Food Balance Sheets (FBS)

Introduction to Food Balance Sheets
Outline

1. Overview
2. History
3. Definition of SUA and FBS
4. Potential Uses
5. Interpreting FBS data
Overview
1. General Purpose of the FBS

Global recognition that statistically sound, reliable data on food and agriculture are needed

e.g. to understand the current situation of agriculture and food supplies within any given country, track progress against established development goals, and inform future evidence-based policy decisions.

The FBS - by bringing together various key data variables (e.g. agricultural production, trade, feed, losses) – provide precisely such a cross-validation tool as well as a complete picture of the food supply situation in a country in any given time period. Various indicators can also be calculated.
2. History

- 1936: preparation of a systematic international comparison of food consumption data (requested by the League of Nations)

- After World War II: 1st intensive use of FBS to analyze the food security situation in Europe to inform the Marshall Plan allocations

2. History

≈ 2015: intensive focus of finalizing the **revised FBS methodology**. Same overall framework, but important innovations.

Main changes:

a) Updating the overall approach solve the balance (more refined)

b) Updating/refining the imputation methods of the FBS components – harness links between the various FBS variables/elements and information from outside the FBS
   
   e.g. the new feed use imputation method (animal number, type of breeding...)

c) More accuracy with the various variables
   
   e.g. other utilization tourist food, other utilizations

d) Less discretion of the compiler

e) International classifications adopted (FCL replaced by CPC and HS)
Definition of SUA and FBS
3. Definition of SUA and FBS

The FBS is a national accounting/statistical framework, presenting a comprehensive picture of the pattern of a country's food supply during a specified reference period (usually calendar year).

\[ \text{SUPPLY} = \text{UTILIZATION} \]

\[ P + I - \Delta S_t = X + F_o + F_e + S_e + T + I_U + L_o + (\text{Rou}) \]

Where:
- \( P \) = production
- \( I \) = imports
- \( \Delta S_t \) = \( \Delta \) stocks
- \( X \) = exports
- \( F_o \) = food
- \( F_e \) = feed
- \( S_e \) = seed
- \( T \) = tourist food
- \( I_U \) = industrial use
- \( L_o \) = loss
- \( \text{Rou} \) = residual or other uses
3. Definition of SUA and FBS

FBSs are derived from the SUAs

- **SUA**: Supply Utilization Account
  - The balance is compiled for every food item consumed within a country

- Commodities are converted in their primary commodity equivalent and aggregated

- Primary commodity equivalent balances are combined into one FBS

Validation & Balancing

Validation & Balancing
3. Definition of SUA and FBS

Population → Food component → Nutritive factors

Per capita:
- Quantity
- Calories
- Proteins
- Fats

DIETARY ENERGY SUPPLY in kcal/cap/day (DES)
### 3. Definition of SUA and FBS: FAOSTAT example

<table>
<thead>
<tr>
<th>Item</th>
<th>Population (1000 persons)</th>
<th>Food Balance Sheet (1000 tonnes)</th>
<th>Per Capita Supply (Kg/Yr, KCal/Day, g/Day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Domestic Supply</td>
<td>Domestic Utilisation</td>
</tr>
<tr>
<td>Population</td>
<td>1,416,667</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vegetal Products</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cereals - Excluding Beer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat and products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cereals - Milling Equivalent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barley and products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maize and products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rye and products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Millet and products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sorghum and products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cereals, Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Starchy Roots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cassava and products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes and products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yams</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roots, Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar Crops</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar cane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar beet</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FOOD BALANCE SHEETS
3. Definition of SUA and FBS

- shows the sources of supply and its utilization for each food item (SUA) or food group (FBS);
- provides the availability for human consumption (in quantity & kcal);
- shows the changes in the types of food consumed;
- Future: micronutrient information (minerals & vitamins).
3. Definition of SUA and FBS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
</tbody>
</table>
As the FBS require data from different statistical sources, statistical principles to ensure that the FBS are (i) reproducible, (ii) coherent, and (iii) transparent should be applied:

- **a) Sound Measurement first**
  Countries should invest in improving measurement of input data.

- **b) Document data, process & methodology**
  Compilers should document data sources, applied methodologies and solutions to identified data inconsistencies. Attention to units of measurement and classifications.

- **c) Peer review and collaboration**
  Validation by multiple actors

---

**3. Definition of SUA and FBS**

**Fundamental principles**

**Validation by multiple actors**

[FOOD BALANCE SHEETS]

[Food and Agriculture Organization of the United Nations]
Potential Uses of the FBS
4. Potential Uses

- Basis for policy analysis aimed at ensuring food security:
  - Estimate a country’s overall DES and macronutrient availability (proxy of food consumption)
  - Estimate the food shortages/surpluses
  - Estimate the amount of food aid
  - Determine the availability of a certain class of food
  - Inform agricultural trade policy
  - Analyze livestock policies (e.g., the degree to which primary food resources are used to produce animal feed)
4. Potential Uses

- Calculation of derived indicators
  - Estimate Prevalence of Undernourishment (PoU)
  - Self-sufficiency ratio (SSR): $P$ as % of dom. supply
  - Import dependency ratio (IDR): $I$ as % of dom. supply

\[
SSR = \frac{Production}{Production + Imports - Exports - \Delta Stock}
\]

\[
IDR = \frac{Imports}{Production + Imports - Exports - \Delta Stock}
\]
4. Potential Uses
4. Potential Uses

Comparing food availability across time

Track changes in dietary composition & growth of consumption in new products

Measure two key SDG indicators:
2.1.1 PoU (in the absence of household consumption data)
12.3.1 PHL

Potential Uses
Interpreting FBS data
5. Interpreting FBS data

- "Food availability", not "food consumption"
- DES is likely to overestimate the amount of food actually consumed
- FBS food availability takes into account all consumption within a country (HH, schools, hospitals…)
- Average of food/nutrient availability (distribution among different groups of people is not considered)
5. Interpreting FBS data

- Commodity Balances
  - FBS: only food-related commodities (e.g. rubber is not included)
  - FBS: the quantity estimates of food must be reported in their caloric equivalent
  - FBS: contains aggregated estimates of both a primary commodity and all of its derived products (expressed at the primary commodity equivalent level)

- Many countries produce commodity balances for primary products, but do not account for goods derived from those primary products → underestimate total consumption
References

- **Guidelines for the compilation of Food Balance Sheets** (FAO, 2017), chapter 1 (Global Strategy & FBS Team)

- **The FAO source book for the compilation of Food Balance Sheets** (FAO, 2016) (Global Strategy & FBS Team)

- **Food Balance Sheets, A handbook** (FAO, 2001) (FBS Team)
THANK YOU!

Salar.Tayyib@fao.org

www.fao.org/faostat