

**Save the Children in Myanmar  
European Commission 2007 Food Security Programme for  
Burma/Myanmar**

**Pre-Intervention  
Individual Household Economy  
Survey Results**

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LIVELIHOODS | POLICIES | PROCESSES

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## INTRODUCTION<sup>1</sup>

Save the Children in Myanmar (SCiM) has started a food security programme in four townships in the Dry Zone, funded by the European Commission. The overall objective of the project is to increase food security amongst the poorest households through a comprehensive package addressing the multiple causes of food insecurity and malnutrition.

Since the project's two expected results are improvement in household income and improvement in health and nutrition status of children, SCiM has conducted baseline surveys in household income as well as in nutrition. The Individual Household Economy Analysis (IHEA) methodology has been used to gather baseline household income data. A separate baseline survey concerning nutrition aspects such as anthropometric assessment, dietary diversity and frequency and minimum cost of diet was also conducted. In order to assess project impact, the same methodologies will be used for surveys at the end of the project.

This report presents the findings of the IHEA survey.

## PROJECT DESCRIPTION<sup>2</sup>

**Overall objective:** Increase food security in Myanmar amongst the poorest households through a comprehensive package addressing the multiple causes of food insecurity and malnutrition. The action will link relief, rehabilitation and development in supporting the most vulnerable in protecting and recovering their livelihoods asset, while improving self-reliance and crisis prevention.

**Specific objective:** In three years, increased household income will result in improved food security for the poorest 50% of households and improvements to children's diet in 4 targeted townships (and 320 villages)....

**Result 1:** Household income opportunities: The poorest 50% of households in the targeted townships are able to access sufficient food and afford the minimum basket of food and non-food services.....

**Result 2:** Health nutrition status: Improvements in household food security status are translated into better care and diet for children (breastfeeding, frequency of feeding, diversity of feeding, diet, hygiene practices).....

The range of activities is summarised below.

1. Improvements to **household income opportunities** primarily through:

- Community mobilisation and participative planning through trained and supported community led livelihoods networks in 320 villages; increasing community participation in the various assessments related to livelihoods improvement;
- Development of production and marketing opportunities in the form of small grants for farming implements, livestock, home-based craft production; community forestry management and nursery/cottage garden initiatives; related business skill training and facilitated access to markets;
- Household safety net strengthening and debt alleviation through small-scale conditional cash transfers, primarily through breast feeding support groups;
- Coordination at township and national levels with other food security actors.

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<sup>1</sup> This section is taken from the consultant's scope of work (see Annex 2 for full details).

<sup>2</sup> This section is taken directly from the SCiM project proposal to the EC: "European Commission. 2007 Food Security Programme for Burma/Myanmar, Grant Application Form, Budget line 210201, Reference: EuropeAid/126368/L/ACT/MM."

2. **Maternal and child health nutrition status** improved through changes in behaviour, diet and provision of water and sanitation facilities through:

- Community mobilisation and sensitisation focusing on trained and supported Village Health Teams in 320 villages; increasing community participation in the various assessments related to livelihoods improvement:
- Health and nutrition practice and care activities, namely: VHT leading health and nutrition behaviour change promotion (frequency and diversity of diet, breastfeeding, hand-washing, use of ORS +zinc); improvements to micronutrient coverage;
- Hygiene promotion, including construction, use and maintenance of covered latrines; water testing; good hygiene practice messaging;
- Coordination at township and national levels with other health, nutrition and food security actors.

Target group - The poorest most vulnerable households in 4 townships (320 villages) (especially landless labourers and women headed households) with children (under 5 years) and women (pregnant and lactating).

### **PROJECT AREA DESCRIPTION<sup>3</sup>**

The project will be implemented in four townships of Magway Division: Magway, Minbu, Pakokku and Pwint Phyu. Magway Division is located in the semi-arid central plains of Myanmar, known as the Dry Zone. This is one of the most densely populated areas of the country, where landlessness is common, and where WFP distributes food assistance. It is characterized by scarcity of water, frequent droughts, thin vegetative cover and severe soil erosion. 15-30 inches of rain fall per year during the six-month monsoon season, often causing flash floods and gully erosion. The principal product of Magway Division is petroleum and the area produces most of the oil and natural gas of Myanmar. Agriculture is also important and the area is particularly known for oil crop and pulse production. Magway Division was not directly affected by Cyclone Nargis, which hit coastal areas of Myanmar in May 2008.

Poor households (about 50% of the population, who are mostly landless labourers) are vulnerable to shocks that affect the demand for and price of labour, their ability to provide their labour, and the prices of essential food and non-food items that they buy. Migration out of the area in search of employment is common.

Five main livelihood zones have been identified within Magway, Minbu, Pakokku and Pwint Phyu Townships:

- Rainfed Plain
- Rainfed Hilly
- Rainfed Riverside
- Irrigated Plain
- Urban

In addition to these main zones, some sub-zones or mixed zones have been identified

- Rainfed Plain Toddy
- Mixed Rainfed Plain + Rainfed Hilly
- Mixed Rainfed Plain + Rainfed Riverside
- Mixed Rainfed Plain + Irrigated Plain

This survey focused on project villages in the three largest rural livelihood zones: Rainfed Plain, Rainfed Riverside and Irrigated Plain.

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<sup>3</sup> This section is taken from the project proposal and reports from two previous HEA assessments in Minbu and Pakokku Townships.

The **Rainfed Plain Livelihood Zone** has infertile, sandy soils and is characterised by rainfed food and cash crop production. Rice, numerous types of pulses (including chickpeas, green grams, pigeon peas and mung beans) and sunflower crops are grown. The main livestock kept are goats, pigs and poultry, plus some cattle for ploughing and for sale. Labourers find casual work locally in rainfed fields and nearby on irrigated fields and in towns. Hazards include drought, flood, chickpea pests (kalabei) and land confiscation related to oil field operations.

The **Rainfed Riverside Livelihood Zone** has medium fertile soils due to flood deposits, but the river banks suffer from erosion. Households in this area have access to small amounts of land for winter cash crops on river islands, often distributed on a lottery system. The area is not suitable for paddy rice production. The main crops are groundnuts, chickpeas, chilli, onion, sesame, cotton, and green gram. Fishing is a source of food and cash income. The main livestock kept are goats, pigs and poultry, plus some cattle for ploughing and for sale. Labourers find casual work locally in rainfed fields and nearby on irrigated fields, in towns and in the oilfields. Hazards include landslides along the river bank, conflict related to land, and drought in upland areas.

The **Irrigated Plain Livelihood Zone** is a medium fertile area, with water available from irrigation channels, river streams and rainfall. It is an area of skewed land ownership, with mostly mid to large landholdings dedicated to cash crops. The main crops are paddy rice, green gram, chickpeas, sesame, onion and tomato. Fishing is also possible in the irrigation canals. Livestock holdings include poultry, pigs and cattle. Most casual work is found locally in agriculture and in canal maintenance. Hazards include drought, floods, erosion of canals and streams, and land confiscation for cash crops and oil field activity. Water for crop irrigation is controlled by the government and is not available in every location in every year.

## **IHEA – INDIVIDUAL HOUSEHOLD ECONOMY ANALYSIS<sup>4</sup>**

In household economy, the main objective is to estimate, as accurately as possible, total food consumption (by source), total cash income (by source) and total expenditure (by category of expenditure) for households grouped into different levels of wealth. Information is also collected on levels of asset holding, with a focus on productive assets (e.g. livestock or agricultural equipment) rather than luxury items (e.g. televisions). In an *individual* household economy assessment, these estimates are made for individual households. This means that IHEA is very similar to a conventional household income and expenditure survey. The main difference is in the level of training provided to the enumerators and the level of cross-checking undertaken in the field (both of which are more intense for IHEA than is the case with many household income and expenditure surveys). The result, hopefully, is a more accurate set of results.

In HEA, an effort is made to identify all possible sources of food and cash income, and to estimate amounts of food and cash obtained from each. The same applies to the analysis of expenditure and the assessment of asset holdings. Items investigated in the current assessment are listed in the table below. All of these data were collected during the course of an exhaustive interview at household level.

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<sup>4</sup> This section is taken from “Livelihood Assistance to the Poorest Tsunami Affected Households in Sri Lanka, Pre-Intervention Individual Household Economy Survey Results, Final Report: 22 September 2008”, by Mark Lawrence (FEG Consulting) for Save the Children in Sri Lanka.

Sources of Food, Cash and Expenditure & Types of Asset Assessed in the Current Study			
Sources of Food	Sources of Cash	Types of Expenditure	Types of Asset
Crop production (e.g. rice, pulses) Livestock production (e.g. milk) Fish production Payments in kind Purchase Food aid Gifts Wild foods (e.g. wild vegetables)	Crop Sales (e.g. rice, pulses, vegetables) Livestock sales (e.g. hens, goats) Livestock product sales (e.g. eggs) Fish sales Wild food sales Employment (e.g. casual, formal, migrant) Self-employment (e.g. firewood collection) Remittances Petty trade Gifts Aid Loans/pawning Asset sales	Staple food Non-staple food (e.g. fish, meat, pulses, oil, sugar, vegetables, etc.) Condiments (e.g. salt, spices) Beverages (e.g. tea, coffee, etc.) Prepared foods Household items (soap, washing powder, etc.) Health (separately for adults & children) Education (books, stationary, uniforms, fees, etc.) Transport Clothes (separately for adults & children) Inputs Debt repayment Tobacco/alcohol Investment/savings	Land holding (rainfed irrigated & island) Trees (palm, mango) Livestock holdings (buffalo, cattle, pigs, goats, poultry) Fishing equipment (boats, nets, etc.) Bicycles Gold

Because of the emphasis on children in the project, extra care was taken to assess the types and amounts of expenditure on children. An effort was also made to identify the age and gender of the income-earner for each type of employment and self-employment.

In HEA, there are two main types of cross-check:

**Checks on total food consumption:** In most settings, and provided there is not an outright food security emergency, it is unlikely that total food intake will be very much below the average minimum requirement for long-term survival, usually taken as 2,100 kcals per person per day (pppd). If the results from an individual household interview suggest a total consumption very much below 2,100 kcals pppd, then this signals the need for the interviewer to continue probing for additional sources of food, until the interviewer is satisfied that all possible sources have been investigated<sup>5</sup>.

**Checks on total income and expenditure:** If loans are included as a source of income, it is self-evident that total income and expenditure must be equal. If they are not, then this

<sup>5</sup> Because household composition affects food energy needs, an individual target figure was calculated for every household in the current survey and was used to check that household's results. See Annex 3 for more information on this.

again signals the need for the interviewer to continue probing for additional sources of cash or items of expenditure, until a rough balance is achieved between the two.

The key to these cross-checks is that interviewers should keep a running total of food, income and expenditure as they undertake each interview, so that they can assess progress towards accounting for all sources of food, income and expenditure during the course of the interview.

The timeframe for household economy assessment is always a full 12-month period, so as to fully capture seasonal variations in food, income and expenditure. The year for the current baseline assessment was May/June 2008 to April/May 2009. The 12-month timeframe can create problems in terms of participants accurately recalling, for example, amounts of work obtained at different times of year, or average prices for the year as a whole. Again, careful probing and cross-checking by the interviewer is the key to obtaining accurate data.

## **STUDY DESIGN**

Two types of survey are being conducted at the beginning and end of the project: a nutrition survey to assess changes in nutritional status and associated factors (e.g. infant feeding practices, dietary diversity scores, etc.) and an individual household economy assessment (IHEA) to measure the effects of the project on household food and cash income and on patterns of expenditure

The IHEA baseline survey was carried out in July 2009. Data were collected for 288 households. Ideally a control group would have been included in the study to measure how food and cash income would have changed in the absence of any intervention (to take account of, for example, any effects of inflation or continued general economic recovery from the cyclone). However, given the political situation in Myanmar, a control group in non-project villages was not possible. As a result, the technique of 'scenario analysis' will be used in the post-intervention study to assess the effects of price and other general economic trends and to separate these from the effects of the interventions themselves. This means it is important to monitor the prices of the main things that households purchase as well as the main things from which they generate cash income (including casual labour).

Since the IHEA assessment looks at food and cash income over a 12-month period, the two periods to be assessed are a) the 12 months before intervention (May/June 2008 to April/May 2009, with small differences by livelihood zone) and b) the 2<sup>nd</sup> year of intervention (May/June 2010 to April/May 2011). The most important analyses will be undertaken at the end of the study, in 2011. These will compare changes over time.

### **Selection of Villages and Households**

Step 1: The team in each township produced a spreadsheet for all the villages in their township, including the following information:

- village tract name
- village name
- population (number of households and number of people)
- whether the village is to be included in the EC project and the year of inclusion (2009 or 2010)
- livelihood zone (rainfed plain, irrigated plain, rainfed hilly, rainfed riverside, or a mixed combination of these)
- accessibility issues (whether the village is physically accessible during the rainy season)

- participation issues (whether the village authorities have been cooperative or difficult to work with in the past)

**Step 2:** This list was sorted and, since a control group was not possible for this survey, villages not selected for the project were removed from the original village lists. It was decided to sample from villages where the project will start activities in 2009 (so that there is enough time to produce an impact for the 2011 evaluation) and the list was sorted on this basis.

**Step 3:** A cross-tabulation of villages and population numbers by township and livelihood zone was produced, as illustrated below.

	A	B	C	D	E	F	G	H
1	<b>SCUK Project Villages in 4 Townships</b>							
2								
3								
4	<b>NUMBER OF VILLAGES BY TOWNSHIP AND LZ (including inaccessible villages)</b>							
5	<b>Township</b>	<b>Rainfed plain</b>	<b>Irrigated plain</b>	<b>Rainfed riverside</b>	<b>Rainfed hilly</b>	<b>Mixed LZs*</b>	<b>Total</b>	
6	Magway	22	0	2	0	8	32	
7	Pakokku	22	0	5	0	13	40	
8	Minbu (Sagu)	4	26	10	0	0	40	
9	Pwint Phyu	10	27	1	4	5	47	
10	<b>TOTAL</b>	<b>58</b>	<b>53</b>	<b>18</b>	<b>4</b>	<b>26</b>	<b>159</b>	
11								
12								
13	<b>POPULATION BY TOWNSHIP AND LZ (including inaccessible villages)</b>							
14	<b>Township</b>	<b>Rainfed plain</b>	<b>Irrigated plain</b>	<b>Rainfed riverside</b>	<b>Rainfed hilly</b>	<b>Mixed LZs*</b>	<b>Total</b>	
15	Magway	22749	0	2086	0	6872	31707	
16	Pakokku	27998	0	4166	0	9402	41566	
17	Minbu (Sagu)	2264	15288	8127	0	0	25679	
18	Pwint Phyu	12601	35713	1048	7391	4838	61591	
19	<b>TOTAL</b>	<b>65612</b>	<b>51001</b>	<b>15427</b>	<b>7391</b>	<b>21112</b>	<b>160543</b>	
20								
21	* Rainfed plain + rainfed hilly; rainfed plain + rainfed riverside; rainfed plain + irrigated plain; urban; toddy rainfed plain							
22								

**Step 4:** Two different sampling schemes were discussed. Scheme 1 sampled directly in proportion to population without any weighting by township or livelihood zone.

Initially, the total number of interviews was set to 200, which is the absolute minimum for a survey of this type. The evaluation design is a longitudinal one and the households that are selected and interviewed for the baseline will be interviewed again in 2011. The team was very worried that a large number of households may not be resident in the same villages and available for interview in 2011 due to out-migration. To compensate for this, the total sample was increased to 288, a number that was deemed feasible and affordable by the project. The total sample is a multiple of 12, based on the fact that there will be 3 interviewers in each team and they will be able to conduct 6 household interviews per day. The aim is to spend two days in each village.

Scheme 1 was not selected because it did not produce a large enough sample size to be able to distinguish between townships and livelihood zones. Furthermore, each township field team was the same size (3 interviewers, 2 data entry staff and 1 supervisor), so Scheme 1 would have put an enormous workload on Pwint Phyu, the township with the largest population, in comparison with Minbu, the township with the smallest population.

In Scheme 2, weights were added by township and livelihood zone (see table below in yellow). It was decided to exclude the rainfed hilly zone, the rainfed plain toddy zone and the mixed livelihood zones (because of the small populations in these zones) from the survey (so these were given zero weights). The township weights aimed to produce an equal number of sampled villages and households per township. The livelihood zone weights aimed to produce roughly similar numbers of sampled villages and households per livelihood zone (with a slightly larger number for the largest livelihood zone, the rainfed plain).

	A	B	C	D	E	F	G	H
45								
46	<b>SCHEME 2: Number of Villages to Sample</b>							
47	<b>Weight</b>	0.6	1.5	2.5	0	0		
48	<b>Township</b>	<b>Rainfed plain</b>	<b>Irrigated plain</b>	<b>Rainfed riverside</b>	<b>Rainfed hilly</b>	<b>Mixed LZs*</b>	<b>Total</b>	<b>weight</b>
49	Magway	4	0	2	0	0	6	2
50	Pakokku	4	0	2	0	0	6	1.4
51	Minbu (Sagu)	0	3	3	0	0	6	0.9
52	Pwint Phyu	1	5	0	0	0	6	0.6
53	<b>TOTAL</b>	9	8	7	0	0	24	
54					correction factor =		100%	
55	<b>Number of Households to Sample</b>							
56	<b>Township</b>	<b>Rainfed plain</b>	<b>Irrigated plain</b>	<b>Rainfed riverside</b>	<b>Rainfed hilly</b>	<b>Mixed LZs*</b>	<b>Total</b>	
57	Magway	48	0	24	0	0	72	
58	Pakokku	48	0	24	0	0	72	
59	Minbu (Sagu)	0	36	36	0	0	72	
60	Pwint Phyu	12	60	0	0	0	72	
61	<b>TOTAL</b>	108	96	84	0	0	288	
62								
63								

**Step 5:** A random number table was used to select villages from the relevant livelihood zones and townships from the village list. If the sampled village was noted as inaccessible in the rainy season or uncooperative, it was skipped and the next random number was selected.

Household lists were rapidly produced for all of the selected villages, including name of household head, land holding, other occupation (e.g. business) and the number of children under 5 years of age. An analysis of these lists led to the exclusion of four of the selected villages on the basis that they did not have enough households that were both 'poor' (landless and without a significant business) and with a child under 5. Consequently, four additional villages were selected using the same process described above.

The aim of the sampling scheme was to give every household an equal chance of being selected (within a given combination of township/livelihood zone), which is why we gave larger villages a bigger chance of selection (according to their population size), but kept the sample size per village the same.

**Step 6:** As mentioned above, the township teams rapidly produced household lists for all the selected villages. It was decided that landlessness, combined with the absence of a significant business or more than two goats or sheep, would be a good proxy for the project target group: households in the bottom 50% of the population. Households that met these criteria were identified from the household lists and, of these, 12 were then randomly sampled.

In sum, households that met the 'poor' criteria were randomly sampled from project villages within the three largest livelihood zones in the four townships. In order to facilitate statistical comparisons between townships and livelihood zones, a weighted sampling scheme was used. This had the effect of giving households living in the less populated townships and livelihood zones a greater chance of being selected for study.

## Statistical Analysis

One of the principles of statistical analysis is that the sample should be representative of the population from which it has been drawn. The best way of achieving this is to select the sample at random from the whole population. Provided the sample has been selected at random, then statistical analysis allows us to answer two related types of question, a) how reproducible are the results (i.e. if we were to repeat the survey, how confident can we be of obtaining the same result), and b) what is the likelihood that a difference between two sets of results is real, as

opposed to having arisen by chance? The sorts of differences we will be looking for in this assessment are differences over time in total cash income, in expenditure on children, etc.

The villages ***in the sample*** were selected at random from all villages included in the project, so the data can be described as coming from a random sample of project villages in the main rural three livelihood zones of the four townships. However, villages included ***in the project*** were not selected at random from all villages in the four townships/livelihood zones. This is an important qualification; the results presented in this report are representative of project villages – but not necessarily all villages – in each township/livelihood zone.

The second issue with respect to sampling relates to the selection of households. Households were randomly sampled for the IHEA survey from those that are landless, do not have a significant business, and have children under 5 years of age. The assessment results should therefore be representative of this type of household in project villages.

The analysis presented here explores differences in household economy within the sampled group. The purpose of this type of analysis is to better describe the sample and to better understand how different types of household might benefit from the intervention. There are two options for this type of analysis. We can look at:

**Differences between villages**, e.g. differences from one township to another (Minbu vs Pwint Phyu, for example), or differences between patterns of livelihood (Rainfed Plain vs Irrigated Plain, for example)

**Differences between households within villages**. We might, for example, look at differences between male and female-headed households, at households with a low vs a high dependency ratio, or at households at different levels of cash income (within the ‘poor’ category).

The first section below explores differences by township and livelihood zone. The following section looks at differences between households within villages. Understanding the differences between male- and female-headed households was not a pre-survey priority for SCiM. Information was gathered on the household composition (the ages and sexes of all household members) of each household in the survey. Only 3% of households did not have an adult male between 18-60 years. This does not mean that these households were the only female-headed households in the sample (for example, the titular head of the household might be female, but if there is a male adult it has been included in the male-headed group for analysis). The sample has not resulted in enough interviews in households without an adult male to be able to make separate statements about this group. Also, very few households had very high dependency ratios. An analysis has been conducted by level of cash income.

The sample was split into 4 groups according to the level of cash income (Kyat per person per month, pppm<sup>6</sup>). The objective of this analysis was to see how patterns of expenditure differed from one group to another, and, therefore, how patterns of expenditure might change as income increases. A key question was: how much of any increase in income is likely to go towards expenditure on children?

Initial data entry, data screening and coding were performed using a spreadsheet. The data were then transferred to a standard statistical package (Stata 8) for detailed statistical analysis. Relatively few of the variables examined were normally distributed, and log and square root transformations were calculated to generate normally distributed variables where this was possible. For the resulting normally distributed variables, differences between groups were investigated using multiple linear regression analysis for cluster survey data, with each of the

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<sup>6</sup> This is not kyat per ‘earning’ person per month, but kyat per household member (including children) per month

explanatory variables (township, livelihood zone, etc.) fitted as a series of categorical variables. For these analyses the village was defined as the primary sampling unit (PSU) and each household's result was weighted to reflect its chances of being selected according to the sample scheme set out in the previous section. Multiple regression analysis was used to investigate whether crude (or unadjusted) differences between townships/livelihood zones could be accounted for by differences in the other factor (i.e. whether differences between townships could be explained by differences in livelihood zone, or vice versa). Differences have only been reported as significant where they persisted after adjustment for the other possibly confounding factor.

Where a simple transformation failed to generate a normally distributed variable, a categorical variable was calculated (e.g. expenditure on debt repayment > 200 Kyat pppm, 0=no, 1=yes). In this case logistic regression analysis was carried out to perform the same analyses as described above for the normally distributed variables.

Because the analysis involved a large number of variables and many comparisons between groups, a large number of individual statistical tests were performed (over 300). The conventional level for accepting a result as statistically significant is  $p < 0.05$ , which means there is a 1 in 20 chance that the result has arisen by chance as opposed to being 'real'. If we accepted this level of significance for the current study, then we might expect 15 results to arise by chance ( $1/20^{\text{th}}$  of the 300 tests performed). Clearly, this would be misleading. To avoid this problem, a more rigorous threshold was applied, and a result has only been accepted as statistically significant at the  $p < 0.01$  level, i.e. a 1 in 100 chance that the result has arisen by chance.

## IHEA DATA: WHOLE SAMPLE

Overall, there are very few statistically significant differences between the sampled households in different townships and livelihood zones in terms of asset holdings, sources of food and income or patterns of expenditure. These households are mostly landless casual labourers who obtain almost all of their food from the market and most of their income from agricultural labour. The most important results, therefore, are presented in this section for the whole sample.

### Basic Data

Basic data on the whole sample of households are summarised in Table 1.<sup>7</sup> Total food consumption averaged 83% of 2100 kcals per person per day (or 93% of the adjusted kcal target) and total expenditure averaged 101% of total income. This indicates that the quality of interviews was good. The breakdown of food, cash income and expenditure will be discussed in separate sections below. The sampled households own few assets: 99% are landless, 14% own pigs and 15% own a bicycle.

<b>Table 1: Basic Data for Whole Sample</b>	<b>Mean</b>	<b>Confidence Interval (95%)</b>
HH Size	5.0	4.6 - 5.3
<b>Food Consumption (%2100 kcals pppd)</b>		
Total	83%	80% - 85%
Total as a % of target	93%	89% - 97%
Own production	0.5%	0% - 1%
Purchase	81%	78% - 84%
Gifts	1%	0% - 2%
<b>Cash Income (per person per month)</b>		
Total	12,405	11,551 - 13,260
Own production	873	576 - 1171
Employment	7,315	6,325 - 8,305
Self-employment	1,540	713 - 2,367
Gifts	294	157 - 431
Loans/asset sales	1,990	1,596 - 2,384
Other	393	172 - 615
<b>Cash Expenditure (per person per month)</b>		
Total	12,447	11,584 - 13,310
Total expenditure as a % total income	101%	100% - 101%
Food	7,749	7,274 - 8,224
Sanitation & adult health	851	554 - 1,147
Children	673	534 - 812
Inputs	392	207 - 578
Debt repayment	327	158 - 495
Other	2,455	2,113 - 2,798
<b>DEBT</b>		
Debt at end of year	77,050	56,403 - 97,697
<b>ASSETS</b>		
% HHs owning land	1%	0% - 3%
Chickens per HH	0.9	0.5 - 1.3
% HHs owning a pig	14%	9% - 18%
% HHs owning a bicycle	15%	6% - 24%
<b>SAMPLE SIZE</b>		
N	280	

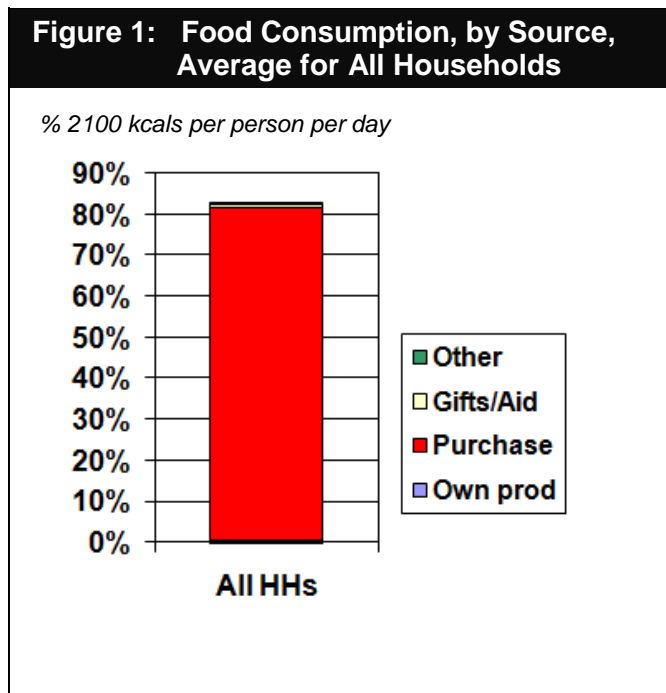
<sup>7</sup> Means and confidence intervals are adjusted (weighted) to take account of the weighting in the sampling scheme.

## Food Consumption

The average picture for food consumption for all sampled households is presented in Figure 1. Total food energy intake averaged 1,743 kcals per person per day (pppd) in the baseline year, or 83% of the nominal minimum requirement of 2,100 kcals pppd.

This result is slightly misleading because minimum food energy needs vary according to household composition and often is lower than 2100 kcals pppd in households with children under 5 years of age. Adjusting the minimum requirement for household composition (see Annex 3) and repeating the calculations indicates that 1,743 kcals pppd represents 93% of the revised requirement. This is a reasonable figure for a poor population such as this.

Purchase is by far the most important source of food, supplemented by very small amounts of own production and gifts of food from within the community.

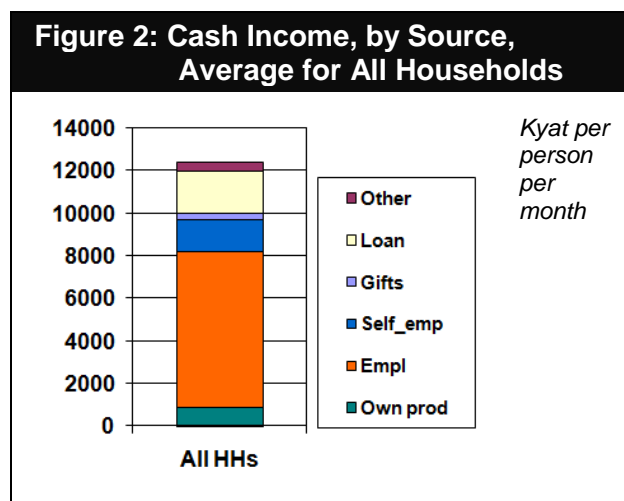


## Cash Income

Figure 2 presents total cash income and the amount of income from different sources for the whole sample. The average total cash income per person per month for the period April/May 2008 to March/April 2009 was 12,404 Kyat.<sup>8</sup>

The most important source of cash income was casual employment ('Empl' in the graphic). This mainly included various types of agricultural labour: land preparation, planting, weeding, applying pesticide, harvesting and threshing. Other less important sources of employment income included construction labour, herding, migration and remittances.

The category self-employment ('Self\_emp') includes cash income from small shops or businesses, petty trade, prepared food sales, handicrafts, firewood sales and toddy sales. Own production includes crop sales and income from fishing. Gifts were a minor source of income.



<sup>8</sup> The unofficial exchange rate at the time of the survey was about USD \$1 = 1100 Kyat.

For each type of employment and self-employment, the teams gathered information on who was doing the work: men, women, both (men and women) or children. The results are summarised in Figure 3.<sup>9</sup> Just over half of employment and self-employment income was generated by men and about a fifth by women. The inclusion of the category 'both' has made the results less clear cut than is ideal. The percentage of income reported as generated by children was small, at about 2%. 3% of the sampled households were female-headed (defined as not having an adult male aged 18-60 years present during the baseline year).

Loans, pawning and sale of assets were important sources of cash income (Figure 2). Beneficiary households reported an average level of debt at the end of the baseline year of 77,170 Kyat per household (including any interest owed at that time), equivalent on average to 10% of average annual cash income. Within this average figure, 42% of beneficiary households reported no debt at all, while 5% of beneficiary households had debt of 275,000 Kyat or more as of March/April 2009, equivalent to almost 40% of annual cash income.

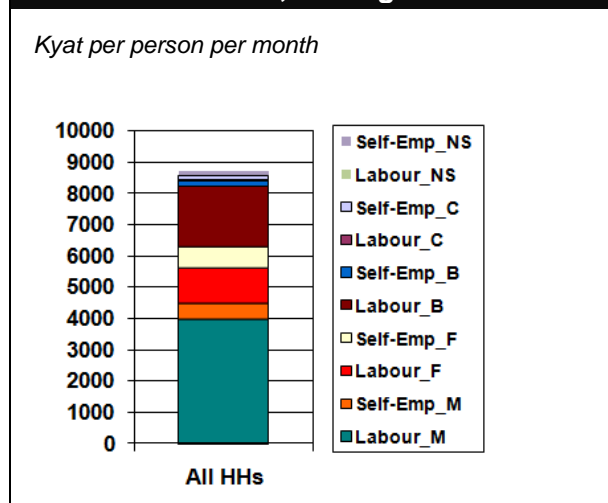
### Expenditure

Expenditure on food is 62% of total expenditure for the sampled households (Figure 4). A more detailed breakdown of food expenditure is given in Figure 5 below. Just under half of food expenditure goes towards staple food purchase (rice), with the balance going towards non-staple foods including oil, fruit and vegetables, animal products (mainly meat and fish, but also some eggs), and pulses. Purchase of sugar and milk was negligible.

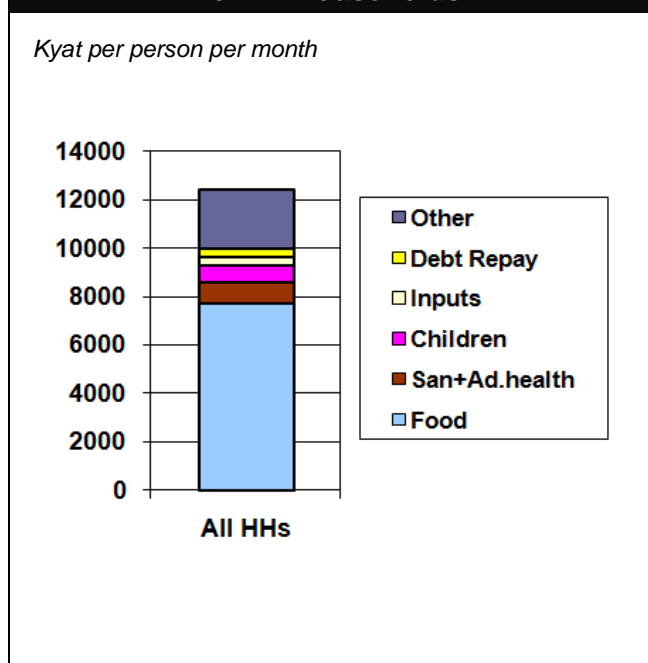
Expenditure on children (excluding children's food) amounted to 5% of total household expenditure in the baseline year. The breakdown is illustrated in Figure 6 and includes expenditure on:

- Child health: medicine for children
- Education: fees, stationary, uniforms, shoes and transport
- Clothes for children

**Figure 3: Cash Income from Employment and Self-employment by Gender, Average for All HHs**



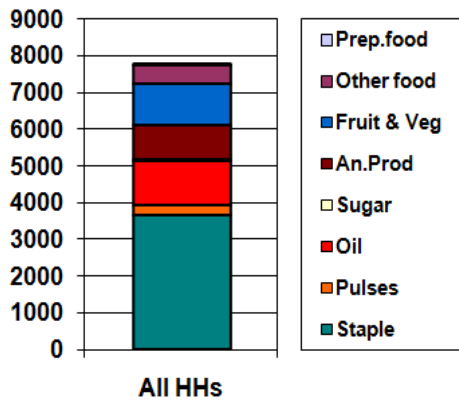
**Figure 4: Expenditure, by Type, Average for All Households**



<sup>9</sup> M = male, F = female, B = both, C = children, NS = not specified.

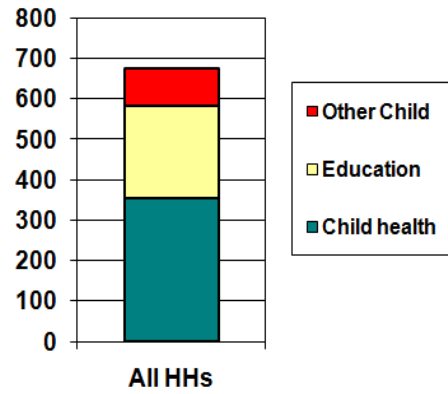
**Figure 5: Expenditure on Food, by Type, Average for All Households**

*Kyat per person per month*



**Figure 6: Expenditure on Children, by Type, Average for All Households**

*Kyat per person per month*



## IHEA DATA: COMPARISON OF TOWNSHIPS

Overall, there are very few statistically significant differences between the sampled poor households in different townships in terms of asset holdings, sources of food and income or patterns of expenditure. These households are mostly landless casual labourers who obtain almost all of their food from the market and most of their income from agricultural labour.

### Basic Data

Table 2 presents the basic data by township. Most of the differences between townships are not statistically significant at the  $p < 0.01$  level, as indicated by 'ns' in the column on the right. Those that are statistically significant include debt at the end of the baseline year (which is much lower in Minbu than in the other townships), pig ownership (which is higher in Pwint Phyu township) and bicycle ownership (which is higher in Minbu and Pwint Phyu townships).

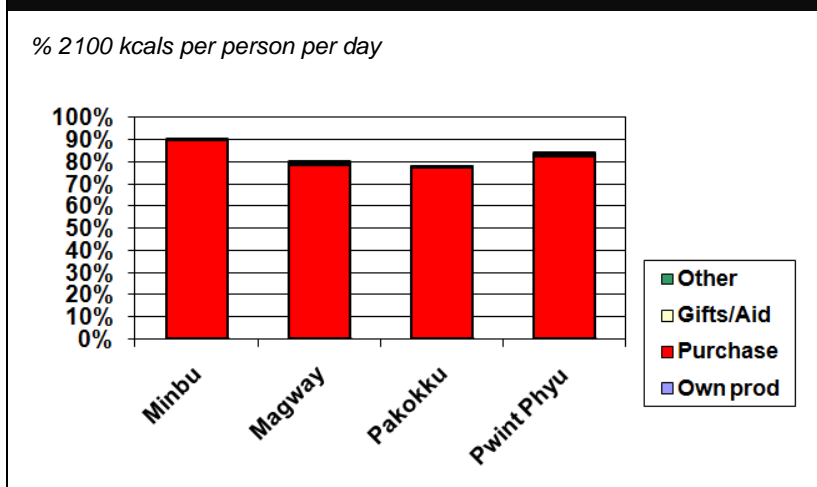
<b>Table 2: Basic Data by Township</b>					<b>Stat.</b>
<b>Mean (95% confidence interval)</b>					<b>Sig.</b>
	Minbu	Magway	Pakokku	Pwint Phyu	
HH Size	4.7 (4.3 - 5.1)	4.6 (4.3 - 5.0)	5.6 (4.7 - 6.4)	4.8 (4.3 - 5.3)	Ns
<b>Food Consumption (%2100 kcals pppd)</b>					
Total	90% (84% - 96%)	80% (77% - 83%)	77% (72% - 82%)	84% (81% - 87%)	Ns
<b>Cash Income (per person per month)</b>					
Total	14,097 (12,478 - 15,716)	12,955 (10,864 - 15,046)	12,017 (9,730 - 14,304)	11,682 (10,985 - 12,379)	Ns
<b>Cash Expenditure (per person per month)</b>					
Expenditure as % of income	100% (98 - 103%)	101% (101% - 102%)	100% (99% - 101%)	101% (100% - 101%)	ns
<b>Debt</b>					
Debt at end of Year	10,210 (0 - 22,090)	111,058 (84,861 - 137,255)	58,437 (18,129 - 98,745)	103,005 (91,585 - 114,426)	$p < 0.01$
<b>Assets</b>					
% HHs owning Land	0% (0% - 0%)	0% (0% - 0%)	1% (0% - 3%)	2% (0% - 7%)	ns
Chickens per HH	1.1 (0.3 - 1.8)	1.4 (0.1 - 2.8)	0.6 (0.1 - 1.1)	0.7 (0.2 - 1.3)	ns
% HHs owning a pig	7% (2% - 12%)	7% (0% - 14%)	9% (3% - 15%)	23% (16% - 29%)	$p < 0.01$
% HHs owning a bicycle	30% (12% - 47%)	3% (0% - 7%)	1% (0% - 4%)	23% (4% - 42%)	$p < 0.01$
<b>Sample size</b>					
N	71	69	70	70	

## Food Consumption

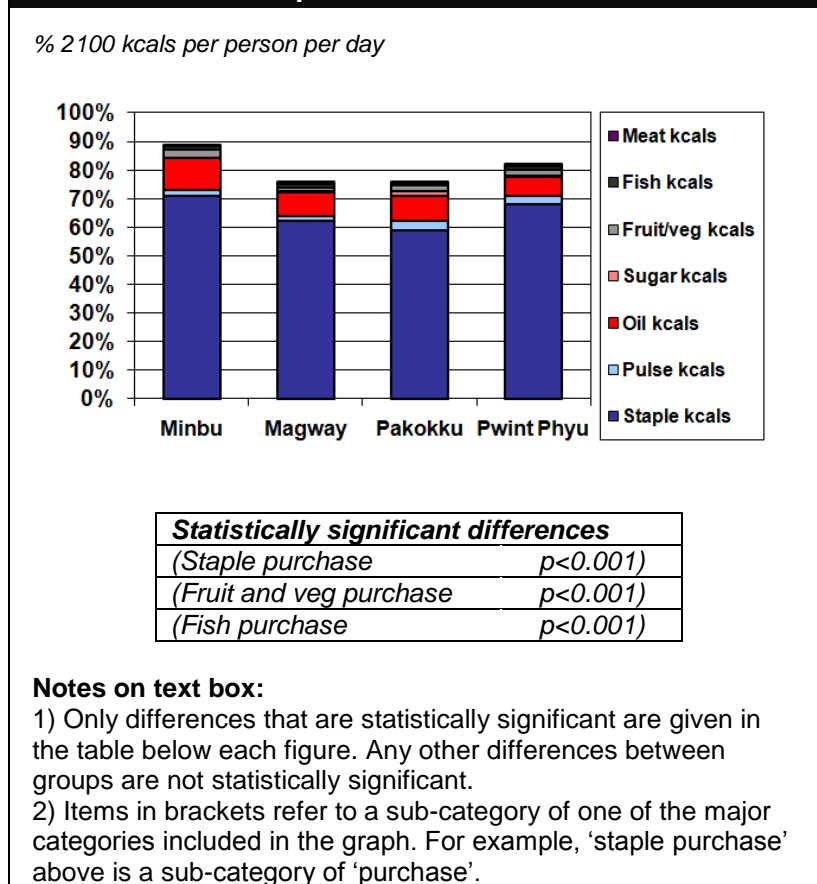
There are no statistically significant differences in total food energy intake between sampled households by township (Figure 7). There is little difference between sampled households in different townships in the amount of food energy obtained from different food sources (own production, purchase, etc).

Although the difference is not significant, there is a tendency for total food intake to be higher in Minbu than in other townships (Figure 7). This suggestion is supported by the finding of significantly higher purchase of staple, fruit and vegetables and fish in Minbu compared to other townships (Figure 8).

**Figure 7: Food Consumption, by Source, by Township**



**Figure 8: Food Consumption, by Type of Food, by Township**

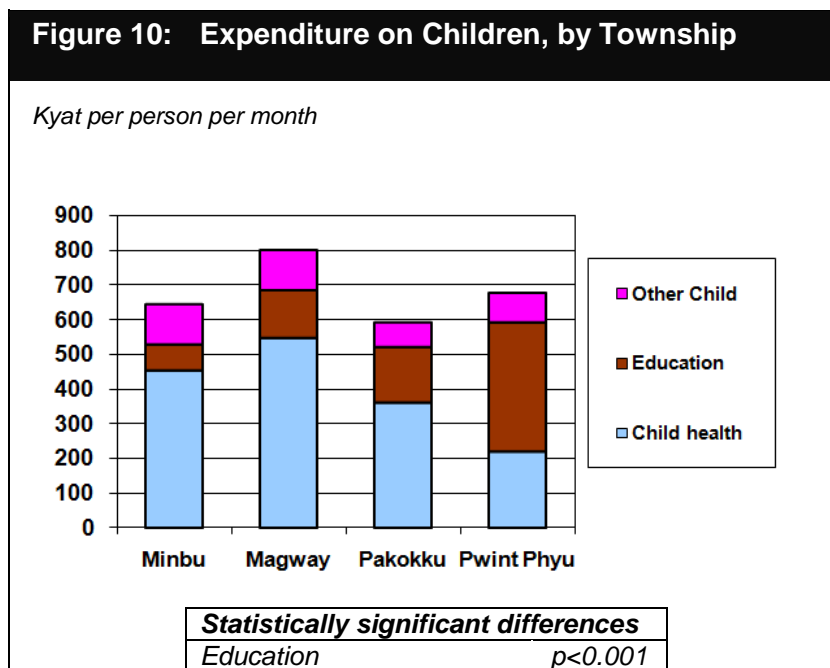
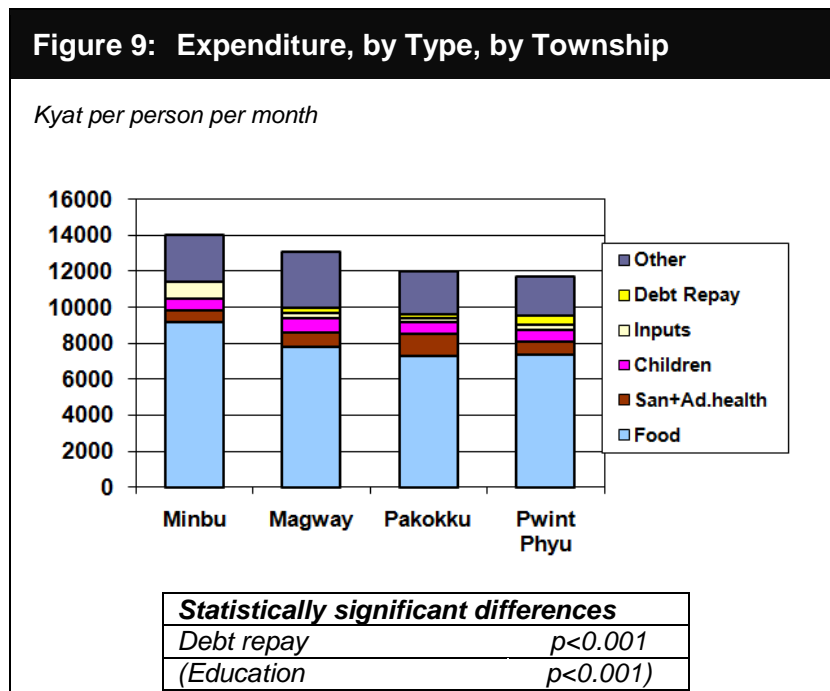


## Cash Income

There are no statistically significant differences between sampled households by township in either total cash income or the amount of income from different sources.

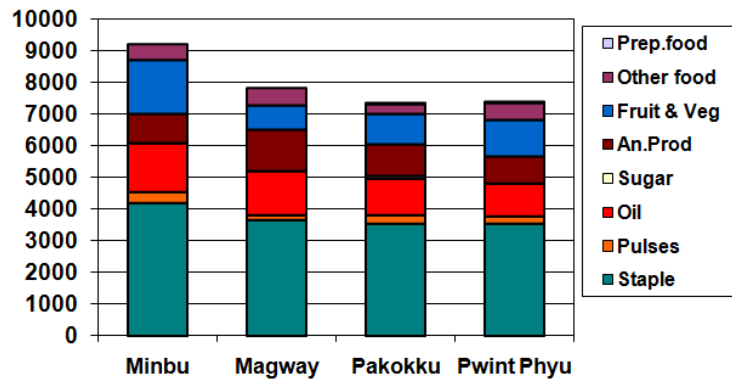
## Expenditure

A breakdown of expenditure by township is shown in Figure 9. There is no statistically significant difference in total expenditure between sampled households by township. The only category with a statistically significant difference within total expenditure by township is debt repayment. A few sub-categories have statistically significant differences by township: education (a sub-category within 'Children' in Figure 9), and fruit/veg, meat and sugar purchase (sub-categories within 'Food' in Figure 9). These are illustrated in Figures 10 and 11.



**Figure 11: Expenditure on Food, by Type, Average for All Households**

*Kyat per person per month*



**Statistically significant differences**

*Fruit and veg purchase*  $p < 0.001$

*Meat purchase*  $p < 0.01$

## IHEA DATA: COMPARISON OF LIVELIHOOD ZONES

### Basic data

Table 3 presents the basic data by livelihood zone. Most of the differences between livelihood zones are not statistically significant. This does not mean that the three livelihood zones are in fact one livelihood zone because households in the other wealth groups (the middle or better off) may look quite different across the three livelihood zones, with different crops, food and income sources and production systems. The only statistically significant ( $p < 0.01$ ) difference is bicycle ownership, which is much less common in the Rainfed Plain livelihood zone than in the other two livelihood zones.

<b>Table 3: Basic Data by Livelihood Zone</b>				<b>Stat.sig</b>
	<b>Irrigated plain</b>	<b>Rainfed plain</b>	<b>Riverside</b>	
<b>Mean (95% confidence interval)</b>				
HH size	5.0 (4.7-5.3)	5.0 (4.3-5.6)	4.8 (4.5-5.1)	ns
<b>Food Consumption (%2100 kcals pppd)</b>				
Total	84% (81-87%)	80% (76-85%)	89% (80-98%)	ns
<b>Cash Income (per person per month)</b>				
Total	12032 (11039-13026)	12370 (11026-13714)	13850 (11869-15832)	ns
<b>Cash Expenditure (per person per month)</b>				
Expenditure as % of income	100% (100-101%)	101% (100-101%)	100% (97-104%)	ns
<b>Debt</b>				
Debt at end of year	73941 (47526-100356)	90282 (61318-119246)	24460 (0-55011)	ns
<b>Assets</b>				
% HHs owning land	2% (0-7%)	0	2% (0-7%)	ns
Chickens per HH	1 (0.5-1.5)	0.5 (0-1)	1 (0-2%)	ns
% HHs owning a pig	20% (12-28%)	10% (5-15%)	11% (5-16%)	ns
% HHs owning a bicycle	29% (20-39%)	1% (0-2%)	35% (14-55%)	$p < 0.01$
<b>Sample size</b>				
N	106	106	69	

### Food Consumption

There are no statistically significant differences in total food energy intake or in the amount of food energy obtained from different food sources by livelihood zone.

### Cash Income

There are no significant differences between sampled households by livelihood zone in either total cash income or the amount of income from different sources.

## **Expenditure**

There is no statistically significant difference in total expenditure or in its breakdown between sampled households by livelihood zone.

## IHEA DATA – ANALYSIS BY LEVEL OF CASH INCOME

### Basic Data

For these analyses, the beneficiary sample has been divided into 4 roughly equally sized groups, based upon the level of cash income per person<sup>10</sup> (Table 4). There is no significant difference in asset ownership (in terms of land, livestock or bicycles) by level of cash income. There is a tendency towards a higher household size in the poorest group, but this is not unexpected given that the groups are defined on the basis of income per person.

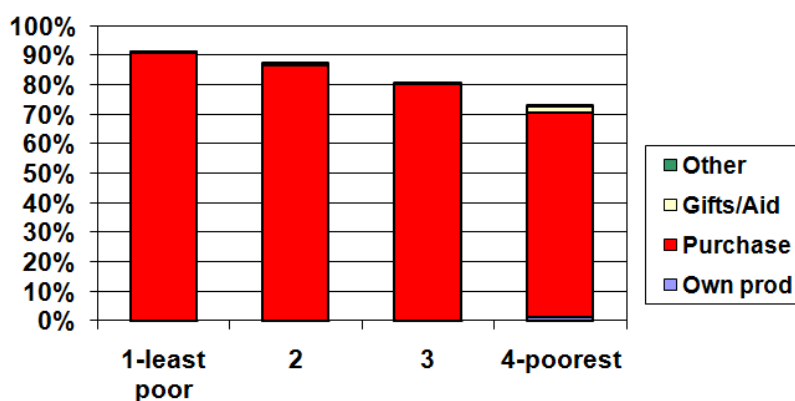
Table 4: Basic Data by Level of Cash Income (pppm)					Stat. Sig.
Mean	1=Least poor	2	3	4=Poorest	
HH Size	4.4	4.4	5.1	6.0	ns
<b>Cash Income (per person per month)</b>					
Total	>15,000	12,001-15,000	9,001-12,000	<9,000	n/a
<b>Food Consumption (%2100 kcals pppd)</b>					
Total	91%	87%	81%	72%	p<0.001
<b>Sample size</b>					
N	77	77	60	66	

### Food Consumption

Total food consumption declines significantly as income falls (Figure 12). This is because of lower amounts of food purchase, not compensated by higher amounts of food from other sources. Gifts and own production only appear in the graphic for the poorest households, but this is not a statistically significant difference.

**Figure 12: Food Consumption, by Source & Level of Cash Income**

% 2100 kcals per person per day



**Statistically significant differences**

Total food consumption	p<0.001
Purchase	p<0.001

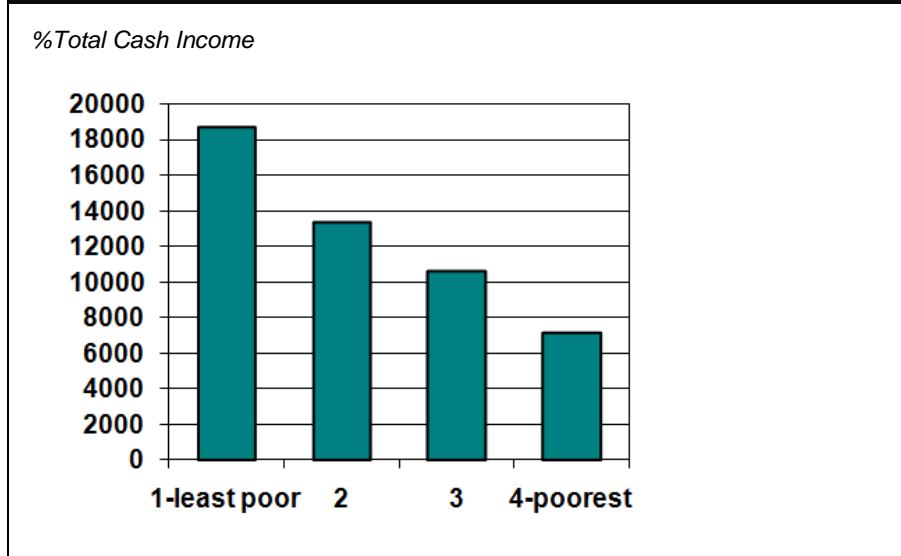
<sup>10</sup> This is not kyat per 'earning' person per month, but kyat per household member (including children) per month. The division into four groups was done as part of the data analysis process. All households in the sample were randomly selected from the poorest 50% of households in the sampled villages.

## Cash Income

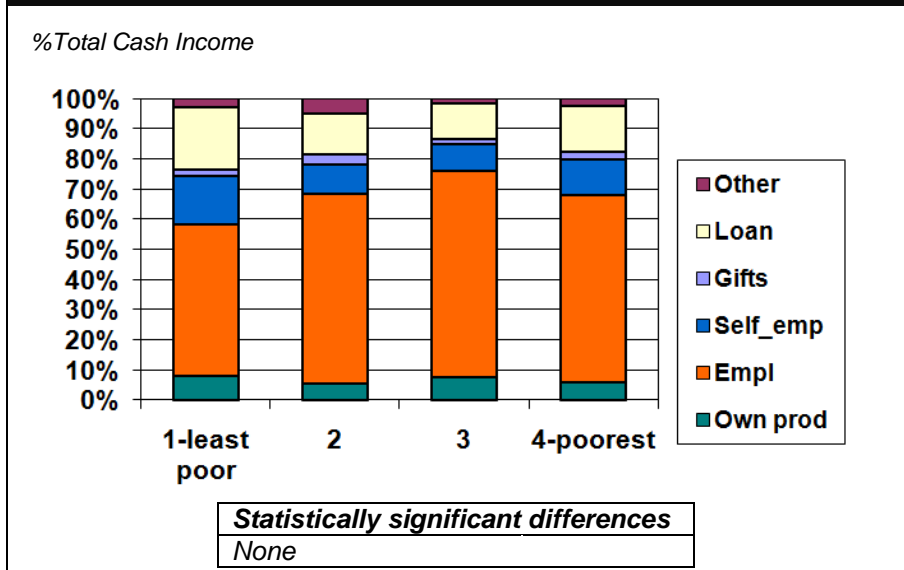
The difference in average cash income between the poorest and the least poor group is more than twofold, 7170 Kyat pppm for the poorest vs 18,660 Kyat pppm for the least poor (Figure 13).

Employment (mainly casual work) is the most important income source at all levels of cash income (Figure 14).

**Figure 13: Level of Total Cash Income, by Cash Income Group**



**Figure 14: % Total Cash Income, by Source & Level of Cash Income**



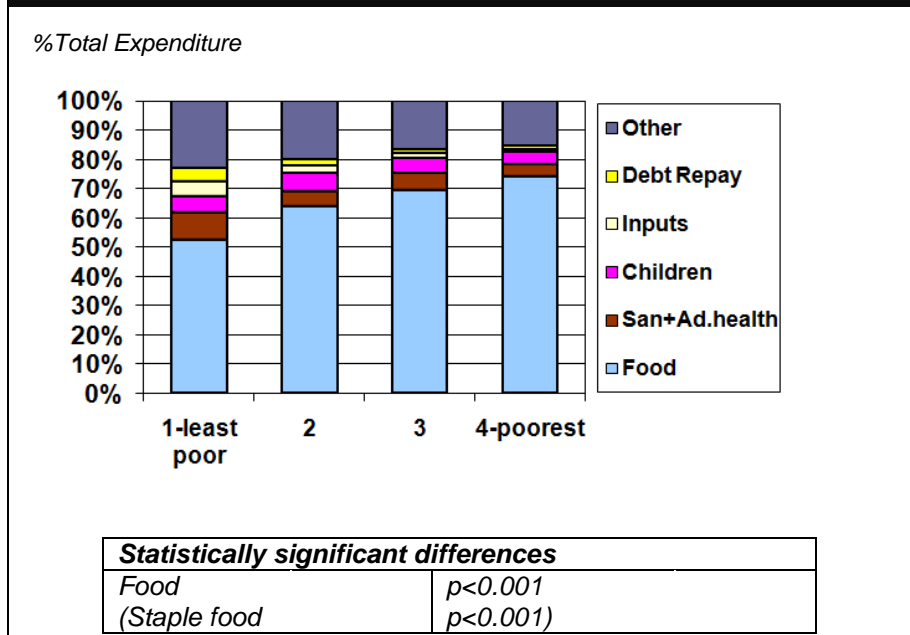
## Expenditure

**Absolute** expenditure on every category of item increases as income increases. What is perhaps of more interest is how the pattern of expenditure changes with income (i.e. the **proportion** of income spent on different items as income increases). These proportional changes in expenditure are shown in Figure 15 (total expenditure) and Figure 16 (food expenditure).

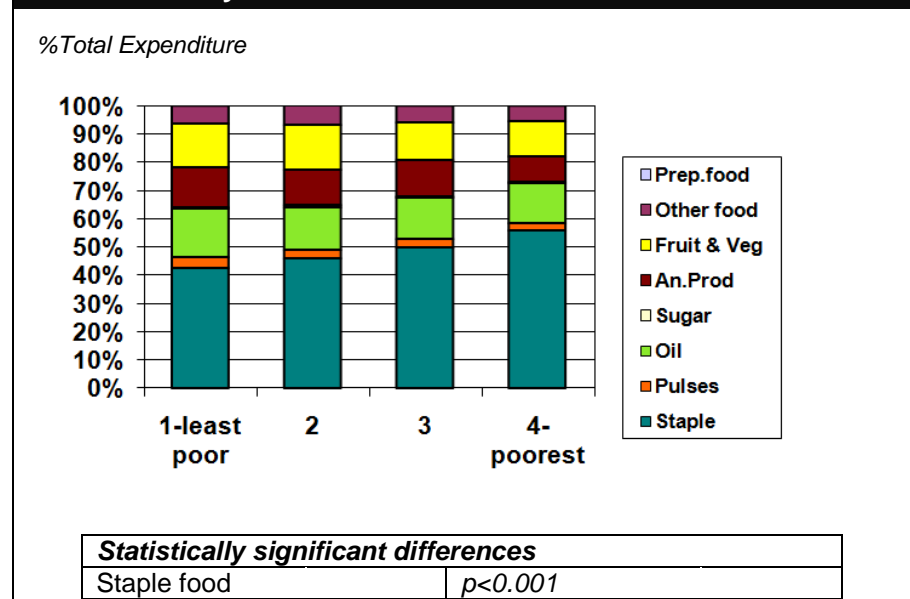
There is no evidence that expenditure on children is prioritised over other types of expenditure as income increases (Figure 15).

The biggest change is in expenditure on food (Figure 16). As income increases, so the proportion spent on food, and particularly on staple food, decreases, while the proportion spent on other items increases. Since expenditure on other items is split into several categories, none of the individual categories is significantly different by income group.

**Figure 15: % Total Expenditure, by Type of Expenditure & Level of Cash Income**



**Figure 16: % Total Expenditure on Different Foods, by Level of Cash Income**



## CONCLUSIONS

### Data Quality

Overall, the IHEA data appear to be of good quality, and it is reasonable to conclude that a valid and reliable pre-intervention baseline has been established. The two most important tests of data quality in HEA yield good results. The first of these tests relates to average food energy consumption in the baseline year. This averaged 83% of the minimum requirement for long-term survival, or 93% of minimum requirements once an adjustment was made for household composition. This is a reasonable figure for a poor population. The second test is the agreement between total income and expenditure. Total expenditure averaged 101% of total income.

### What can we learn about the likely impact of the project?

A number of findings from the analyses presented here give clues as to how the additional income provided by the project will be spent. The first is the positive correlation between total income and total food consumption. The second is the priority given to dietary quality, and to expenditure on non-staple foods especially (including animal products, pulses, vegetables, fruit and oil). As income increases, so the **absolute** and **relative** amounts spent on non-staple foods increases. This means more and better food available at household level. Provided children receive a fair share of this additional food, then the indications for a positive effect of the project on nutritional status are good.

The other significant finding in relation to children is that expenditure on children (other than food) is not prioritised over any other type of expenditure. As income increases, so the **absolute** amount spent on children's health, education and clothing increases, but the amount **relative** to other categories of item remains unchanged. Expenditure on children accounts for no more than 5% of total expenditure, so increases in income may only result in small increases in the amount of money spent on children.

Many households have large amounts of outstanding debt. If the project results in increased income, will these households prioritise repaying their debts or increasing household consumption? It is difficult to predict this, but the township that has the highest average income level (Minbu, although this isn't a statistically significant difference) has the lowest levels of outstanding debt (a statistically significant difference). This suggests that households might prioritise debt repayment if their incomes increase.

### Implications for monitoring

The majority of households are highly dependent upon the market both in terms of what they buy (food and non-food goods and services) and what they sell (labour, prepared foods, etc.) None of the sampled households produces a significant amount of food directly for their own consumption. As a result, it will be important to monitor changes in prices – and especially casual labour rates – from the start of the reference year and through the course of the project. If the prices of items sold by the poor lag behind the general inflation rate it is possible that much of the cash transfer may go towards 'balancing' the effects of inflation rather than towards achieving the desired positive outcomes for children.

## **Annex 1: Abbreviations**

EC	European Commission
HEA	Household Economy Analysis
HH	household
IHEA	Individual Household Economy Analysis
ns	not significant
pppd	per person per day
pppm	per person per month
SCiM	Save the Children in Myanmar

## **Annex 2 – Consultant Scope of Work<sup>11</sup>**

Office Requesting the technical assistance: Myanmar Office  
Primary Contact (s) in Requesting Office: Miho Wada

Period of Assignment: 30 days in June - September 2009

### **A. Overview**

Save the Children in Myanmar (SCiM) has started a Food Security Program in four townships in the Dry Zone funded by European Commission. The overall objective of the project is to increase food security amongst the poorest households through a comprehensive package addressing the multiple causes of food insecurity and malnutrition. Since the project's two expected results are improvement in household income opportunities and improvement in health and nutrition status of children, SCiM intends to conduct baseline surveys in household income as well as in nutrition. In order to establish household income data before starting livelihoods activities, SCiM has decided to use IHEA methodology. The same methodology will be used for the end line survey at the end of the project so that outcome/impact of the project will be assessed.

A separate baseline survey concerning nutrition aspects such as anthropometric assessment, dietary diversity and frequency and minimum cost of diet will be carried out in the same area after the IHEA is completed.

The consultant will prepare training modules, then visit Myanmar to provide training to the staff in IHEA and its methodology as well as data entry. After one day field test, the consultant will facilitate one and a half day workshop and provide technical supports to field work and data entry.

The consultant will design the IHEA, prepare training modules, train staff (including a workshop after the field test) and then, after the field data collection, analyze the collected data and write report.

### **B. Objectives of the Technical Assistance**

- To design baseline survey using IHEA methodology in order to collect income and other necessary household data.
- To determine sample size and sampling method.
- To train staff in Myanmar in IHEA and its methodology of data collection and analysis.
- To train the data entry staff in IHEA data entry into Excel program.
- To provide technical assistance to the data collection, data entry and analysis.
- To analyze the data and prepare a comprehensive report outlining the methodology, findings, analysis and recommendations.

### **C. Specific Activities**

#### **1. Survey design**

The consultant will design a baseline survey using IHEA methodology to collect information on income and households. The consultant will also decide the most appropriate type of the survey such as longitudinal or cohort survey. At the end of the project, end line survey on the same methodology will be conducted and project outcome/impact will be evaluated by comparing and analyzing the two sets of data.

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<sup>11</sup> Two consultants were originally going to split this work. This SOW is a merged version of their two separate SOWs.

## 2. Sampling

The most appropriate sample size and sampling method will be determined by the consultant.

## 3. Training in IHEA data collection

In Yangon the consultant will train staff in IHEA and its methodology of data collection, particularly interviewing skills essential to gather IHEA information as well as primary data analysis. The training participants will be managerial, technical and field staff involved in the Food Security Project. The managerial and technical staff will serve as team leaders and the project staff will be surveyors in the field.

## 4. Training in data entry

In Yangon the consultant will train the data entry staff in input of IHEA data using Excel program.

## 5. Technical assistance to data collection, data entry and analysis

After the staff conduct field test for one day in the field, the consultant will facilitate one and a half day workshop to review the data collection methodology and process. At the workshop modification in the data collection method will be made if necessary. The consultant will also provide technical support to the data entry staff in input and primary analysis of the data.

## 6. Analysis and report writing

After the data collection in the field, the data in Excel form will be sent to the consultant via email for analysis. The consultant will prepare comprehensive report outlining the methodology, findings, analysis and recommendations.

## D. Deliverables

Activity	Deliverable
1. Survey design and sampling	Note on the design and sample size and sampling methodology
2. Training in IHEA data collection	Training to the staff in data collection
3. Training in data entry	Training to the data entry staff
4. Technical assistance to data collection, data entry and analysis	One day and a half workshop
5. Data analysis and report writing	Baseline report

## Annex 3 – Household composition and energy requirement

Because household composition affects food energy needs, a target figure was calculated for households in the current survey according to household size and composition (number of children under 5 years) and was used to check that household's results. The following table provides a summary of the target kcal percentages that were used (as a percent of 2100 kcals per person per day).

Target food %	HH = 3	HH = 4	HH = 5	HH = 6	HH = 7	HH = 8	HH = 9
3 children under 5 years	n/a	71%	77%	84%	84%	87%	88%
2 children under 5 years	71%	80%	83%	85%	87%	90%	91%
1 child under 5 years	85%	90%	91%	93%	95%	95%	95%