



**Food and Agriculture  
Organization of the  
United Nations**

**VOICES**  
— of the —  
**HUNGRY**

***Voices of the Hungry Project and  
the Post-2015 Agenda***

Measuring food insecurity to track progress  
toward universal food security goals

# Outline

1. Setting the stage (5 min.)
  - The evolution of food security monitoring
  - Debunking myths: who is not eating enough?
2. The Voices-of-the-Hungry project (8 min.)
  - People's perspective: who is food insecure?
  - Bringing *measurement* to the forefront
3. Preliminary results and expected outcomes (2 min.)
  - Consistent, globally comparable measurement of the *depth* of food insecurity in all countries in the world
  - Adoption of the FIES based measures as official indicators for the Post 2015 Development Agenda monitoring framework



1.

# SETTING THE STAGE

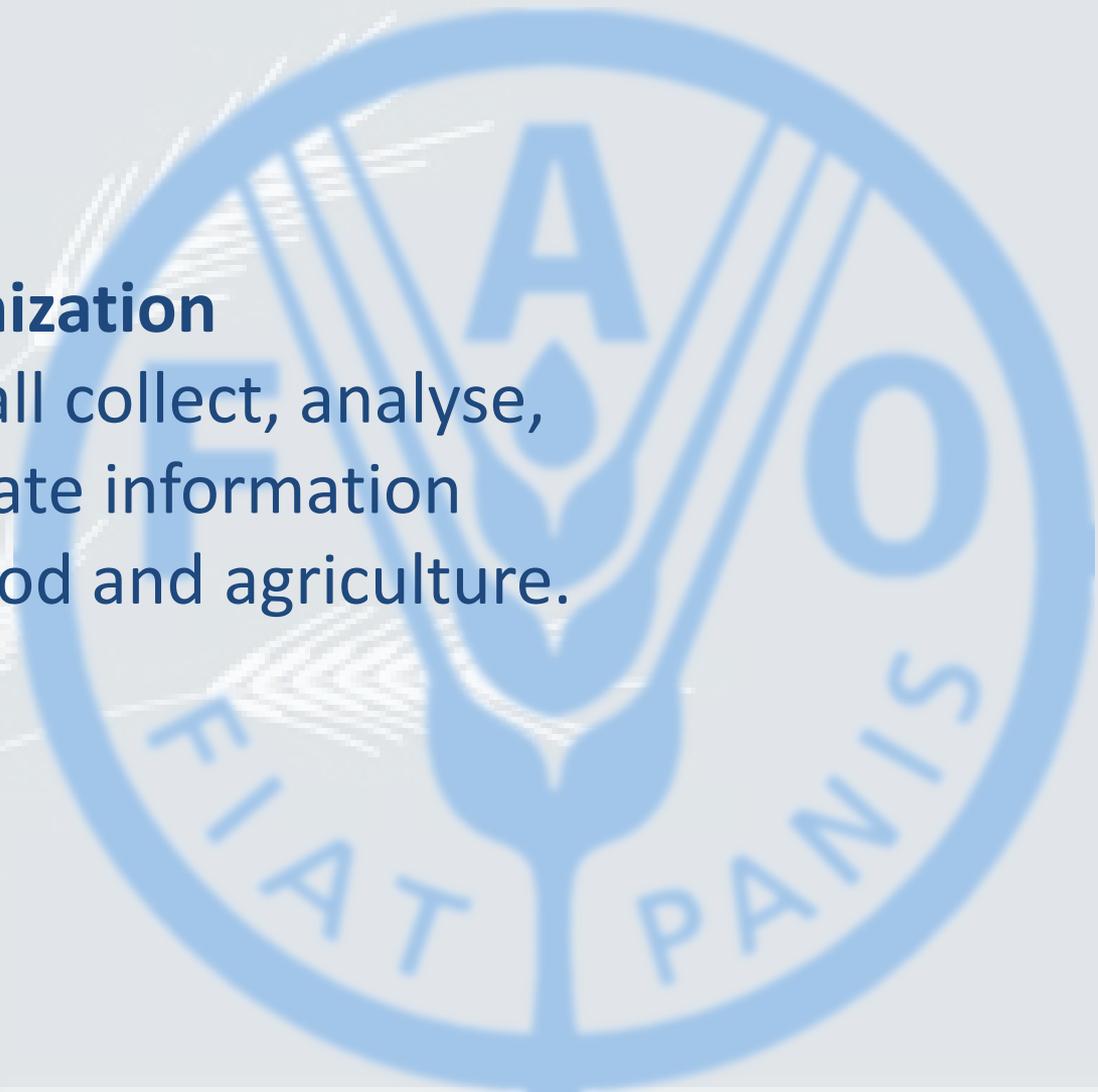
## **Article I**

### **Functions of the Organization**

1. The Organization shall collect, analyse, interpret and disseminate information relating to nutrition, food and agriculture.

[...]

*FAO Constitution, 1945*



“While the last 20 years have seen a deepening understanding of the concept of food security, **its measurement has lagged behind.**

At the global level, there are **no direct estimates** of the number of food insecure people. The most widely-cited indirect measure is the ‘prevalence of undernourishment’ (POU), constructed by the United Nations Food and Agriculture Organisation (FAO)[...]

**These estimates give no sense of the severity of hunger”**

HLPE, 2012. Social protection for food security.

A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome 2012.



FEATURING THE **BIGGEST NAMES** IN DEVELOPMENT



**THE ARCHITECT**  
UN Secretary-General Ban Ki-moon on his post-2015 vision



**THE ACTIVIST**  
Bill Gates on how a data revolution would change the world

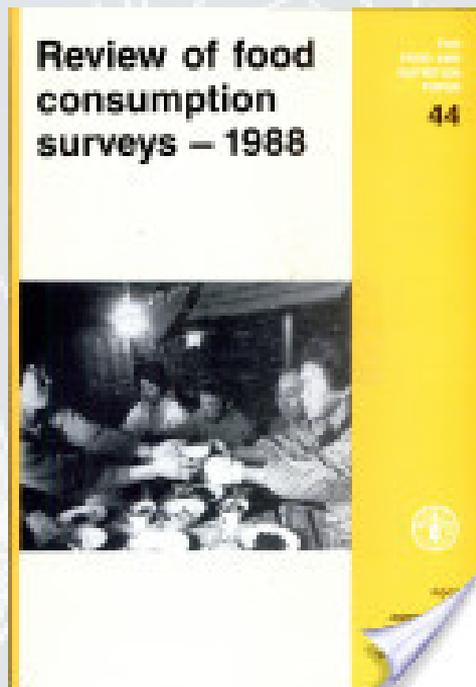
## VITAL STATISTICS

Improving the lives of the poor will take a steady, thoughtful revolution in development data

By **Bill Gates**

“When the United Nations Food and Agriculture Organization calculates national rates of undernourishment, they don’t do what you might expect: take a large sample of people and determine how many aren’t eating enough...”

# FAO tried...



## **Compendium of food consumption statistics from household surveys in developing countries Volume 2: Africa, Latin America and Oceania**

*FAO Economic and social development paper 116/2*

1994

This publication aims at providing information on food consumption levels and patterns obtained from household surveys. As such, it replaces the Review at Food Consumption Surveys, which was last issued in 1988.



## **Compendium of food consumption statistics from household surveys in developing countries Volume 1: Asia**

*FAO Economic and social development paper 116/1*

1993

This publication aims at providing information on food and consumption levels and patterns obtained from household surveys. As such, it replaces the Review of Food and Consumption Surveys, which was last issued in 1988.



## **Deriving food security information from household information from national household budget surveys**

2008

This document is a compilation of papers authored by national officers with the collaboration of FAO involved in food security using food security statistics from 11 countries in Asia, Africa and Eastern Europe.

# As have others ...

- LC Smith, H Alderman, D Aduayom (2006) *Food Insecurity in Sub-Saharan Africa. New Estimates from Household Expenditure Surveys*. Research report 146. International Food Policy Research Institute
  - Suggested that, relying on survey data, households could be classified as food insecure or not based on their observed food consumption as inferred from household budget and expenditure surveys
  - That the prevalence of food insecurity in the country could be assessed by counting the proportion of households classified as food insecure
    - Classification was based on average food consumption as approximated by total food availability at the household level over a short reference period
    - A household is classified as food insecure if average daily food consumption of a household (expressed in calories) is below the average daily dietary energy requirement of the household members
- IFPRI's report has inspired many countries' own reports, based on the analysis of household survey data, including MDG progress reports
- Prevalence of food inadequacy has been found to be “stubbornly” close to 50% rates...

**Figure C11.2: Percentage of population with food energy deficiency: comparison of Household Survey and FAO estimates**



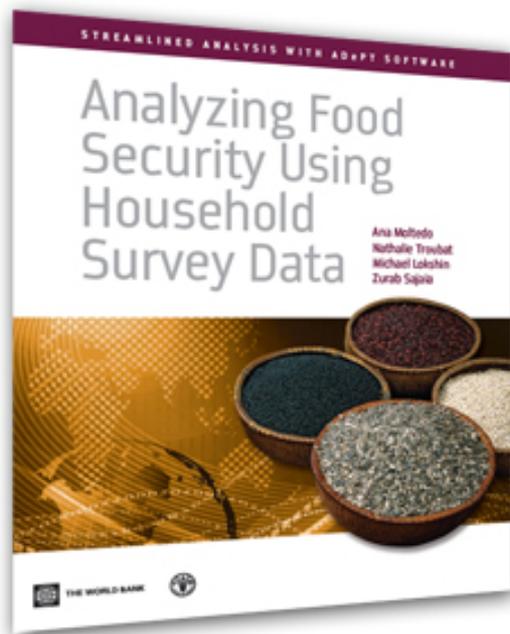
Source: Smith et al. (2006)

# Debunking myths

- Measuring food consumption at the household or individual level to determine if somebody “is eating enough” is difficult
  - Assessing *habitual* food consumption requires repeated measures to control for intra-individual variability
  - Assessing *individual* requirements to be matched with observed consumption is very difficult, even just for dietary energy
- Using food availability at the household level over a short period of time as a proxy of food consumption is problematic
  - Role of household level storage, number of partakers, seasonality, etc.

# A recent FAO/WB publication

## Statistics



## Analyzing food security using household survey data

This book is of interest for:

- food security analysis
- as a tool to derive food security indicators
- producing statistics on food security at subnational level
- people who access to food consumption data collected in household surveys
- providing statistics to policy makers
- tracking, in your country, the process to halve the people suffering from hunger by 2015

[Download the book from the World Bank](#)



2.

# **THE VOICES OF THE HUNGRY PROJECT**

# Why Voices of the Hungry

The deprecated FAO PoU methodology, based on a probabilistic model and information from a combination of macro and micro data is still the best we can hope for to avoid grossly biased estimates of the prevalence of food deprivation at national level

**Unfortunately “*these estimates give no sense of the severity of hunger*” and do not tell us “*who the food insecure people are, where they live, why are they so*”**

# Moving to the household and individual level

- The analysis of detailed food consumption data from surveys might indeed shed light on the adequacy of both quantity and quality of the food consumed
  - Individual dietary intake surveys provide essential information to link the quality of food consumed to health and disease outcomes
  - Household budget and expenditure surveys can provide information on “food poverty” and the relations between food expenditure and households’ purchasing power
- Sufficient precision to inform a reliable assessment, though, comes at a cost, which suggests that these surveys be conducted only periodically (e.g., every 5 to 10 years), possibly on large samples that are representative at subnational level

# Are there viable shortcuts?

- “Quick solutions” have been devised to try and get information on food habits at the individual or household level that could inform food security assessments
  - Dietary Diversity Score: the number of different food groups reported to have been consumed over a given reference period
  - Food Consumption Score: a weighted sum of the frequency of consumption of foods from a selected number of food groups over the last week
- While useful to inform overall food security assessments, these *are not direct measures of food insecurity*
- Also, the fact that they are labeled with numbers (“scores”) does not make them *measures* of whatever they aim to capture
- Strict analytic properties are required to quantitatively analyze measures and to compare them, such as when defining common thresholds to classify

# What *measuring* means

- The common, short definition is: “*to assign numbers to objects according to a rule*”
- This definition is incomplete and unsatisfactory
  - Numbers are assigned to *attributes* of objects which needs to be clearly specified
    - Ex.: I do not measure “a car”. I measure the speed of a car in a given moment.
    - Compare it with the all too common expression “measuring food security”. Food security of who? A country? A household? And what exactly is “food security”?
  - The attribute and the set of numbers used to represent it must share a set of *structural characteristics* that allow *analyzing the attribute by manipulating numbers* (e.g., taking averages, calculating correlations, etc.)

# What makes a measurement system *valid*

- A measurement **system** is made of a *measurement tool*, a *measurement protocol*, and a *standard of reference*
- Using the tool according to the protocol, values are assigned to a variable on a scale (i.e., the *measure*) that correspond to the attribute of interest (i.e., the *measurand*)
- A measurement system is valid for a certain attribute **if a change in the attribute in a given magnitude and direction, causes a change in the measure in the same direction and of the same relative magnitude**
- Before claiming that we have developed a way to measure something therefore we need to
  - Identify the object *and* the attribute of interest
  - Describe the tool and the protocol to be followed in using it
  - Verify that indeed the causal unambiguous relationship between the attribute and the measure holds

# An alternate route to define food insecurity

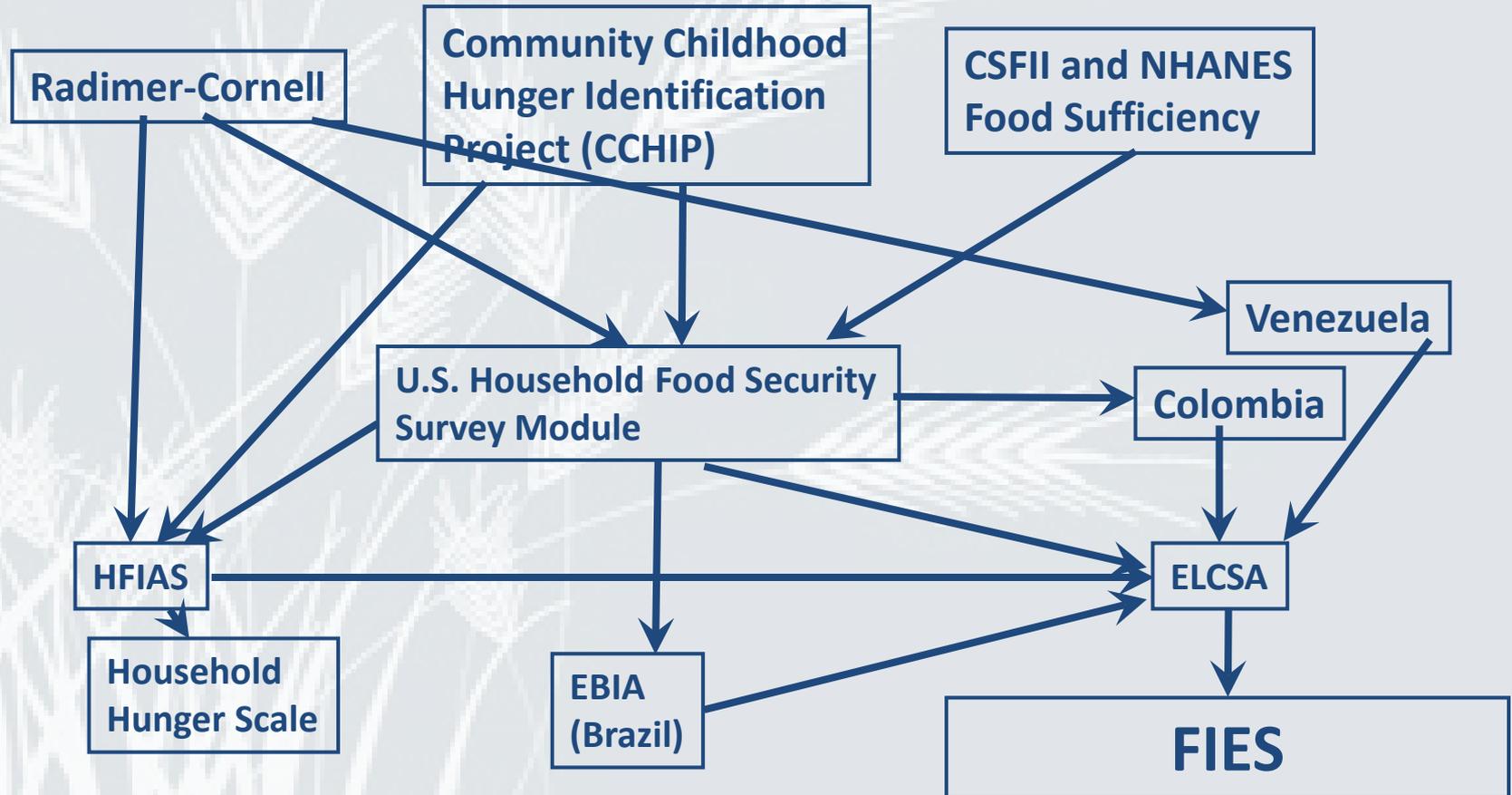
- Food insecurity as an experienced condition (Radimer et al. 1990, Coates et al. 2006)
- Although food insecurity remains a “latent” trait, that is not directly observable, experiences associated with a condition of food insecurity belong to common, recurrent “domains”:
  - worries that food may not last, need to compromise quality, need to reduce quantities, feeling hunger
- It makes sense to speak of **the severity of food insecurity**
- In principle, experiences can be ranked in terms of severity from the least severe to the most severe:



# The analytic concept behind the FIES

- Linking the latent trait to observable facts
  - The more food insecure a person is, the more likely he or she will report having suffered from the worst experience
- This link can only be established in a probabilistic sense
  - This is why a **sufficiently sophisticated understanding of the basis of statistical inference are indispensable**
- A long established psychometric model (Rasch measurement model) is used to estimate the severity of each respondent's condition, based on the reported experiences
  - The individual measure of severity depends on the entire pattern of responses. The answers given to all questions contribute to the precision of the measure.

# An established tradition



# What VoH adds

- Until now, classification with experience-based scales has been based on thresholds defined on raw scores
  - Easy to compute, raw scores are indeed a proper *ordinal* measure of the severity of experienced food insecurity
- Problems arise when trying to compare classifications obtained in different countries or contexts
  - Invariance of the ranking in terms of severity of the experiences included in the scale has been presented as a key requirement.  
**Do we truly need it?**
- VoH has developed a method **to equalize measures obtained in different countries and to define a global reference standard**
  - Inspired by current practice in educational testing equalization

# VoH objectives

- To establish the Food Insecurity Experience Scale (FIES) as a globally valid measurement system for the severity of food insecurity that allows formally correct comparisons over time, across countries and across social groups
- To estimate the prevalence of moderate and severe food insecurity in 150+ countries in 2014 and 2015, and to set a benchmark against which to monitor progress at national level
- To promote adoption of the FIES in national food security monitoring systems, by including the module in national household surveys
  - Technical training provided upon request and targeted to specific countries/institutions
  - Linguistically and culturally adapted questionnaire in more than 200 languages, plus all software and manuals made available to any interested use

# Main benefits from using the FIES

- Produces **timely and meaningful** information on the depth of food insecurity (moderate or severe) at household or individual level in terms of struggle in access to food
- A sound statistical methodology allows assessment of **reliability and precision** of the measures
- Measures are worldwide comparable as they are expressed on a global reference scale
- Easily applied, rapid and at low cost, can be included in virtually any survey. The food security status can thus be properly linked to other socio-demographic characteristics and health conditions of the individuals
- Allows assessment of food insecurity experiences at the individual level, thus permitting proper analysis of gender related food insecurity disparities



3.

# **RESULTS AND EXPECTED OUTCOMES**

# Implementation

- The FIES questionnaire has been pilot tested in the 2013 round of the Gallup® World Poll (GWP) in Angola, Ethiopia, Malawi and Niger
- Following successful piloting, the questionnaire has been included in the 2014 round of the GWP in 150+ countries
- Results are received on a monthly basis
  - Currently, data from 30 countries have been received and processed, confirming the validity of the survey vehicle and the robustness of the measurement approach in countries with very different conditions

# Results

- A provisional global reference scale has been defined based on results thus far from 30 countries in Africa, Asia, Europe and Latin America
- The first comprehensive (150+ countries) assessment will be published in the Spring 2015

# Partnerships sought

- The project is funded by FAO through contribution from DfID and the Government of Belgium
  - Available funds cover the 2014 and 2015 research, data collection and capacity development activities
  - The foreseen project duration is five years, after which the project will be scaled down to cover only countries that will not have developed the capacity to autonomously produce the indicators
- Additional funding is sought
  - To cover 2016-2018 capacity development and data collection
  - To fund capacity development activities aimed at promoting the adoption of the FIES in national food security monitoring systems
- Contribution can be given to FAO, under the Multi Donor Platform or directly to countries, that will receive assistance from FAO-ESS

**Thank you!**

**VOICES**  
— of the —  
**HUNGRY**

<http://www.fao.org/economic/ess/ess-fs/voices/en/>

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