



Differences and complementarities of  
different assessments of food insecurity: the  
Prevalence of Undernourishment (PoU), Food  
Insecurity Experience Scale (FIES) and  
Household Food Insecurity Access Scale  
(HFIAS)

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# Food Security

The most commonly used definition of food security is based on the definition from the 1996 World Food Summit, and updated in 2012:

Food security exists when **all people**, at **all times**, have **physical, social and economic access to sufficient safe and nutritious food** that meets their dietary **needs** and food **preferences** for an **active and healthy life**

## **Target 2.1 (in the new SDG Agenda)**

*“By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.”*

# Measurement of Food Security

## SDG Target-2.1

- **Indicator 2.1.1:** Prevalence of Undernourishment (PoU)
- **Indicator 2.1.2:** Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)

## Others measures: Are truly alternatives?

- HFIAS, ELCSA: as they are typically scored, they lack cross-country comparability. However, they can be made comparable using the FIES scoring method
- FCS, HDDS: lacking a basis for ensuring cross-country comparability
- HHS: quite robust cross-country, but only relevant for severe food insecurity

# Indicator 2.1.1: Prevalence of Undernourishment (PoU)

- Undernourishment is the condition of people who consume, on a regular basis, amounts of food that do not provide the dietary energy needed to be healthy and active.
- PoU Estimation

$$PoU = \int_{x < MDER} f(x) dx$$

- It can be applied to any population for which there are sufficient data on the distribution of food consumption and on relevant characteristics of the population (sex, age, height and occupation)
- Parameters required for estimation of PoU: average Dietary Energy Consumption (DEC), inequality in access to food (CV) and Minimum Dietary Energy Requirement (MDER)

# SDG Indicator 2.1.2: Prevalence of moderate or severe food insecurity measured with the FIES

- The FIES measures the severity of food insecurity of individuals and households facing constraints in their ability to obtain adequate food.
- The FIES takes inspiration from similar tools that have been used in several countries like HFSSM (used in the US since 1995), ELCSA (used in many Latin American countries) and HFIAS (used in many countries in Asia and Africa).
- Statistical definition of the FIES indicator

$$FI_{mod+sev} = \sum_{i=0}^8 P_{mod+sev}^i \times wN^i / N$$

$$P_{mod+sev}^i = 1 - \Phi(T_{m+s}; \mu = a_i; \sigma = \text{s.e.}(a_i))$$

# PoU and FIES

PoU	FIES
SDGs indicator 2.1.1	Basis to produce SDGs indicator 2.1.2, which is the prevalence of moderate or severe food insecurity combined, determined using the international FIES-based threshold.
Indirect measure of access to food	Direct measure of access to food
Monitor hunger at global and regional level to provide useful information about general trends over time of the prevalence of food inadequacy since 1974	Estimate the proportion of the population facing difficulties in obtaining food in sufficient quality and quantity to guide and monitor the effects of national food security policies and programmes
Primary data on food consumption and population statistics	Primary data collected through direct interviews with respondents who reply to questions about their own experiences or on behalf of their households
Requires a well structured food consumption data and a good knowledge of food consumption data processing and analysis	Simple to administer in a survey (only 8 yes/no questions). It requires statistical knowledge to be analyzed
Valid measure of the prevalence of food inadequacy but difficult to assess the reliability	Valid and reliable. Statistical validity and reliability can be formally assessed.

# PoU and FIES

PoU	FIES
Results can be disaggregated at the level of which the survey is meant to be representative. However, data quality may compromise the reliability of sub-national estimates.	Results can be disaggregated at the level of which the survey is meant to be representative
Based on a common method to be used across countries and populations. Comparability of the estimates may be conditioned by differences in data features	Developed exactly to ensure comparability across countries and time
It only provides an estimate of the percentage of people facing extreme food insecurity. Cannot be used to identify households that are more likely to be undernourished.	Able to reflect the depth of food insecurity. Prevalence can be directly computed at sub-national level.
Usually rely on data collected for poverty assessments, to compute consumer price indices and/or national accounts	Can be included in almost any existing survey, at very little additional cost.

# FIES and HFIAS

The FIES has many similarities with respect to the HFIAS but **it is not the same tool.**

FIES	HFIAS
Measures the severity of food insecurity of individuals or households	Measures the severity of food insecurity of individuals or households
Composed of eight core questions (more can be added)	Composed of nine questions
Does not ask for the frequency-of-occurrence	Asks for the frequency-of-occurrence
Reference period can be adapted according to the objective of the survey. For SDG reporting, it is 12 months	30 days reference period
Designed to have cross-cultural equivalence and validity in both developing and developed countries	While it has been proven to be internally and externally valid, with the proposed scoring it is not cross-culturally comparable
Prevalence of food insecurity is estimated using rigorous statistical tools (Rasch model) and based on Item Response Theory (IRT) models.	Prevalence of food insecurity is calculated using simple scores based on a-priori scoring (0 for “never”, 1 for “rarely”, 2 for “sometimes”, 3 for “often”)
It is the basis to compile the SDG indicator 2.1.1	Data collected using the HFIAS module could be used to compile SDG 2.1.1 if properly analysed, using Rasch-based scoring, and if reference period is modified to be 12 months

# SDG Indicator 2.1.2: FIES

## Progress so far (Asia and Pacific)

Stage of FIES adoption	Number of countries	Countries
Using their own national Experience-based Food Security Scale	03	Malaysia, Philippines, South Korea (using HFIAS)
FIES has been included in national surveys	10	Afghanistan, Bangladesh, Fiji, Indonesia, Mongolia, Pakistan, Sri Lanka, Timor Leste, Vanuatu, Vietnam
Plans in place to include FIES in national surveys	10	Marshall Islands, Myanmar, Micronesia (Federal State of), Nauru, Nepal, Solomon Islands, Tonga, Tuvalu, Maldives, Thailand
<b>TOTAL</b>	<b>23</b>	

# Challenges (PoU)

- Most of the HCESs are not designed for food security assessment. Main issues are:
  - Standard units of conversion
  - Missing partakers information
  - How to capture the growing trend of food consumed outside home
- Many countries collect only monetary values of food items.
- Periodicity of household survey varies
- Gender dis-aggregated data is possible only for individual intake surveys

# Challenges (FIES)

- Proper use of the FIES requires a significant level of analytic sophistication
- Adaptation of intended meaning of the FIES questions to the local contexts.
- Always ask all questions, especially if this is the first application of the FIES in a given community
- Position the FIES module early in the questionnaire, far away from food consumption and from “coping strategies” questions

# For discussion and proposed recommendations

- To implement the PoU at country level requires significant, coordinated effort to make sure that:
  - Existing methods to process data and analyze the information on food consumption be carefully scrutinized, to avoid grossly misleading assessments
  - More frequent and better data on individual and/or household food consumption be available, collected with well-designed, harmonized questionnaires.

Proposed: The Commission recommends:

- FAO and countries promote a broader use of the FIES in different contexts, especially in regular statistical monitoring activities and SDGs reporting.
- Countries compile and produce FIES in order to ensure regional aggregation of SDG 2.1.2 on the prevalence of moderate and severe food insecurity.

**Thank you!**

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