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Assessing Food Security at WFP: Towards a Unified Approach

Design Phase Report

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Executive Summary

A new project to standardize food security assessment at WFP began in the Food Security Analysis Service (VAM unit) in January 2012. The project is in response to concerns about the variety of methods used to calculate household food insecurity prevalence rates in WFP reports. A review of 29 CFSVA's produced from 2009 to 2011 found at least 9 different ways that had been used for this. Often, there was a lack of transparency on how these rates were calculated, and/or reproducibility was difficult, particularly when successive cross-tabbing or data-driven statistical techniques were used.

To develop a new approach, a desk review of research on existing food security indicators was combined with extensive input from a working group of VAM field officers in 17 countries and from all VAM HQ teams. The result is a framework for how to combine and report food security indicators in a systematic and transparent way, using information routinely collected in VAM surveys. The proposed approach organizes food security information at the household level, presenting a suite of indicators that cover a range of aspects of food security. This includes current status, with outcomes on food consumption, such as the food consumption score. It also includes indicators related to income status and asset depletion, which contribute to a household's coping capacity, and thus its ability to feed itself in the face of future shocks. A household's food expenditure share can provide a proxy for its income status, and livelihood coping strategy questions can be combined to provide a proxy for asset depletion.

At the core of this approach is a 'food security console,' a one-page table of information that organizes this suite of indicators into a standard format, allowing for a quick glance at prevalence rates. All indicators are placed on a four-point scale, and thresholds for doing so are included here. The 'console' also includes a summary indicator of household food security status, providing rates of mild, moderate, and severe food insecurity. This food security indicator is calculated at the household level from survey data using an algorithm that averages together indicators representing current consumption and coping capacity.

The approach is flexible, accommodating a wide diversity of situations regarding data availability and country contexts. It is suggested for use in VAM products that are based on household surveys, particularly the CFSVA, FSMS, and EFSA reports. Similarities with the International Food Security Phase Classification system (IPC) are intentional to help facilitate an IPC process, should one be undertaken in a given country.

The approach was tested with datasets from Tajikistan, South Sudan, El Salvador, Guatemala, Djibouti, and Nepal. For all of these countries, there were differences in the results found with this new approach and existing WFP approaches, the most common one relating to the use of four food insecurity categories instead of three. The sum of prevalence rates of 'moderate' and 'severe food insecurity' roughly paralleled the sum of these rates in the old approach. But, by classifying some households in the new group of 'mild food insecurity', fewer households were classified as 'food secure'. This distinction may be useful for WFP programming, particularly around school feeding, nutrition, and other efforts to protect livelihoods.

To facilitate its adoption, this approach relied on current VAM indicators. As with all indicators, there are limitations to the ones proposed here, and these are discussed in the report. Not only is continued research needed to improve the indicators that are used in this algorithm, but additional analysis and pilot-testing in the field are also needed. It is hoped that this document will serve as background for VAM officers willing to do so. The proposed framework is flexible enough to incorporate insights from their work, as well as that of future research on indicators.

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Abbreviations

CFSVA	Comprehensive Food Security and Vulnerability Analysis
CSI	Coping Strategies Index
EFSA	Emergency Food Security Analysis
FANTA	Food and Nutrition Technical Assistance Project
FAO	UN Food and Agriculture Organization
FCS	Food Consumption Score
FSMS	Food Security Monitoring System
IFPRI	International Food Policy Research Institute
IPC	International Food Security Phase Classification
LSMS	Living Standards Measurement Study
MDER	Minimum Daily Energy Requirement
MSF	Médecins San Frontières
MUAC	Mid Upper Arm Circumference
SHHS	Sudan Household Health Survey
VAM	Vulnerability Analysis and Mapping
WFP	UN World Food Programme

Assessing Food Security at WFP: Towards a Unified Approach

Introduction

Estimating the number of food insecure people in a country is an important step in efforts to reduce hunger around the world. As a key part of problem assessment, it can provide information essential for targeting of resources to the neediest households today and for reducing vulnerability to future shocks. Such a measure is useful in WFP programming, whether it be a general food distribution, school feeding program, food for assets, cash and vouchers, or other program type. Food insecurity counts are a vital output of many WFP reports, in part because of this importance for programming, but also because it is essential for advocacy purposes by the country offices, and is used by partner organizations.

In January of 2011, at a global meeting of WFP's Vulnerability Assessment and Monitoring officers, a working group was formed to develop a standard WFP approach for estimating the prevalence of food insecurity. This was in response to concerns that many different ways were being used to calculate household food insecurity prevalence rates in WFP reports. A design phase for this new approach began in the Food Security Analysis Service (VAM unit) in January 2012 with the hiring of a consultant to lead this effort.

An initial activity of this design phase was to conduct a review of recent Comprehensive Food Security and Vulnerability Assessment (CFSVA) reports. All CFSVA's published from 2009 to 2011¹ were reviewed to determine the method for estimating the overall countrywide food insecurity rate (see **Table 1**). For most analyses, the Food Consumption Score (FCS) was used to determine food insecurity status (WFP, 2009b). Six of the reports used the FCS in combination with other food security indicators, such as the Coping Strategies Index, the food expenditure share, or other indicators on assets or livelihoods. The ways of combining the FCS with other indicators also varied, with some reports using successive cross-tabs (WFP, 2011b), while others used either regression analysis (WFP, 2009d) or cluster analysis (WFP, 2010b). Five reports did not use the FCS at all, instead applying one of a variety of different approaches. For example, one report developed a composite food insecurity indicator based on a principle components analysis (WFP, 2009c). Another used an International Phase Classification (IPC) type of approach (GON, 2010). Still another used a self-reported experiential-based food security indicator, known as the Household Food Insecurity Assessment Scale (Coates, 2007; GOBF, 2009). In sum, over nine different ways to assess food security were used in these reports.

There are problems with one agency having so many different methods for calculating a global food security indicator. First, it creates confusion, and perhaps mistrust, among governments, the donor community, and other partners. This is particularly the case when neighbouring countries – for example, Gambia, Guinea-Bissau, and Guinea – each use a different approach. Second, many of the

¹ Only those 2011 reports that were published at the time of this review (January 2012) were included here.

approaches are not transparent, so become difficult to explain to policymakers, or to reproduce in a subsequent round of study. A third concern is that many of the indicators used do not identify broad problem areas for focus, and so are not actionable.

An example of the lack of transparency can be seen in the approach referred to here as successive cross-tabbing. The approach begins with categorization of two variables, like the food expenditure share and the coping strategies index, into three different groups each. Then a crosstab is performed in which combinations of these two variables are categorized again into three groups. This becomes a new variable which is then cross-tabbed with the three categories of consumption based on the Food Consumption Score, which yields a new food insecurity variable, also typically categorized into three groups. Given that analysts use non-standard thresholds, and that the choice of variables differs from one country to the next or within the same country over two time periods, it is not hard to understand why some find this approach problematic. Black-box statistical techniques, such as principal component or cluster analysis, suffer from some of the same problems of transparency.²

Thus, the overall objective of this project is to develop a standard approach to assessing food security at WFP that addresses different dimensions of the problem with transparent indicators that are valid, actionable, and consistent with internationally-accepted concepts of food security. It is also important that this approach be roughly consistent with current WFP VAM guidance, which was just updated recently (WFP, 2009a; WFP, 2009b), as well as with the VAM infrastructure. In other words, a useful new approach must be something that can be done on a widespread basis by VAM officers in the field under diverse conditions, and tested out relatively quickly, without a very long lead time for development. Finally, it must be consistent with WFP's strategic objectives and agreements with partners.

The next section describes the methods used in developing the proposed approach, which is followed by a description of the links between this approach and the International Food Security Phase Classification (IPC). Those sections are followed by our working definition of food security, specifically, a description of the household conditions that underlie a four-category system for classifying survey households based on their level of food insecurity. Then an algorithm is proposed to translate information from several indicators into such a household classification. Specific details concerning indicators to use and thresholds to align these indicators to a 4-point scale are presented. This is followed by sections on the use of this approach, on the case studies, on the limitations of this approach, and on directions for the future.

Methods

A mixed-methods approach was used to carry out this work. It included a desk review of documents on food security from the World Food Programme (WFP), the

² A particular problem here is the use of factor loadings to define an outcome, like food security, since its definition becomes dependent on a particular dataset. This makes it difficult to test improvements in the condition over time, or to compare with work done in other countries.

Food and Agriculture Organization (FAO), the IPC Global Support Unit, the International Food Policy Research Institute (IFPRI), the World Bank, Food and Nutrition Technical Assistance (FANTA), Save the Children, Médecins Sans Frontières (MSF), and others. The review also included scientific literature from various disciplines including nutrition, health, agriculture, and economics.

Central to the approach taken here was to obtain key stakeholder input. This included initial input from VAM field officers in 27 countries across 6 regions and from WFP headquarters (HQ) staff across 6 different units, including the VAM unit. Then a field officer working group was established with VAM officers who wanted to participate in this activity. Over the course of a number of meetings and draft revisions, this working group had participation from 17 countries in 6 regions, and from all VAM HQ teams including the CFSVA, FSMS, EFSA, Markets, and GIS teams. See annex D for major milestones in the development of this approach.

Finally, the approach was tested on VAM datasets from six countries, including South Sudan, Nepal, Tajikistan, El Salvador, Guatemala and Djibouti.

Links to IPC

The International Food Security Phase Classification (IPC) is an important approach for combining food security indicators in a way that is standardized and useful as a first step in making programming and policy decisions. It combines conceptual frameworks on risk and vulnerability, sustainable livelihoods, and the UNICEF causal framework on nutrition with the four basic dimensions (availability, access, utilization, and stability) of food security analysis. It is endorsed by a number of international organizations, including WFP, which participates as a member of the IPC's global steering committee (IPC Global Partners, 2012).

Early on in this work, it was decided to develop an approach that would make WFP information more useful to IPC, and thus help facilitate an IPC process, should one be undertaken in a given country or region. Thus, there are intentional similarities between the approach proposed here and IPC. Specifically, we began by developing a working definition of food insecurity that was based on the household conditions of acute food insecurity given by IPC. Our approach also organizes and presents data similarly to IPC.

However, there are three key differences between the IPC and WFP approaches. First is the unit of analysis. Where IPC does area-wide analyses, or considers groups of households, the unit of analysis in the WFP approach is the household. Second, there is also different terminology. Where IPC is based on phases, the WFP approach uses food security groups, which are described below under our working definition of food security.

The third difference between the IPC and WFP approach is the algorithm for classifying households into food security groups. Whereas IPC is based on a consensus process with relevant stakeholders considering data from a number of sources, the WFP approach is designed for VAM products and is based on a specific survey dataset. Thus, there is a specific algorithm, implemented with a computer program, which assigns each survey household to one of four food

security groups. This assignment is based on an average of several food security indicators that have been placed on the same 4-point scale (i.e. representing the severity of the four food security groups described below).

Working definition of food insecurity

Underlying our work is the conceptual definition of food security developed at the World Food Summit.³ However, to operationalize these concepts for assessment purposes, a clear working definition is also needed. For that, we adapt definitions developed for the latest version (2.0) of the IPC tool, in particular, those included in the 'Acute Food Insecurity Reference Table' for households.⁴ Organized by the various phases of the IPC system, it describes household conditions in terms of their food consumption shortfall, as well as adaptations that could affect their livelihoods. These constructs are adapted for use in identifying food security groups in the WFP household classification (**Table 2**). For example, *food secure* households are those "able to meet essential food and non-food needs without depletion of assets," while *moderately food insecure* households have "food consumption gaps" or are "marginally able to meet minimum food needs only with accelerated depletion of livelihood assets."

Readers familiar with the IPC approach will notice that the 'food secure' group listed in Table 2 corresponds to the 'none' phase (phase 1) in the IPC. In addition, 'mild food insecurity' corresponds to phase 2 ('stressed'), 'moderate food insecurity' corresponds to phase 3 ('crisis'), and 'severe food insecurity' corresponds to phase 4 ('emergency'). See Annex A1 for a 'crosswalk' that compares IPC and WFP household food security conditions. There is no equivalent in the proposed WFP food security classification to that of phase 5 ('catastrophic') in the IPC. The WFP approach is rooted in the assessment of households. Phase 5 in the IPC system indicates catastrophic or famine conditions, which are not diagnosed at the household level. Moreover, actions consistent with WFP strategic objectives (e.g. save lives and livelihoods), would be triggered at the threshold of severe food insecurity, so further categorization is not appropriate (See Annex A2).

A key objective of our approach is to develop a summary indicator of household food insecurity that reflects these food security conditions described in Table 2. Essential to understanding this approach is realizing that a household might be considered food insecure based on two criteria: either its current consumption is not adequate, or future consumption will likely be affected because of a reduced coping capacity from a low income or from adopted strategies which have depleted its assets and/or will degrade future production.

³ 'Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.' (FAO, 1996)

⁴ We use those developed for the acute as opposed to the chronic food insecurity table for several reasons. First, the chronic food insecurity table is currently just a prototype version. Second, there are no specific insights as to differences in household conditions as levels move from mild to very high food chronic insecurity. Rather, different levels simply represent differences in prevalence rates of the same condition. Third, WFP's key focus on dealing with emergencies argues for using a definition for acute food insecurity. Finally, techniques for assessing chronic food insecurity from repeated population measures of acute food insecurity have been developed (WFP, 2011c). Thus, those wanting a measure of chronic food insecurity could obtain this with repeated use of an acute measure on the same population over time.

Algorithm for assigning survey households to food insecurity groups

As mentioned previously, a household-based assessment approach is important for WFP, since its programming is based on households. In addition, since the household is the unit of analysis in most VAM surveys, having a specific algorithm that assigns each household in a survey sample to a food security group permits estimation of overall as well as specific food security prevalence rates. Depending on the sampling design, estimation of food security rates can be done at various levels of aggregation, either geographic (e.g. by provinces or regions) or socio-economic (e.g. by livelihood groups or gender of household head).

Figure 1 outlines an overall strategy for implementing a household-based approach. The proposed algorithm takes indicator information from typical VAM household surveys and combines it to arrive at a food security classification. At the core of this algorithm is the concept that a WFP food insecurity classification should be based on current consumption of household members (top half of figure), as well as on the capacity of households to face future shocks, or coping capacity (bottom half of figure). This is based on its current income status and its depletion of assets. Another salient point is that each indicator, before it is combined with other indicators, needs to be converted to a 4-point scale.

Current consumption status

The Food Consumption Score is the standard WFP indicator used in assessing household food consumption. Additional indicators can be used in combination with the FCS, to get an overall average consumption status. For example, Living Standard Measurement Surveys (LSMS), or income and expenditure surveys, are fielded in many countries and allow for calculation of household energy consumption in a quantitative way. The Household Hunger Scale has been developed and tested in a cross-country approach by the FANTA project. Other surveys have been employed in international settings (e.g. the Household Diet Diversity Score, the Latin American Food Insecurity Scale), but present difficulties in that they do not have universally agreed-upon thresholds for use on a 4-point scale. This may be overcome soon by additional research and testing.

The combination of food consumption indicators – after each is converted to a 4-point scale – is done at the household level. This is accomplished by taking a simple mean of available indicators. For example, a household rated as food secure (=1) on the food consumption score, but demonstrating a food energy shortfall equivalent to moderate food insecurity (=3), would get rated as being mildly food insecure (=2) on the summary indicator of food consumption.

Household coping capacity

The food insecurity descriptions in Table 1 all include a statement about coping strategies or livelihood assets. Current consumption may appear satisfactory, but if a household has depleted its assets to provide for food today, it will face difficulties in meeting future consumption needs. Substantial risk of not maintaining current consumption can occur when households are in poverty, when

current expenditures on food are not sustainable, or because of increased household borrowing, sale of productive assets, or for other reasons.

To capture these aspects of coping capacity, two groups of indicators are depicted in the lower half of Figure 1 – income status and asset depletion.⁵ In countries with an LSMS,⁶ or equivalent income and expenditure survey, household poverty status can be obtained. This is developed from complete expenditure data, including the value of home-produced consumption, as well as country-specific poverty thresholds. However, many country offices will not have access to this type of survey. An alternative is to use the food expenditure share, which can be calculated from expenditure data that is commonly collected in VAM surveys. The higher the share of total expenditures on food, the more impoverished is the household. Impoverished households are less able to meet current non-food needs, and will have less capacity to cope with future shocks. One serious concern with this indicator, and thus the preference for a full poverty measure, is that food expenditures obtained from brief survey instruments may not capture the value of home production that is consumed by the household. This is a particular concern, when home-produced staples are a large part of consumption. Annex B explores this further, and provides a suggestion for an adjustment to be used with VAM surveys in the near-term.⁷

The extent to which a household has depleted its assets is used for a second indicator of coping capacity. This asset depletion indicator has also been referred to as a livelihood coping strategies indicator (van der Kam, 2000; IPC Global Partners, 2012). It come from a series of questions on livelihood stress and asset depletion that are typically asked in the context of the coping strategies index (CSI), which is common to many VAM surveys. It differs importantly from the CSI in that it only includes elements related to livelihood coping, not consumption coping.⁸

These two indicators – one on income status and one on asset depletion – are each put onto a four-point scale and averaged to get a summary of coping capacity.

Overall food insecurity status

The overall summary classification of food insecurity status is based on a simple average of the two summary indicators on food consumption and coping capacity.

⁵ A better approach would use a measure of the value of current assets. Unfortunately, a module assessing this is not typical for VAM surveys. But, it could be developed in the future.

⁶ In several countries, WFP has sponsored food security modules on the LSMS, which is supported by the World Bank. Active LSMS efforts are in place in Mali, Niger, Nigeria, Ethiopia, Uganda, Tanzania, and Malawi.

⁷ Additional research is needed on assessing the value of consumption from home production in a brief survey format. Such work has begun in the VAM unit.

⁸ To improve transparency and communication to policy-makers, we are explicitly seeking a clear correspondence between food security concepts and the indicators that represent them. Food security conditions described in Table 1 clearly contain two statements – one about current consumption, and a second about the household's livelihood stress, or ability to sustain consumption in the future. Since consumption is well-covered with indicators in the top half of this algorithm, we have extracted all questions regarding consumption from the CSI, and have focused exclusively on information regarding assets and livelihoods. This includes items such as a decrease of agricultural inputs, selling off of assets, or pulling children out of school. This revised indicator of asset depletion needs more research.

Thresholds for converting indicators to a 4-point scale

Combining the indicators in a manner suggested by the algorithm in Figure 1, requires that all indicators be placed on a 4-point scale that is consistent with household conditions described in Table 2. The IPC working groups have provided some guidance on how to convert continuous indicators to a categorical grouping. Wherever possible, we have used their recommendations and incorporated their thresholds for classification into **Table 3**.

In many cases, however, adaptations had to be made. For example, the IPC gives some guidance on the Food Consumption Score – i.e. 'borderline' is indicative of phase 3 and 'poor' is indicative of phase 4 – but it is not well defined for 'acceptable' scores (IPC, 2012). The suggestion is to rate a household with 'acceptable consumption, but deteriorating' as being in phase 2 ('stressed' in IPC language, or 'mild food insecurity' in proposed WFP language). However, most VAM surveys are cross-sectional; we don't know if a specific household's consumption has deteriorated, or not. So, we have recommended that a household with an 'acceptable' food consumption score be considered in group 1 (i.e. no problem, or food secure) for this indicator.

Another important indicator of consumption is food energy sufficiency. This will not be possible to obtain for many VAM surveys, but for those that are combined with a household expenditure survey, or LSMS, an indicator of food energy shortfall can be obtained from the consumption module. The quantity of food calories available to the household is calculated on a daily per capita basis. Those with 2100 kilocalories per person per day or more are considered food secure. This is a common threshold used in food aid work (SPHERE, 2011), and has been adopted by IPC as a threshold for food secure household groups. Beyond this, IPC guidance cannot be used, either because of a need for additional information or due to a lack of specificity.⁹ Thus, alternative thresholds were developed. A minimum daily energy requirement (MDER) is used by FAO in the calculation of their undernourishment indicator, and represents "the amount of energy needed for light activity and a minimum acceptable weight for attained height" (FAO, 2008). This threshold varies by country based on, among other things, the age-gender distribution of the population. In 2006-08, the MDER averaged about 1770 kcal/p/d for Sub-Saharan Africa. For purposes here, intakes below this level were classified in the most severe category. Then the mid-point between 2100 kcal/p/d and the MDER was chosen to divide households into mild (above the midpoint) and moderate (below the midpoint) food insecurity categories.¹⁰

The Household Hunger Scale is an indicator of household deprivation developed for cross-cultural use by FANTA (Ballard, 2011; Deitchler 2010). Answers to questions are put on a six-point scale. IPC has developed thresholds for this

⁹ For example, household groups classified in phase 2 have a minimally adequate, but unstable consumption (2100 kcal/p/d) (IPC Global Partners, 2012). However, stability of intake is not possible to determine with just a cross-sectional survey. Phases 3 and 4 are characterized by a 'significant gap' and 'an extreme gap, much below 2100 kcal/p/d'. Neither of these descriptions provides analysts with specific thresholds.

¹⁰ Future development work might wish to calculate these energy thresholds using household-specific information on age and gender of household members.

indicator, which are used here (see Table 3), with one minor modification. Whereas IPC recommends that scores from 0 to 1 be considered as indicative of being in the 'Stressed' phase (i.e. corresponding to 'Mild food insecurity'), we recommend that households with scores of 0 (i.e. they respond negatively to all the questions) be coded as having no problem (i.e. food secure).

If a full poverty measure is available from an income and expenditure survey, then poverty thresholds can be used to create the income status indicators. Households with expenditures above the poverty threshold would be considered secure on this indicator. Households below the threshold are unable to meet basic needs, and would be considered moderately insecure. Most poverty measures are created by first developing a food poverty threshold, which is the cost of meeting basic food needs (Ravallion, 1998). Those households whose total expenditures are not even enough to meet basic food needs (let alone those for clothing, shelter, etc) would be considered severely affected on the income status indicator.

A complete expenditure module is not a part of most VAM surveys, although they typically have a simplified version. This can be used to create a food expenditure share, that is, the proportion of total expenditures that go towards food. It is a well-established law of economics that household spending, in proportional terms, decreases as income increases (Engel, 1895; Anker, 2011). At least since the 1980s, the food expenditure share has been proposed as an indicator of poverty or food insecurity (Lipton M, 1983). More recently, IFPRI has published thresholds for this indicator, which are adopted here and displayed in Table 3 (Smith, 2007).

Earlier research on households facing serious deprivation categorized behaviors along a continuum as external conditions deteriorated (Corbett, 1988; Howell, 1996). Initially households modified their current consumption behavior, changing what they ate, the size of their meals, or skipping them entirely. Such consumption behaviors were followed by other adaptations related to how food was procured or other needs were met. These included spending down savings, borrowing, obtaining food from friends or relatives, or perhaps even selling off of non-productive assets, such as furniture or jewelry. Sale of productive assets, such as agricultural tools, followed this. The most-extreme of behaviors, such as selling of land, came when all other possibilities were exhausted.

In the 1990s, this work was developed into a coping strategies index (CSI) which could be implemented routinely and quantitatively in the context of a household survey (Maxwell, 1996; Maxwell, 2003). Information on the frequency of specific behaviors was combined with weights describing their severity to arrive at an overall sum. Additional research developed a reduced CSI that consisted of information on the consumption indicators (Maxwell, 1999).

As useful as these indicators may be, the CSI and, particularly, the reduced CSI obscure what is going on with a household's livelihood activities. Because of the complexity of frequencies and weighting, one doesn't know to what extent a given score is a result of sacrificing today's consumption or sacrificing livelihood assets that can produce for tomorrow's consumption. As a standalone indicator, this may not be a problem, but in our case we already have indicators of current

consumption, and are looking for more detail on depletion of livelihood assets that would affect future consumption.

Another approach, articulated by Medecins Sans Frontiere makes a simple categorization of behaviors following stages of severity from insurance strategies to crisis strategies to distress strategies (van der Kam, 2000). IPC also uses this approach in their categorization of livelihood outcomes (IPC Global Partners, 2012). These are mostly based on livelihood type strategies, although consumption measures are included. We adapt this approach for use here, by removing the consumption indicators.

The asset depletion strategies are categorized into four groups that represent increasing stress or insecurity: none, stress, crisis, and emergency (**Table 4**). Stress strategies include borrowing for food, sale of non-productive assets, and reduction of spending on non-food items. Crisis strategies affect future productivity or human capital formation, such as consumption of seed stocks, sale of productive assets, or taking children out of school. Emergency strategies also affect future productivity, but are more difficult to reverse, or are more dramatic in nature. These include the sale of land or begging.

Additional indicators that do not form part of the algorithm for assessing household food insecurity may be important for programming in individual countries or for participation of VAM officers in an IPC process. Thus, an accompanying table of thresholds is included here to help facilitate this. For nutritional status, IPC suggests assigning a household with a moderately acutely malnourished child to the third IPC phase, and one with a severely malnourished child to the fourth phase (IPC Global Partners, 2012). We have used those criteria in Table 3.¹¹ For reference, we have also included analogous thresholds for stunting. The mid-upper arm circumference (MUAC) is also used to identify child malnutrition, particularly in emergencies (WFP, 2009a; WFP, 2009b; SPHERE, 2011) food insecurity. Thresholds for BMI to assess under-nutrition in adults are also listed in this table (WFP, 2009b; SPHERE, 2011).

Using this indicator with different VAM products

A minimum set of indicators

Our intent is that this method be used in a wide range of contexts, both in terms of food security situations and in terms of data constraints. What would be a minimum set of indicators and conditions that are needed to employ this approach? Since the strategy of the algorithm relies on describing both current consumption as well as capacity to meet future needs in the event of a shock, summary indicators are needed for both of these areas (i.e. the top and bottom halves of Figure 1). Whereas one measure of current consumption status can suffice, to minimally describe basic dimensions of coping capacity, at least one income status and one asset depletion indicator will be needed. In VAM surveys, the most common set of indicators available for these are the Food Consumption

¹¹ IPC also recommends classifying a household with a mild acutely malnourished child into phase 2. However, mild acute malnutrition, as determined by a weight-for-height z-score less than -1, is not a category used by most nutritionists, so we do not list a separate threshold for a mild wasting condition.

Score, the food expenditure share, and an asset depletion indicator based on elements from the Coping Strategies Index. See **Table 5** for a description of indicators to use based on the VAM report.

To conduct the analysis, a country office would need access to a raw dataset that contained all of these elements, and basic analytic capabilities in order to assign households to food insecurity groups, and calculate food insecurity rates. Because each household in a survey dataset is assigned to a specific food security category for each indicator, data must all come from the same survey. As currently designed, it will not be possible to estimate the overall food security rate if data for different indicators come from different surveys.

Improved estimates with more indicators

Country offices which have access to surveys with more complete datasets can use additional estimates to improve the summary indicators of consumption or coping capacity. The current approach gives equal weighting to current consumption and a household's coping capacity. To preserve this approach, analysts with multiple indicators on consumption, for example, will need to calculate an average of these consumption measures first, before averaging with coping capacity. Use of additional indicators makes sense, especially if data come from different sub-domains, as they give a better picture of the underlying construct.

Case Study: The Tajikistan Food Security Console

This approach was developed and tested with a number of VAM datasets, including those from Tajikistan, South Sudan, El Salvador, Guatemala, Djibouti, and Nepal. In this section the results from Tajikistan are presented. Data come from the Tajikistan Food Security Monitoring System, rounds 1-11, which were fielded from November, 2008 through March, 2012.

A key aspect of this approach is the presentation of food security data in a straightforward manner that allows analysts and policymakers to see results from a suite of indicators at a glance. The Tajikistan Food Security Console (**Table 6**) is an example of how this can be done. The indicators are organized by domain, that is, for food consumption, income status, and asset depletion. For each indicator, the household prevalence rate for different severities is provided, with all being organized into four categories representing secure, mild, moderate, or severe insecurity. When data are not available for a given indicator, for example on poverty status, then that indicator is greyed out. This allows analysts or policy makers to use a common graphic across countries, but also allows for some variation in data collection.

At the bottom of the console, the overall WFP food security rate is presented. Note that this rate is calculated at the household level from the raw survey data. It cannot be calculated directly from the other indicators in the console.

There are several other features of this approach to communicating results that enhances transparency and facilitates the use of the results. First, at the top of the

console is explicit information on the source of the data and when they were collected. Second, the console should be limited to a one-page, at the maximum, so that key information is available at a glance. Third, technical notes should accompany the console and be written in plain language, so that analysts can understand how the indicators were calculated, what thresholds might have been used, and where they can get more information on the methods, if appropriate.

For the period from 2008-2011, the Tajikistan Food Security Monitoring System indicates that overall rates were 54%, 28%, and 5% for mild, moderate, and severe food insecurity. This leaves 13% that were food secure, which might be surprising given that 65% had an acceptable Food Consumption Score, and were therefore classified as 'secure' on this indicator. In development of this indicator, some have expressed concerns about this apparent anomaly, as well as additional concerns about the loss of information by collapsing current consumption and future potential consumption into one rate.

Additional insights into household conditions, as well as understanding about how the overall food security indicator works, can be obtained by doing a simple cross-tab analysis of relevant variables. **Table 7** presents a table of the percentage of households by different levels of the Food Consumption Score and a summary coping capacity indicator.¹² About 13% of all households had a 'poor' Food Consumption Score, which is rated as a 'severe' condition on this indicator (i.e. equal to 4 on the 4-point scale). Two per cent of households had both a 4 on the FCS, and a 3.5 on the Coping Capacity Indicator (bottom right box shaded red in Table 7). Averaging together the values for these two indicators rounds off to 4, which is the final food security rating for these households.¹³ In other words, these households would be classified in the severe food insecurity group. The same classification would be true for the 3% of households that had FCS equal to 4 and a coping capacity equal to 3. On the other extreme, households with a rating of 1 on the Food Consumption Score and a 1 or 1.5 on the coping capacity indicator, have an overall food security rating that round to 1. Thus these households, highlighted in green in Table 7, would be considered food secure. The mild and moderately food insecure households, classified with a similar approach, are shaded in yellow and orange, respectively.

It is important to note that the coloring of cells in Table 7 is not based on the prevalence rates within the cells, or determined in some other ad hoc manner. Rather, it is based on a simple approach that can be implemented consistently. Specifically, this approach is to take an average of each household's rating on current consumption and coping capacity and assign them to the numbered category resulting from that average.

Exploring these two variables also allows one to better use this information for programming, since it allows distinguishing those with problems today versus those with likely problems tomorrow. The bold dashed lines divide the Table 7

¹² The summary coping capacity indicator is calculated by averaging together two indicators, the food expenditure share and the asset depletion indicator as described in the algorithm (Figure 1) and, more specifically, in the technical notes for the Tajikistan Food Security Console.

¹³ $(4 + 3.5) \div 2 = 3.75$. This rounds to 4 as the nearest integer. Midpoint numbers are rounded up, so 3.5 rounds to 4.

cross-tabulation into four groups, based on whether they have a moderate or severe food consumption problem, or moderate or severe problem with coping capacity.¹⁴ Summing the prevalence rates for all of the cells in each of the four quadrants created by these bold dashed lines, we get the results displayed in **Table 8**. This provides a useful summary of four types of households: (1) those with no serious problem; (2) those with a food consumption problem, but not a coping capacity problem; (3) those with a coping capacity problem, but not a food consumption problem; and (4) those with both types of problems. This provides additional insights for those conducting a response analysis, and may wish more specificity on the problem situation.

Additional Case Studies

Additional examples illustrating this approach have been developed for South Sudan, Nepal, and El Salvador. The data presented are used here to give a flavour for how this approach might be implemented. For each country a food security console is constructed displaying key indicators. Each console has technical notes describing how indicators were calculated. In cases where data were not available for a given country, the indicators were 'greyed out' on the food security console.

A summary of the results obtained from this work is presented in **Table 9**. In Sudan, the data come from the Sudan Household Health Survey (SHHS), which was fielded in April of 2010. The SHHS included a food security module which had standard VAM questions on food consumption and food expenditures. Data for the Nepal case come from the Nepal Food Security Monitoring System, rounds 1-12, which were fielded from 2008-2011. In El Salvador, the data come from the El Salvador Comprehensive Food Security and Vulnerability Analysis survey conducted in 2010, and not yet published. In Guatemala, data come from the EFSA conducted in 2010. The data from Djibouti come from the 2012 EFSA. The complete food security consoles are displayed in Annex C1-C5.

Table 9 presents the results of the food consumption score, the overall food security measure derived previously for the country, and the new food security measure derived using the approach described here. For Tajikistan, 72% of households were classified as food secure based on the entire FSMS dataset from 2008-2012. On the new approach, the food security rate was much lower – only 13%. But 54% of households were classified as mildly food insecure, a category which didn't exist in the earlier classification approach. Summing these two together, 67% of households were in the secure or mild categories using the new indicator, while 72% were in the secure category using the old approach. By explicitly including information about coping capacity, we get a more nuanced approach to food security assessment. In particular, households might have acceptable consumption today, but if they made moderate sacrifices in their ability to meet future consumption, they are no longer considered food secure in this

¹⁴ The threshold for categorizing a problem situation for the Food Consumption Score is easy, since historically there have been 3 categories, and only one is acceptable. We divide the coping capacity at the moderate level (i.e. if the rating rounds to 3) to be consistent with the division for consumption. Although mild problems of coping capacity or consumption might still be of interest for some applications, given scarce programming resources, it is reasonable that WFP would want to focus on these moderate and severe groups.

approach. For Tajikistan, there are fewer households that are considered severely food insecure in the new approach, than the old one, 5% versus 12%.

This tendency for lower rates of food secure and severe food insecurity (at the extremes) and higher rates in the middle categories of mild and moderate food insecurity can also be seen in South Sudan, El Salvador, and Guatemala. This is no doubt due to the average of indicators in the new approach. Two countries, Djibouti and Nepal, used food security approaches that are very different from the other pilot countries – the former using a cluster analysis approach, and the latter using a local-level IPC-type approach. For these countries, the differences with the new approach are more dramatic, particularly with respect to the severe food insecurity group.

Limitations of this approach

There are a number of limitations to the approach proposed here. First, as with any case in which lots of data from different dimensions of a problem is summarized into one indicator, there is a loss of information. That certainly is the case here, where averaging together of current food consumption with coping capacity gives one an indicator that cannot distinguish, for example, between a household with poor consumption today, but adequate coping capacity and a household in the opposite situation. A related concern has to do with the very idea of a global indicator. Usually standardized blunt indicators are helpful for agencies or donors that work globally across a number of countries or regions – a so-called 'headquarters indicator'. But taking action on the ground often requires more specialized information, developed to capture local nuances.

The intention of this approach, however, is to make available a suite of indicators, so that information on a number of dimensions of the problem is available, as well as a summary indicator. VAM surveys collect lots of additional data beyond what is suggested here for the food security console. These data should continue to be presented, as they can be useful for informing programmatic decisions. However, the summary food security indicator presented here can have tremendous utility for assuring that those countries, or specific areas within countries, which are most in need, get necessary resources.

A second limitation concerns use of the food expenditure share as an indicator of income status. The expenditure module common to VAM surveys is not as detailed as those found in a full income and expenditure survey. A particular concern is the likely systematic bias for farm households which consume significant amounts from their own production. Since this food is not purchased, the reported food expenditure share is likely to be underestimated (too low), such that fewer households will appear insecure on this indicator. There is also a concern about the thresholds themselves. While the relationship between income status and food expenditures is well documented, there is not a lot of research for the specific thresholds used in this indicator.

A third limitation is the asset depletion indicator. While there has been substantial research on the coping strategies index (Maxwell, 1996; Maxwell, 1999; Maxwell, 2003), research on an indicator based on just the livelihood coping strategies is

less developed. More work is needed on all aspects of this indicator, including questionnaire design on which strategies to include, the minimum number, their frequencies, etc., and how data from this instrument should be combined and analysed. Another challenge with this type of indicator is that depletion of assets may have occurred in the past, previous to the frame of reference for a given survey. For example, households with prior land sales might not show up with asset depletion in a given survey round, but they might be in much worse conditions than other households with recent depletion.

While there has been substantial research on consumption indicators, proxy measures continue to be improved and updated. We have included the food consumption score in its usual form in this approach. As new research comes out on this measure (Wiesman, 2009; Mathiassen, 2012, Ogden, 2012), perhaps indicating ways in which it can be adjusted for improvements, those can be incorporated into this approach.

A final limitation to this report is that we do not present a validation study or sensitivity analysis. Validating a new approach to assessing food insecurity would require a gold standard for comparison. Unlike in specific domains such as food consumption, there is no gold standard for the multi-dimensional concept of food security. We have done a brief external validity check by comparing results from this indicator to those food security indicators currently used. Additional testing would allow this face validity to be assessed with other indicators or events on the ground in specific countries. The need for more pilot studies on this approach is highlighted for this reason. Another concern regards how sensitive the rates are to variations in data from specific indicators used in the approach. With more examples to draw from it will be easier to do such an analysis, so that we can understand how sensitive the approach is to specific conditions in countries under examination.

Future development of this approach

As discussed above under limitations, more research is clearly needed on the indicators that make up this approach. This is particularly the case with indicators in the bottom half of the algorithm, that is on coping capacity. There is a long history of food consumption measurement, both from the nutrition and applied economics field, but relatively little published work exists on livelihood coping strategies that end up depleting assets. More work on assessing the value of current assets is needed, since use of depletion indicators can miss hardships (e.g. land sales) that occurred before the survey time horizon. This can be done with relatively simple survey techniques.¹⁵ More research is also needed on food expenditures, in particular, to develop ways of collecting useful data that do not overburden respondents. Development of a component to assess the value of food consumed from home production is an important aspect of this. Until such a

¹⁵ Modules exist for collecting information on household possessions, typically in the context of a wealth index. The wealth index itself is a relative measure, so cannot be used here. But simple market surveys can be conducted at the community or regional level to collect data on the monetary value of the household possessions that make up the wealth index. Combining the two would enable calculation of total the value of household assets.

module is developed, it may be possible to implement a simple adjustment for this (see Annex B).

This framework is intended to evolve as new research and information on indicators becomes available. It will be important that analysts wishing to use new indicators base their decisions on peer-reviewed research and explain in a transparent way what they have included in their food security console. Where possible, as in the consumption indicators highlighted here, we have opted for existing indicators with a research base that attests to their utility and their cross-country applicability. Where this does not exist, as in the asset depletion indicator, we have been clear about our approach. It is our hope that this will facilitate more research on this topic, which can then be used to refine the specific recommendations made here.

In this design phase we have relied on the extensive inputs of a VAM officer working group that has given generously of their time in discussing this approach and providing comments on earlier drafts. To keep consistency across countries, it will be useful for future work if some elements of this process are continued so that agreements can be forged on this approach. It might, for example, take the form of a VAM officer consensus panel or technical working group which can reach agreements on the potential selection of new indicators to be used (as they are developed), and the specific thresholds to use in making classifications into four food security groups. A global meeting of the VAM officers would be a likely place to continue conversations about the future of this approach.

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Table 1. Methods for Assessing Food Insecurity by CFSVA Report, 2009-2011

Country	Year	FCS only	FCS as part of other	Other entire	Comment on alternative approach
China	2011	1			
Sierra Leone	2011	1			
Guineee Bissau	2011		1		Also used wealth index, CSI
The Gambia	2011		1		Also used fd exp share, CSI, access to credit
Indonesia	2010			1	Composite indicator based on PCA, 9 indicators
Liberia	2010	1			
Tanzania	2010	1			
Mozambique	2010		1		Cluster analysis with FCS, # assets, CSI
Nepal	2010			1	Uses IPC type system with 12 indicators
Republique du Congo	2010	1			
Chad	2010	1			
Yemen	2010	1			FCS, cut-offs adapted based on IFPRI analysis
Guinee	2010	1			
Malawi	2010	1			
Mauritanie	2009	1			
Burkina Faso	2009			1	FANTA's Hhold Fd Insecurity Assess Scale
Pakistan	2009		1		Weighted (PCA) index of avail, access, absorb
Liberia	2009	1	1		FCS, regression anal to get chronic vs transitory.
Republique Centrafricaine	2009	1			
China	2009			1	Cluster analysis on avail, access, util, consmptn
Myanmar	2009				
Republic of Mozambique	2009		1		FCS, CSI, income sources, other variables
Afghanistan	2009			1	Calculated poverty, food poverty line
Rwanda	2009	1			
Benin	2009	1			
Mali	2009	1			
Uganda	2009	1			
Ghana	2009	1			
Sao Tome e Principe	2009	1			

Table 2. Household Conditions of Proposed WFP Food Security Groups

Food Security Group	Household Group Condition ¹⁶
Food Secure	Able to meet essential food and non-food needs without depletion of assets
Mild Food Insecurity	Has minimally adequate food consumption, but unable to afford some essential non-food expenditures without depletion of assets
Moderate Food Insecurity	Has food consumption gaps, OR, Marginally able to meet minimum food needs only with accelerated depletion of livelihood assets
Severe Food Insecurity	Has large food consumption gaps, OR, Has extreme loss of livelihood assets that will lead to large food consumption gaps, OR worse.

¹⁶ Household group conditions are adapted from the International Food Security Phase Classification (IPC) Version 2.0 (IPC Global Support Unit, 2012). See Annex A1 for a 'crosswalk' comparison to household conditions in the IPC.

Figure 1. A Proposed Algorithm for Classifying Households into Food Security Groups

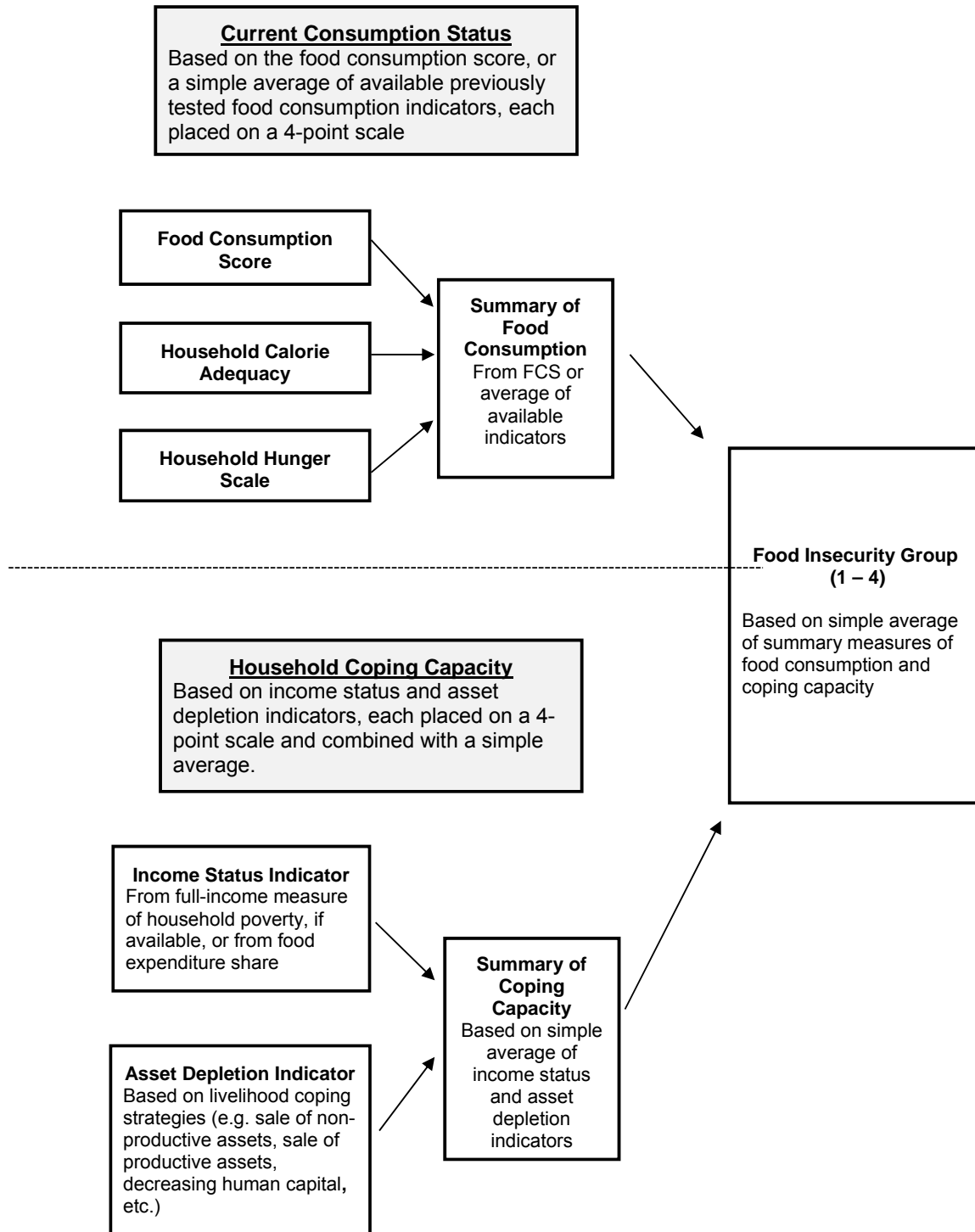


Table 3. Thresholds for Converting Indicators to a 4-Point Scale

Domain		Indicator	Food Secure (1)	Mild Insecurity (2)	Moderate Insecurity (3)	Severe Insecurity (4)
Current Status	Food Consumption	Food consumption score	Acceptable		Borderline	Poor
		Food energy shortfall	kcal/p/d \geq 2100	kcal/p/d < 2100 kcal/p/d \geq mean (MDER, 2100)	kcal/p/d < mean (MDER, 2100), kcal/p/d \geq MDER	kcal/p/d < MDER
		Household Hunger Scale	0	1	2-3	4-6
Coping Capacity	Income Status	Poverty	None		total exp \leq 100% of poverty line	total exp \leq 100% of food poverty line
		High food expenditure share	< 50%	50% -- 65%	65% -- 75%	\geq 75%
	Asset Depletion	Categories based on type of livelihood coping strategies	None	Stress Strategies (e.g. sell non-prod assets)	Crisis Strategies (e.g. sell prod assets)	Emergency Strategies (e.g. sell major prod assets – land)
Summary indicators	Summary of food consumption		Each household assigned to a group based on a simple mean of available consumption indicators that have been converted to 4-point scales.			
	Summary of coping capacity		Each household assigned to a group based on mean of income status and livelihood indicators			
	Overall WFP Food Insecurity Group		Each household assigned to a food insecurity group based on a simple average of the summary of food consumption and the summary of coping capacity. Nutritional status information is presented, if available, but not used in the algorithm that assigns households to food security groups.			
Additional indicators	Nutritional Status	Child Wasting	WT-HT \geq -2Z		WT-HT < -2Z WT-HT \geq -3Z	WT-HT < -3Z
		Child Stunting	HT-AGE \geq -2Z		HT-AGE < -2Z HT-AGE \geq -3Z	HT-AGE < -3Z
		Child MUAC	\geq 13.5 cm	12.5 cm – 13.5 cm	11.5 cm – 12.5 cm	< 11.5 cm
		Adult BMI	\geq 18.5	17 – 18.5	16 – 17	< 16

Table 4. Summary Table of Specific Coping Strategy Items

FI State	Category	Brief Description of Item	Coping Item
X	CSI consumption questions	Items assessing current household food consumption not used here	Limit portion size at mealtimes
			Reduce number of meals eaten per day
			Skip entire days without eating
			Rely on less expensive or less preferred foods
X	Other economic activities	Items assessing routine economic activities not used here	Some members worked for food only
			Increased casual labor
			Migration of one or more household members
2	Stress strategies	Items indicating reduced ability to deal with future shocks due to current reduction in resources or increase in debts	Borrow food, rely on help from friends, relatives
			Purchase/borrow food on credit
			Borrow money
			Sell household assets
			Spend savings
3	Crisis strategies	Items that directly reduce future productivity, including human capital formation	Sell more animals (non-productive) than usual
			Harvest immature crops (e.g. green maize)
			Consume seed stocks held for the next season
			Decrease expenditures on farm inputs
			Sell productive assets
			Take children out of school
			Reduce expenses on health and education
Decrease expenditures for drugs			
4	Emergency strategies	Items that affect future productivity, but are more difficult to reverse, or more dramatic in nature	Send households members to beg
			Sell last female animals (for livestock producers)
			Sell land
			Entire household migrates

Table 5. Suggested Indicators to Estimate a Food Insecurity Rate, by VAM Product

Domain		Indicator	CFSVA-LSMS	CFSVA	FSMS	EFSA	Rapid EFSA
Current Status	Food Consumption	Food consumption score	M	M	M	M	Approach not feasible since these reports are not based on a household survey
		Food energy shortfall	X				
		Household Hunger Scale					
Coping Capacity	Income Status	Poverty	M				
		High food expenditure share	X	M	M	M	
	Livelihoods	Categories based on type of livelihood coping strategies	M	M	M	M	

M = Minimum required indicator to implement the approach

X = Indicator that is also available on the dataset, and should be included in a domain average (e.g. food consumption or income status)

Table 6. Tajikistan Household Food Security Console

	Domain	Key Concern	Tool	Food Insecurity Rates (%)			
				None (1)	Mild (2)	Mod (3)	Sev (4)
Current Status	Food Consumption	Inadequate quantity, quality food	Food Consumption Score	65%		22%	13%
			Food energy shortfall				
		Hunger experience	Household Hunger Scale				
Coping Capacity	Income Status	High food share	High, very high share of total expend on food	24%	26%	20%	30%
		Poverty	Total expend < poverty threshold				
	Asset Depletion	Livelihood coping strategies which deplete assets, decrease production, reduce human capital	Indicator based on stress, crisis, emergency strategies	30%	16%	54%	
Summary Indicators	Overall Food Insecurity Group	Each household assigned to a FI group based on a simple average of the FCS and a coping capacity indicator. The latter is formed from a simple average of the food share and asset depletion indicators		13%	54%	27%	5%
	Current FSMS indicators	Current FSMS indicator (Foodfclass)		72%		16%	12%
		Current Pessimistic FSMS Indicator (Foodfclass2)		45%		42%	12%

Table 6 (cont). Technical Notes on Tajikistan Household Food Security Console

Data come from the Food Security Monitoring System, rounds 1-11, which were fielded from November, 2008 through March, 2012.

Food Consumption Indicators

Food Consumption Score – This is calculated in the standard way (see CFSVA Guidelines, pg 216.) Thresholds used were: poor 0-21; borderline >21, ≤35; acceptable >35. 'Poor' is classified as 'severe food insecurity', 'borderline' is classified as 'moderate' and 'acceptable' is classified as 'none'.

Income Status Indicator

High Food Share – Data from questions on monthly expenditure are summed to create total expenditures. Food expenditures are also summed and divided by this total expenditure. Households with a food expenditure share < 0.50 are classified as food secure on this indicator. Those with a share ≥ 0.50 and < 0.65 are classified as mild. Those with a share ≥ 0.65 and < 0.75 are moderate. Those with a share ≥ 0.75 are severe.

Asset Depletion Indicator

Asset Depletion Indicator – Based on the type of strategy employed. A mild (=2) problem is indicated if 'stress strategies' are employed at least sometimes (3-6 times in the 3-month interval). These include borrowing food, purchasing food on credit, sale of domestic assets and sale of more animals than usual (assumed not to be productive animals). 'Crisis strategies' that decrease productive assets, if they are employed at all (even rarely ~ 1-3 times per 3-month period) are rated as a moderate (=3) problem. These include: consuming seed stocks for the next season; decreasing expenditures for fertilizer, other inputs; selling productive assets; decreasing expenditures for health care. 'Emergency strategies' (e.g. selling land, begging) are not enumerated on this questionnaire. If stress strategies are employed rarely, and if no crisis or emergency strategies are employed, then the condition is secure (=1).

Summary Indicators

Coping Capacity – a simple average at the household level of the high food share and asset depletion indicators.

Food Insecurity Group – a simple average taken at the household level of the food consumption score and the coping capacity indicator.

Table 7. Crosstabs of the Food Consumption Score by Coping Capacity Indicator from the Tajikistan 2008-2011 Food Security Monitoring System

		Food Consumption Score			Total
		1.00	3.00	4.00	
Coping Capacity	1.00	5%	1%	0%	6%
	1.50	8%	2%	1%	11%
	2.00	16%	6%	3%	24%
	2.50	19%	6%	4%	30%
	3.00	9%	4%	3%	16%
	3.50	7%	4%	2%	13%
Total		65%	22%	13%	100%

Overall food security group	1	2	3	4
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Table 8. Rates of Food Consumption and Coping Capacity Problems among Households in the Tajikistan 2008-2011 Food Security Monitoring System

		Current Food Consumption Problem*		Total
		No	Yes	
Coping Capacity Problem*	No	29%	12%	41%
	Yes	36%	23%	59%
Total		65%	35%	100%

* For purposes of this 2 X 2 table, and consistent with previous WFP approaches, a 'problem' is defined as those in a moderate or severe condition. For the food consumption score, this means those in the borderline or poor categories. For coping capacity, it means those with a score of 3 or more on the average of the two indicators used here, i.e. the food expenditure share indicator and the asset depletion indicator.

Table 9. Summary of Results from Case Study Examples

		Food Insecurity Rates (%)			
		None (1)	Mild (2)	Moderate (3)	Severe (4)
Tajikistan FSMS 2008-2011	FCS	65		22	13
	Old FS	72		16	12
	New FS	13	54	27	5
South Sudan * SHHS 2010	FCS	63		21	16
	Old FS	53		29	19
	New FS	35	27	25	13
El Salvador CFSVA 2010	FCS	99		1	
	Old FS				
	New FS	33	67	1	
Guatemala ** EFSA 2010	FCS	78		19	3
	Old FS	78	14	3	5
	New FS	51	40	10	0
Djibouti + EFSA 2012	FCS	27		20	53
	Old FS	23		28	49
	New FS	7	25	52	16
Nepal ++ FSMS 2008-2011	FCS	59		31	10
	Old FS	52	29	18	1
	New FS	21	43	28	9

* The South Sudan dataset does not contain information to be able to estimate an asset depletion indicator, so this approach is not recommended for such a dataset. It is presented here for completeness, as it was one of the original test countries for this methodology.

** In calculating a food insecurity rate, the Guatemala EFSA used a 4 part classification scheme: secure, at risk, moderate food insecurity, and severe food insecurity. For convenience, we have put the at-risk category as equivalent to mild food insecurity.

+ The Djibouti EFSA used a cluster analysis to estimate the 'old' food security rate.

++ The Nepal FSMS used a local-level IPC-type consensus approach to arrive at the 'old' food security rate.

Annex A1. Crosswalk from IPC Phases to Proposed WFP Food Security Groups

IPC Phase	IPC Household Group Condition	WFP Household Food Security Description	WFP Food Security Group
1 – None	Able to meet essential food and non-food needs without engaging in atypical, unsustainable strategies to access food and income, including any reliance on humanitarian assistance.	Able to meet essential food and non-food needs without depletion of assets	1 – Food Secure
2 – Stressed	Even with any humanitarian assistance, has minimally adequate food consumption, but unable to afford some essential non-food expenditures without engaging in irreversible coping strategies	Has minimally adequate food consumption, but unable to afford some essential non-food expenditures without depletion of assets	2 – Mild Food Insecurity
3 – Crisis	Even with any humanitarian assistance, has food consumption gaps with high or above usual acute malnutrition, OR, Marginally able to meet minimum food needs only with accelerated depletion of livelihood assets that will lead to food consumption gaps.	Has food consumption gaps, OR, Marginally able to meet minimum food needs only with accelerated depletion of livelihood assets	3 – Moderate Food Insecurity
4 – Emergency	Even with any humanitarian assistance, has large food consumption gaps resulting in very high acute malnutrition and excess mortality, OR, Has extreme loss of livelihood assets that will lead to large food consumption gaps in the short term	Has large food consumption gaps, OR, Has extreme loss of livelihood assets that will lead to large food consumption gaps, OR worse.	4 – Severe Food Insecurity
5 – Catastrophic	Even with any humanitarian assistance, has extreme lack of food and/or other basic needs even with full employment of coping strategies. Starvation, death, and destitution are evident		

Annex A2. Proposed WFP Food Security Groups, Strategic Objectives, and Programming

Food Security Group	Household Food Security Description	WFP Strategic Objective	WFP Project Activity Targeting Guidance			
			General Food Distribution	School Feeding	FFA/FFW/FFT	Mother and Child Nutrition
1 – Food Secure	Able to meet essential food and non-food needs without depletion of assets					
2 – Mild Food Insecurity	Has minimally adequate food consumption, but unable to afford some essential non-food expenditures without depletion of assets	SO2 – Prevent acute hunger and invest in disaster preparedness and mitigation measures SO4 – Reduce chronic hunger and undernutrition		Eligible population includes total school population enrolled in primary, pre-primary schools + school-age population out of school in food insecure areas. List of food insecure districts should come from best, most recent data from VAM map, IPC map, or by using VAM office thresholds.	Historical analysis on localized food insecurity rates used to classify areas (e.g. district X is moderately food insecure with periods of improvement). Caseload for relief and resilience building developed from occasionally affected areas (food secure without a major shock). Caseloads for relief and early recovery based on historical average food insecurity rates. Within this latter group, worst-off (always food insecure) would form caseload for protective (and some productive) safety net programming.	Broadly designed to correspond to the needs of the moderately malnourished and those at risk of becoming malnourished.
3 – Moderate Food Insecurity	Has food consumption gaps, OR, Marginally able to meet minimum food needs only with accelerated depletion of livelihood assets	SO2 – Prevent acute hunger and invest in disaster preparedness and mitigation measures SO3 – Restore and rebuild lives and livelihoods in post-conflict, post-disaster, transition situations SO4 – Reduce chronic hunger and undernutrition				
4 – Severe Food Insecurity	Has large food consumption gaps, OR, Has extreme loss of livelihood assets that will lead to large food consumption gaps, OR worse.	SO1 – Save lives and protect livelihoods in emergencies SO3 – Restore and rebuild lives and livelihoods in post-conflict, post-disaster, transition situations	Food introduced only when absolutely necessary to save lives and/or protect livelihoods. Used to make up difference between food consumption reqs and what people can provide for themselves without adopting damaging coping strategies. All or significant % of households have inadequate access to food, insufficient food availability.	Absent this information, use absolute poverty or food poverty rates.		
		SO1 – Save lives and protect livelihoods in emergencies				

Annex B1. Food Expenditure Shares by Home Production, VAM Surveys

One serious concern with the food expenditure share indicator is the potential for bias, particularly when using a simplified module that is common to VAM surveys. Of greatest concern is the unintentional but likely exclusion from expenditures of food that is consumed from a household's own production. Since there is no monetary exchange for this food, a household is unlikely to include it when reporting expenditures. Most VAM expenditure modules do not address this explicitly.

We estimated the difference in reported food expenditure between 'home producers' and 'non home producers' using typical VAM expenditure modules. Home producers were defined using the food frequency module data. If a household ate a cereal, tuber, or root crop on 5 or more days in the past week, and the source of that food was its own production, then a household was classified as a 'home producer'. All other households were classified as 'not home producers'. Home producers expenditure shares were 5 to 15 percentage points lower than other households.

			Home producers		Not home producers		
Country	Report	Year	N	Fd Exp Share (%) mean (SE)	N	Fd Exp Share (%) mean (SE)	Difference (percentage points)
Nepal	FSMS	2008-2011	2917	51.9 (0.4)	4520	66.5 (0.4)	- 14.6
Tajikistan	FSMS	2008-2012	1842	59.4 (0.5)	4124	64.0 (0.3)	- 4.6
South Sudan	SHHS	2010	2908	44.5 (0.5)	5326	53.9 (0.4)	- 8.7
Rwanda	CFSVA	2012	3267	41.5 (0.4)	4226	52.2 (0.4)	- 10.7
Rwanda	CFSVA	2009	2355	56.2 (0.4)	3076	63.5 (0.4)	- 7.3

Annex B2. Food Expenditure Shares by Urbanization, LSMS surveys

We also estimated food expenditure differentials from 'gold standard' expenditure surveys, the Living Standards Measurement Surveys from the World Bank. A site is maintained for conducting brief analyses online: <http://iresearch.worldbank.org/clsp/index.aspx>. Using data from WFP countries available on this site, we explored the difference in food expenditure shares for rural and urban households (both poor and non-poor). There is no simple universal way to create a home production indicator with these datasets, so we used rural as a proxy for home-producing households. This is a 'noisy' indicator, as many rural households do not consume much from their own production, and some urban households do. But it gives a first approximation on the differences in spending.

The data in the table below show that rural non-poor households across 9 different countries (and 13 surveys) average food-expenditure shares 12 percentage points higher than their urban counterparts in those countries (range: 2– 23 percentage points). For poor households the average difference is about 7 percentage points (range: 0–13 percentage points).

Country	Year	Rural non-poor	Urban non-poor	diff	Rural poor	Urban poor	diff
Ecuador	1998	.53 (.17)	.40 (.18)	.13	.60 (.15)	.53 (.16)	.07
Ghana	1991	.64 (.14)	.52 (.16)	.12	.66 (.13)	.57 (.14)	.09
Ghana	1998	.63 (.14)	.54 (.14)	.09	.64 (.12)	.58 (.12)	.06
Guatemala	2000	.50 (.14)	.38 (.13)	.12	.57 (.12)	.50 (.12)	.07
Malawi	2004	.61 (.15)	.53 (.14)	.08	.62 (.12)	.60 (.10)	.02
Nepal	2003	.60 (.16)	.37 (.18)	.23	.71 (.11)	.64 (.12)*	.07
Nepal	1996	.61 (.16)	.38 (.16)	.23	.70 (.12)	.62 (.12)*	.08
Pakistan	1991	.58 (.16)	.44 (.15)	.14	.60 (.14)	.53 (.13)	.07
Panama	2003	.44 (.16)	.33 (.13)	.11	.60 (.16)	.47 (.12)	.13
Panama	1997	.48 (.15)	.37 (.13)	.11	.61 (.15)	.50 (.13)	.11
Tajikistan	2003	.66 (.17)	.64 (.17)	.02	.72 (.13)	.72 (.13)	.00
Vietnam	1992	.56 (.14)	.48 (.13)	.08	.68 (.12)	.61 (.11)	.07
Vietnam	1997	.56 (.13)	.47 (.13)	.09	.68 (.10)	.62 (.11)	.06

In other words rural (and probably home-producing) households have food expenditure shares, when properly valued, which are higher than non-producers.

Taken together these two tables suggest that the brief VAM modules probably underestimate food expenditure shares by at least an average of 10 percentage points, and probably higher.

This potential bias needs to be better estimated and survey modules need to be improved. In the meantime, can an adjustment be developed that addresses this problem? For CFSVAs based on questionnaires with a detailed agricultural production section, it may be possible to estimate the value of consumption from own production, at least for staples. This was done with data from El Salvador, and it made a noticeable difference in classification of households on this indicator. An alternative for surveys may be to lower the thresholds for the food expenditure share indicator presented in Table 3. We tried using the home producer definition above, and lowered the thresholds for all categories (secure to severe) by 10 percentage points. This seems like a conservative approach given the estimates above. Analysts might wish to try this approach, so that we can gather more information on how sensitive the results are to this issue. See the Nepal syntax (Annex X) for how to implement this adjustment in SPSS.

Annex C1. South Sudan Household Food Security Console

	Domain	Key Concern	Tool	Food Insecurity Rates (%)			
				None (1)	Mild (2)	Mod (3)	Sev (4)
Current	Food Consumption	Inadequate quantity, quality food	Food Consumption Score	63%		21%	16%
			Food energy shortfall				
		Hunger experience	Hhold Hunger Scale				
Coping Capacity	Food Access	High food share	High, very high share of total expend on food	47%	21%	12%	20%
		Poverty	Total expend < poverty threshold				
	Livelihood	Livelihood coping strategies which deplete assets, decrease production, reduce human capital	Indicator based on stress, crisis, emergency strategies				
	Overall WFP Food Insecurity Group	Each household assigned to a FI group based on a simple average of the FCS and the food share indicator.		35%	27%	25%	13%
	Current indicator	Country office indicator (FoodSecurityHJ)		53%		29%	19%

Annex C1 (Cont). Technical Notes on South Sudan Food Security Console

Data come from the Sudan Household Health Survey (SHHS), which was fielded in April of 2010. The SHHS included a food security module which had standard VAM questions on food consumption and food expenditures.

Food Consumption Indicators

Food Consumption Score – This is calculated in the standard way (see CFSVA Guidelines, pg 216.) Thresholds used were: poor 0-21; borderline >21, ≤35; acceptable >35. 'Poor' is classified as 'severe food insecurity', 'borderline' is classified as 'moderate' and 'acceptable' is classified as 'none'.

Income Status Indicators

High Food Share – Data from questions on monthly expenditure are summed to create total expenditures. Food expenditures are also summed and divided by this total expenditure. Households with a food expenditure share < 0.65 are classified as food secure on this indicator. Those with a share ≥ 0.65 and < 0.75 are classified as mild. Those with a share ≥ 0.75 and < 0.90 are moderate. Those with a share ≥ 0.90 are severe.

Asset Depletion Indicators

Information on livelihood coping strategies was not collected in this survey.

Summary Indicators

WFP Food Insecurity Group – based on a simple average, taken at the household level, of the food consumption score and the food expenditure share indicator.

Data source: CFSVA 2010 (not published)

Annex C2. El Salvador Household Food Security Console

	Domain	Key Problem	Tool	Food Insecurity Rates (%)			
				None (1)	Mild (2)	Mod (3)	Sev (4)
Current status	Nutritional Status	Child malnutrition	Wasting				
			Stunting				
	Food Consumption	Inadequate quantity, quality food	Food Consumption Score	99%		1%	
			Hunger experience				
Coping Capacity	Income Status	High food share	High, very high share of total expend on food	14%	27%	30%	29%
		Food poverty	Food expend < cost of adequate diet				
	Asset Depletion	Livelihood coping strategies which deplete assets, decrease production, reduce human capital	Indicator based on stress, crisis, emergency strategies	82%	5%	13%	
	Overall WFP Food Insecurity Group	Each household assigned to a FI group based on a simple average of the FCS and a coping capacity indicator. The latter is formed from a simple average of the food share and asset depletion indicators.		33%	67%	1%	

Annex C2 (Cont). Technical Notes on El Salvador Household Food Security Console

Data come from the El Salvador Comprehensive Food Security and Vulnerability Analysis survey conducted in 2010, and not yet published.

Food Consumption Indicators

Food Consumption Score – This is calculated in the standard way (see CFSVA Guidelines, pg 216.) Thresholds used were: poor 0-21; borderline >21, ≤35; acceptable >35. 'Poor' is classified as 'severe food insecurity', 'borderline' is classified as 'moderate' and 'acceptable' is classified as 'none'.

Income Status Indicators

High Food Share – Data from questions on monthly expenditure are summed to create total expenditures. Food expenditures are also summed and divided by this total expenditure. Food expenditures were adjusted based on household production of staple crops. Households with a food expenditure share < 0.50 are classified as food secure on this indicator. Those with a share ≥ 0.50 and < 0.65 are classified as mild. Those with a share ≥ 0.65 and < 0.75 are moderate. Those with a share ≥ 0.75 are severe.

Asset Depletion Indicators

Asset Depletion Indicator – Based on the type of strategy employed. Households with no strategies were classified in group 1 (food secure on this indicator). A mild (=2) problem is indicated if 'stress' strategies are employed. These include spending savings, increasing debts, and selling off household goods. Crisis strategies that decrease productive assets or human capital are rated as moderate (=3), and include: consuming seed stocks for the next season, selling off animals, selling productive assets, taking kids out of school, and reducing spending on health and education. More severe, or emergency, strategies included selling land and begging.

Summary Indicators

Coping Capacity – a simple average taken at the household level of the high food share and asset depletion indicators.

WFP Food Insecurity Group – a simple average taken at the household level of the food consumption score and the coping capacity indicator.

Annex C3. Guatemala Household Food Security Console

	Domain	Key Problem	Tool	Food Insecurity Rates (%)			
				None (1)	Mild (2)	Mod (3)	Sev (4)
Current status	Nutritional Status	Child malnutrition	Wasting				
			Stunting				
	Food Consumption	Inadequate quantity, quality food	Food Consumption Score	78%		19%	3%
			Food energy shortfall				
	Hunger experience	Hhold Hunger Scale					
Coping Capacity	Income Status	High food share	High, very high share of total expend on food	60%	20%	10%	10%
		Food poverty	Food expend < cost of adequate diet				
	Asset Depletion	Livelihood coping strategies which deplete assets, decrease production, reduce human capital	Indicator based on stress, crisis, emergency strategies	41%	32%	27%	0%
	Overall WFP Food Insecurity Group	Each household assigned to a FI group based on a simple average of the FCS and a coping capacity indicator. The latter is formed from a simple average of the food share and asset depletion indicators.		51%	40%	10%	0%
	EFSA 2010 Results	Classification used: Secure; At Risk; Moderate Food Insecurity ; and Severe Food Insecurity		78%	14%	3%	5%

Annex C3 (cont). Technical Notes on Guatemala Household Food Security Console

Data came from the WFP Guatemala EFSA 2010, which was collected July 2010.

Food Consumption Indicators

Food Consumption Score – This is calculated in the standard way (see CFSVA Guidelines, pg 216.) Thresholds used were: poor 0-21; borderline >21, ≤35; acceptable >35. 'Poor' is classified as 'severe food insecurity', 'borderline' is classified as 'moderate' and 'acceptable' is classified as 'none'.

Income Status Indicators

High Food Share – Data from questions on monthly expenditure are summed to create total expenditures. Food expenditures are also summed and divided by this total expenditure. Households with a food expenditure share < 0.50 are classified as food secure on this indicator. Those with a share ≥ 0.50 and < 0.65 are classified as mild. Those with a share ≥ 0.65 and < 0.75 are moderate. Those with a share ≥ 0.75 are severe.

Asset Depletion Indicators

Asset Depletion Indicator – Based on the type of strategy employed. A mild (=2) problem is indicated if 'stress strategies' are employed at least sometimes (3-6 times in the 3-month interval). These include borrowing food, purchasing food on credit, sale of domestic assets and sale of more animals than usual (assumed not to be productive animals). 'Crisis strategies' that decrease productive assets, if they are employed at all (even rarely ~ 1-3 times per 3-month period) are rated as a moderate (=3) problem. These include: consuming seed stocks for the next season; decreasing expenditures for fertilizer, other inputs; selling productive assets; decreasing expenditures for health care. 'Emergency strategies' (e.g. selling land, begging) are not enumerated on this questionnaire. If stress strategies are employed rarely, and if no crisis or emergency strategies are employed, then the condition is secure (=1).

Summary Indicators

Coping Capacity – a simple average taken at the household level of the high food share, food poverty and asset depletion indicators.

WFP Food Insecurity Group – a simple average taken at the household level of the food consumption score and the coping capacity indicator.

Annex C4. Djibouti Household Food Security Console

	Domain	Key Concern	Tool	Food Insecurity Rates (%)			
				None (1)	Mild (2)	Mod (3)	Sev (4)
Current status	Nutritional Status	Child malnutrition	Wasting				
			Stunting				
	Food Consumption	Inadequate quantity, quality food	Food Consumption Score	27%		20%	53%
			Food energy shortfall				
	Hunger experience	Household Hunger Scale					
Coping Capacity	Income Status	High food share	High, very high share of total expend on food	32%	15%	17%	36%
		Poverty	Total expend < poverty threshold				
	Asset Depletion	Livelihood coping strategies which deplete assets, decrease production, reduce human capital	Indicator based on stress, crisis, emergency strategies	9%	35%	48%	8%
Summary Indicators	Overall WFP Food Insecurity Group	Each household assigned to a FI group based on a simple average of the FCS and a coping capacity indicator. The latter is formed from a simple average of the food share and asset depletion indicators		7%	25%	52%	16%
	Current food security classification			23%		28%	49%

Annex C5. Nepal Household Food Security Console

	Domain	Key Problem	Tool	Food Insecurity Rates (%)			
				None (1)	Mild (2)	Mod (3)	Sev (4)
Current status	Nutritional Status	Child malnutrition	Wasting				
			Stunting				
	Food Consumption	Inadequate quantity, quality food	Food Consumption Score	59%		31%	10%
			Food energy shortfall				
	Hunger experience	Hhold Hunger Scale					
Coping Capacity	Income Status	High food share	High, very high share of total expend on food	31%	23%	16%	31%
		Poverty	Total expend < poverty thresholds				
	Asset Depletion	Livelihood coping strategies which deplete assets, decrease production, reduce human capital	Indicator based on stress, crisis, emergency strategies	32%	20%	36%	12%
	Overall WFP Food Insecurity Group	Each household assigned to a FI group based on a simple average of the FCS and a coping capacity indicator. The latter is formed from a simple average of the food share and asset depletion indicators.		21%	43%	28%	9%
	Current FSMS indicators	Food Insec Phase	VDC previous	52%	29%	18%	1%
			VDC expected	54%	27%	17%	2%

Annex C5 (Cont). Technical Notes on Nepal Household Food Security Console

Data come from the Nepal Food Security Monitoring System, rounds 1-12, which were fielded from 2008-2010.

Food Consumption Indicators

Food Consumption Score – This is calculated in the standard way (see CFSVA Guidelines, pg 216.) Thresholds used were: poor 0-21; borderline >21, ≤35; acceptable >35. 'Poor' is classified as 'severe food insecurity', 'borderline' is classified as 'moderate' and 'acceptable' is classified as 'none'.

Income Status Indicators

High Food Share – Data from questions on monthly expenditure are summed to create total expenditures. Food expenditures are also summed and divided by this total expenditure. Households with a food expenditure share < 0.65 are classified as food secure on this indicator. Those with a share ≥ 0.65 and < 0.75 are classified as mild. Those with a share ≥ 0.75 and < 0.90 are moderate. Those with a share ≥ 0.90 are severe.

Asset Depletion Indicators

Asset Depletion Indicator – Based on the type of strategy employed. A mild (=2) problem is indicated if any 'stress strategies' are employed at least sometimes (> 2 times per month). These include borrowing money to buy food, spending savings on food, collecting and selling firewood, and reducing spending on non-food items. 'Crisis strategies' that decrease productive assets or human capital are rated as moderate (=3), and include: consuming seed stocks for the next season; taking kids out of school, and selling productive assets, such as agricultural tools. More severe, or emergency, strategies include selling land and begging. If stress strategies are employed rarely (≤ 2 times per month), and if crisis or emergency strategies are never employed (or only seldom), then the condition is secure (=1).

Summary Indicators

Coping Capacity – a simple average taken at the household level of the high food share and asset depletion indicators.

WFP Food Insecurity Group – a simple average taken at the household level of the food consumption score and the coping capacity indicator.

Annex D. Milestones in the Food Security Assessment Project Design Phase

Date	Activity
8 Feb	Initial seminar presentation to WFP HQ Staff on food security assessment project
9 Feb	Initial teleconferences with WFP Field Staff on food security assessment project
20 Feb	Report of initial meetings distributed to participants
29 Feb	First teleconference meetings of VAM officer working group
7 Mar	Work begins on S. Sudan SHPS data for developing 'food security console'
15 Mar	Work begins on Nepal LSMS data for developing 'food security console'
22 Mar	Preliminary draft of proposed approach circulated to working group
28 Mar	Second teleconference meetings of VAM officer working group
3 Apr	Working group comments on preliminary draft collated and circulated
18 Apr	Work begins on Tajikistan FSMS data for developing 'food security console'
7 May	Work begins on El Salvador CFSVA data for developing 'food security console'
16 May	Work begins on Nepal FSMS data for developing 'food security console'
5 Jun	Presentation on revised approach to CFSVA team
7 Jun	Presentation on revised approach to FSAS senior management team
16 Jun	Revision to proposed approach circulated to working group
16 Jun	Response to comments on preliminary draft circulated to working group
3 Jul	Third teleconference meetings of VAM officer working group
10 Jul	Second presentation on revised approach to FSAS senior management team
20 Jul	Work begins on Rwanda CFSVA data
9 Aug	Final seminar presentation to WFP HQ Staff on this phase of assessment project
22 Aug	Work begins on Djibouti EFSA data
29 Aug	Work begins on Guatemala EFSA data
5 Sep	Seminar presentation to FAO Economic and Social Development Department
7 Sep	Penultimate draft of report delivered
13 Dec	Final design phase report delivered

Annex E1. Nepal Syntax

```
*Nepal FSMS_WFP Fd Sec Approach_27AUG2012 --
*This develops output for a new 'food security console' using Nepal FSMS data.
*This version is updated from the last in that it addresses a potential bias in food expenditure share data (see below).
*Data are based on 12 rounds of FSMS.
*This includes a new algorithm (updated June 15, July 10th) for determining food security status, which begins after all indicators are placed on
a 4-point scale.

*Food security is assessed by averaging food consumption and coping capacity indicators, following adapted household conditions described in IPC
Version 2.0.
*Food consumption is based on the Food Consumption Score.
*Coping capacity is defined by income status and asset depletion indicators.
*For income status, the food expenditure share was used.
*Because those consuming food from their own production may appear to have lower food expenditures than they actually do,
*this version, includes a 'patch' to correct this bias.
*Specifically, thresholds for classifying households as having medium, high, or very high food expenditures, were lowered by 10 percentage
points,
*for those who frequently consume staple foods that came from their own home production.
*For asset depletion, a livelihood coping indicator was based on the coping strategies questions that indicate asset sales, reduced human capital
investments, etc.
*See comment lines below for more details.

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.

*This dataset was prepared by Inci from datasets received from the Country Office.

GET FILE='C:\Users\diego.rose\Documents\Data work\Nepal FSMS\Nepal_merge2_16MAY2012_2.sav'.
DATASET NAME DataSet2 WINDOW=FRONT.

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.

*This indicator has three categories: acceptable is considered food secure (=1); borderline (=3) or moderate food inseg; and poor (=4) is severe
food insecurity.

if fc_groups2l_org = 3 WFP_fcs = 1.
if fc_groups2l_org = 2 WFP_fcs = 3.
if fc_groups2l_org = 1 WFP_fcs = 4.

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.
```

```

*This is based on the classic indicator of expenditure share.
*IFPRI (Smith et al) outlines categories for low (<50%), medium ( 50-65), high (>=65%), and very high (>=75%) fd exp shares.

*the first line codes for a summary food expenditure variable by summing expenditures from various food groups.
*the second line codes for a sum of non food expenditures.
*third line adds them into a total expenditures.
*fourth line codes for food expenditure share.
*the Country Office used different variables ('expfood' and 'expnfood') in the early rounds, which was eventually replaced with the above
detailed variables on expenditures.
*so in order to use both (and reduce the number of missing cases), I included a statement (fifth line of code) for calculating food exp share in
these early rounds.

compute fdexp = sum(expfcer1, expfpuls, expfcoil, expfmeat, expfmilk, expfvege, expfspic, expfsugt, expfproc, expfoth).
compute nfdexp = sum(expnfagr, expnfmed, expnfedu, expnfclo, expnffue, expnftra, expnfsoc, expnfvct, expnfdcb, expnfoth).
compute totexp = sum(fdexp, nfdexp).
compute foodexp_share = (fdexp/totexp)*100.
if sysmis (fdexp) or sysmis(totexp) foodexp_share = (expfood/(sum(expfood, expnfood)))*100.

*These lines below convert the continuous variable into a 4-point scale variable.
*(Note that different thresholds were used for runs done earlier, i.e. previous to Jul 10th. These have been revised based on feedback from
several analysts).

if foodexp_share >=0 and foodexp_share < 50 WFP_fdexp= 1.
if foodexp_share >=50 and foodexp_share <65 WFP_fdexp = 2.
if foodexp_share >=65 and foodexp_share <75 WFP_fdexp = 3.
if foodexp_share >=75 WFP_fdexp = 4.
value labels WFP_fdexp 1 '< 50%' 2 '>=50%, <65%' 3 '>=65%, <75%' 4 '>=75%' .

*Because many households consume foods from their own production, and because these may not be considered as 'expenditures'
*by respondents, food expenditure share estimates for these households may be biased downward, i.e. lower than the true expenditure shares.
*We are trying a patch to address this issue, which is to lower the thresholds for classification of households for whom it is most likely a
problem.
*The strategy, which is designed to be simple, is to create a dichotomous indicator variable (0/1) to distinguish hholds that consume staples
frequently from home prod.
*Then, for these households, use adjusted thresholds for categorizing the food expend shares, lowered across the board by 10 percentage points,
or 20 percentage points.
*These estimates are based on our early work on inspection of VAM datasets, and literature values.
*After we have more information on this, we will pick one of these adjustments to recommend globally.

*To create the indicator variable for home producers, use the food frequency variables from the food consumption module:
* code 0, if they have a non-missing value on the Food Consumption Score, and
* code 1, if any of the staple grains or tubers are eaten on 5 or more days, and the source is home production.
* Write the code in this sequence, so that the home-producers will get recoded, but others will not .

if FCS >=0 homeprod = 0.
if ((rice >=5 and srcrice = 1) or (maize >=5 and srcmaize = 1) or (wheat >=5 and srcwhmil = 1) or (potatoe >=5 and srcpotat = 1)) homeprod = 1.

*now develop the new thresholds, based on the discussion above.

```

```

compute WFP_fdexp_2a = WFP_fdexp.
if homeprod = 1 and foodexp_share >=0 and foodexp_share < 40 WFP_fdexp_2a = 1.
if homeprod = 1 and foodexp_share >=40 and foodexp_share <55 WFP_fdexp_2a = 2.
if homeprod = 1 and foodexp_share >=55 and foodexp_share <65 WFP_fdexp_2a = 3.
if homeprod = 1 and foodexp_share >=65 WFP_fdexp_2a = 4.
value labels WFP_fdexp_2a 1 '< 40%' 2 '>=40%, 55%' 3 '>=55%, 65%' 4 '>=65%' .

```

```

compute WFP_fdexp_2b = WFP_fdexp.
if homeprod = 1 and foodexp_share >=0 and foodexp_share < 30 WFP_fdexp_2b = 1.
if homeprod = 1 and foodexp_share >=30 and foodexp_share <45 WFP_fdexp_2b = 2.
if homeprod = 1 and foodexp_share >=45 and foodexp_share <55 WFP_fdexp_2b = 3.
if homeprod = 1 and foodexp_share >=55 WFP_fdexp_2b = 4.
value labels WFP_fdexp_2b 1 '< 30%' 2 '>=30%, 45%' 3 '>=45%, 55%' 4 '>=55%' .

```

*XXX ASSET DEPLETION INDICATORS XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .

*XXX Livelihood coping strategies indicator XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.

*These indicators come from the coping strategies index questions, but are oriented specifically around livelihoods, rather than consumption.
 *Because consumption is covered above with other indicators (FCS), conceptually there is no point to include it again here.
 *So coding is done here just for asset depletion or livelihood coping type indicators.

*First each of the relevant coping strategies is recoded into 4 categories: everyday or >= 3 d/wk is sever (=4); < 3d/wk is moderate (=3); 1-2x/mo is mild (=2).

*and never or seldom is none (=1).

*This coding was designed for the Nepal FSMS, and may need to vary for a different country if the survey questionnaire is different in terms of the frequency.

*Borrowing for food coded below.

```

if shborrow <=2 cope_shborrow = 4.
if shborrow = 3 cope_shborrow = 3.
if shborrow = 4 cope_shborrow = 2.
if shborrow = 5 cope_shborrow = 1.

```

*spending savings on food .

```

if shsaving <=2 cope_shsaving = 4.
if shsaving = 3 cope_shsaving = 3.
if shsaving = 4 cope_shsaving = 2.
if shsaving = 5 cope_shsaving = 1.

```

*collect firewood (depleting nat resoruces).

```

if shfire <=2 cope_shfire = 4.
if shfire = 3 cope_shfire = 3.
if shfire = 4 cope_shfire = 2.
if shfire = 5 cope_shfire = 1.

```

```

*eat seed stock (reducing next year's crop).
if shseed <=2 cope_shseed = 4.
if shseed = 3 cope_shseed = 3.
if shseed = 4 cope_shseed = 2.
if shseed = 5 cope_shseed = 1.

*take kids out of school (reduce human capital).
if shschool <=2 cope_shschool = 4.
if shschool = 3 cope_shschool = 3.
if shschool = 4 cope_shschool = 2.
if shschool = 5 cope_shschool = 1.

*begging (reduces hum capital -- dignity).
if shbeg <=2 cope_shbeg = 4.
if shbeg = 3 cope_shbeg = 3.
if shbeg = 4 cope_shbeg = 2.
if shbeg = 5 cope_shbeg = 1.

*These variables below here were coded dichotmously on the survey form.
*household sell assets -- consider this mild .
if shhhass = 1 cope_shhhass = 2.
if shhhass = 2 cope_shhhass = 1.

*sell agricultural assets -- consider this moderate.
if shagrass = 1 cope_shagrass = 3.
if shagrass = 2 cope_shagrass = 1.

*sell land -- consider this severe.
if shland = 1 cope_shland = 4.
if shland = 2 cope_shland = 1.

*reduce spending on non-food items -- consider this mild.
if redunfc = 1 cope_redunfc = 2.
if redunfc = 2 cope_redunfc = 1.

*this variable below had too many missing cases to use in the final version of the indicator.
*reduce spending on educational items -- consider this mild.
if redexped = 1 cope_redexped = 2.
if redexped = 2 cope_redexped = 1.

*Now these individual items are combined into one livelihood coping strategies indicator variable.
*Stress strategies (=2 on proposed WFP food security scale) are borrow for food, use savings for food, collect/sell firewood, sell household
assets,
* and reduce spending on non-food items.
*To count as a stress strategy, these indicators need to be done at least sometimes (>2) (i.e. > 1-2x/month).
*unless they are based on dichotomous questions (yes/no), such that coding is >=2.
*Crisis strategies are eating seed stock, taking kids out of school, selling agricultural assets.

```

*Emergency strategies are selling land or begging.
 *All crisis or emergency indicators count, even if done infrequently (i.e. >=2, which means either yes (on dichotomous q's) or more than never/seldom (>1)).
 *Note that the first statement is coded as an 'OR' statement to reduce missings, since not all households answered all items.
 *Therefore, the order of these statements needs to be preserved.

```
if cope_shborrow <=2 or cope_shsaving <=2 or cope_shfire <=2 or cope_shseed <=1 or cope_shschool <=1 or cope_shbeg <=1 or cope_shhhass <=1
  or cope_shagrass <=1 or cope_shland <=1 or cope_redunfc <=1 WFP_livelicope = 1.
if cope_shborrow > 2 or cope_shsaving > 2 or cope_shfire > 2 or cope_shhhass > 1 or cope_redunfc > 1 WFP_livelicope = 2.
if cope_shseed > 1 or cope_shschool > 1 or cope_shagrass > 1 WFP_livelicope = 3.
if cope_shland > 1 or cope_shbeg > 1 WFP_livelicope = 4.
variable labels WFP_livelicope '10 vars, categ by sometimes insur; any crisis or distress strats; uses OR statement for food secure' .
```

XXXXXXXXXXXXXXXXXXXXXXXXXXXX WFP SUMMARY HOUSEHOLD FOOD SECURITY INDICATOR XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .

*Calculate mean coping capacity index.
 *Do NOT round off at this stage.

```
compute WFP_copemean = mean(WFP_fdexp, WFP_livelicope).
compute WFP_copemean_2a = mean(WFP_fdexp_2a, WFP_livelicope).
compute WFP_copemean_2b = mean(WFP_fdexp_2b, WFP_livelicope).
```

*Calculate overall food security rating.
 *YES, round off at this stage.

```
compute WFP_FDINSEC = rnd(mean(WFP_fcs, WFP_copemean)).
variable labels WFP_FDINSEC 'Avg of FCS and WFP_copemean (from WFP_fdexp, WFP_livelicope)' .
```

```
compute WFP_FDINSEC_2a = rnd(mean(WFP_fcs, WFP_copemean_2a)).
variable labels WFP_FDINSEC_2a 'Avg of FCS and WFP_copemean_2a (from WFP_fdexp_2a, WFP_livelicope)' .
```

```
compute WFP_FDINSEC_2b = rnd(mean(WFP_fcs, WFP_copemean_2b)).
variable labels WFP_FDINSEC_2b 'Avg of FCS and WFP_copemean_2b (from WFP_fdexp_2b, WFP_livelicope)' .
```

XXXXXXXXXXXXXXXXXXXXXXXXXXXX DESCRIPTIVE STATISTICS FOR FOOD SECURITY CONSOLE XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.

```
freq WFP_fcs WFP_fdexp WFP_livelicope WFP_copemean WFP_FDINSEC .
freq WFP_fcs WFP_fdexp_2a WFP_livelicope WFP_copemean_2a WFP_FDINSEC_2a .
freq WFP_fcs WFP_fdexp_2b WFP_livelicope WFP_copemean_2b WFP_FDINSEC_2b .
```



```

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX LIVELIHOOD COPING STRATEGIES XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Livelihood coping strategies indicators XXXXXXXXXXXXXXXXXXXXXXXXXXXX.

*This indicators come from the coping strategies index questions, but are oriented specifically around livelihoods, rather than consumption.
*Because consumption is covered above with other indicators, conceptually there is no point to include it again here.
*This is based on MSF, IPC, heat concepts.
*insurance strategies or stress strategies-- selling non-prod assets or selling more animals than usual = mild.
*crisis strategies or selling productive assets -- eating next year's seed, spending less on inputs, sell ag implements, reduced health exp = moderate.
*emergency strategies (e.g. selling land, begging) are not separated out (land), or not asked (begging).
*again, kids out of school and pres drugs not used because of missings.

*This is the final version of this indicator .
*It leaves the > 2 coding for stress indicators, but reverts to > 1 coding for crisis indicators.

if s6_22 <=2 and s6_23 <= 2 and s6_29<=1 and s6_30 <=1 and s6_31<=2 and s6_32 <=1 and s6_33<=2 and s6_34<=1 livelicope4=1.
if s6_22 > 2 or s6_23 > 2 or s6_31 > 2 or s6_33 > 2 livelicope4 = 2.
if s6_29 > 1 or s6_30 > 1 or s6_32 > 1 or s6_34 > 1 livelicope4 = 3.

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX WFP SUMMARY HOUSEHOLD FOOD SECURITY INDICATOR XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX .

*This is based on an average of the food consumption score and coping capacity.
*First need to compute mean coping capacity.

compute WFP_cope_mean_2a = mean(WFP_fdexp_2a, livelicope4).

*Now compute new avearge indicator.

compute WFP_fdins_summaryF_2a = rnd(mean(WFP_fcs, WFP_cope_mean_2a)) .
variable labels WFP_fdins_summaryF 'Avg of FCS, Coping Capacity (avg of WFP_fdexp_2a, livelicope4)' .

*XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX DESCRIPTIVE STATISTICS FOR FOOD SECURITY CONSOLE XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX.

FREQUENCIES WFP_fcs WFP_fdexp_2a livelicope4 wfp_cope_mean_2a WFP_fdins_summaryF_2a foodfsclass foodfsclass2 .

cross wfp_cope_mean_2a by wfp_fcs
  /cell = total.

if wfp_cope_mean_2a >2 futprob2a = 1.
if wfp_cope_mean_2a <=2 futprob2a = 0.

if wfp_fcs >=3 fdcons = 1.
if wfp_fcs < 3 fdcons = 0.

cross futprob2a by fdcons
  /cell = total.

```