed since 2006.

This report provides an overview of key food security information for Myanmar, its states and regions, based on food consumption statistics derived from HIES 2006. Using the FAO Food Security Statistics Module (FSSM), this report summarizes key trends in food consumption and food needs, inequality of food access, and macronutrient consumption in energy, monetary and macronutrient values as applicable. Results are presented at national level and for population groups related to rural and urban, income quintiles and gender. The report is intended to provide policymakers within the Government of Republic of the Union of Myanmar and the development sector with a concise set of working food security indicators to better inform efforts underway to reduce food insecurity and undernutrition across the country, in the expectation of making progress towards MDG hunger indicator 1.9.

## 2. The Household Income and Expenditure Survey (2006)

### 2.1 Scope of the Household Income and Expenditure Survey

In December 2006, the fourth nationwide Household Income and Expenditure Survey was conducted by the Central Statistical Organization (CSO) in 80 sample townships in 14 States and divisions<sup>1</sup>. Previous surveys were conducted in 1988, 1997 and 2001. In 2006, a sample of 32,000 urban and rural households was selected using a three-stage stratified sampling method to select townships, wards, village tracts and households.

The objectives of the survey were presented as follows.

- To investigate changes in consumption patterns and expenditure of households at the township level, regions and states level, and Union level, for both urban and rural areas.
- To obtain the necessary weights for computing the Consumer Price Index (CPI) for the cities and for the Union.
- To present economic and social conditions of the country in terms of organized data as well as statistical indicators.

In the survey, household expenditures are classified into two major groups, (1) food and beverages, and (2) non-food. The food group consisted of 16 sub-groups containing a total of 157 items, and the non-food group included 17 sub-groups containing 279 items.

### 2.2 The Sample

The sampling frame of HIES (2006) covered all regions and states and townships in Myanmar. The list of townships, wards and village tracts obtained from the General Administration Department was used as the sampling frame. Survey sampling method was used to select sample townships, wards and village tracts and households.

A stratified three-stage random sampling design was used in HIES 2006 as follows.

- Natural Stratification was used, treating each administrative state and division as a stratum. Dividing Bago Division into Bago Division (East) and Bago Division (West), Shan State into Shan State (South), Shan State (North) and Shan State (East) yielded altogether (17) strata.
- First-stage sampling was based on township. In each stratum, at least two random sample townships (first-stage units) were selected using proportional allocation, yielding 65 sample townships altogether. Together with 15 predetermined townships (capital cities) to be included, the total number of townships to be surveyed was 80.

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<sup>1</sup> Subsequent to the conducting of this survey, divisions were reclassified as regions.

- Second-stage sampling was based on wards in urban area and village tracts in rural areas. In each of the 80 townships, at least two random sample wards comprising 25 percent of the total number of wards in that township and at least two random sample village tracts comprising 10 percent of the total number of village tracts in that township were selected by simple random sampling.
- Third-stage sampling was based on households. Each of 200 sample households were selected by simple random sampling from selected wards and village tracts of the township to be surveyed.

In total, HIES 2006 collected demographic, social and economic data from 32,000 households, which included 17,600 households from 242 random sample wards and 14,400 households from 362 random sample village tracts of 65 random sample townships and 15 predetermined capital cities. Of the total 32,000 households interviewed, 6,473 were classified as female headed households, equivalent to 20.2 percent.

## 2.3 Methodology

At household level, demographic data was collected for all household members (age, sex, marital status, education and employment status). Additional questions covered education and literacy, access to mass media, housing and income.

Data on household expenditure (food and non-food) and income were collected from all participating households over a one month reference period with data recorded on a daily basis over a seven day recall period. All transactions were captured in a diary and classified by type of household consumption. Data on assets household expenditures such as furniture, television, automobile, motorcycle and others durables were recorded over a 12 month recall period.

Data on the quantity and monetary value of food acquired by households were collected through diary questionnaires over a period of one month by source of acquisition, such as: purchased, received as a gift or from stocks and own-production. Food consumed away from home was also identified by specific food items codes.

### Text Box 1: Outstanding data required on food supply

The indicator for the MDG Hunger Goal 1.9 is the prevalence of undernourishment, which is measured as the proportion of population below minimum level of dietary energy consumption. This indicator is estimated and disseminated by FAO through its annual report on the State of Food Insecurity in the World (SOFI). It is calculated on the basis of three specific parameters:

- Dietary energy supply (DES) derived on an annual basis from country food balance sheet (FBS);
- Minimum dietary energy requirement (MDER) using country age-sex population structure; and
- Coefficient of variation (CV) of dietary energy consumption (DEC) derived from household survey data (in the case of Myanmar, HIES).

Despite containing data on MDER and the coefficient of variation of dietary energy consumption the present report is unable to improve upon on the data presented for Myanmar presented in the FAO 2010 country profile, summarized below and attached in full as Annex 1. While these data can be reported, a revised undernourishment indicator is not included in this report.

The reason for this is that at present, Myanmar does not prepare the food supply and utilization accounts for compiling annual food balance sheets which are useful for the regular monitoring of food availability in the country. As a result, estimating the Dietary Energy Supply (DES) required for calculating undernourishment is not possible. DES represents the global standard reference for overall food availability at the national level, and is usually produced on an annual basis by Ministries of Agriculture using agricultural and food data pertaining to production, trade, utilization and losses. When analyzed with the MDER, this generates information on undernourishment, indicating, in essence, how overall food supply corresponds to overall food requirements in a given population.

Although external to the scope of the HIES exercise, the absence of a viable food balance sheet in Myanmar limits the utility to which HIES data can be applied. Participants in the drafting process from CSO, MoAI and FAO concurred on the need to rectify this data shortfall, and a recommendation to that effect has been included in the Recommendations section below, to be followed up by MoAI and FAO.

### 3. Statistical Analysis of Food Security Indicators

#### 3.1 Myanmar food security indicators

**Table 1: Food consumption, needs and undernourishment indicators, SOFI 2011**

Myanmar Food Security Indicators	1990-92	2005-2007	% Change
Population (Mil.)	41.7	48.7	17
Proportion of Undernourished Population (%)	47	16	-31
Number of Undernourished Population (Mil.)	19.6	7.8	-11.8
<b>Food Needs (kcal/p/d)</b>			
Minimum Dietary Energy Requirement – MDER	1,740	1,800	4
Average Dietary Energy Requirement - ADER	2,200	2,290	4
Intensity of Food Deprivation (kcal/p/d)	310	230	-26
<b>Food Consumption</b>			
DES (kcal/p/d)	1,840	2,440	25.6
Protein (gm/p/d)	10	11.4	13
Fats (gm/p/d)	18.3	21.8	18

Source: FAO Food Security Statistics Webpage:

[http://www.fao.org/fileadmin/templates/ess/documents/food\\_security\\_statistics/country\\_profiles/eng/Myanmar\\_E.pdf](http://www.fao.org/fileadmin/templates/ess/documents/food_security_statistics/country_profiles/eng/Myanmar_E.pdf)

#### 3.2 Minimum and average dietary energy requirements

##### Text Box 2: Dietary Energy deficits highly variably across Myanmar

Dietary Energy Deficits (DED) stand at 300 kcal/person/day for urban populations, and 245 kcal/person/day for rural populations. DED is highest in Shan State North and East, and lowest in Kayin state at 197 kcal/person/day. These data highlight two characteristics of the Myanmar food security context. First, food insecurity appears to be high in urban populations, and second, there is a very wide range of variability between states and regions.

Food security reports based on national socio-economic data present information on the dietary energy needs of the population which are usually measured in terms of the Minimum Dietary Energy Requirement (MDER) and Average Dietary Energy Requirement (ADER). The MDER is the weighted average of the minimum calorie requirements of specific sex and age group across the population. MDER is estimated by identifying the lowest acceptable weight-for-height for each demographic category, and assuming minimum levels of physical activity, equivalent to a sedentary lifestyle.

The ADER refers to the average values in terms of acceptable weight-for-height and physical activity levels. ADER refers to the average daily dietary energy requirement of the reference population and is the level that policymakers should aim at in formulating policies towards hunger reduction. The ADER can be best described as a safe level, distinct from the MDER, as any downward shift in DEC vis-à-vis ADER does not affect the prevalence of undernourishment.

MDER is used as the cut-off point for estimating the prevalence of food deprivation (FAO, 1996). This in turn is then used to calculate the depth of hunger that is the degree of shortfall in food consumption.

**Table 2: MDER and ADER compared to DEC in Myanmar**

Myanmar and its geographical groupings	MDER (minimum dietary energy requirement)	DEC (dietary energy consumption)	ADER (average dietary energy requirements)
	(kcal/person/day)		
Myanmar	1,836	1,990	2,355
Urban	1,848	1,840	2,375
Rural	1,831	2,050	2,347
Tanintharyi	1,798	1,900	2,292
Kachin	1,801	1,950	2,295
Rakhine	1,801	1,980	2,300
Kayah	1,807	1,970	2,304
Chin	1,814	2,120	2,319
Shan State North	1,824	1,780	2,334
Mon	1,825	2,020	2,340
Shan State South	1,830	1,920	2,343
Kayin	1,832	2,490	2,342
Mandalya	1,835	1,910	2,356
Shan State East	1,836	1,720	2,351
Bago East	1,839	2,060	2,368
Saging	1,842	1,950	2,363
Ayeyarwady	1,842	5,050	2,367
Bago West	1,843	2,150	2,377
Yangon	1,850	1,930	2,385
Magway	1,851	2,120	2,385

Table 2 indicates the MDER and ADER estimates for Myanmar and its main geographical regions, using the sex-age population structure of the HIES 2006 data and height data from James and Schofield reference tables (1990) as per recommendations of Human Energy Requirements of the 2004 Joint FAO/WHO/UNU Expert Consultation.

At national level, the DEC of Myanmar population was eight percent higher than MDER, but about 15 percent less than the ADER indicating that there is a need to bridge the gap by increasing food supply and food access in Myanmar. In Shan State East and Shan State North, DEC was lower than MDER, indicating a high prevalence of undernourishment in those regions. Kayin state, which borders Thailand, had a high level of DEC, greater than the ADER, indicating good levels of energy consumption. Regions and states which border food-surplus Thailand had better opportunities to access food.

This represents an important finding of the study. Dietary Energy Deficits stand at 300 kcal/person/day for urban populations, and 245 kcal/person/day for rural populations. DEC is highest in Shan State North and East, and lowest in Kayin state at 197 kcal/person/day. These data highlight two characteristics of the Myanmar food security context. First, food insecurity appears to be high in urban populations, and second, there is a very wide range of variability between states and regions. In this case, variability is over 100 kcals between Shan State (North and East) and Kayin. Data also points to another key characteristic of the Myanmar food security context: DEC falls below MDER in every level measured by HIES 2006. Put simply, this suggests that food security in Myanmar is a function of inadequate consumption. As will be discussed in later sections on dietary composition, while dietary balance of macronutrients is within WHO recommended ranges, overall energy values are low.

### 3.3 Food consumption and expenditures

#### Text Box 3: The Cost of Food: Reliance on markets and high levels of household expenditure

Dietary energy consumption largely conforms to expected patterns, increasing with income. Consumption exceeds requirements for all populations and at the national level, among male/females, with the exception of quintile 1, representing the poorest households. Urban populations consume less energy than rural populations by 11 percent.

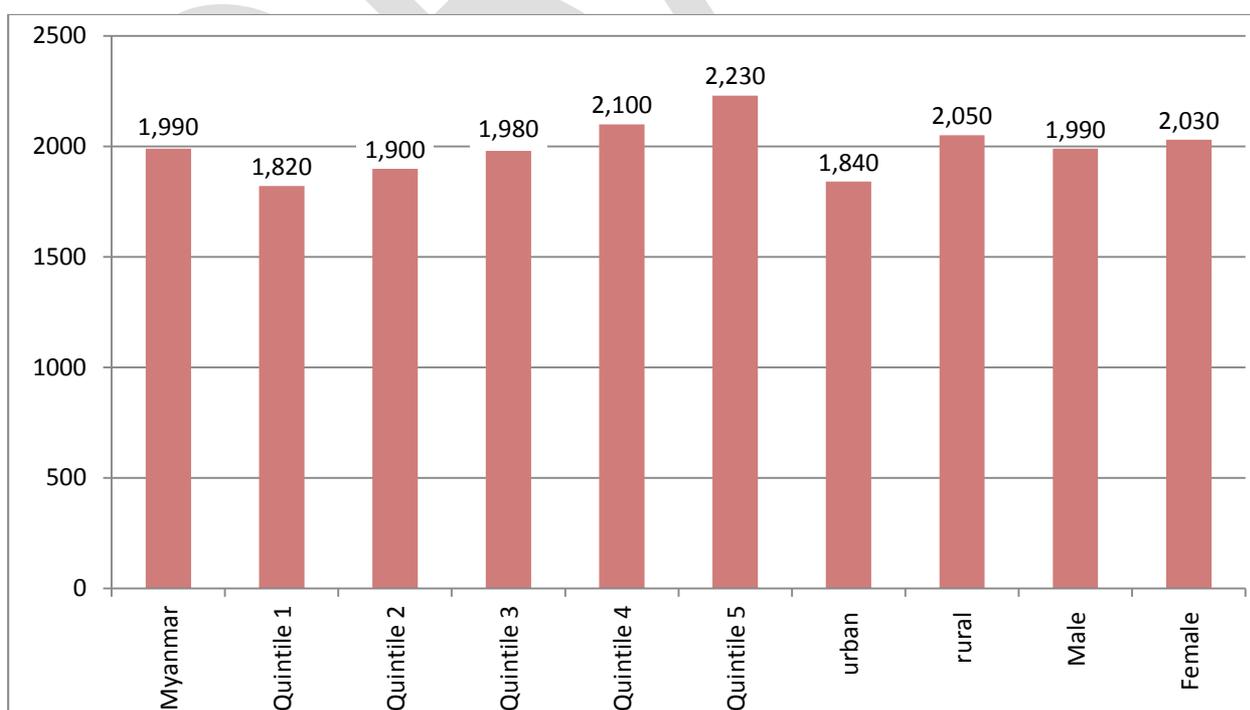
Across all populations, market purchases are by far the most important source of food. While this is to be expected for urban populations with limited access to own production, it is notable that rural populations are also reliant on market production. Bearing in mind that DEC data indicates higher energy consumption in rural areas, it is possible that this is a result of own production, representing 10 percent of their total consumption. Also of interest is the negligible contribution of food consumed outside the home.

Urban spending on food is higher than rural spending, as would be expected given that urban prices tend to be higher than those in rural areas. This suggests that urban Myanmar populations are not only eating less than their rural counterparts, but it is costing more as well. The Engel ratio (the share of food expenditure of total household income) demonstrates that food expenditure was a significant expense for all but the wealthiest households.

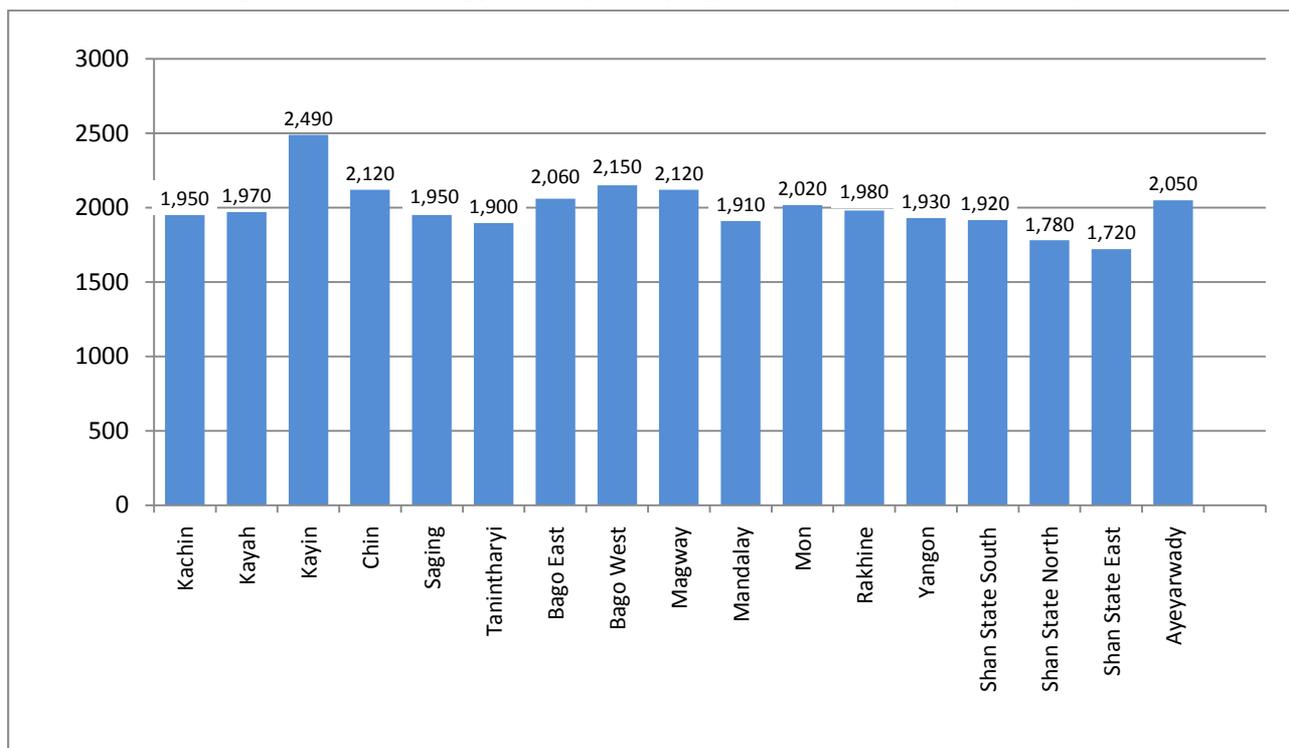
#### 3.3.1 Dietary energy consumption (DEC)

Figure 1 shows Dietary Energy Consumption (DEC) at national level, by income quintile, for male/female headed households and for rural/urban populations groups. The data largely conform to a standard pattern, whereby DEC increases with income. It is also noteworthy that DEC is above MDER (1,836 kcal is the national average) for all populations and at the national level, among male/females, with the exception of quintile 1, representing the poorest households. Data on urban populations, at 1,840 kcal/person/day, indicate that DEC is lower among urban populations than among rural populations by 11 percent. This analysis should be considered in the context of sources of consumption, presented in Figure 2 below.

Figure 1: Dietary energy consumption for selected population groups, kcal/person/day



**Figure 2: Dietary energy consumption by regions and states, kcal/person/day**



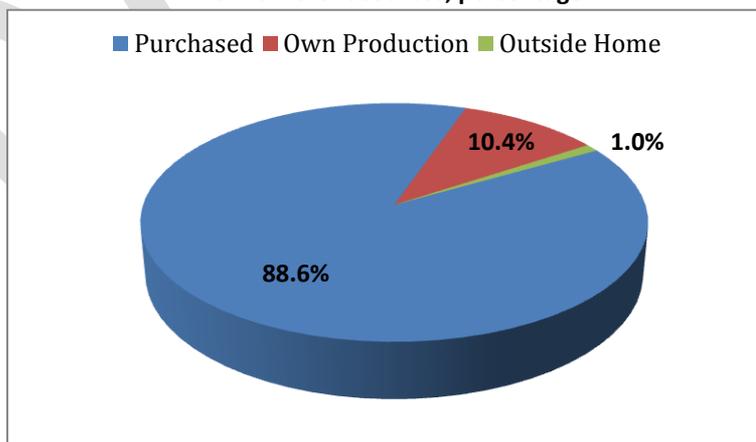
In Figure 2, DEC is presented for regions and states. Between these minimum and maximum values, all other states and regions fall within a range of 250 kcal. This is consistent with findings elsewhere in this report which indicate low levels of inequality in DEC across Myanmar.

### 3.3.2 Share of food consumption from different sources in total consumption

The share of DEC from various sources is indicated in Figure 3, and presented for rural and urban populations in Figure 4 below. Across all populations, market purchases are by far the most important source of food consumed. While this is to be expected for urban populations with limited access to own production, it is notable that rural populations are also heavily reliant on market production.

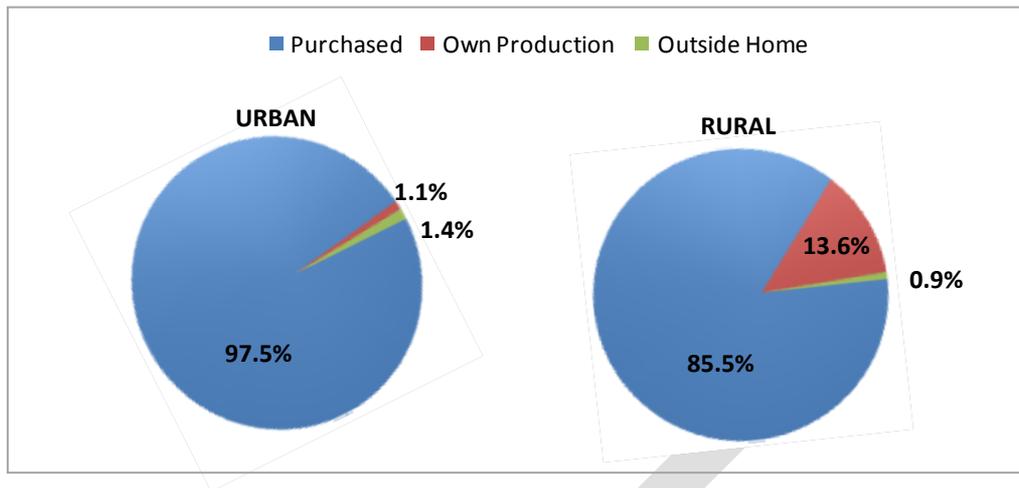
Bearing in mind that DEC data indicates higher energy consumption in rural areas, it is possible that this is a result of own production, representing 10 percent of the total consumption. This finding will be discussed in more detail in the Recommendations section below.

**Figure 3: Share of food consumption (DEC) from different sources, percentage**



Also of interest is the negligible contribution of food consumed outside the home. It is noted that cultural practice is such that individuals who are unable to eat at home tend to bring food from home to their workplace. During the interpretation of the statistical analysis results, it was speculated that some respondents may have reporting food consumed outside the home as being purchased, because they would have necessarily bought it in order to consume it.

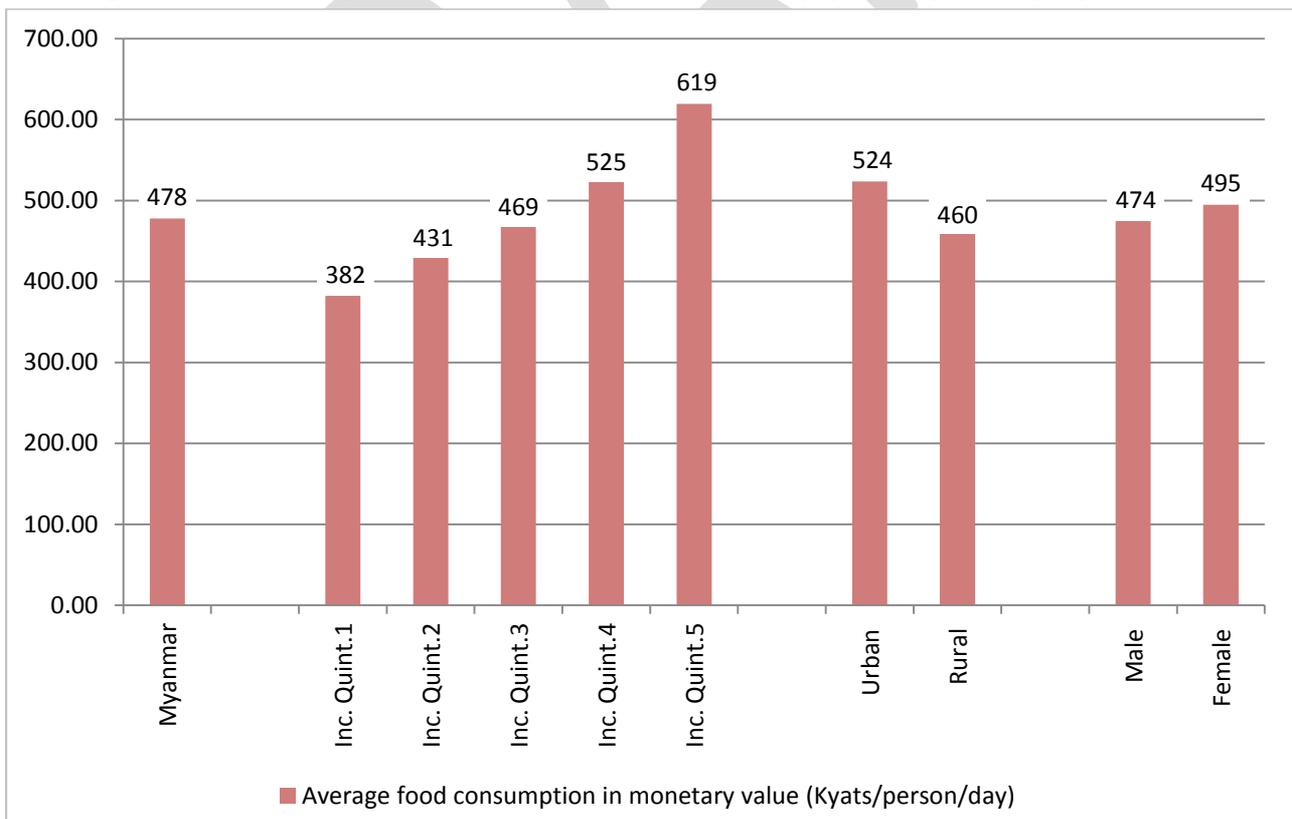
**Figure 4: Share of food consumption (DEC) from different sources in total DEC - Urban/Rural**



### 3.3.3 Food expenditure

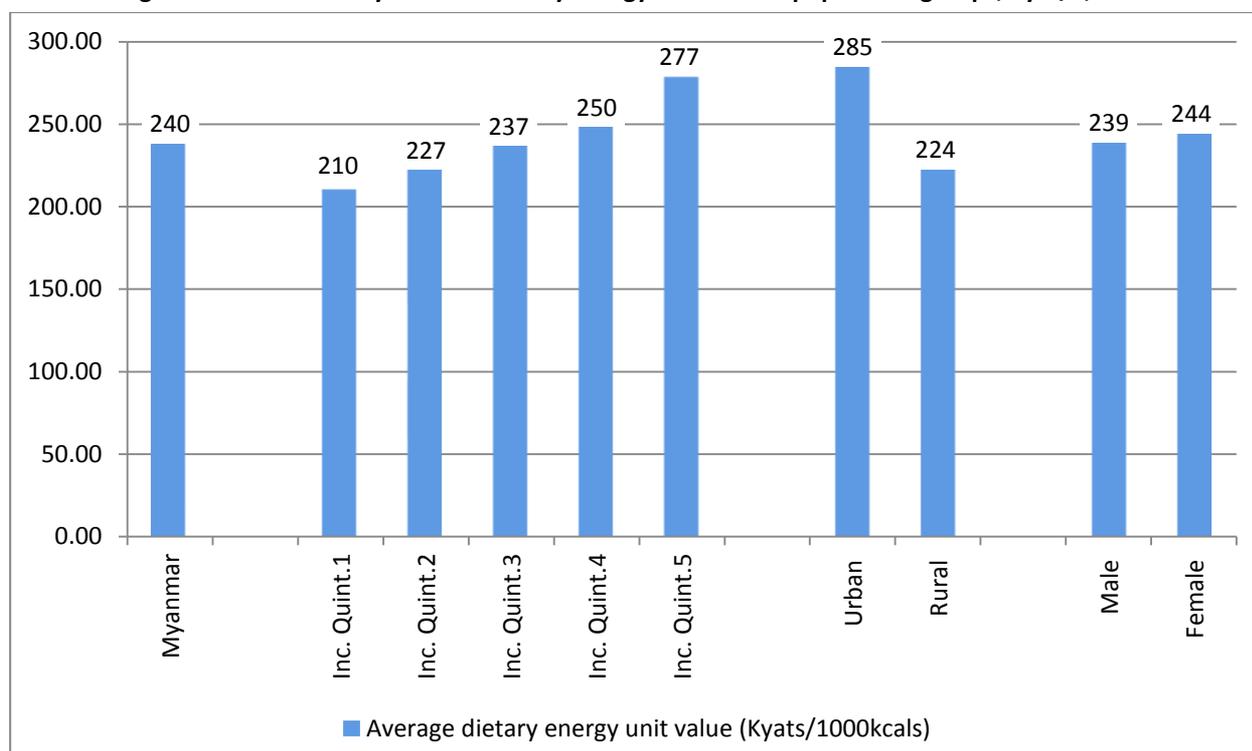
Food consumption expressed in monetary value (Figure 5) reflects the trend noted above in Figure 1, such that increased DEC in higher income quintiles is matched with higher spending. Furthermore, urban spending is higher than rural spending, as would be expected given that urban prices tend to be higher than rural. However, comparing Figures 5 and 6 with the data in Figure 1, which showed that DEC is lower among urban populations, urban Myanmar populations are not only eating less than their rural counterparts, but it is costing more as well. However, this should also be contextualized by understanding this expenditure against total household income, a point to be discussed under Figure 7 below.

**Figure 5: The monetary value of food consumption for selected population groups, kyat/person/day**



Dietary energy unit cost refers to the cost of purchasing 1,000 kcal in Kyat (Figure 6). Costs are lowest at quintile 1 (209 Kyat), Quintile 2 (226 Kyat) and among rural populations (223 Kyat). Usually low income households tend to purchase low price food items as to meet their dietary energy needs. As a rule, rural households tend to pay less for locally produced food items as locally produced food prices do not have to factor in transportation or other intermediate costs as compared to food prices in urban regions. The national average (239 Kyat) falls between quintiles 3 and 4.

**Figure 6: The monetary value of dietary energy for selected population groups, Kyat/1,000 kcal**



### 3.3.4 Food share or Engel ratio

The Engel ratio refers to the percent of total household income that is spent on food (total consumption expenditure is used as a proxy of income). Decreases in the Engel ratio indicate an improvement in well-being as decreased spending on food makes more money available for non-food purchases. Myanmar's food ratio is compared to other Asian countries in Table 3.

**Table 3: Food share for selected countries in the region, percentage**

Country	National	Urban	Rural	Year
Cambodia	70.8	76.9	68.9	2009
Nepal	59	39.1	62.9	2003
<b>Myanmar</b>	<b>57.7</b>	<b>53.5</b>	<b>59.7</b>	<b>2006</b>
Bangladesh	53.8	58.5	45.2	2005
Pakistan	47.6	39.6	53.6	2004
Lao PDR	41.3	33.3	47.5	2007

The Engel ratio for selected population groups is presented in Figure 7 and shows that food expenditure was a significant expense for quintiles 1-4 as they were well above the national average of 57.7 percent.

**Figure 7: Engel or food ratio for selected population groups, percentage**

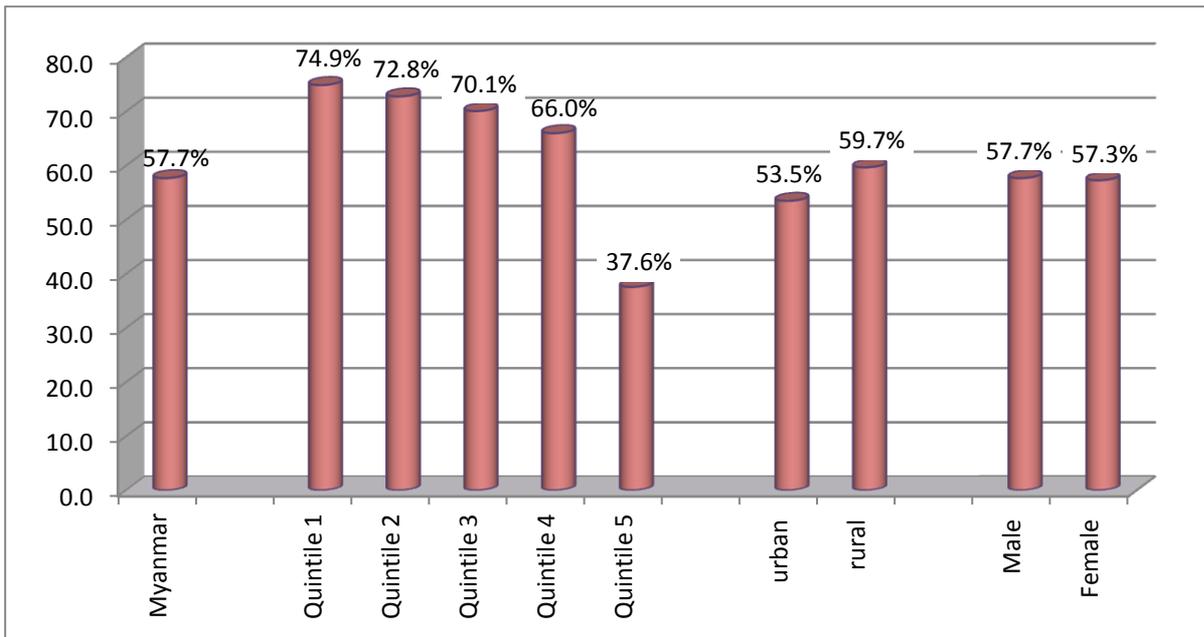
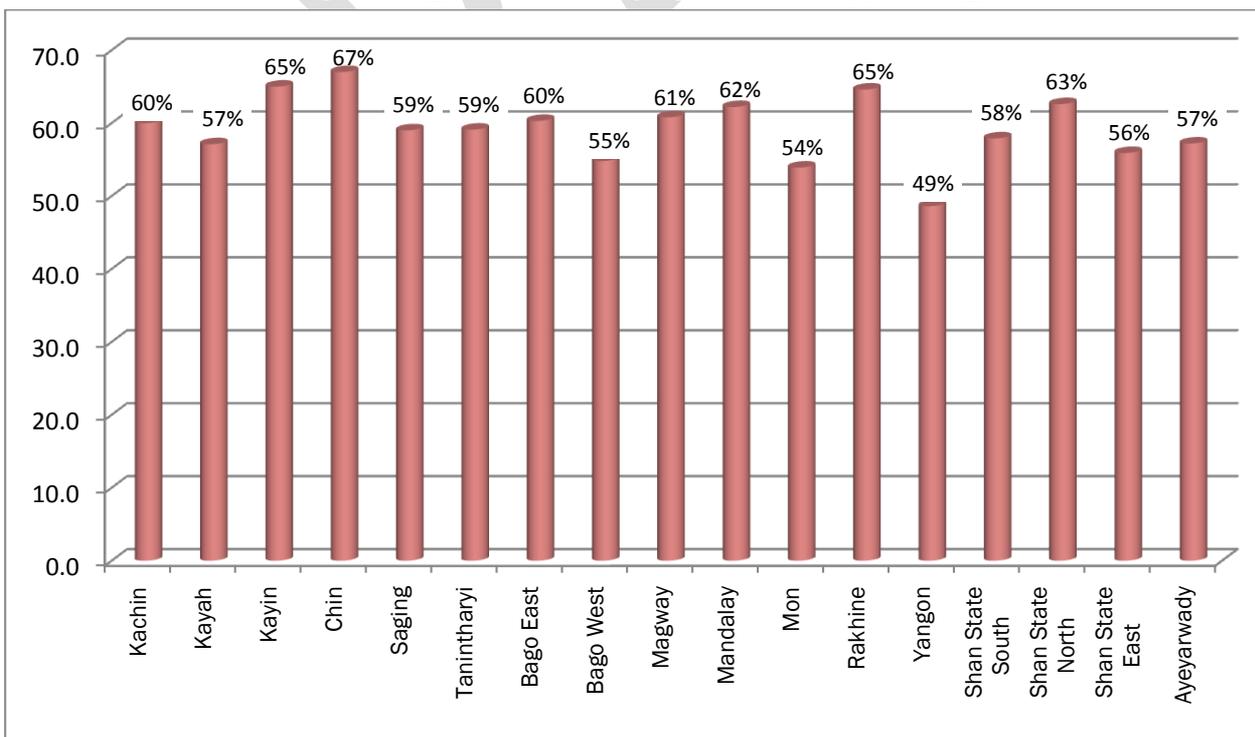


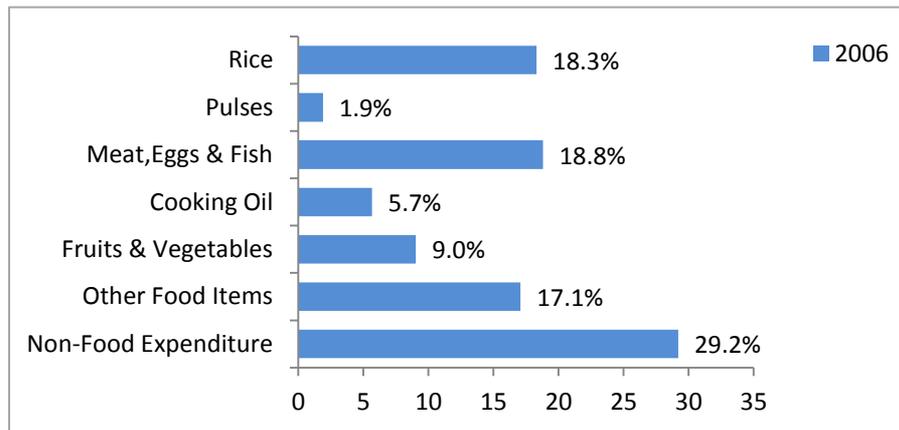
Figure 8 shows the percentage of income spent on food by states and regions and indicates the lowest food share was in Yangon, the capital city, which is home to a greater proportion of the more wealthy quintile 5 population. Chin state had the highest food share of 67 percent indicating a low welfare among its population of approximately 500,000. According to the UNDP 2009-10 Integrated Household Living Conditions Survey II (IHLCS) report, Chin State remains the poorest state of Myanmar, with 73.3 per cent of the population below the poverty line (2009-10 IHLCS II, UNDP, 2011). Limited variability between states and regions would suggest that the Engel ratio is more a function of income, and is not heavily influenced by geographic location. The national, male headed household and female headed households data were on the order of 57 percent.

**Figure 8: Engel or food ratio by regions and states, percentage**



Data on household expenditure from the 2011 Statistical Yearbook are shown in Figure 9 below.

**Figure 9: Household food expenditure per food category, percentage**



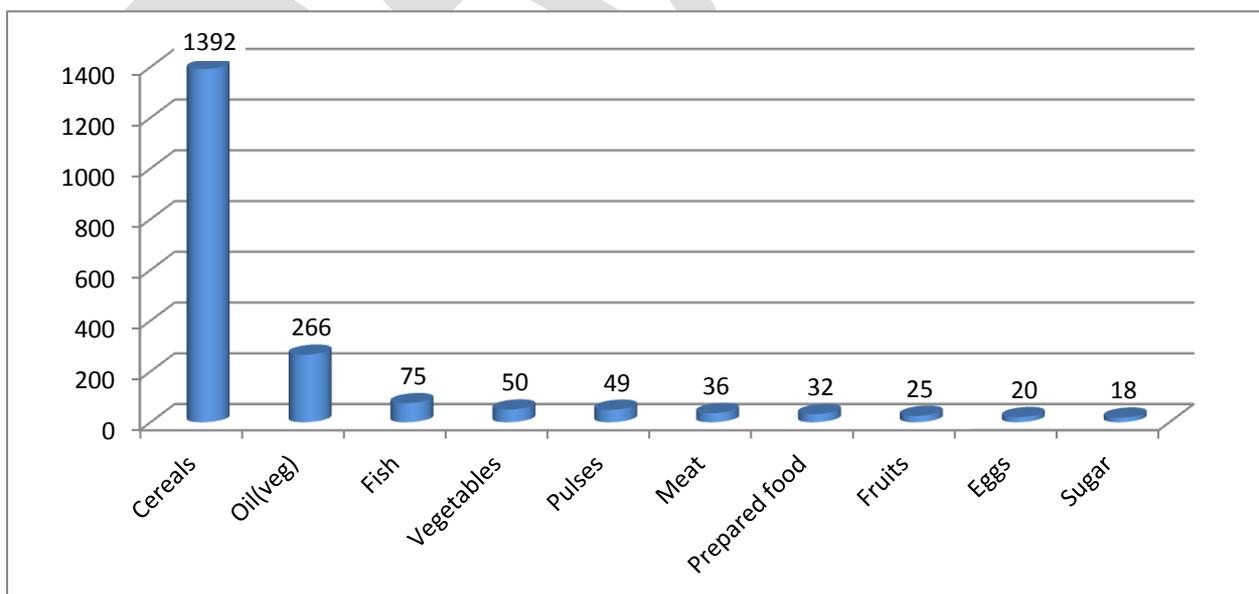
### 3.3.5 Diet composition

**Text Box 4: Reductions in Carbohydrates compensated by increases in fat and protein consumption**

The overall diet at national level is equivalent to 443 grams/person/day. Food intake measured in grams was highest for rural populations at 459 grams, and lowest among urban populations at 401 grams/person/day. Urban populations had a higher proportion of fats in their diet (21.3 percent) compared to 17.4 percent for rural populations, who had a higher carbohydrate consumption from cereals, particularly the staple food rice. Data on macronutrient consumption indicates that a reduction in the consumption of carbohydrates was accompanied by increases in protein and fat consumption, as indicated in the declining share of carbohydrates at higher income quintiles.

Comparing the Myanmar diet to WHO international standards for a balance diet in terms of macronutrients contribution of energy, the Myanmar diet fell within recommended ranges for all macronutrients, which may indicate that food insecurity in Myanmar is not a function of dietary imbalance, but rather overall volume.

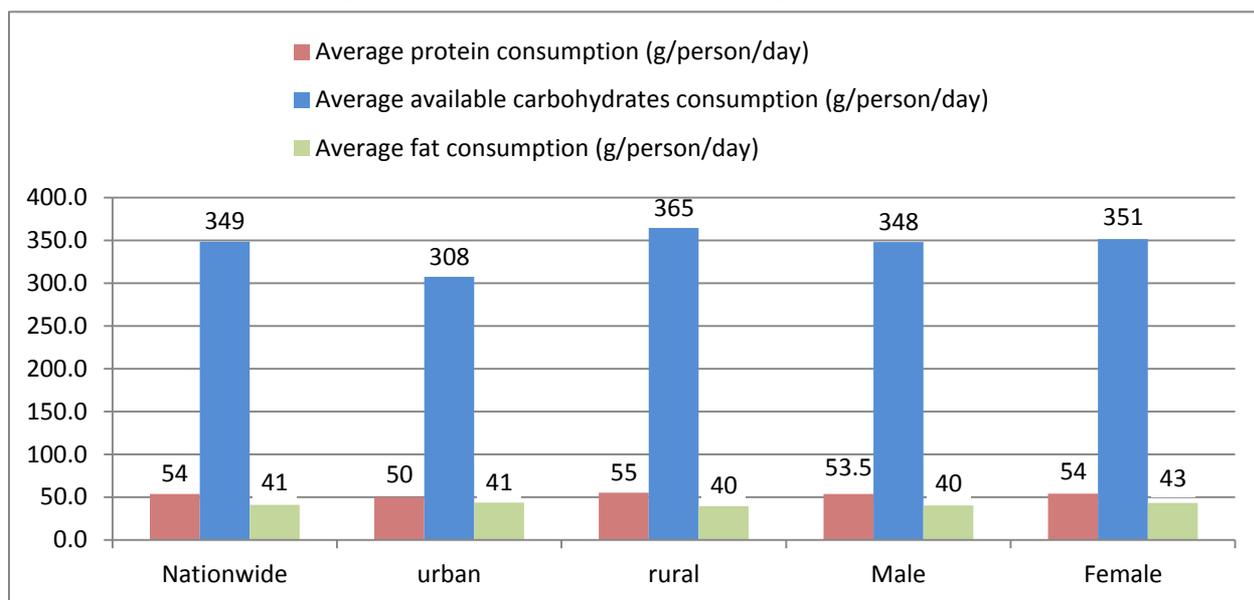
**Figure 10: Contribution of main food groups to total DEC, kcal/person/day**



Rice, as the traditional mainstay of the Myanmar diet, providing an average of 1,392 kcal/person/day of the overall diet composition sourced from the cereals group (Figure 10). Combined protein intake (including fish, meat, pulses and eggs) amounts to 180 kcal. Protein intake is discussed further below.

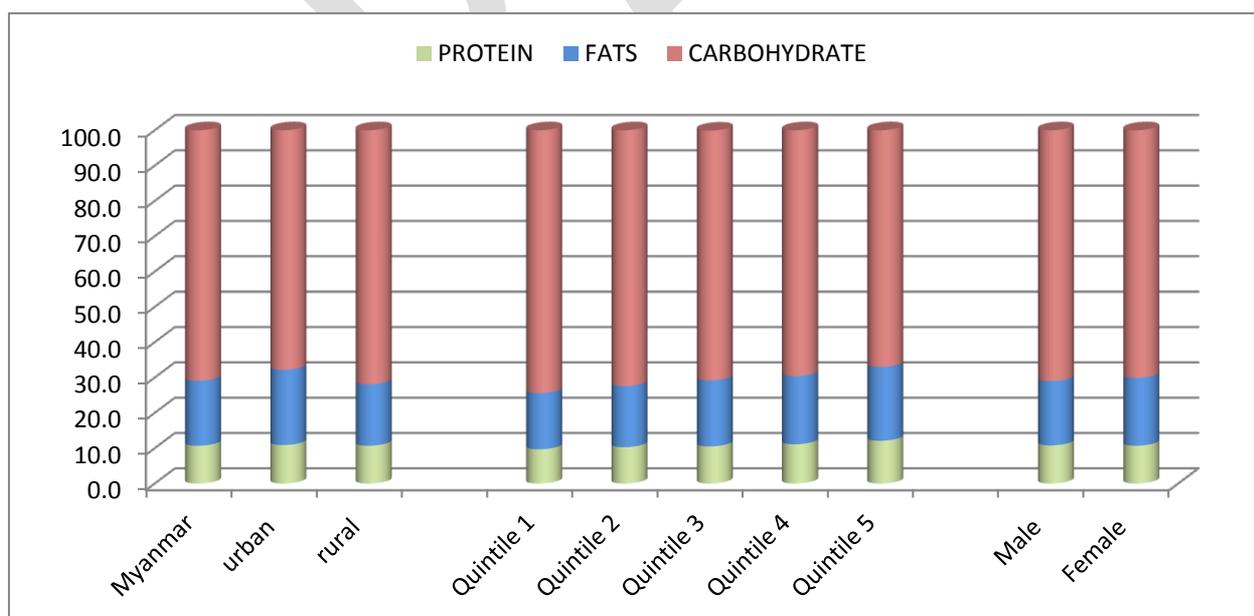
### 3.3.6 Macronutrients consumption

**Figure 11: Macronutrient consumption, grams/person/day**



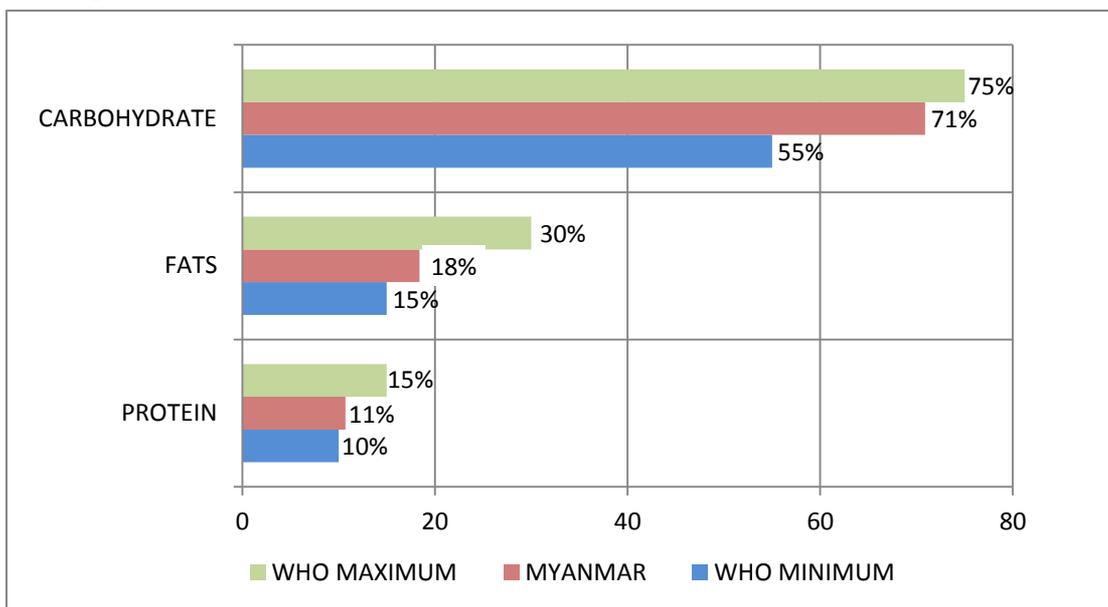
As reflected in Figure 11, the overall diet at nationwide level is equivalent to 443 grams/person/day. Overall intake measured in grams was highest for rural populations at 459 grams, and lowest among urban populations at 401 g/person/day. Figure 12 shows that urban populations had a higher proportion of fats in their diet (21.3 percent) compared to 17.4 percent for rural populations who had a higher carbohydrate consumption coming from cereals particularly the staple food rice. Overall, data in Figure 12 on macronutrient consumption indicates that a reduction in the consumption of carbohydrates was accompanied by increases in protein and fat consumption, as indicated in the declining share of carbohydrates at higher income quintiles.

**Figure 12: Share of macronutrient consumption by income quintile, percentages**



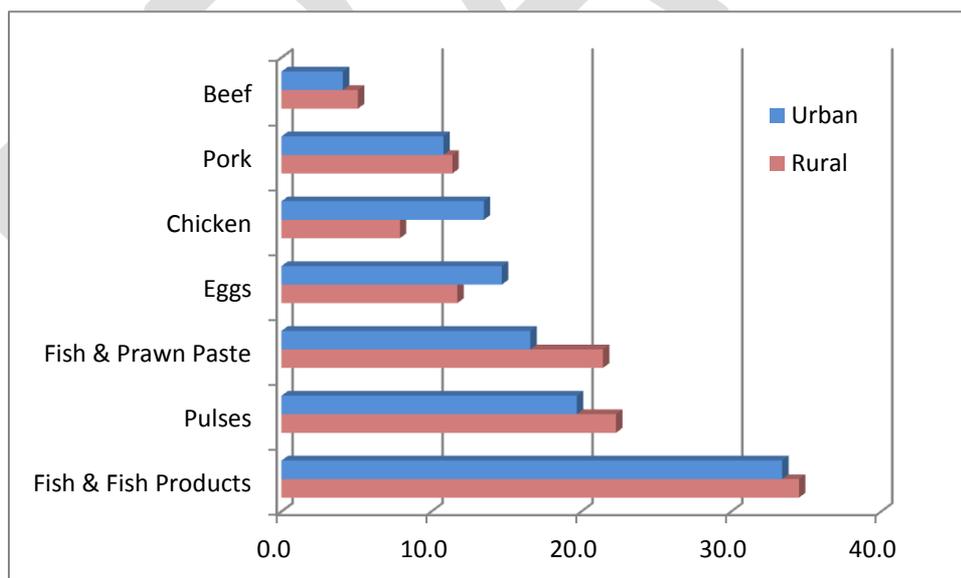
Comparing the Myanmar diet to WHO international standards for a balance diet in terms of macronutrients contribution of energy (Figure 13), the Myanmar diet fell within recommended ranges for all macronutrients, indicating that food insecurity in Myanmar is not a function of dietary imbalance, but rather overall volume (see Table 1). However, it should be noted that protein intake was only just above the minimum recommended threshold and fat intake toward the lower end of the range as well.

**Figure 13: Comparison of macronutrient share of total DEC with WHO recommendations**



The Myanmar diet is noteworthy for the wide range of protein sourced from both animals and vegetables (Figure 14). For all populations, fish was the most widely consumed protein source, in both fresh and processed forms (represented here as fish and fish products, and fish and prawn pastes). Eggs and chicken were more widely consumed in urban areas. However, it should be noted that although at the national level, protein sources are multiple, consumption patterns at the household level were contingent on religious observance, cultural practice and access. For example, fish consumption in states and regions without access to the sea (such as Shan state) was much lower than elsewhere. Figure 14 omits protein sources contributing less than 5 grams/person/day.

**Figure 14: Protein intake by food group, grams/person/day**



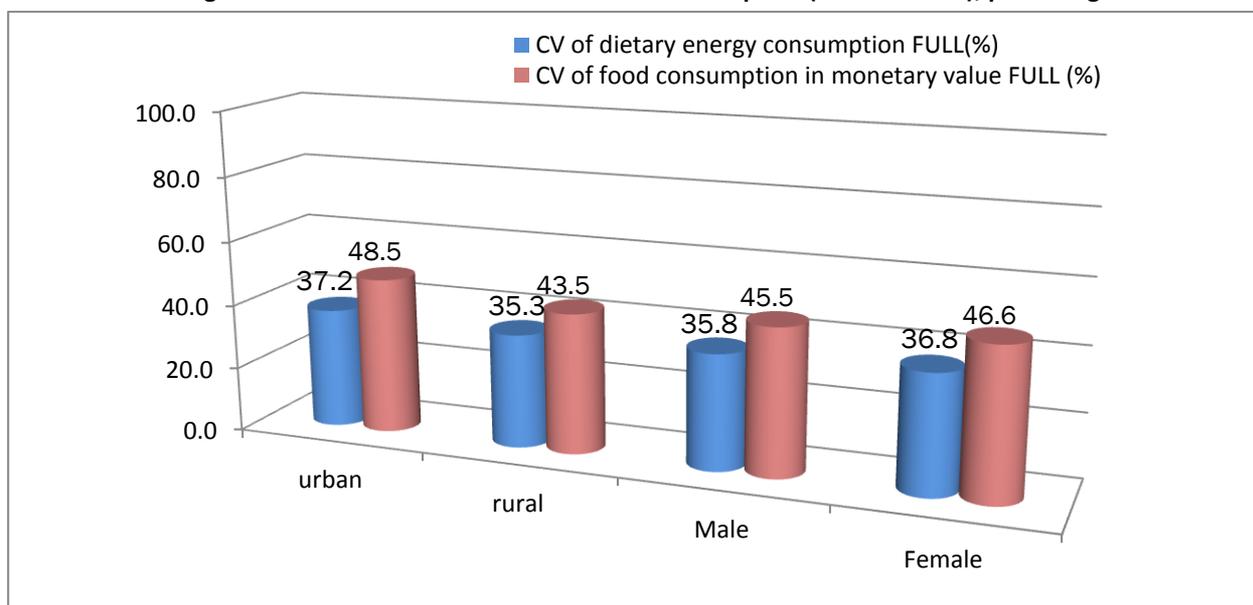
### 3.4 Inequality in food consumption

**Text Box 5: Equality of Food Consumption is constant across all populations**

For Myanmar, the coefficient of variation of dietary energy consumption and of food monetary value is consistent across all populations, indicating fairly equal access to food among rural, urban, male or female populations. Both values are somewhat higher for urban populations at 37.2 and 48.5 percent, compared to 35.3 and 43.5 percent for rural populations.

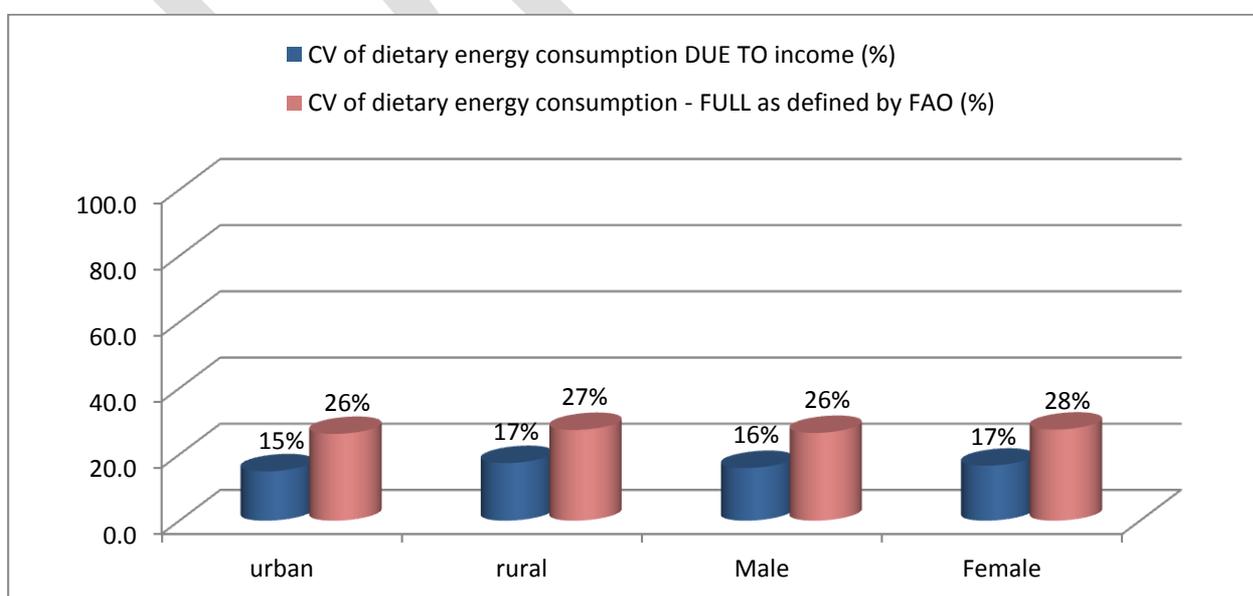
Inequality in food consumption is a measure of access to food and is estimated by the coefficient of variation (CV) of the dietary energy consumption distribution. It is one of the key parameters in estimating the prevalence of food deprivation using the FAO methodological framework. A CV with a high value reflects wide variability in the dietary energy distribution among the population, while a low value CV points to more homogenous food dietary energy consumption among the population. The derived coefficients tend to be somewhat inelastic as there is a minimum and maximum threshold limit to food consumption: human bodies can only consume so much and cannot function without a base requirement being met. CV of DEC is highly sensitive to data quality. FAO estimates the CV of DEC as the aggregation of the variation of DEC due to income level and the variation of DEC due to energy requirement among sex and age population groups in the total population.

**Figure 15: Coefficient of variation of food consumption (DEC and FMV), percentage**



For Myanmar, CV of DEC and CV of food monetary value is consistent across all populations, and indicates very little variation among rural, urban, male or female populations (Figure 16). Both values are higher for urban populations at 37.2 and 48.5 percent, compared to 35.3 and 43.5 percent for rural populations. When income is controlled (Figure 16), CV of DEC is at 14.9 percent for urban populations, and 17.4 for rural populations.

**Figure 16: Coefficient of variation of food consumption (due to income and FAO definition), percentage**



## 4. Key Observations

- The HIES data presented in this report were collected in 2006, six years prior to the food security analysis and report drafting process. In the period between data collection and dissemination of this report, Myanmar has undergone significant political and economic changes. It is therefore likely that major events and/or policy decisions taken since 2006 may have already influenced results contained in this report. This report should therefore be considered as indicative of the period during which they were collected, not as a profile of Myanmar's food security in 2012.
- Analysis of the indicators contained in this report, including Dietary Energy Consumption, show that the overall composition of the diet in Myanmar was within WHO standards, and contained a wide range of food items implying a diversified diet. However, dietary energy deficit values and overall DEC indicate that gross intake of kilocalories is low, and that food insecure populations are not accessing adequate quantities of food.
- The report also contains indications that food consumption patterns in rural and urban areas have different characteristics, with urban populations spending more on food and consuming less. This should however be considered in the context of the physical demands of rural livelihoods, such that additional energy intake is required to meet the basal demands of labour intensive agricultural livelihoods.
- Food expenditures represent a major share of household spending. This holds true for both urban and rural populations. Rural households were reliant on market purchases for 85 percent of their requirements. This is necessarily an important dynamic of the Myanmar food security context, deserving of further study. A recommendation to that effect is included below.

## 5. Recommendations

### 5.1 Agriculture Recommendations

- As mentioned in the section on undernourishment methodology, there is a prevailing need to establish Food Balance Sheets for Myanmar. In their absence, the analysis contained in this report can only be considered partial, and updated information relevant to MDG undernourishment indicator 1.9 is still pending. It is recommended that FAO and MOAI collaborate on developing a coordinated approach to this issue in the immediate term so that Myanmar can assess progress towards meeting the undernourishment indicator by 2015.
- With HIES 2012 under preparation, further reporting using the FSSM should be included in HIES 2012 design and planning, to ensure that future reports are able to develop trend analysis of national survey data.
- Data in this report indicate that 85 percent of rural household foods were sourced from markets. Rural reliance on markets is a therefore a key factor for food insecure or potentially food insecure populations. Throughout the course of the report drafting process, it was noted that additional research is required to better understand the market dynamics of rural household food purchases, including *inter alia* cropping patterns, market activities, inheritance and land tenure, migration, cash and non-cash incomes, coping strategies, food storage and seasonal variations. In this context, particular attention should be paid to non-farm activities. According to the 2003 Agriculture Census results, off-farm activities appear to be increasingly important for rural populations. It is anticipated that this point will be explored in more detail in ongoing Agriculture Census exercises.

## 5.2 Nutrition Recommendations

- As described in this report, the Myanmar diet remains well balanced in terms of macronutrients, but is lacking in overall quantity in terms of individual intake. Further studies should provide additional disaggregation for key food groups including proteins and fats, in order to allow for a more complete mapping of specific dietary patterns by region and state.
- Although not directly addressed in this paper, as part of the application of the Food Security Statistical Module, extensive data on micronutrient consumption was generated from the HIES data, including information on Vitamin A, B complex, C, calcium, iron and amino acids. It is recommended that these data be further analyzed by FAO, MOAI and MoH to consider the option of developing a separate report on micronutrient consumption. This would allow for a comparison of derived data from FSSM with direct data from micronutrient supplementation programs collected by the HIES. Future food security reports derived from HIES should include expanded information on micronutrients. Efforts should also be made to cross reference HIES data with other food utilization data, such as any future MICS exercises.
- There is continued interest from MoH, MoAI and CSO to collaborate further on food security and nutrition survey and surveillance activities. Although HIES 2012 is already well advanced, further discussions on alternative options (such as surveys using subsets of the Agriculture Census or HIES data) should be discussed further by all parties.

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## Glossary of Terms on Food Security

### Average dietary energy requirement

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.

### Balanced diet

The food consumption pattern is balanced when the contribution of energy-yielding nutrients to total energy is within acceptable ranges as follows: proteins from 10% to 15%, fats from 15% to 30% and carbohydrates from 55% to 75%.

### Critical food poverty

The prevalence of critical food poverty (pCFP), refers to the proportion of persons critically food poor in the population at national and sub-national levels, i.e. living on less than the cost of the minimum dietary energy requirement (MDER) as acquired by the first income quintile consuming the most balanced diet.

### Degree of food deprivation

A measure of the overall food insecurity situation in a country, based on a classification system that combines prevalence of undernourishment, i.e. proportion of the total population suffering from dietary energy deficit, and depth of undernourishment, i.e. magnitude of the dietary energy deficit of the undernourished population.

### Dietary energy unit cost

The dietary energy unit cost is the monetary value of 1,000 kcal of edible food.

### Dietary energy deficit (depth of hunger)

The difference between the average daily dietary energy intake of an undernourished population and the national average minimum energy requirement.

### Dietary energy (DE)

The energy content of food consumed.

### Dietary energy requirement

The amount of dietary energy required by an individual to Maintain body functions, health and normal activity.

### Dietary energy supply (DES)

Food available for human consumption, expressed in kilocalories per person per day (kcal/person/day). At country level, it is calculated as the food remaining for human use after deduction of all non-food consumption (exports, animal feed, industrial use, seed and wastage). This food energy supply is for both private and public consumption.

### 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 exports 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 body needs. FAO's measure of food deprivation is based on the distribution of food consumption expressed in terms of dietary energy.

### Food expenditure share

The food expenditure ratio corresponds to the share of food consumption expenditure (Food in Monetary Value-FMV) in monetary terms in total consumption expenditure (TCEXP) also known as Engel ratio.

### 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 the ratio of the area between the equality line and the Lorenz curve to the area below the equality line. The Gini coefficient ranges from 0 (perfect equality) to 1 (perfect inequality). The Gini coefficient may refer to the overall inequality, for example when depicting income (%) and income receiving units (%). However, when it depicts dietary energy consumption (%) and income receiving units (%), it refers to the inequality of energy consumption due to income.

### 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 food consumption expenditure refers to the total household spending on food consumed by all members during a specified period, at home and outside the home, e.g. for example, at restaurants, bars, work place, school, etc. It includes food from all sources, purchased or from garden or farm. 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 (quantity, monetary or nutrient terms) measures the responsiveness of the quantity demanded of a good (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.

### Inequality measure of access to food – coefficient of variation

The coefficient of variation of dietary energy consumption (CV<sub>x</sub>), as defined by FAO, comprises two Main components; one reflecting the inequality of food consumption associated with socioeconomic levels (CV<sub>(x/v)</sub>) and the other associated with biological (CV<sub>(x/r)</sub>) factors (sex, age, body weight and physical activity) as follows:  $CV(x) = \sqrt{CV^2(x|v) + CV^2(x|r)}$ .

### Kilocalorie (kcal)

A unit of measurement of energy. One kilocalorie equals 1,000 calories. In the International System of Units (ISU), the universal unit of energy is the joule (J). One kilocalorie = 4.184 kilojoules (kJ).

### Macronutrients

The proteins, carbohydrates and fats that are required by the body in large amounts and, available to be used for energy. They are measured in grams.

### Micronutrients

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

### Minimum dietary energy requirement

In a specified age/sex category, the amount of dietary energy per person that is considered adequate to meet the energy needs for light activity and good health. For an entire population, the minimum energy requirements of the different age/sex groups in the population. It is expressed as kilocalories per person per day.

### Nutritional status

The physiological state of an individual that results from the relationship between nutrient intake and requirements and from the body's ability to digest, absorb and use these nutrients.

### Overnourishment

Food intake that is in excess of dietary energy requirements continuously.

### Undernourishment

Food intake that is insufficient to meet dietary energy requirement continuously.

### Undernutrition

The result of undernourishment, poor absorption and/or poor biological use of nutrients consumed.

# Annex I: FAO Myanmar Country Profile: Food Security Indicators



## Country Profile: Food Security Indicators

Country: Myanmar

		1990-92	1995-97	2000-02	2005-07	1990-92 to 1995-97 (%)	1995-97 to 2000-02 (%)	2000-02 to 2005-07 (%)
<i>annual change</i>								
<b>I. FOOD DEPRIVATION AND CONSUMPTION INDICATORS</b>								
<b>Food Deprivation</b>								
Proportion of undernourishment	percent	47	35	29	16	-6.2	-3.8	-11.6
Number of undernourished	millions	19.6	15.4	13.5	7.8	-4.8	-2.7	-13.6
Food deficit of undernourished population	kcal/person/day	310	280	260	230	-2.3	-1.0	-3.0
<b>Food Needs</b>								
Minimum dietary energy requirement (MDER)	kcal/person/day	1740	1760	1790	1800	0.3	0.3	0.1
Average dietary energy requirement (ADER)	kcal/person/day	2200	2240	2280	2290	0.4	0.3	0.1
<b>Food Supply for Human Consumption</b>								
Dietary energy supply (DES)	kcal/person/day	1840	2040	2160	2440	2.0	1.2	2.4
Total protein consumption	g/person/day	45.9	51.2	57.3	69.7	2.2	2.3	3.9
Animal protein consumption	g/person/day	7.7	8.4	11.6	19.5	1.7	6.5	12.9
Fat consumption	g/person/day	37.3	39.9	44.2	59.2	1.3	2.0	5.8
<b>Diet Composition (Share in DES):</b>								
Carbohydrate	percent	71.8	72.3	71.0	66.7	0.2	-0.4	-1.2
Total protein	percent	10.0	10.1	10.6	11.4	0.1	1.1	1.5
Animal protein	percent	1.7	1.7	2.1	3.2	-0.4	5.3	7.9
Fat	percent	18.3	17.6	18.4	21.8	-0.7	0.9	3.4
<b>Major food commodities consumed (share in DES) *</b>								
1 - Rice, milled	percent	69.9	67.2	62.0	55.2	-0.8	-1.6	-2.3
2 - Sugar, non-centrifugal	percent	2.0	3.5	4.6	4.9	10.8	5.6	1.2
3 - Pig meat	percent	0.8	1.3	1.4	3.1	11.1	1.9	15.0
4 - Oil of groundnuts	percent	2.7	2.3	2.6	3.1	-3.1	2.7	3.2
5 - Oil of sunflower seed	percent	1.0	1.2	1.9	2.5	3.1	10.2	4.9
Share of cereals and roots & tubers in DES	percent	73.9	71.4	66.2	60.0	-0.7	-1.5	-2.0
Share of oils and fats in DES	percent	10.3	9.1	9.0	9.4	-2.5	-0.4	1.0
*ranked on the latest 3-year period								
<b>II. FOOD PRODUCTION INDICATORS</b>								
<b>Role of production to consumption by major commodity**</b>								
1 - Rice, milled	percent	121.9	133.2	151.1	200.7	1.8	2.5	5.7
2 - Sugar, non-centrifugal	percent	100.4	100.0	100.0	100.0	-0.1	0.0	0.0
3 - Pig meat	percent	100.0	100.0	100.0	100.0	0.0	0.0	0.0
4 - Oil of groundnuts	percent	100.0	100.0	100.0	100.0	0.0	0.0	0.0
5 - Oil of sunflower seed	percent	100.0	100.0	100.0	100.0	0.0	0.0	0.0
**ratio of production to consumption by major commodity								

Last update: October 2010

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## Country Profile: Food Security Indicators

Country: Myanmar

		1990-92	1995-97	2000-02	2005-07	1990-92 to 1995-97 (%)	1995-97 to 2000-02 (%)	2000-02 to 2005-07 (%)
<i>annual change</i>								
<b>III. FOOD TRADE INDICATORS</b>								
<b>Foreign Food Trade</b>								
<u>Exports</u>								
Total merchandise	MLN US\$	513	947	2500	4609	12.3	19.4	12.2
Share of food (1) in total merchandise value	percent	36.8	33.6	17.3	8.5	-1.8	-13.3	-14.3
Share in total DES production	percent	2.5	3.3	5.0	2.9	5.2	8.3	-10.9
<u>Imports</u>								
Total merchandise	MLN US\$	871	2063	2143	2541	17.3	0.8	3.4
Share of food (1) in total merchandise value	percent	10.6	10.3	9.7	16.2	-0.7	-1.3	10.4
Share in total DES production	percent	1.8	2.8	2.1	2.1	8.5	-5.6	-0.3
Net food trade (Food exp.-Food imp.) in total GDP	percent	0.0	0.0	0.0	0.0			
Role of imports to consumption by major commodity***								
1 - Rice, milled	percent	0.0	0.0	0.2	0.1		58.2	-19.0
2 - Sugar, non-centrifugal	percent							
3 - Pig meat	percent	0.0	0.0	0.0	0.0		-16.8	-45.8
4 - Oil of groundnuts	percent	0.0	0.0	0.0	0.0	40.9	-22.5	-17.8
5 - Oil of sunflower seed	percent							
***ratio of imports to consumption by major commodity								
<b>Food Aid Received</b>								
Cereal aid shipments	1000 MT							
Share of food aid in total dietary energy supply (DES)	percent	0.0	0.0	0.0	0.0			160.4
<b>IV. MACRO AND SOCIO ECONOMIC INDICATORS</b>								
<b>Population</b>								
Total population	1000	41467	44454	46995	48733	1.4	1.1	0.7
Density	Inh/sq Km	63	68	72	75	1.4	1.1	0.7
Share of urban in total population	percent	25.1	26.5	28.5	31.3	1.1	1.5	1.9
Age dependency ratio (per 100 persons aged 15-64)	ratio	69.5	61.7	53.8	49.6	-2.4	-2.7	-1.6
<b>Macro economic aggregates</b>								
GDP at market prices (constant 2000 US\$)	MLN US\$							
Share of agriculture value added in total GDP	percent	58.9	59.7	56.3		0.3	-1.2	
Workers' remittances and compensation of employees, received (in total GDP)	percent							
Net official development assistance received (in total GDP)	percent							
Foreign direct investment, net (BoP, current US\$) (in total GDP)	percent							
Current account balance (in total GDP)	percent							
Total reserves in months of imports	no. months	6.0	2.3	1.8	3.4	-19.4	-4.1	12.2
Cash surplus/deficit (in total GDP)	percent							

Last update: October 2010



## Country Profile: Food Security Indicators

Country: Myanmar

		1990-92	1995-97	2000-02	2005-07	1990-92 to 1995-97 (%)	1995-97 to 2000-02 (%)	2000-02 to 2005-07 (%)
					<i>annual change</i>			
<b>Poverty (last year available) (%of population)</b>								
National (Poverty headcount) - 2005	percent				32.0			
Rural (Poverty headcount) - 2003	percent				36.0			
Urban (Poverty headcount) - 2005	percent				22.0			
<b>Inequality in Access to Food and to Income</b>								
Gini of income	percent							
Gini of dietary energy consumption - 1995	percent				15.2			
Share of food in total expenditure - 2001	percent				70.4			
Consumer price index (Base=2000)	percent			121.1	356.5			21.6
Consumer food price index (Base=2000)	percent			119.5	365.7			22.4
<b>Literacy rate</b>								
Adult female (% of females aged 15 and above) - 2008	percent				91.9			
Adult male (% of males aged 15 and above) - 2008	percent				94.7			
Adult total (% of people aged 15 and above) - 2008	percent				89.2			

### V. AGRICULTURE INDICATORS

#### Agricultural inputs

Total labour force	1000	20964	23251	25675	27623	2.1	2.0	1.4
Share of agricultural labour force (2) in total labour force	percent	73.1	71.6	70.0	68.4	-0.4	-0.4	-0.5
Share of female in agricultural labour force	percent	47.6	47.6	47.7	48.1	0.0	0.0	0.2

#### Land

Arable land & permanent crops	1000 HA	10055	10134	10578	11308	0.2	0.9	1.3
Share of irrigated in total arable land	percent	10.1	15.4	18.1	19.5	8.5	4.1	2.9

#### Agricultural Production (1) - Major Items \*

1 - Rice, paddy	1000 MT	14005	17429	21682	30019	4.4	4.4	6.5
2 - Indigenous chicken meat	1000 MT	71	110	256	645	8.9	16.9	18.5
3 - Beans, dry	1000 MT	367	885	1441	2392	17.6	9.7	10.1
4 - Vegetables NES, fresh	1000 MT	1917	2397	2850	3117	4.5	3.5	1.8
5 - Sesame seed	1000 MT	198	317	357	501	9.5	2.4	6.8

#### Major Exports (1) (share in Agriculture) \*

1 - Beans, dry	percent	41.2	62.5	59.1	63.4	19.0	4.0	-0.5
2 - Sesame seed	percent	15.1	8.6	1.9	6.9	-0.7	-25.6	24.5
3 - Chick-peas	percent	0.0	0.0	2.0	6.4			21.7
4 - Rice, milled	percent	20.6	9.6	17.2	4.3	-4.6	16.6	-29.4
5 - Maize	percent	1.8	3.1	3.1	3.3	21.6	5.4	-1.0

Last update: October 2010



## Country Profile: Food Security Indicators

Country: Myanmar

		1990-92	1995-97	2000-02	2005-07	1990-92 to 1995-97 (%)	1995-97 to 2000-02 (%)	2000-02 to 2005-07 (%)
<i>annual change</i>								
<b>Major Imports (1) (share in Agriculture) *</b>								
1 - Oil of palm	percent	46.6	27.9	22.7	35.8	11.9	-9.4	21.5
2 - Food preparations NES	percent	5.7	2.1	6.4	9.8	2.3	17.0	21.0
3 - Beverages, non-alcoholic	percent	0.6	6.5	4.8	6.0	70.1	-11.1	16.6
4 - Wheat	percent	0.0	0.1	1.7	3.9		50.7	29.2
5 - Whole milk, evaporated	percent	0.4	4.7	5.2	3.7	70.9	-3.2	5.9
*ranked on the latest 3-year period								
<b>Inputs</b>								
Fertilizer use/Arable land	kg nutr./HA	na	na	1.5	5.6			25.9
Tractors / Arable land	no/1000 HA	1.1	0.8	1.0	0.6	-6.1	3.3	-8.1
<b>Investments in agriculture</b>								
Agricultural support estimate for OECD countries	US\$ billion							
External assistance to agriculture	Const. US\$/agric. worker	na	na	na	na			
Agriculture, value added per worker	Const. 2000US\$							

Last update: October 2010





## Country Profile: Food Security Indicators

Country: Myanmar

		1990-92	1995-97	2000-02	2005-07	1990-92 to 1995-97 (%)	1995-97 to 2000-02 (%)	2000-02 to 2005-07 (%)
<i>annual change</i>								
<b>VI. HEALTH, NUTRITIONAL AND SANITATION INDICATORS</b>								
<b>Child Nutritional Status</b>								
Stunting, less than - 2 s.d - 2003	percent				32.0			
Overweight, more than + 2 s.d - 2003	percent				2.4			
<b>Adult Nutritional Status</b>								
Underweight	percent							
Obesity	percent							
<b>Health and Sanitation</b>								
Life expectancy at birth	years	59	59	60	61	0.0	0.3	0.3
Under-five mortality rate - 2008	per 1000 live births				98			
Infant mortality rate (0-1 year) - 2008	per 1000 live births				71			
Access to safe water - 2008	percent				71.0			
Access to adequate sanitation - 2008	percent				81.0			
Maternal mortality ratio - 2008	per 10 <sup>5</sup> live births				240			

Notes: (1) Crops & livestock products; (2) Includes fishing, forestry & hunting; - =Proportion less than 5% of undernourished; na=data Not Available; ns=Not statistically Significant.

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