Monitoring Food Insecurity in the framework of the Sustainable Development Goals: Food Insecurity Experience Scale (FIES)

Food Security Monitoring and Analysis at National Level
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What is Food Security?

“Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preference for an active and healthy life.”

(FAO, 2009, Declaration of the World Summit on Food Security)
Food security definition

• Food security is defined as a very ambitious, universal condition ("all people, at all time") focusing on people’s access to food and on the nutritional value of food they have access to.

• Depending on the context, different forums have focused on different aspects
  • In the Arab region there is a tendency to focus on food availability
  • Within the nutrition community there is a tendency to focus on utilization
Background & History

• 1980’s Researchers in Cornell University
• New methodology to measure hunger
• Appropriate use but in the USA (stunting & undernourishment low where obesity is high

• Interviews with women
• Experienced Hunger

• New components identified as Experiences
Food Security monitoring at FAO

• Since 1974, FAO has produced estimates of the prevalence of undernourishment in the national population
  • Requires information on the level and distribution of dietary energy consumption in the population, to be contrasted with the level and distribution of dietary energy needs
  • Focuses on the likely consequence of severe food insecurity, that is, when people cannot access the food they need to cover energy needs, a choice justified by the specific focus on “hunger” reduction
Food Security monitoring at FAO

Produced always with partial, scattered information, particularly on the distribution of food consumption in the population

- The actual, regular food consumption of individuals is difficult (impossible?) to measure precisely
Background

• The need to substantially improve the ability to monitor the state of food insecurity
  • New Development Agenda
  • FAO S.O. 1: Help eliminate hunger, food insecurity and malnutrition
  • Countries’ Food Security Information Systems
• Need for information that is
  • relevant,
  • timely, and
  • reliable
Relevance: The **severity** of food insecurity

- Food insecurity as the individual **inability to access adequate food**
- Adequacy is defined in terms of **quantity, quality** and the associated “**welfare**”
- The **severity of the constraints** in accessing food is reflected in the implied consequences:
  - People will start being worried about how to procure food and thinking of sacrificing other expenses,
  - Then will compromise on variety/quality.
  - Then will start reducing quantities (cutting portions, skipping meals)
  - Eventually will reach the point of being exposed to hunger
Timeliness

• Collection, validation, dissemination and analysis of actual food supply and food consumption data takes time.
  • Resulting indicators risk to be obsolete.

• Forecasts and projections are dangerous
  • Especially because they can condition the wrong policy response

• We need data that is collected and analyzed quickly to be able to monitor current conditions.
Reliability

• Indicators must be based on sound methodological principles of measurement

• There must be ways to evaluate the **consistency of the results** with theoretical expectations to judge whether or not the produced measure makes proper sense
Voices of the Hungry – the application

• Including the FIES as a module in the Gallup World Poll (GWP,) a worldwide survey of nationally representative samples of the adult population (15+) conducted annually in 150+ countries
  • Pilot tested in Angola, Ethiopia, Malawi and Niger in 2013
• Establishing a worldwide valid standard for measuring the severity of food insecurity
• Benchmark against which to monitor progress
Voices of the Hungry - the tool

The FIES: a set of questions spanning the range of experiences

Food security

- Food insecurity
  - mild
  - moderate
  - severe

Worries
- Compromising food quality and variety
- Compromising food quantity

Wellbeing

Welfare reduction
- Psychological costs, reduction of other essential expenses

Malnutrition
- Obesity, micronutrient deficiencies, reduced work capacity

Undernutrition
- Stunting, wasting

Starvation

Consequences

- Welfare reduction
- Malnutrition
- Undernutrition
- Starvation

Wellbeing
Survey of the Food Insecurity Experience Scale (FIES)

• Reference Period: last 12 months

• Faced any of the stated experiences due to lack of resources (financial or others) to access food

• From worries not to access sufficient food till severity (hunger) through compromising food quantity and quality

• Individual/Household Level

• Series 8 Questions (Yes/No)
The Food Insecurity Experience Scale

During the last 12 MONTHS, was there a time when because of a lack of money or other resources?:

- You were worried you would run out of food
- You were unable to eat healthy and nutritious food
- You ate only a few kinds of foods
- You had to skip a meal
- You ate less than you thought you should
- Your household ran out of food
- You were hungry but did not eat You went without eating for a whole day
الأسئلة الثمانية لـ FIES - الإطار الأسري

"خلال الإثني عشر شهرا الماضية، هل كان هنالك وقت حيث بسبب نقص المال أو الموارد الأخرى:

1. كنت أنت أو أي شخص آخر بالغ في أسرتك قلقين بأنه لن يتوفر لك الطعام الكافي لتناوله؟

2. لم يكن باستطاعتك أنت أو أي شخص آخر بالغ في أسرتكأكل طعام صحي ومغذي؟

3. أكلت أنت أو أي شخص آخر بالغ في أسرتك أنواع قليلا من الأطعمة؟

4. كان عليك أنت أو أي شخص آخر بالغ في أسرتك أن تتخلى عن وجبة طعام؟

5. أكلت أنت أو أي شخص آخر بالغ في أسرتك أقل مما اعتقده أنكم يجب أن تأكلوا

6. نفذ الطعام لدى أسرتك؟

7. كنت جائعاً أنت أو أي شخص آخر بالغ في أسرتك لكنكم لم تأكلوا؟

8. بقيت أنت أو أي شخص آخر بالغ في أسرتك دون تناول الطعام ليوم كامل؟
How the measurement problem is addressed

• Food insecurity is recognized as a “latent trait”, that is, something that exists, but cannot be observed directly.

• The magnitude of the latent traits is inferred from observable manifestations (symptoms) using a statistical technique called item response theory (IRT).
Item Response Theory (IRT)

- Measurement of unobserved traits
- Analysis of responses to surveys
- IRT model applied to FIES: Rasch Model (Theory and Statistic tools):
  - Assess the suitability of the questions to build a measurement scale
  - Compare a scale performance across populations

- Two FIES-based indicators are used for monitoring purposes:
  - Proportion of population experiencing moderate or severe food insecurity
  - Proportion of population experiencing severe food insecurity
Food Secure \( (b_h < a_i) \)

Very low probability of responding yes

50% probability of responding yes

High probability of responding “Yes”

Food Insecure

\[ b_h < a_i \]
\[ b_h = a_i \]
\[ b_h > a_i \]
Food Security Measurement – FIES Purposes

1. Assessing Food Insecurity Prevalence among population
2. Identifying Vulnerable population to Food Insecurity
3. Monitoring & Guiding National Policies and Programmes of Food Security
4. Identifying risk factors and Consequences of Food Insecurity
FIES Uses & Features

- Easy Implementation
- Relevance and Validity
- Low Cost
- Statistically sound
- Distinction between different severity classes
- Comparability across countries
The innovations from Voices of the Hungry

• Cross country comparability
  • The FAO project has established a **global FIES reference standard**, against which all experience-based food security scales can be calibrated
    • Differences in people’s perceptions or in food related habits across different cultures are taken into consideration so that they do not affect the measure of severity

• Possibility to use household or individual frames
  • **Gender disparities can be captured** using the individually framed version

• Possibility to use different reference periods
  • Can be used to analyze **seasonal differences** in the severity of food insecurity
New Challenges/Opportunities created by the SDGs

• After years of methodology development and data collection:

  • FIES is reliable contribution to the global food security monitoring
  • FIES complements the indicator of hunger on “Prevalence of Undernourishment” SDG 2.1.1
  • Prevalence of moderate or severe food insecurity in a population: SDG indicator 2.1.2 (2030 Agenda)
Conclusions

• To continue feed the Food Security Indicators database we need countries’ collaboration, not only from the Ministries of Agriculture
  • Many relevant data and statistics are produce under other statistical domains

• Many of the indicators included cannot be timely updated
  • Data collection, validation and reporting takes time

• Many of the indicators included in the Food Security Index database cannot be disaggregated at subnational level
Conclusions

• Many data producers are concerned with alignment of the data they produce with the needs of the SDG monitoring framework

• Existing problems with consistency of evidence available at country level need to be addressed e.g. Food supply vs food consumption

• Need to coordinate and agree on a common set of indicators.
Conclusions

1. There must be international agreement on standards, methods, and tools
   • We need one indicator per dimension
     • Food availability: ✓
     • Food access: ✓
     • Food utilization: ?
   • Indicators must be unambiguous, cross-country comparable, timely and complete.

2. Food Security monitoring needs an institutional home
   • Identify and address data gaps, resolve information inconsistencies, maintains contact with regional and global institutions
Conclusions

3. The FIES is an appropriate standard for household food security measurement
   • Still limited application of Experience-Based FS Scale worldwide
     • Although FAO has applied it since 2014 in more than 150 countries every year, this has only been through the Gallup World Poll
     • GWP samples are small and show high sampling variability
   • Advocating for inclusion of the FIES in more large scale households surveys
     • Partnerships: World Bank LSMS, WFP VAM Pakistan, Philippines, UNICEF India
   • To provide capacity development, to increase statistical and analytic capacities in the field of food security measurement
Thank you