

**THE ASSESSMENT OF FOOD INSECURITY  
IN SOUTH AFRICA**

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## Acronyms and abbreviations

CHHIP	Community Childhood Hunger Identification Project
Cosatu	Congress of South African Trade Unions
CPEG	Centre for Poverty, Employment and Growth
CPI	Consumer Price Index
CS	Community Survey
DU	Dwelling Unit
EA	enumerator area
FI	food insecurity
FIVIMS	Food Insecurity and Vulnerability Information Management System
GDP	Gross Domestic Product
GHS	General Household Survey
HDSS	Household Dietary Diversity Score
HFIAS	Household FI Access Scale
HH	household
HIV/AIDS	Human Immunodeficiency Virus /Acquired Immune Disease Syndrome
HSQ	Hunger Scale Questionnaire
HSRC	Human Sciences Research Council
IES	Income and Expenditure Survey
LFS	Labour Force Survey
NFCS	National Food Consumption Surveys
NFCS-FB-I	National Food Consumption Survey: Fortification Baseline-I
PPS	Probability Proportional to Size
PSU	Primary Sampling Unit
SASAS	South African Social Attitudes Survey
SSU	Secondary Sampling Unit
Stats SA	Statistics South Africa
USA	United States of America

## **Executive summary**

This paper aims to provide a synopsis of available national data sets which may contribute to our better understanding of how food security is conceptualised, defined and assessed within the context of South Africa. More specifically, the paper aims to show that a number of such data sets using different parameters have been used to inform policy and strategies aimed at addressing food insecurity (FI) in the country. Methodologically, the paper presents the various national surveys mostly in a tabular format, highlighting for example the key focus areas/indicators, target audiences, sample sizes, survey time intervals and primary sampling units. Of particular note is that each of these data sets addresses FI in a way that reflects the survey-specific terms of reference of a given national survey, and has its own unique methodological approach with varying strengths and weaknesses. In addition, each of these data sets measures different dimensions of FI. By the very nature of the various surveys included in this review – the National Food Consumption Surveys (NFCS), FI and Vulnerability Information Management System (FIVIMS; regional study), General Household Survey (GHS), Income and Expenditure Survey (IES), Labour Force Survey (LFS), Community Surveys and the national HIV/AIDS surveys – the findings from these data sets differ. Comparing such findings, therefore, presents its own challenges and requires due care when attempting to define the prevalence of FI in the country. Based on the technical differences and/or similarities of the surveys and their key findings, the paper draws conclusions and makes recommendations on the need for a more “focused and integrated approach” to measure FI. Finally, and despite the potential for the better utilisation of the existing data sets, this review argues in favour of a more food security-specific national survey approach.

## **1. Introduction and background**

This paper is part of a broader project which focuses on food insecurity (FI) in South Africa. More specifically, this paper is one in a series of papers produced by the Centre for Poverty, Employment and Growth (CPEG) at the Human Sciences Research Council (HSRC).

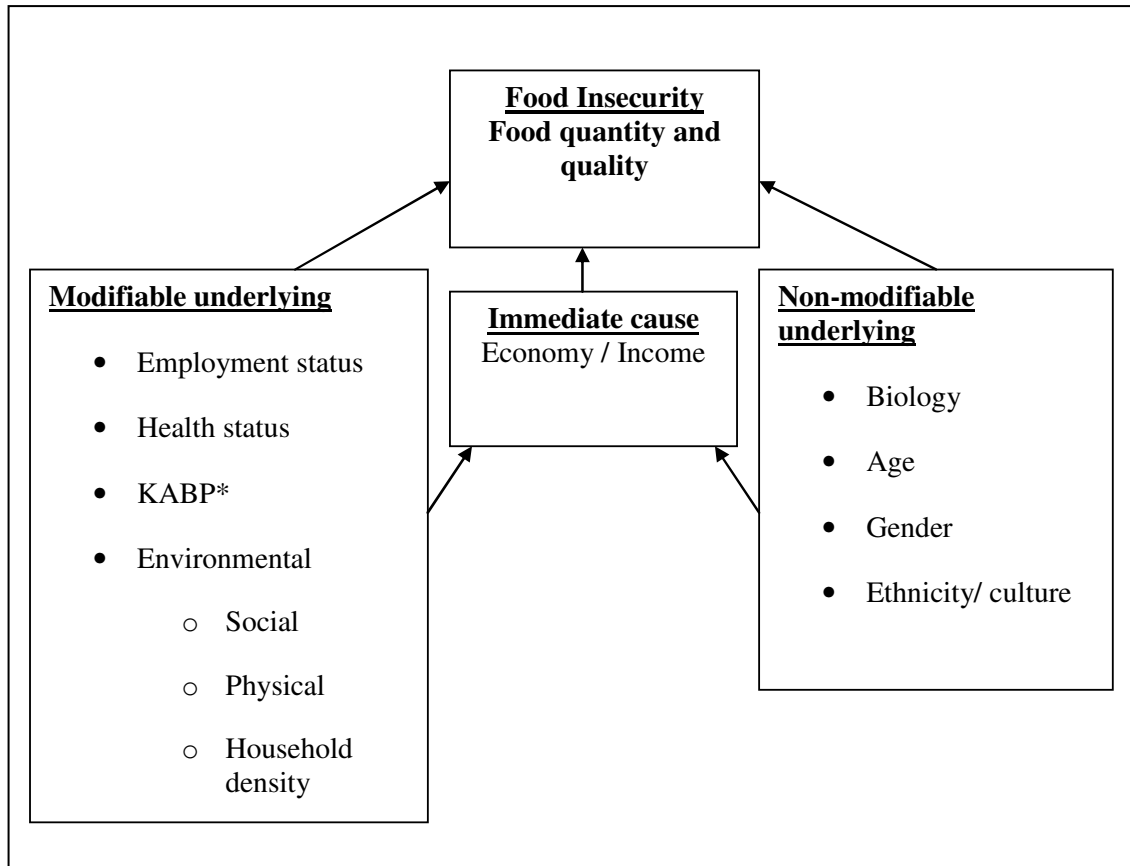
Food security is becoming even more difficult to achieve and maintain than in the past in view of the many consequences of the ongoing global credit crisis, which continues to affect oil and food prices through farm credits. FI further threatens the livelihoods of people living in a country such as South Africa, which is undergoing demographic, epidemiological and nutritional transition. In this regard, urgent and prioritised attention has to be focused on the proper definition and measure of the term “FI” in the South African context.

FI can be categorised as either chronic or transitory. In its chronic form, it translates into a high degree of vulnerability, such that it is associated with the consumption of inadequate or nutrient-poor diet, ill health, delayed development as well as increased infant mortality (in severe and extreme cases). Consequently, the effects of poor health among poorer people manifest in various ways and, within households, are often associated with diminished ability to obtain work and to generate income (Brock, 1999). Indeed, in South Africa FI may be implied by unemployment and lack of income.

Because FI manifests itself via several pathways it may be regarded as a multidimensional phenomenon (a phenomenon involving the availability, accessibility and utilisation of food). Furthermore, FI may occur at four different levels, namely the national, regional, community and household levels (FAO, 2003). In this regard, it is likely that FI may have several determinants/causal factors (that are further graded – according to the level at which they influence food security – as the immediate or underlying causal factors).

FI causal factors (Figure 1) and the levels at which these causal factors occur include the economy or the level of income of the country, community or individuals (considered as the immediate causal factor); the biology (age, gender, ethnicity/culture) of individuals (also known as the non-modifiable causal factors); and the job availability defined as the employment status, education level, socio-demography and political environment (also known as the modifiable causal factors). These causal factors further translate to indicators, which are widely used by researchers and epidemiologists to determine the food security status of the nation, the community and the individual.

Figure 1 – Causal factors of food insecurity



Source: Cape Town Knowledge Systems HSRC (2009)

Note: \* Knowledge, attitudes, beliefs and practices

## **2. Definitions of food security**

Internationally, researchers have undertaken to define food security as the ability of people to secure adequate food. More specifically food security has been defined as the access by all people at all times to enough food for active, healthy life (Anderson, 1990). Food security has also been shown to include: i) the availability of nutritionally adequate and safe food, as well as ii) an assured ability to acquire acceptable food in a socially acceptable way (e.g. without resorting to emergency food supplies, scavenging, stealing or other such coping strategies). In contrast, FI has been shown to imply a limited access to food, as well as a limited ability to secure adequate food (USDA, 2006).

### **2.1. Food security at national level**

National food security is internationally defined as the condition whereby the nation is able to manufacture, import, retain and sustain food needed to support its population with minimum per capita nutritional standards. There are two major indicators that are used to define the food status of the nation: i) the measure of projected food supplies (calculated as domestic production (Gross Domestic Product (GDP)) that also includes farming, plus commercial imports minus non-food uses) as well as ii) the measure of the nutritious food supply (which is measured using the difference between projected food supplies and the amount of food needed to support the nation with individuals who earn the least amount of money (Anderson, 1990).

These indicators are further influenced by a number of other indicators such as the climate (water deficit in particular); land degradation and desertification (which may be caused by intensive farming); land deals (whereby rich countries may buy several hectares of land from the developing countries); World Bank economic status – measured by using the Gini coefficient (that is mainly influenced by the oil prices and imported goods); as well as the human development index, which measures human capital through a measure of education and life-expectancy.

### **2.2. Food security at community level**

Community food security is internationally defined as a condition whereby the residents in a community can obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximises community self-reliance and social justice (Anderson, 1990). There are several indicators that researchers use to examine a community's food security status. Amongst these, the most important are: i) the location of the community (urban or rural, closer or further away from the basic services used to procure food and to access health services); ii) the culture/social norms, health knowledge, attitudes, beliefs, practices and resources of the community; iii) the income and education level of the community. These indicators further determine the ways in which the community will procure and manufacture foods (e.g. whether the community will choose to farm or not) as well as the types of food items that will be acceptable for consumption within the community (Radimer et al., 1990).

### 2.3. Food security at household level

Household food security is internationally defined as the availability of food in one's home which one has access to. A household is considered food-secure when its members do not live in hunger or fear of starvation (Radimer et al., 1990). The food security of each household may be divided into four levels that are characterised as: i) high food security (described as the household having access to adequate food constantly without difficulties or anxiety); ii) marginal food security (defined as the household having difficulties at times or anxiety about accessing adequate food, but the quality, variety and quantity of their food intake is not substantially reduced); iii) low food security (the quality and variety of the person's food intake are reduced, but the quantity of food intake and normal eating patterns are not substantially disrupted); and iv) very low food security (the quantity of food intake and normal eating patterns are disrupted at certain times of the year, due to the household lacking money and other resources to access food) (FAO, 2003).

The household's food security is determined by a number of indicators such as the household location (urban or rural community), household density (measured by the number of people living and sleeping in the same household for more than five days in a week), and the income status of the household (the source of income, health status of the household occupants, food production or employment status of the breadwinner/s). These indicators are further influenced by other indicators, such as the distance of the household from basic services, whether the house is in a formal or informal settlement, the health and education status of the breadwinner/s within the family, as well as the presence of one or both parents within the household.

Furthermore, four constructs have been given for individuals to indicate their experiences of FI at household level (Table 1) (Radimer et al., 1990). These constructs are specifically: 1) the quantitative aspect of having enough or sufficient food; 2) the qualitative aspect, concerning the types and diversity of food; 3) a psychological aspect: FI accompanied by feelings of deprivation or restricted choice for individuals, and by anxiety about the amount and types of food at hand in the household stores; and 4) a social or normative aspect by which an individual evaluates his or her own food situation in terms of generally accepted social norms, such as eating three meals a day, or being able to purchase food without having to beg, rely on charity, scrounge or steal food.

**Table 1 – Essential components of a measure of food insecurity at the individual and household levels**

Component	Individual level	Household level
1. Quantity	Energy sufficiency of intake	Repleteness of household stores
2. Quality	Nutrient adequacy of intake	Quality and safety of on-hand food
3. Psychological acceptability	Feelings of deprivation or restricted choice	Anxiety about food supplies
4. Social acceptability	Normal meal patterns	Conventional sources of food

*Source: Adapted from Radimer, et al., 1990*

### **3. Food security within South Africa**

South Africa presents a unique and important case for research on food security. It is well documented that before 1994 the majority of South Africans (African, coloured and Indian people) were denied political rights and excluded from participating in the economic mainstream, resulting in extreme social inequalities (Lund, 2008). These inequalities generated by the apartheid system were intense and led to gross human rights violations as well as widespread social and economic deprivation, including poverty.

The advent of democracy in 1994 was associated with major political and economic policy shifts. On the political front, South Africa laid the foundations for the design and implementation of policies conducive to democratic consolidation, competitive multi-party engagement, and citizen participation. The framework for political representation is laid out in the founding provisions of the Constitution, in Chapter 1. Furthermore, South Africa is an upper-middle income country. Its economy includes a modern financial and industrial sector supported by a well-developed infrastructure, which operates alongside a subsistence informal sector. In the year 2009 budget, as in the case of previous years, a large part of the nation's resources through the budgets of national, provincial and local governments has been allocated to the creation of jobs, the delivery of services, enhancing the productive capacity of the economy, and aiding the poor (USDA, 2006).

In spite of the political and economic advances made since 1994, South Africa continues to be plagued by poverty, unemployment and, more recently, steep food and fuel prices, high-energy tariffs and increasing interest rates. These adverse conditions have placed severe pressure on ordinary South Africans already struggling to meet their basic household needs. Indeed, the recent South African literature has highlighted that, despite the recent data confirming continued national economic growth (increased real per capita income shown by the Income and Expenditure Surveys (IESs) in 2000 and 2005/06) (Stats SA, 2008d), large discrepancies in income between different ethnic groups of South Africans are still prevalent (Labadarios, 1999; Labadarios et al., 2008). For instance, 57% of South Africans still live below the poverty index line (meaning that they spend some days in the week without food (May 2004; HSRC, 2003). Moreover, the majority of these individuals were less educated and remained disadvantaged with respect to their living conditions and overall wellbeing (Puoane et al., 2002) and were black or of mixed ancestry, resided in informal settlements, and were food-insecure (Labadarios et al., 2008; May 2004). These individuals are also predisposed to a higher risk of both under- and over-nutrition (Labadarios, 1999; Labadarios et al., 2008; Puoane et al., 2002). However, on the other hand, the majority of South African white communities still enjoy a better socio-economic status and are also more likely to have secure food banks in their households than black South African communities (Puoane et al., 2002). Irrespective of the fact that socio-economic disparities in South Africa may play a role in the prevalence of food security, the interaction effects between social class and other factors, such as the individual's culture and attitudes, may also play a role in the development of FI (Puoane et al., 2002). In this regard, it may therefore be important to use a more dynamic way of defining and measuring FI in the country, moving away from the linear model that sees FI as a consequence of an individual's income only.

## **4. Methodological aspects of national surveys assessing food security in South Africa**

Various South African researchers have used or applied different methods of survey design and variables to define and measure FI. In their methods, they have carefully selected a number of indicators to evaluate food security based on the purpose of their respective surveys (primarily national, and one regional survey). This section therefore seeks to review these methods, in an effort to summarise the different indicators used which form part of the three different dimensions of FI (availability, accessibility and utilisation). The approach adopted reviews first national surveys which used more “direct measures” of FI namely: – the National Food Consumption Survey (NFCS, 1999) (Labadarios, 1999), National Food Consumption Survey: Fortification Baseline-I (NFCS-FB-I, 2005), the FI and Vulnerability Information Management System (FIVIMS; regional study) [Department of Agriculture (South Africa), 2007], and the South African Social Attitudes Survey (SASAS) (Pillay et al., 2006) – followed by national surveys which used more “indirect measures” of FI – the General Household Survey (GHS) (Stats SA, 2008b), Income and Expenditure Survey (IES) (Stats SA, 2008d), Labour Force Survey (LFS) (Stats SA, 2008c), Community Surveys Stats (SA, 2007a) and the national HIV/AIDS (Stats SA, 2008a; DoH SA, 2002-2007; DoH SA, 2005) surveys. It should be noted that the GHS, IES, LFS and Community Surveys were implemented by Statistics South Africa (Stats SA) and directly inform the South African government’s policy formulation processes. It should also be borne in mind that there are other data sets at regional, local or community level that may be important in examining FI at the regional level in the country, but such studies fall outside the scope of the current narrative review.

### **4.1. NFCS (1999), NFCS-FB-I (2005) and SASAS (2008)**

The first NFCS survey was implemented in 1999 (Table 2a) and segments thereof (food procurement, household inventory, anthropometry and hunger) were repeated in the NFCS-FB-I (anthropometry and hunger only) survey in 2005 (Table 2b) and in the HSRC’s SASAS (hunger only) survey in 2008 (Table 2c). These surveys in their respective designs measured hunger (using a Hunger Scale derived from the Community Childhood Hunger Identification Project (CHHIP) – see Appendix A1), socio-economic variables, dietary intake, anthropometry and selected micronutrient status.

The NFCS (1999) was conducted on 2 894 children (1–9 years of age), had a nationally representative sample with provincial representation, and oversampled (25%) for low socio-economic areas in the country using the Census 1996 data. The sample for the NFCS-FB-I in 2005 had a similar design, used the Census 2001 data for sampling, consisted of 226 enumerator areas (EAs) and focused on both children and women of reproductive age.

The SASAS survey, annually implemented by the HSRC, consisted of a sample of 3 500 adults and was selected from the HSRC’s Master Sample. The Master Sample consisted of 1 000 census EAs based on the Census 2001 data. The Master Sample was created in such a way that it made provision for 11 clusters per EA. The topics covered in the questionnaires (Questionnaires 1 and 2) included attitudes towards democracy and governance, poverty and social identity. In addition to the standard set of demographic and background variables, the two versions of the questionnaire contained a harmonised Core Module that remained relatively constant from round to round. The aim of this substantive SASAS core is to

monitor change and continuity in a variety of socio-economic, socio-political and socio-demographic variables. The rotating element of the survey consists of at least 40% of the total items included in each of the two questionnaires, comprising two or more topic-specific modules in each round of interviewing. The Hunger Scale Module formed part of SASAS Questionnaire 2 (Appendix A2) and was administered to 3 500 respondents.

All three surveys used trained fieldworkers to implement the respective surveys, had defined quality control measures and used validated questionnaires.

**Table 2a – Key methodological details of the National Food Consumption Surveys (1999) (Labadarios, 1999)**

<b>Aims</b>			
The aim of this survey was to collect baseline information on the food consumption patterns in children for the formulation of appropriate policy guidelines for food fortification, as well as for the development of appropriate nutrition education material for children in South Africa.			
<b>Primary objectives</b>			
To determine usual food consumption of children aged 1–9 years (12–108 months) in South Africa			
To assess the usual nutrient intake of children aged 1–9 years in South Africa			
To identify factors impacting on food consumption			
To determine anthropometric status			
To determine the prevalence of hunger			
<b>Secondary objectives</b>			
Using the baseline data obtained from the primary objectives, to propose and/or recommend:			
– appropriate food vehicle(s) for fortification			
– appropriate material for nutrition education			
<b>Design</b>	<b>Population size and sampling (N = 2 894 meeting inclusion criteria)</b>	<b>Instruments</b>	<b>Indicators/variables related to food insecurity</b>
A cross-sectional survey of a nationally representative sample with provincial representation of children aged 1–9 years in South Africa using the 1996 Census data	All the children aged 1– 9 years in South Africa  Oversampled by 50% (25% for low socio-economic status* and 25% for subjects being away from home)  In total the study consisted of 156 EAs, 82 urban and 74 non-urban	The Socio-demographic Questionnaire (S-DQ)  The 24-Hour Recall Questionnaire (24-H-RQ)  The Quantitative Food Frequency Questionnaire (QFFQ)  The Food Procurement and Household Food Inventory Questionnaire (FPHIQ)  The Hunger Scale Questionnaire (HSQ, Appendix A1)  Anthropometry (weight, height)	Socio-demography  Anthropometry  Dietary/nutrient intake  Food procurement  Household inventory  Household-level insecurity  Individual-level insecurity  Child hunger

Source: Derived from the NFCS 1999 (Labadarios, 1999)

Note: \* Weighted analysis (anthropometric data) had no significant impact.

**Table 2b – Key methodological details of the National Food Consumption Survey: Fortification Baseline-I (2005) (Labadarios et al., 2008)**

<b>Aim</b>			
The aim of the NFCS-FB-I was to define the anthropometric, iron, iodine, zinc, folate and vitamin A status of children aged 1–9 years and women of reproductive age in South Africa, as well as the knowledge, attitudes and practices with regard to food fortification and fortified food products.			
<b>Primary objectives</b>			
Determine in children aged 1–9 years and women of reproductive age (16–35 years) in South Africa, the:			
<ul style="list-style-type: none"> <li>– anthropometric status</li> <li>– vitamin A and iron status (children 1–9 years old)</li> <li>– zinc status (children 3– 9 years old)</li> <li>– iodine status (children 5–9 years old)</li> <li>– vitamin A, iron, iodine and folate status (women 16–35 years of age)</li> <li>– prevalence of the use of food products fortified with vitamin A, thiamin, riboflavin, niacin, folic acid, iron and zinc at the household level, on the basis of detecting vitamin A in maize</li> <li>– prevalence of the use of iodised salt at the household level</li> <li>– prevalence of the presence of vitamin A in fortified maize</li> <li>– knowledge, attitudes and practices regarding the use of fortified products as well as awareness of and access to such food products</li> <li>– prevalence of hunger</li> </ul>			
<b>Secondary objectives</b>			
Using the baseline data obtained from the primary objectives, to propose and/recommend:			
<ul style="list-style-type: none"> <li>– appropriate nutrition education messages and/or concepts</li> </ul>			
<b>Design</b>	<b>Population size and sampling (<i>N</i> = 2 469 households with a child and a woman meeting inclusion criteria)</b>	<b>Instruments</b>	<b>Indicators/variables related to food insecurity</b>
Cross-sectional survey of nationally representative sample of children 1–9 and women of reproductive age (aged 16–35 years) in South Africa using the 2001 Census data	1–9-year-olds and women of reproductive age (aged 16–35 years) Oversampling by 25% for subjects being away from home In total the study consisted of 226 EAs, 107 urban and formal, 23 urban and informal, 15 rural and formal and 81 tribal	Socio-demographic questionnaire KABP* regarding food fortification Food procurement HH Inventory The Hunger Scale Questionnaire (HSQ) Anthropometry (height and weight)	Socio-demography Anthropometry KABP* Food procurement Household inventory Household-level insecurity Individual-level insecurity Child hunger

Source: Derived from NFCS-FB-1, 2005 (Labadarios et al., 2008)

Note: \* knowledge, attitudes, Behaviours and practices

**Table 2c – Key methodological details of the South African Social Attitudes Survey (2008) (Pillay et al., 2006)**

<b>Aims</b>			
To collect information on people's attitudes, beliefs and behaviour patterns in all nine provinces across South Africa. More specifically, SASAS aims to monitor change and continuity in a variety of socio-economic, socio-political and socio-demographic variables.			
<b>Design</b>	<b>Population size and sampling (N= 3 500 adults meeting inclusion criteria)</b>	<b>Instruments</b>	<b>Indicators/variables related to food insecurity</b>
National representative household survey, Census 2001	The sample consisted of 7 000 (3 500 for questionnaire 1 and 3 500 for questionnaire 2) adults aged 16 and older (with no upper age limit), regardless of their nationality or citizenship, in households geographically spread across the country's nine provinces.	Questionnaires covered attitudes towards: <ul style="list-style-type: none"> <li>– democracy and governance</li> <li>– poverty</li> <li>– social identity</li> <li>– perceptions of crime</li> <li>– race relations</li> </ul> Questionnaire 2 covered: <ul style="list-style-type: none"> <li>– socio-demographic variables including</li> <li>– the Hunger Scale Questionnaire (HSQ)</li> </ul>	Household-level insecurity Individual-level insecurity Child hunger Psychological factors/ anxiety (See Appendix A2 for the Hunger Scale.)

Source: (Pillay et al., 2006)<sup>17</sup>

#### **4.1.1 Understanding the definition of hunger**

Hunger has an impact on health and family planning, human suffering and behaviour, environment, economic growth and politics. The phenomenon loosely labelled as hunger in the 1980s is now being referred to as food insecurity or FI.

A questionnaire-based measure was used to determine domestic hunger similar to the one that was used in the Community Childhood Hunger Identification Project (CCHIP) (Radimer et al., 1990). This measure (the CCHIP hunger index) defines hunger as the mental and physical condition that comes from not eating enough food, due to insufficient family, community and economic resources. This definition of hunger offered by CCHIP, as well as the measurement thereof, focuses on food insufficiency and insecurity due to constrained resources. The validation findings of the CCHIP hunger index reported in the literature have shown it to meet internal and external criteria within a theoretical model of domestic hunger. The CCHIP hunger index measured by an additive scale can therefore be regarded as sufficiently sensitive to identify chronic or sub-clinical under-nutrition among families, at least as it relates to poor families in the USA (Stats SA, 2007b).

The CCHIP Hunger Index (Table 3) is composed of eight questions that investigate whether adults and/or children are affected in the household (HH) by FI, food shortages, perceived food insufficiency or altered food intake due to constraints on resources. In addition, for each aspect of hunger (i.e. in all eight main questions (Q) of the questionnaire), two sub-questions

were asked to determine the extent of such FI over a period of 30 days. These questions determine the temporal severity (Q n(a)) and periodicity (Q n(b)) (see Appendices A1 and A2).

**For example:**

Question 1: Does your household ever run out of money?

- (a) In the past 30 days?
- (b) 5 or more days in the past 30 days?

A negative response (No) to all eight questions in the questionnaire was assumed to mean a “food secure” HH. A score of 1–4 affirmative/positive answers (Yes) out of a maximum of eight (the eight questions in the questionnaire) indicates that the family was “at risk of hunger”, because it showed at least one sign of a food shortage problem. A score of five or more, i.e. five affirmative/positive (Yes) responses out of the maximum of eight questions in the questionnaire indicates a food shortage problem affecting everyone in the HH. This score indicated that five or more different signs of hunger were present in the HH; and at least one of these signs of hunger directly affected the children in the HH (NFCS 1999) (Labadarios, 1999). These families could be considered as “hungry”.

**Table 3 – Hunger questions and their interpretation\* in the CCHIP Hunger Index (Swindale & Bilinsky, 2006)**

Question no.	Phrased question (area of investigation)
1	Does your household ever run out of money to buy food? <i>(HH-level insecurity: Food uncertainty)</i>
2	Do you ever rely on a limited number of foods to feed your children because you are running out of money to buy food for a meal? <i>(HH -level insecurity: Qualitative component)</i>
3	Do you ever cut the size of meals or skip meals because there is not enough money for food? <i>(Individual-level insecurity: Quantitative component)</i>
4	Do you ever eat less than you should because there is not enough money for food? <i>(Individual -level insecurity: Quantitative component)</i>
5	Do your children ever eat less than you feel they should because there is not enough money? <i>(Child hunger: Quantitative component)</i>
6	Do your children ever say they are hungry because there is not enough food in the house? <i>(Child hunger: Quantitative component)</i>
7	Do you ever cut the size of your children’s meals or do they ever skip meals because there is not enough money to buy food? <i>(Child hunger: Quantitative component)</i>
8	Do any of your children ever go to bed because there is not enough money to buy food? <i>(Child hunger: Quantitative component)</i>

Note: \* Interpretations are shown in bold italics.

## 4.2. The FIVIMS Livelihood Survey (2006)

The Livelihood Survey took place in 2006 [Department of Agriculture (South Africa), 2007] and focused on interviewing households in the Greater Sekhukhune area.

**Table 4 – Key methodological details of the FIVIMS Livelihood Survey**

Design	Population size and sampling ( <i>N</i> = 499 households)	Question posed
<p>A once-off cross sectional (rather than a tracking) survey was used.</p> <p>The sampling frame used was the census EA boundaries from the 2001 Census linked with demographic estimates from 2005.</p> <p>No explicit stratification was initially used. The ordered implicit stratification was municipality code, geography type and sub-place code (see Appendix B).</p>	<ul style="list-style-type: none"> <li>– All adults 18 years and older in the Sekhukhune District</li> <li>– The primary sampling unit (PSU) was the EA from the 2001 Census.</li> <li>– The secondary sampling unit (SSU) was the household and the ultimate sampling unit (USU) was an adult 18 years or older;</li> <li>– The Measure of Size (MOS) was the estimated number of households in the EA.</li> <li>– The reporting domain was the whole of Sekhukhune.</li> <li>– In total 75 PSUs (i.e. EAs) were drawn.</li> <li>– Sample allocation used was probability proportional to size (PPS) and eight visiting points (i.e. SSUs) were selected per PSU.</li> <li>– Sample size was 500 households for the main survey and 50 households for the verification survey.</li> </ul>	<ul style="list-style-type: none"> <li>– Does person (primary school learners) get free food from a school-feeding scheme (Response options: Yes, usually; Yes, sometimes; No, never; and Don't know)</li> <li>– The next set of questions for example asks whether A) the individual worries about enough food; B) is able to eat the kinds of food you preferred; C) (any) member eats just a few kinds of food day-after-day; D) member eats food that you preferred not to eat because of a lack of money; E) member eats a smaller meal than you felt you needed; F) member eats fewer meals in a day because there was not enough food? (Response options: Never; Rarely; Sometimes; and Often)</li> <li>– Did the members of your household 1) eat breakfast yesterday; 2) eat lunch yesterday; and 3) eat supper yesterday?... This question was posed to A) children &lt; 5 years; B) school children; C) adults and D) the elderly. (Response options: Yes; No; and Don't know)</li> <li>– In which of the last 12 months did you experience a lack of food or money such that one or more members of your household had to go hungry? ((Response options: Yes; No; and Don't know)</li> <li>– What were the types of foods that you or anyone else in your household ate yesterday or over the last seven days during the day and night? (Response options: Maize or maize products; cereals; roots and tubers; vitamin A-rich fruit &amp; vegetables; other vegetables; other fruit; meat, poultry &amp; fish; eggs; legumes, nuts &amp; seeds; dairy; oils and fat; sugars; and beverages)</li> <li>– What is the main source of food (as listed above) eaten for each food group? (Response options: purchase; own production; hunting; gathering; gift; exchange;</li> </ul>

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barter; and food aid)

- Where do you usually buy food for your household? (Response options: small trading store situated less than 1 km from home; small trading store situated more than 1 km from home; supermarket in town; informal market at taxi rank; and other, specify)

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*Source: Derived from FIVIMS-ZA (October 2006) [Department of Agriculture (South Africa), 2007]*

*Questionnaire source: HSRC 2005*

### **4.2.1 Sampling**

The sample frame had the following characteristics: a total of 65 EAs were selected from the different settlement types (i.e. commercial farm, tribal settlement, urban settlement) within the five local municipalities (see Appendix B). Because of the large numbers of people living in the rural tribal areas, most of the EAs were selected from these settlements (53 EAs). In comparison, only 10 EAs were selected from the commercial farming areas and only one EA was selected from the few urban areas found within Sekhukhune (Integrated development plan: Sekhukhune District Municipality. 2007/08 Review). The final realised sample was 499 households.

### **4.2.2 Questionnaire**

The livelihood questionnaire of 2006 asked questions about food consumption, food production, food availability and anthropometric status of children in the household (Table 4). Specific measures of food security included (HSRC, 2005) [Department of Agriculture (South Africa), 2007].

- The household dietary diversity score (HDSS), which was used as a proxy measure of the socio-economic level of the household; an increase in the average number of different food groups consumed provided a quantifiable measure of improved household food access (Department of Agriculture (South Africa), 2007).
- Months of inadequate household food provision, which collected information for the last 12 months and recorded the months during which the household experienced a lack of food such that one or more members of the household had to go hungry. This indicator showed seasonality of household food access Department of Agriculture (South Africa), 2007].
- The household FI Access Scale (HFIAS), which was used to assess the prevalence of household food security and to detect changes in the household FI situation of a population over time (Swindale & Bilinsky, 2006).

The questions in Section 4 of the questionnaire dealt with a number of food security issues including whether children were part of a feeding scheme at school, regularity of having food in the house, recent specific meals, months during which hunger was experienced, types of food eaten and how it was obtained, and the usual place of obtaining food.

## **4.3. South African General Household Surveys**

The GHS (Stats SA, 2008b) is an annual survey conducted by Stats SA since 2002 (Table 5). The government of South Africa identified the need to monitor levels of development in South Africa as well as the performance of programmes and projects on a regular basis, which led to the development of the GHS.

### **4.3.1 Research design**

The main aim of the GHS (Stats SA, 2008b) was to measure various areas of South African households' living conditions, together with the quality of service delivery in key service sectors, on an annual basis, as presented in Table 5. The survey looked at a number of key areas, including education, health, employment, housing, household accesses to services and tourism (see Appendix C).

**Table 5 – Key methodological details of the General Household Survey (Stats SA, 2008b)**

<b>Aim / objectives</b>				
To measure multiple facets of the living conditions of South African households and the quality of service delivery in a number of key service sectors.				
The GHS covers 6 areas:				
– Education				
– Health				
– Work and unemployment activities				
– Housing				
– Household access				
– Non-remunerated trips taken by the household				
<b>Design</b>	<b>Time interval</b>	<b>Population size and sampling</b>	<b>Instruments</b>	<b>Indicators/variables related to food insecurity</b>
Multi-stage stratified random sampling (of DUs), using PPS principles. First-level stratification was based on province (9 provinces) Second-level stratification was based on district council (53 districts) Face-face-interviews took place four weeks after sampled dwellings were visited for the first time to inform household members about the survey.	Annually	The target population of the survey : all private households in all nine provinces as well as residents in workers' hostels  A total of 34 902 sampled households were visited nationally of which 29 311 (84.0%) were successfully interviewed.	The GHS Questionnaire	Demographic information (name, sex, population group, etc.)  Biographical information (education, health, disability, welfare)  Activities related to work and unemployment  Non-remunerated trips undertaken in the 12 months prior to the survey  Household information (type of dwelling, ownership of dwelling and other assets, electricity, water and sanitation, environmental issues, services, transport, expenditure etc.)  All the above sections comprehensively covered living conditions and service delivery.

Source: (Stats SA, 2008b)

### **4.3.2 Sampling design**

The sample design was based on a Master Sample drawn in 2003, for household sample surveys such as the LFS, IES and GHS. The survey employed a two-stage stratified area probability sample design. In the first stage, Primary Sampling Units (PSUs) were randomly selected using Probability Proportional to Size (PPS) techniques. In the second stage, sampling Dwelling Units (DUs) were randomly selected as Secondary Sampling Units (SSU). EAs as delineated for the Census 2001 formed the basis of the PSUs. The sample of approximately 3 000 PSUs was selected and included 34 092 households, of which 29 311 were successfully interviewed.

### **4.3.3 The GHS questionnaire (Stats SA, 2008b)**

The questionnaire, which included 169 questions and covered 5 key areas, included sections on the following aspects:

- **Education** (e.g. percentage of people attending an educational institute, percentage not attending, percentage not attending for financial reasons, teenage girls, those older than 20 years, percentage with no formal education, percentage with Grade 12)
- **Health** (medical aid coverage, percentage of those injured/ill and consulted a health worker, percentage of those who had not contacted a health worker) and **Disability** (percentage of total population)
- **Employed persons** (aged 15–65 years, source of financial support for those not employed, e.g. grants and pension)
- **Housing** (housing types and ownership) and **Household access to services and facilities** (sources of energy, sanitation and refuse removal, water access and use, household assets, food adequacy, social assistance and security services)
- **Non-remunerated trips undertaken by the household** (number of trips taken, time spent on these trips)

## **4.4. South African Community Survey (Stats SA, 2007a)**

The community survey is a multi-sectoral survey undertaken as a nationally representative survey. It was carried out by Stats SA in February 2007 (Table 6; Stats SA, 2007a). The key focus areas of this survey were the distribution of education levels of the population aged  $\geq 20$  years; household assets in working order (such as the radio, TV, computer, refrigerator, household); use of electricity; household access to piped water; type of toilet facility available.

**Table 6 – Key methodological details of the Community Survey (Stats SA, 2007a)**

<b>Aim</b>				
To provide demographic and socio-economic data on the South African community at the municipality level.				
<b>Objectives</b>				
<ul style="list-style-type: none"> <li>– Provide data at lower geographic levels</li> <li>– Build human management and logistic capacity for Census 2011</li> <li>– Establish primary base for mid-year population project</li> </ul>				
<b>Design</b>	<b>Time interval</b>	<b>Population size and sampling</b>	<b>Instruments</b>	<b>Indicators/variables related to food insecurity</b>
Large-scale survey De jure and de facto approach	First of its kind apart from the census-generated data in 2001. It also took cognisance of the challenges experienced in 2001.	274 348 DUs that returned completed questionnaires Pilot survey done in February 2006 (18 999 DUs)	The Community Survey (CS) Questionnaire developed in line with the HH-based survey questionnaire conducted by Stats SA	Total SA population and their socio-demographic factors Education level of the population aged ≥20 years Ability and disability in the population Employment status and economic activity (formal or informal) Type of work (such as fishing, farming or just begging) HH assets in working condition (such as the radio, TV, computer, refrigerator) HH using electricity HH with access to piped water Type of toilet facility each HH has

Source: (Stats SA, 2007a)

#### **4.5. South African Income and Expenditure Surveys (Stats SA, 2008d)**

The IESs were conducted from September 2005 to August 2006 and they were aimed at informing the Consumer Price Index (CPI) through identifying goods and services to be included in the CPI (Table 7). The additional aim was to “collect and provide information regarding the income, acquisition and expenditure patterns of a representative sample of households”, and “provide an independent source of information required to estimate the final private consumption expenditure component of National Accounts” (Stats SA, 2008d). (See Appendix D)

##### ***4.5.1 Sampling of the IES***

The sampling frame used was a Master Sample based on the 2001 Census EAs. The Master Sample had national coverage of all households in South Africa, targeting all qualifying persons and households in the country. The focus of this sample was on private dwelling units (DUs) and workers living in workers’ quarters in the country. A sample of 3 000 PSUs was drawn and 8 DUs were selected from each PSU. The sample was then evenly spread over 12 survey periods of 1 month each. At the same time, the sample was kept nationally representative in each quarter. A total of 22 617 households were sampled.

**Table 7 – Outline of the Income and Expenditure Survey (2005/06) (Stats SA, 2008d)**

<b>Aim / objectives</b>				
1. To update the goods and services required for the compilation of the CPI				
2. “Collect and provide information on income, acquisition and expenditure patterns of a representative sample of households”				
3. “Provide an independent source of information required to estimate the final private consumption expenditure component of National Accounts” (Stats SA, 2008d)				
<b>Design</b>	<b>Time interval</b>	<b>Population size and sampling</b>	<b>Instruments</b>	<b>Indicators/ Variables related to food insecurity</b>
Snapshot designed to update the basket of goods and services required for CPI	Income / expenditure snapshot Every five years	Private DUs and workers living in workers’ quarters 22 617 households	Income expenditure main questionnaire Weekly diary (booklet filled in by respondents recording income and daily purchases)	Income aggregates, namely: – Changes in income – Components of household income – Types of income – Work, capital/properties, social grants – Sources of income Household consumption: – Distribution of consumption – E.g. education, clothing, food, non-/alcoholic beverage, housing, motorised vehicles – Consumption expenditure by income group – Consumption expenditure by population group Transportation Housing, water, electricity, gas and fuel Food and non-alcoholic beverages Inequality: – according to income decile

Source: (Stats SA, 2008d),

#### **4.5.2 Questionnaire design**

The data collection instruments employed used items to extract three categories of information namely: the kinds and amounts of items and services acquired by households in South Africa; the kinds of sources of income acquired by households in the study (this includes monetary or in-kind), and the details of how they spent this income.

Three data collection instruments were used, namely: the main questionnaire, the weekly diary, and the summary questionnaire. The main questionnaire was conducted at five separate occasions by means of an extensive interview that was divided into five parts. The weekly diary was a booklet left with the responding household to record its daily purchases for four weeks. Respondents were to record the nature, type, source and purpose of the item. Lastly, the summary questionnaire was filled-in by fieldworkers. This was a summarised record of the household's total consumption expenditure on each item for the survey month.

#### **4.5.3 Questionnaire items**

The survey sought to elicit information on the kinds of purchases made by households, the sources of income, and ways of spending this income. Specifically, the main questionnaire consisted of items to determine household characteristics, including area where purchases were made and type of retailer purchased from; categories of consumption expenditure, and income of household members. The weekly diary was designed for gathering information on purchases made by the household on a weekly basis, including the nature, type, source and purpose of the item. Lastly, the summary questionnaire was constructed to enable the fieldworker to record the household's total consumption expenditure on each purchased item for the survey month.

### **4.6. South African Labour Force Survey (Stats SA, 2008c)**

The survey was based on the information collected during the 2001 Census by Stats SA (2008c). The aim of the survey was to review the methods used in these surveys in an effort to see whether the definitions of items used in the survey were similar to the international definitions of job market and labour (Table 8; Appendix E). Furthermore, these surveys were done quarterly following the recommendations of Stats SA. Such frequency of data collection on its own took into account the instability of the job market and also controlled for/minimised the confounding effects of participants' absenteeism in ensuring that the absent household members had a better chance of inclusion at their usual residence.

**Table 8 – Key methodological details of the Labour Force Survey (Stats SA, 2008c)**

<b>Aim / objectives</b>				
To collect quarterly information about persons in the labour market i.e. those employed, those unemployed and those who were economically active				
<b>Design</b>	<b>Time interval</b>	<b>Population size and sampling (N = 3 080 dwellings)</b>	<b>Instruments</b>	<b>Indicators/variables related to food insecurity</b>
Stratified 2-stage design 1st stage –PPS sampling of PSUs and 2nd stage – systematic sampling of DUs	Quarterly	3 080 PSUs of dwellings in South Africa	LFS Questionnaire	The particulars of each person in the household ≥15 years:  – subject’s education level – subject’s economic activities in the past week – subject’s unemployment and in-economic activities – subject’s main activity in the past week (this section requires both personal and employer’s responses)

Source: (Stats SA, 2008c)

#### **4.6.1 Research design and sampling**

The survey employed a stratified two-stage design (that included two phases of population selection, namely: first stage – PPS sampling of PSUs; and second stage – systematic sampling of DUs. In total, approximately 30 000 households/dwellings were included in the surveys. However, in this particular survey 3 080 PSUs were included (Table 8).

#### **4.6.2 Questionnaire items**

Each item in the questionnaire was conceptualised using different sub-indicators that strengthened the proper definition of a given question by including different types of jobs or activities done in the South African context. The survey thus provided estimates of the number, gender, culture or ethnicity of respondents involved in agriculture for own account (subsistence agriculture). Furthermore, regarding employment status, the questionnaire covered the main work activity in the previous week that South African persons aged 15 and above had engaged in. This item had been further broken down into 24 sub-items that sought to elicit information regarding aspects such as: i) the person’s personal details about the work that they did, the type of work they did (contract, casual or piece work for pay), hours they spent at work and the area of business they worked in; ii) the employers’ contribution to securing the income of the particular employee; iii) the contribution of the job to the national economy (registration and contribution of the business to the national revenue via income tax). Other work activities included were activities involving market production, asked as the work done

for pay or profit; as well as activities done for non-market production, also asked as work done for the benefit of the household, including subsistence farming, household gardening, catching fish, hunting wild animals, and fetching wood for use as cooking fuel. In relation to unemployment status, the questionnaire was broken down into 19 sub-items eliciting information about the kind of unemployment persons were experiencing, whether they were job-seekers, job-losers (also indicating the type of job they used to do, reason for the job loss and the time interval since the last job), job-leavers, job-re-enterers, and those drawing on insurance funds/government pension funds.

#### **4.7. The South African HIV/AIDS Surveys**

The HIV/AIDS prevalence discussed here refers to two national prevalence studies and one report on AIDS deaths in South Africa. In this section we have chosen: i) the 2007 (latest) national antenatal survey, as pregnant women are the most easily identifiable, accessible and stable sexually active community; thus, they are internationally recognised as the most relevant way of assessing HIV prevalence in countries with generalised epidemics (Table 9a); ii) the 2005 National HIV Survey, as it is the latest survey that presented the data on HIV prevalence among men, children and non-sexually active women, since findings from antenatal clinics cannot be applied directly to men, newborn babies and children (Table 9b); and iii) the October 2008 survey regarding “Mortality and causes of deaths in South Africa”, as it is the latest survey that provides data on the number of HIV-related deaths in South Africa (Table 9c) (Stats SA 2008a; DoH, 2002-2007; DoH, 2005). Moreover, mortality is one of the main indicators of wellbeing and health status of a population, which can also help in part in the measurement of poverty of the population.

**Table 9a – Key methodological details of South African estimated HIV prevalence among antenatal clinic attendees, by province (2007) (DoH, 2002-2007)**

<b>Aims</b>				
To use the data from antenatal clinics to estimate HIV prevalence amongst South African pregnant women.				
<b>Design</b>	<b>Timeframe</b>	<b>Population size and sampling (N= 33 488 women attending sentinel clinics*)</b>	<b>Instruments</b>	<b>Indicators/variables related to food insecurity</b>
National antenatal survey of women attending sentinel clinics across nine provinces of South Africa	Annual study	Sentinel sites selected based on their size and closeness to the blood analysis sites. As such, total population included 9 provinces with respondents' sample size consisting of 36 000 pregnant women.	Socio-demographic questionnaire Serum results: – HIV positive – Syphilis positive	– HIV sero-positive – Syphilis sero-positive

*Source: (DoH, 2002-2007)*

*Note: \* Clinics in which the problem of HIV is major and these clinics have client volume of 300-500 women*

**Table 9b – Key methodological details of the South African HIV “household” survey across geographical, racial, ethnic and social groups of South Africans (DoH, 2005)**

<b>Aims</b>				
To use the household data across geographical, racial, ethnic and social groups of South Africa to estimate HIV prevalence amongst men, newborn babies and children.				
<b>Design</b>	<b>Timeframe</b>	<b>Population size and sampling (N= 10 584 households across South Africa)</b>	<b>Instruments</b>	<b>Indicators/variables related to food insecurity</b>
A cross-sectional survey that included a large number of people from each geographical, racial and other social group of South Africa	Annual study	Of the 24 236 people within these households who were eligible to take part: – 23275 (96%) agreed to be interviewed – 15 851 (65%) agreed to take an HIV test. Thus, 55% of the eligible people were tested.	Socio-demographic questionnaire, Lifestyle questionnaire Serum results: – HIV positive	– HIV sero-positive

Source: Stats SA, 2005)

**Table 9c – Key methodological details of the report on “Mortality and causes of death in South Africa, 2006” (Stats SA, 2008a)**

<b>Aims</b>				
<ol style="list-style-type: none"> <li>1. To outline emerging trends and differentials of mortality by selected geographic characteristics in 2006</li> <li>2. To present statistics on the causes of death in 2006, based on information from the death notification forms</li> <li>3. To provide contextual information on the data and methods used in order to support further specialist analysis of the data available from the death notification forms</li> </ol>				
<b>Design</b>	<b>Timeframe</b>	<b>Population size and sampling (N= 607 184 death notification forms)</b>	<b>Instruments</b>	<b>Indicators/ variables related to food insecurity</b>
Cross-sectional survey  Systematic collection and processing and ranking/classifying of deaths registered in 2006 at the Department of Home Affairs	Annual study	19 groups ranked according to most common cause of death (excluding stillbirths): <ul style="list-style-type: none"> <li>– natural causes such as infectious (tuberculosis MDR-TB and XDR-TB) and parasitic diseases, circulatory system, neoplasm, perinatal conditions, pregnancy, childbirth etc.</li> <li>– non-natural causes such as accidents, suicides, assault, medical and surgical care</li> </ul>	– Classification method of deaths due to non-/natural causes (using the Inquests Act (Act No. 58 of 1959)	Number of deaths due to natural causes: <ul style="list-style-type: none"> <li>– HIV/AIDS</li> <li>– infectious diseases</li> <li>– non-infectious diseases</li> <li>– auto-immune diseases</li> </ul>

*Source: (Stats SA, 2008a)*

## 5. Results and discussion

Clearly, the measurement of FI in South Africa includes a wide range of different indicators from various research domains. Consequently, a meaningful assessment of FI in the country is extremely difficult since each of the data sets reviewed in this narrative review has its own unique methodological approach, with inherently differing strengths and weaknesses. In addition, each of these data sets measures different dimensions of FI. For instance, the national HIV/AIDS surveys measure HIV prevalence in South Africa among pregnant women attending sentinel clinics. The underlying hypothesis is that the health status of individuals, communities and nations impacts on their ability to secure food (Anderson, 1990). As another example, the LFS (Stats SA, 2008c) is based on information collected during the 2001 Census conducted by Stats SA. Moreover, information was collected on those who were employed, unemployed and economically active, thus highlighting just how different causal factors influence income. From the health point of view, results in the three HIV/AIDS surveys suggested that 28% of pregnant women in South Africa were living with HIV in 2007. Furthermore, out of the total population (N=15 851 persons aged 15–49 tested) in South Africa 20.2% of women were living with HIV compared to 11.7% of men. In this group the highest HIV prevalence among females was between 25 and 29 years of age, whereas in males it was between 30 and 39 years. Lastly, according to the 2008 survey on “Mortality and causes of death in South Africa, 2006”, HIV was ranked as the ninth-leading cause of death in South Africa, with 14 783 deaths attributable to it (71% of all deaths in the age group 15–49 years). Consequently, these deaths will negatively impact on South Africa’s most economically active group and may diminish their ability to secure an income, thus contributing to already widespread poverty and FI within households.

With regard to income, it was assumed that there is correlation between access to income and an individual’s ability to access food. The IES (Stats SA, 2008d) provided information on income, acquisition and expenditure patterns of a representative sample of households. The IES is used to give a perspective on food expenditure, food basket composition and dietary diversity. The GHS (Stats SA, 2008b) is often used to examine which households are experiencing hunger and what the characteristics and locations of these households are. Furthermore, the NFCSs (Labadarios, 1999) and NFCS-FB-1 (2005) (Labadarios et al., 2008), for instance, provided information regarding food security risks as determined by anthropometric status, deficiencies associated with different macronutrients and important micronutrients, as well as the total energy intake of individuals, communities and households. In addition, information was collected about the presence of hunger, knowledge, attitudes and practices regarding the purchase (implying ability to buy and hence relative food security) and use of fortified products, as well as awareness of and access to such food products.

In an attempt to impart an impression of food security in the country, the FI-relevant variables and their documented prevalence in the respective surveys has been tabulated (Table 10). The assumption has been made that all unemployed people, for instance, are food-insecure. Such an assumption may be argued to be erroneous, and indeed it is to a significant extent. However, there is an urgent need for an approach that will in some way collate relevant existing data, albeit differing in their mode of collection and nature, in order to impart an impression of the FI situation in the country. For comparative purposes, therefore, a study-specific FI Index was defined such that if the prevalence of

unemployment, for instance, was 30% in a given survey, then the prevalence of FI would also be 30%. Interpretation of the collated data should therefore be undertaken with extreme caution, and in any case be seen to indicate trends in evidence rather than evidence per se. Irrespective, the variety of the variables used for the purpose of estimating FI may be seen as collectively strengthening the argument for the existence of FI in the country rather than direct evidence of its extent.

**Table 10 – Summary of survey findings on variables related to food insecurity**

Survey	Indicators/variables related to food insecurity	Key findings in relation to food security – food insecurity index (%)
LFS (Quarter 4, 2008)	Unemployment rate	21.9%
GHS(2007)	Unemployment rate	24.8%
GHS (2007)	Perceptions of hunger among adults decreased from 6.9% to 2.5% from 2002 to 2007	2.0%
GHS (2007)	Perceptions of hunger among children decreased from 6.7% to 2% from 2002 to 2007	2.0%
NFCS (1999)	Hunger Scale (Experience of hunger)	50.0%
NFCS-FB-I (2005)	Hunger Scale (Experience of hunger)	51.6%
SASAS (2008)	Hunger Scale (Children say they are hungry because there is not enough food to eat?)	18.3%
	Hunger Scale (Children ever go to bed hungry because there is not enough money to buy food?)	11.4%
	Hunger Scale (Does your household ever run out of money to buy food?)	32.7%
FIVIMS (2006)	Running out of money to buy food	63.6%
IES (Sept. 2005 – Aug. 2006)	Households with average income of R4 314 in a year /R360 each month (households within the lowest income decile, Decile 1)	0.2%
	Households with average income of R13 300 and below in a year / R1 108 and below each month (households within the lower income deciles, Deciles 1–3)	3.6%
NFCS-FB (2005)	Poor households with an income between R1 and R1 000	55.0%
Community Survey (2007)	Households with no access to electricity	20.0%
Community Survey (2007)	Households with no access to piped water	11.4%
HIV/AIDS (2008)	Persons' mortality within the age group 15–49 years	71.0%

Source: [Stats SA (2007a, 2008a, 2008b, 2008c, 2008d); Pillay et al., 2006; Department of Agriculture (SA), 2007; Labadarios, 1999; Labadarios et al., 2008]

The key findings of each survey indicate a commonality in the following areas:

- A relative lack of job opportunities and hence high unemployment;

- Income and expenditure disparities which adversely impact on people's ability to purchase food;
- A high percentage of perceived hunger;
- A relative overall improvement in access to basic services associated with measures of improved quality of life, particular among the poor.

There are of course many factors which mitigate in favour of the FI prevalence being higher than that indicated in Table 10 on the basis of the assumptions made. For instance, South Africa, like the rest of the world, felt the impact of the volatility of the world markets between 2007 and 2009. In particular, steep food and fuel prices, high energy tariffs and increasing interest rates have placed severe pressure on ordinary South Africans already struggling to meet their basic household needs. It was further indicated that South Africa's rural poor spent 62% of their disposable income on food.<sup>1</sup> Stats SA also argued that the increase in the headline inflation rate between April and May 2008 was attributable to increases in the consumer price index for food and transport (CPIX) (Stats SA, 2008f). In addition, the Competition Commission uncovered a food price-fixing scheme by big companies, which may have further exacerbated the food crisis and over-burdened the poor.

These adverse living conditions have elicited criticism from all sectors of South African society. For example, the Congress of South African Trade Unions (COSATU) is of the view that the South African government's policy of interest rate hikes has had a disastrous impact on the people of South Africa. COSATU has argued in this regard that the rate hikes contributed substantially to the slowing down of the South African economy, with devastating consequences such as job losses and increased poverty.<sup>2</sup> In support of the latter view, the policy head in the Presidency indirectly acknowledged that social grants, particularly pension and child support grants, with their current value failed to effectively cushion the poor against the ravages of this wave of price hikes.<sup>3</sup>

Furthermore, the investment study for the Office of the President highlights that South Africa's levels of mass poverty represent a major constraint to investment, as investors regard the situation as unsustainable.<sup>4</sup> It is also argued that the unemployment rate of 25.5% recorded in September 2007 is unlikely to decrease amidst a climate of low investment (Statistical release P0141, May 2008). Additionally, the unemployment figure excludes those deemed to be not seeking employment, and the official unemployment definition does not distinguish between short- and long-term jobs. Nevertheless, it is questionable whether the current employment rate is a true reflection of the "real picture" if one considers that some people may have lost confidence in ever securing a job and that others are only holding on to short-term jobs.

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<sup>1</sup> Dlamini, K. World food crisis is an opportunity for Africa to help its poor, *The Times*, 21 April 2008. Accessed [8 September 2008], <http://www.thetimes.co.za/PrintEdition/Article.aspx?id=751842>

<sup>2</sup> A statement on interest rates delivered by Patrick Craven COSATU's National Spokesperson 9 October 2007.

<sup>3</sup> Pressly, D., Wealth gap grows every day, *Business Report*, 18 July 2008. Accessed [10 February 2009], <http://www.busrep.co.za/index.php?ArticleId=4512477>

<sup>4</sup> Naidoo, R. The reality of poverty: Editorial, Policy Bulletin, Volume 5 No 3, 1 November 2002. Accessed [20 September 2008], <http://www.naledi.org.za/pbull/vol5no3/3.pdf>

Consequently, the labour movement has warned of food riots as witnessed in other parts of the world, including Egypt, Cameroon, Ivory Coast, Mauritania, Ethiopia, Madagascar, the Philippines and Indonesia, as a result of the sharp rise in the cost of basic foods in the first few months of 2008.<sup>5</sup> Unsurprisingly, COSATU organised a protest march in July 2008 against rising costs, which was followed by nationwide protest action in August 2008.

The assessment of the current situation on FI in the country is aptly summarised in the report of the NFCS-FB-I (Labadarios et al., 2008):

*“The findings of the present survey are in unison, at least in trend rather than extent, with other available data which reflects on food security. In this regard, available evidence indicates that, in 1995 (secondary analysis of the 1995 Income and Expenditure Survey), food poverty, (i.e. households spending less than the money estimated to buy a low cost food plan) was estimated to occur in 43% of the population, and low energy availability (i.e. the food available to the households from purchases and home production) was insufficient to meet the energy needs of the household in 55% of the population. Also in unison with the findings of the present survey are the findings of the October Household surveys (conducted from 1995 to 1999) which included one (apparently poorly administered) question as an indicator of food security on the ability of households to feed children. Over this period and at the national level one-quarter to one-third of households surveyed were not in a position to purchase sufficient food to meet the dietary requirements of children at any given time, a situation that was worse in rural households and in poorer provinces. More recent evidence from the Human Sciences Research Council (HSRC) [is] also supportive of the findings of the present survey in terms of the majority of South Africans lacking enough food and income to meet all their household needs based on the annual data from the South African Social Attitudes Survey in 2003, 2004 and 2005, with Black South Africans being the worst affected population group in the country. The October Household Surveys have recently been replaced by the General Household Surveys which also included questions on the prevalence of hunger. Respondents in these surveys were asked whether any adult over the age of 18 years as well as a person younger than 18 years had gone hungry in the preceding 12 months of the survey because there was not enough food in the household. The response categories varied from “Never went hungry” to “Always went hungry”. The data from the General Household Survey (2002–2006) is striking in that the levels of hunger reported are considerably lower than that of all other surveys, including the present survey, which may reflect the nature/spectrum of the questions asked. Over the period of 2002 to 2006, the October Household Surveys [have] reported that the percentage of households in which hunger was experienced by an adult (seldom, sometimes, often and always) declined from 31.1% in 2002 to 16.5% in 2006. Indeed in 2006, hunger was experienced (often and always) in only 2.5% of the households surveyed as compared with 6.7% of households in 2002.”*

The current compilation of the available evidence on the assessment of FI in the country indicates that the South Africa government, and the Department of Agriculture in particular, is faced with a the serious challenge of addressing FI which impacts on its citizens in a

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<sup>5</sup> Cosatu warns of food riots, *News24*, 14 April 2008. Accessed [10 October 2008], [http://www.news24.com/News24/South\\_Africa/Politics/0,,2-7-12\\_2305864,00.html](http://www.news24.com/News24/South_Africa/Politics/0,,2-7-12_2305864,00.html)

multidimensional manner. One of the key related challenges would appear to be a clearer definition of appropriate measurement tools for assessing the prevalence of FI in the country. Such an approach is not dissimilar to the Department of Agriculture's initiative to provide national data on factors affecting agricultural production, levels of agricultural production and food prices.<sup>6</sup>

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<sup>6</sup> See <http://www.nda.agric.za>.

## **6. Conclusion**

The available national data on FI in the country indicate that the South African government needs to develop or accelerate its existing interventions to effectively target and improve the lives of the poor, and in particular those going without food. The government's approach also needs to be innovative with regard to new, more comprehensive and purpose-specific approaches to the assessment of FI in the country. More specifically, a national representative survey that includes questions that focus exclusively on FI, but also encompass a variety of other related fields such as employment, income and health, would appear to be essential. Logistical and budgetary constraints should not hamper the implementation of such a large-scale survey project, which should be conducted over time. In this regard, another potential approach in need of thorough evaluation may be to capitalise more effectively and strategically on existing vehicles, such as the GHS, or the NFCS (1999) and NFCS-FB-1 (2005), as well as FIVISM or SASAS.



		YES	NO
3.	Do you ever cut the size of meals or skip any because there is not enough food in the house?		
3a.	Has it happened in the past 30 days?		
3b.	Has it happened 5 or more days in the past 30 days?		
4.	Do you ever eat less than you should because there is not enough money for food?		
4a.	Has it happened in the past 30 days?		
4b.	Has it happened 5 or more days in the past 30 days?		
5.	Do your children ever eat less than you feel they should because there is not enough money for food?		
5a.	Has it happened in the past 30 days?		
5b.	Has it happened 5 or more days in the past 30 days?		
6.	Do your children ever say they are hungry because there is not enough food in the house?		
6a.	Has it happened in the past 30 days?		
6b.	Has it happened 5 or more days in the past 30 days?		
7.	Do you ever cut the size of your children's meals or do they ever skip meals because there is not enough money to buy food?		

	<b>YES</b>	<b>NO</b>
7a. Has it happened in the past 30 days?		
7b. Has it happened 5 or more days in the past 30 days?		
8. Do any of your children ever go to bed hungry because there is not enough money to buy food?		
8a. Has it happened in the past 30 days?		
8b. Has it happened 5 or more days in the past 30 days?		

## Appendix A2 SASAS Hunger Scale Module

		Yes	No	(Can't choose)
<b>1.</b>	Does your household ever run out of money to buy food?	1	2	8
<b>2.</b>	Has it happened in the past 30 days?	1	2	8
<b>3.</b>	Has it happened 5 or more days in the past 30 days?	1	2	8
<b>4.</b>	Do you ever rely on a limited number of foods to feed your children because you are running out of money to buy food for a meal?	1	2	8
<b>5.</b>	Has it happened in the past 30 days?	1	2	8
<b>6.</b>	Has it happened 5 or more days in the past 30 days?	1	2	8
<b>7.</b>	Do you ever cut the size of meals or skip any because there is not enough food in the house?	1	2	8
<b>8.</b>	Has it happened in the past 30 days?	1	2	8
<b>9.</b>	Has it happened 5 or more days in the past 30 days?	1	2	8
<b>10.</b>	Do you ever eat less than you should because there is not enough money for food?	1	2	8
<b>11.</b>	Has it happened in the past 30 days?	1	2	8
<b>12.</b>	Has it happened 5 or more days in the past 30 days?	1	2	8
<b>13.</b>	Do your children ever eat less than you feel they should because there is not enough money for food?	1	2	8

		Yes	No	(Can't choose)
<b>14.</b>	Has it happened in the past 30 days?	1	2	8
<b>15.</b>	Has it happened 5 or more days in the past 30 days?	1	2	8
<b>16.</b>	Do your children ever say they are hungry because there is not enough food in the house?	1	2	8
<b>17.</b>	Has it happened in the past 30 days?	1	2	8
<b>18.</b>	Has it happened 5 or more days in the past 30 days?	1	2	8
<b>19.</b>	Do you ever cut the size of your children's meals or do they ever skip meals because there is not enough money to buy food?	1	2	8
<b>20.</b>	Has it happened in the past 30 days?	1	2	8
<b>21.</b>	Has it happened 5 or more days in the past 30 days?	1	2	8
<b>22.</b>	Do any of your children ever go to bed hungry because there is not enough money to buy food?	1	2	8
<b>23.</b>	Has it happened in the past 30 days?	1	2	8
<b>24.</b>	Has it happened 5 or more days in the past 30 days?	1	2	8

## Appendix B Selected municipalities (FIVIMS)

Selected by municipalities and area type (FIVIMS)

Design	Population size and sampling <i>N</i> = 500 households	Indicators/ variables related to food insecurity
Fetakgomo Municipality	Tribal Settlement	5
	Sub-total	5
Greater Groblersdal Municipality	Farm	3
	Tribal settlement	15
	Sub-total	18
Greater Marble Hall Local Municipality	Farm	4
	Tribal settlement	5
	Urban settlement	1
	Sub-total	11
Greater Tubatse Municipality	Farm	2
	Tribal settlement	14
	Vacant	1
	Sub-total	16
Makhudutamaga Municipality	Tribal settlement	16
	Vacant	1
	Sub-total	16
	Grand total	65

Source: HSRC, 2005

## Appendix C

### General Household Survey (2007)

#### A. Definitions

**Household** in the survey is defined as a person or group of people occupying a common dwelling unit (or part of it) for a minimum of four nights per week for the past four weeks prior to the interview; “*living together and share resources as a unit*” “*eating from the same pot*” and “*cook and eat together*” were other phrases used to define households. People in the same dwelling but who do not share food or other essentials are not regarded as a household unit. Furthermore some of the following concepts have also been defined:

- **Economically active population** – people aged 15–65 who are employed and those who are not
- **Not economically active population** – people who are not available for work, e.g. scholars and students, full-time homemakers, retired, unable or unwilling to work
- **Formal dwellings** – house on separate stand, flat, apartment, townhouse, room in backyard
- **Informal dwelling** – shack or shanty in informal settlements or backyards
- **Electricity for cooking, heating and/or lightning** – electricity from the public supplier
- **Disability** – The GHS (2007) referred to disability as people who are limited in their daily activities at school or work because of a long-term physical, sensory, hearing, intellectual or psychological condition lasting six months or more.
- **Hunger** - The GHS (2007) referred to people who consumed less than 1 960 calories per day. Note should be taken that experiences of hunger, as measured in the GHS (2007), are perception-based.
- **Tourism** – The GHS (2007) defines a trip as a journey taken by one or more persons of the household for at least one night away from home without remuneration.

#### B. Key findings

- Education
  - The percentage of individuals attending educational institutes increased from 32.6% in 2002 to 33.7% in 2007.
  - Women more than men are likely to have no formal education. In 2007, 11.3% of women had no formal education compared to men (7.1%).
  - Lack of money for fees remains the most common reason for not attending educational institutions.
- Health

- Eleven per cent of individuals reported injury/illness in the month prior to the survey interview, with close to 80% of those injured/ill consulting a health worker.
- Medical aid coverage is lowest among black Africans (7.4%), while the white population had the highest percentage of medical aid coverage (66.5%).
- Labour market activities
  - Employment rates increased from 11 145 000 in 2002 to 12 720 000 in 2007.
  - The unemployment rate was 24.8% in 2007.
  - The number of people employed in the agricultural sector declined from 1 287 000 in 2002 to 908 000 in 2007.
- Housing and household assets
  - The percentage of households who lived in informal dwellings increased from 12.7% in 2002 to 14.5% in 2007.
  - Nearly 70% of households owned or partly owned the dwelling.
  - Television ownership increased from 56.5% in 2002 to 67% in 2007.
  - Cell phone ownership increased by more than double between 2002 and 2007.
- Energy supply
  - There was an increase in the percentage of households reported to be connected to the main electricity supply (from 76% in 2002 to 81.5% in 2007). The other 20% of households used other sources of energy such as electricity from a generator, gas, paraffin, wood, coal, animal dung, solar energy, other. Eastern Cape, KwaZulu-Natal and Gauteng reported the lowest electrification levels.
- Water access and use
  - The Eastern Cape had the lowest percentage of the population with access to on-site or off-site piped or tap water.
  - In 2007, 63.5% of those who received piped water from the municipality said that they paid for the water.
  - Reasons such as 1) no metering system, 2) no billing system, 3) cannot afford and 4) water should be free, were given for not paying for water.
- Hunger
  - The percentages of adults and children suffering from hunger decreased from 6.9% to 2% for adults and from 6.7% to 2% for children from 2002 to 2007.
  - Female-headed households are more likely to experience hunger than male-headed households.
  - It should be noted that experiences of hunger are perception-based.

- Social assistance and social security services
  - Eastern Cape, Limpopo and Free State have the highest percentages of use of welfare services (19.1%, 19% and 16.2% respectively). Across South Africa, the percentage of recipients of welfare increased more than threefold between 2002 and 2007.

## Appendix D

### Income and Expenditure Survey (2005/06)

Terms used in the survey were defined as follows:

1. **Consumption expenditure** – “all goods and services that are acquired for own consumption and privately used by household members. This excludes any items and services acquired for business purposes...Consumption expenditure excludes transfers to other households” (Stats SA, 2008d: 38);
2. **Household** – “a person, or group of persons who, on average, occupies a common dwelling unit (or part of it) for at least four days a week during the four weeks prior to the interview, and they together provide themselves with food and other essentials for living.” (Stats SA, 2008d: 39);
3. **Durable goods** – “items that last for a long time” (Stats SA, 2008d: 38). Examples include appliances, cars, furniture, etc.;
4. **Non-durable goods** – “items that do not last long, for example food and personal care items. Households acquire these items on a daily or weekly basis” (Stats SA, 2008d: 40); and
5. **Semi-durable goods** – “items that last longer than non-durable goods but still need replacing more often than durable goods” (Stats SA, 2008d: 40) e.g. clothing, shoes, etc.

## Appendix E

### Labour Force Survey (2008)

In the LFSs, the researchers have carefully defined their chosen terms/concepts such as:

1. **Employed** – in relation to employee (defined as a person  $\geq 15$  years of age who works for a public sector or a private sector employer and receives remuneration in the form of wages, salary, commission, tips, piece rates or any other form/kind of pay);
2. **Unemployed** – defined as persons  $\geq 15$  years of age who were not employed in the week referred to in the survey (further categories have been assigned to the kind of unemployment including job-seekers, job-losers, job-leavers, job-re-enterers, those drawing on insurance funds/government pension funds);
3. **Economic activity** – defined as those individuals/persons that contribute to the production of goods and services in the country, including two types of activities: the first being market production (work done for pay or profit) and the second being non-market production (work done for the benefit of the household).

Looking at these definitions used in the surveys we are able to ascertain that researchers conformed with international ways of defining labour at three different levels, such as at the national level, community level and individual level.

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