Agriculture-related SDG monitoring: Challenges and opportunities

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Food and Agriculture Organization of the UN
Overview of the 2030 Agenda & the SDGs

- 25 September 2015: 193 Member States of the United Nations adopt the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development

- The 2030 Agenda expected to guide actions of governments, international agencies, civil societies and other institutions over the next 15 years (2016-2030)

- The 2030 Agenda includes:
  - 17 goals, 169 targets and 244 indicators (232 unique)
  - Means of implementation and the global partnership
  - Review and follow-up
THE GLOBAL INDICATOR FRAMEWORK (1/2)

- **UN General Assembly** mandates **UN Statistical Commission** to oversee development and implementation of the SDG monitoring framework=> indicators to be selected by statisticians on the basis of purely professional reasons

  - **UN Statistical Commission** establishes **Inter-Agency and Expert Group on SDG indicators** (IAEG-SDG, meeting biannually) to lead technical discussions on selection & refinement of indicators and methodology, and implement global reporting mechanism up to 2030
    - 28 countries as members, representing their respective regions;
    - International organizations only as observers;

- March 2017: **UN General Assembly** endorses the Global Indicator Framework (GIF), comprising 244 SDG indicators (232 unique)

  => GIF endorsed at the highest political level

  => Full country leadership and ownership
The Global Indicator Framework (GIF) is subject to minor annual refinements and 2 comprehensive reviews in 2020 and 2025;

For each indicator, an international agency assigned the role of “custodian” with specific responsibilities in methodological development and global reporting

Indicators are categorized into three Tiers, depending on their level of methodological development and country coverage;

- Many indicators new, not all of them have an internationally agreed methodology, others not fully tested on a global scale

Indicators at different level of result chain (means of implementation, impact); not all are statistical; not all are relevant for all countries; many indicators produced outside of the national statistical system

Limitations: GIF does not cover the full scope of some complex/multidimensional SDG targets (GIF as a compromise between completeness and feasibility)
MEMBERS OF THE IAEG-SDG (SINCE MAY 2017)

Chair of UN Statistical Commission:
- Kenya

Eastern Africa:
- Ethiopia
- Tanzania

Middle and Southern Africa:
- Botswana
- Cameroon

Western Africa:
- Ghana
- Niger

Northern Africa:
- Algeria
- Egypt

Western Asia:
- Bahrain

Central, Eastern, Southern, and South-Eastern Asia:
- China
- India
- Tajikistan
- The Philippines

Oceania:
- Fiji
- Samoa

Central and South America:
- Brazil
- Colombia
- Mexico

Eastern Europe:
- Belarus
- Russian Federation

North America and Northern, Southern and Western Europe:
- Canada
- France
- Germany
- The Netherlands
- Sweden

* The Chair of the United Nations Statistical Commission is a member of the IAEG-SDGs ex-officio.
The Role of National Governments

- Governments expected to take ownership and establish national frameworks for achievement; Countries are the first responsible for follow-up and review of progress made.

- A significant factor in the success of the SDGs will be new and effective ways of collecting and analyzing data, monitoring targets and measuring progress by national governments.

- The SDGs are now the main reference for development policies and programs at national level.

If national data are not produced, regional and global indicators may not be produced.

- Importance for countries of being visible in global and regional progress reports.
  - **Benchmarking** performance to that of other countries: guidance for national policy decisions.
  - Possibility for international development partners to identify key global and national developmental issues to guide investment decisions and allocation of resources across countries.

- Important for countries to align national monitoring framework to the global one.
  - Significantly reduce the reporting burden.
  - Significant reduction of data requirements and capacity development needs.
  - Increased possibility of receiving technical assistance by international agencies.
Tier Classifications & the Role of Custodianship of Agencies

Tier Classification Criteria/Definitions:

**Tier 1**: Indicator is conceptually clear, has an *internationally established methodology* and standards are available, and *data are regularly produced* by countries for at least 50 per cent of countries and of the population in every region where the indicator is relevant.

**Tier 2**: Indicator is conceptually clear, has an *internationally established methodology* and standards are available, but *data are not regularly produced by countries*.

**Tier 3**: Internationally established methodology or standards not yet available, but being (or will be) developed or tested.

For each SDG indicator a **custodian agency was identified** to:

- ✔ Lead methodological development and documentation of the indicators
- ✔ Support statistical capacity of countries to generate and disseminate national data
- ✔ Collect data from national sources, ensure their comparability and consistency, and report and disseminate them at global level
- ✔ Contribute to monitor progress at the global, regional and national levels (e.g. storyline and data for the annual SDG reports, Agencies’ flagship publications)

FAO is custodian for 21 indicators, that are all now Tier I or Tier II.
FAO KEY AREAS OF WORK ON SDG INDICATORS

➢ Regular contribution to global SDG monitoring and reporting;

➢ Supporting countries and regions in the preparation of SDG progress reports, assisting in data gap analyses.

➢ Development of new definitions and methodologies for SDG indicators;
   - Definition of small scale food producers (indicators 2.3.1 and 2.3.2)
   - Definition of agricultural sustainability (indicators 2.4.1, 15.2.1)
   - Definition of rural/urban areas (most SDG indicators)

➢ Provision of statistical capacity support and technical assistance across all 21 SDG indicators under FAO custodianship;

➢ Communication and advocacy on SDG indicators.
Ensuring national SDG indicators follow international guidelines to enable international comparability and regional aggregation

Reduce costs of growing data needs through use of low cost technologies (i.e. computer assisted personal interview (CAPI), use of remote sensing)

Partner across national and international institutions to share capacity and training, including on software, hardware, and reuse of tablet.

Manage limited capacity to create new surveys through addition of content for SDG indicators in existing data collection

Indicator 5.a.1 on secure agriculture land ownership in agriculture surveys/censuses; Indicator 2.1.2 on food insecurity experience scale in household surveys

Follow up on hands-on regional training workshops with national training and technical assistance

Propose modifications and/or additions to IAEG-SDGs for 2020
Select SDG Indicators under FAO Custodianship: Challenges & Opportunities
Indicators under FAO custodianship

2.1.1 Hunger
2.1.2 Severity of food insecurity
2.3.1 Productivity of small-scale food producers
2.3.2 Income of small-scale food producer
2.4.1 Agricultural sustainability
2.5.1 Conservation of genetic resources for food and agriculture
2.5.2 Risk status of livestock breeds
2.a.1 Public Investment in agriculture
2.c.1 Food price volatility

5.a.1 Women’s ownership of agricultural land
5.a.2 Women’s equal rights to land ownership

6.4.1 Water use efficiency
6.4.2 Water stress

14.4.1 Fish stocks sustainability
14.6.1 Illegal, unreported unregulated fishing
14.7.1 Value added of sustainable fisheries
14.b.1 Access rights for small-scale fisheries

15.1.1 Forest area
15.2.1 Sustainable forest management
15.4.2 Mountain Green Cover

12.3.1 Global food losses
## Status of SDG Indicators Under FAO Custodianship

**As of June 2019**

<table>
<thead>
<tr>
<th>Goal</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal 2</strong> (Food security, Nutrition, Sustainable Agriculture)</td>
<td>2.1.1, 2.1.2, 2.3.1, 2.3.2, 2.4.1, 2.5.1, 2.5.2, 2.a.1, 2.c.1</td>
</tr>
<tr>
<td><strong>Goal 5</strong> (Gender equality)</td>
<td>5.a.1, 5.a.2</td>
</tr>
<tr>
<td><strong>Goal 6</strong> (Use of Water)</td>
<td>6.4.1, 6.4.2</td>
</tr>
<tr>
<td><strong>Goal 12</strong> (Sustainable Consumption and Production)</td>
<td>12.3.1</td>
</tr>
<tr>
<td><strong>Goal 14</strong> (Oceans)</td>
<td>14.4.1, 14.6.1, 14.7.1, 14.b.1</td>
</tr>
<tr>
<td><strong>Goal 15</strong> (Life on Land)</td>
<td>15.1.1, 15.2.1, 15.4.2</td>
</tr>
</tbody>
</table>

### Tier Level of Development

<table>
<thead>
<tr>
<th>Tier</th>
<th>Level of Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Established methodology exists and data already widely available</td>
</tr>
<tr>
<td>II</td>
<td>Methodology established but insufficient coverage (&gt;50% country coverage)</td>
</tr>
<tr>
<td>III</td>
<td>Internationally agreed methodology not yet developed</td>
</tr>
</tbody>
</table>
**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

**Target 2.1:** 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.

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**Two indicators** of food access are used to monitor Target 2.1.

These indicators provide **complementary information** on food access based on different methods and sources of data.

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**2.1.1**

Prevalence of undernourishment (PoU) – Tier I

**2.1.2**

Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) – Tier II
The Food Insecurity Experience Scale

Eight Key Questions

The FIES Survey Module (FIES-SM) consists of eight questions regarding people's access to adequate food, and can be easily integrated into various types of population surveys.

The FIES Survey Module

The FIES-SM questions refer to the experiences of the individual respondent or of the respondent’s household as a whole. The questions focus on self-reported food-related behaviors and experiences associated with increasing difficulties in accessing food due to resource constraints.

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

1. You were worried you would not have enough food to eat?
2. You were unable to eat healthy and nutritious food?
3. You ate only a few kinds of foods?
4. You had to skip a meal?
5. You ate less than you thought you should?
6. Your household ran out of food?
7. You were hungry but did not eat?
8. You went without eating for a whole day?
Target 2.3: “By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment”

SDG Indicators:

2.3.1: The volume of production per labour unit by classes of farming/pastoral/forestry enterprise size (Tier II)

2.3.2: The average income of small-scale food producers, by sex and indigenous status (Tier II)

Challenge: definition of small-scale food producers, computing agriculture income
Indicator 2.3.1 monitors productivity as “The volume of production per labour unit by classes of farming, pastoral, forestry enterprise size.”

\[
\text{Agricultural Labour Productivity} = \frac{\text{Volume of Production}}{\text{Labour input}}
\]

In order to standardize and aggregate different agricultural activities, FAO proposes to quantify the volume of production by taking the monetary value of the agricultural output (revenues) expressed in constant PPPs.
Numerous ways to identify small-scale food producers, either based on a single criterion or based on the combination of multiple criteria.

Criteria frequently found in the literature:

1. Criteria based on the amount of factors of production (e.g. land, labour);
2. Criteria based on the share of family workers in the holding;
3. Criteria based on concepts referring to the connection between the holding and the market (e.g. own-consumption, subsistence, market orientation);
4. Criteria based on the economic size of the holding (e.g. revenues).

Land size is the most commonly used criterion, as the vast majority of “small-scale food producers” definition are based on the physical size of the farm and the number of livestock heads.
Using a relative approach, the proposed statistical definition by FAO defines small-scale food producers using two criteria:

1. **Physical size of the farm**, as expressed by:
   a. **Land size**: producers falling in the bottom 40 percent of the distribution of land size, in hectares;
   b. **Livestock**: producers falling in the bottom 40 percent of the distribution of total livestock heads

2. **Economic size of the farm**, as expressed by the bottom 40 percent of the distribution of total revenues measured in PPP
‘Small-scale food producers’ are those included in the intersection of these three criterion variables.
1. The amount of land available to an agricultural producer should be considered in terms of “operated land”, which is defined as the amount of land effectively used.

<table>
<thead>
<tr>
<th>Includes</th>
<th>Excludes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land cultivated with permanent crops (including the land rented in)</td>
<td>Land rented out</td>
</tr>
<tr>
<td>Land cultivated with temporary crops (including the land rented in)</td>
<td>Forest land</td>
</tr>
<tr>
<td>Fallow land (land left uncropped and not dedicated to grazing)</td>
<td>land abandoned prior to the reference period</td>
</tr>
</tbody>
</table>

2. The number of livestock available to a producer must be considered in terms of Tropical Livestock Units (TLU). This unit of measurement standardizes different livestock types in a single measure through conversion factors valid for specific livestock varieties in each region of the world.
Implementation of the proposed approach to measuring the small (2/4): Tropical Livestock Units conversion table

<table>
<thead>
<tr>
<th>Region</th>
<th>Cattle</th>
<th>Buffalo</th>
<th>Sheep</th>
<th>Goats</th>
<th>Pigs</th>
<th>Asses</th>
<th>Horses</th>
<th>Mules</th>
<th>Camels</th>
<th>Chickens</th>
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<tbody>
<tr>
<td>Near East North Africa</td>
<td>0.70</td>
<td>0.70</td>
<td>0.10</td>
<td>0.10</td>
<td>0.20</td>
<td>0.50</td>
<td>0.40</td>
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<td>0.75</td>
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<td>1.00</td>
<td>0.15</td>
<td>0.10</td>
<td>0.25</td>
<td>0.50</td>
<td>0.80</td>
<td>0.60</td>
<td></td>
<td></td>
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<td>Africa South of Sahara</td>
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<td>0.10</td>
<td>0.10</td>
<td>0.20</td>
<td>0.30</td>
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<td>0.60</td>
<td>0.70</td>
<td>0.01</td>
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<tr>
<td>Central America</td>
<td>0.70</td>
<td>0.10</td>
<td>0.10</td>
<td>0.25</td>
<td>0.50</td>
<td>0.50</td>
<td>0.60</td>
<td></td>
<td></td>
<td>0.01</td>
</tr>
<tr>
<td>South America</td>
<td>0.70</td>
<td>0.10</td>
<td>0.10</td>
<td>0.25</td>
<td>0.50</td>
<td>0.65</td>
<td>0.60</td>
<td></td>
<td></td>
<td>0.01</td>
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<td>South Africa</td>
<td>0.70</td>
<td>0.10</td>
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<td>0.20</td>
<td>0.50</td>
<td>0.65</td>
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<td>OECD</td>
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<td>0.10</td>
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<td>0.65</td>
<td>0.60</td>
<td>0.90</td>
<td>0.01</td>
</tr>
<tr>
<td>East and South East Asia</td>
<td>0.65</td>
<td>0.70</td>
<td>0.10</td>
<td>0.10</td>
<td>0.25</td>
<td>0.50</td>
<td>0.65</td>
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<td>0.80</td>
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<td>South Asia</td>
<td>0.50</td>
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<td>0.10</td>
<td>0.10</td>
<td>0.20</td>
<td>0.50</td>
<td>0.65</td>
<td>0.60</td>
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<td>0.01</td>
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<tr>
<td>Transition Markets</td>
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<td>0.70</td>
<td>0.10</td>
<td>0.10</td>
<td>0.25</td>
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<td>0.60</td>
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<td>0.01</td>
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<tr>
<td>Caribbean</td>
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<tr>
<td>Near East</td>
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<td>0.56</td>
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<td>Other</td>
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<td>0.50</td>
<td>0.65</td>
<td>0.60</td>
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<td>0.01</td>
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### IMPLEMENTATION OF THE PROPOSED APPROACH (3/4): IDENTIFYING SMALL SCALE PRODUCERS

<table>
<thead>
<tr>
<th>Hodllng/HH</th>
<th>UAA (ha)</th>
<th>TLUs (number)</th>
<th>Crop revenue ($ PPP)</th>
<th>Livestock revenue ($ PPP)</th>
<th>Fisheries revenue ($ PPP)</th>
<th>Forestry revenue ($ PPP)</th>
<th>Revenue total ($ PPP)</th>
<th>Small scale Producers</th>
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<tbody>
<tr>
<td>HH1</td>
<td>2.91</td>
<td>5.4</td>
<td>2912</td>
<td>2261</td>
<td>321</td>
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<td>5493</td>
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<td>1.12</td>
<td>1.6</td>
<td>736</td>
<td>442</td>
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<td>1188</td>
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<td>5.7</td>
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<td>4.4</td>
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<td>265</td>
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<td>5</td>
<td>813</td>
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<td>12</td>
<td>463</td>
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<td>1103</td>
<td>223</td>
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<td>4.6</td>
<td>4599</td>
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<td>8052</td>
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<td>3.19</td>
<td>10.7</td>
<td>1010</td>
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<td>2.44</td>
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<td>187</td>
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<td>2965</td>
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<td>7684</td>
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<td>1.5</td>
<td>1600</td>
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<td>2251</td>
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<td>5.1</td>
<td>4147</td>
<td>642</td>
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<td>4788</td>
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<td>HH20</td>
<td>2.46</td>
<td>1.2</td>
<td>1451</td>
<td>377</td>
<td>450</td>
<td></td>
<td>2277</td>
<td></td>
</tr>
</tbody>
</table>
Indicator 2.3.1: Output per labour input (PPP$ per year/number of days worked per year)

The chart shows the output per labour input for different countries. The vertical axis represents the US$ PPP, current values (per day), while the horizontal axis lists the countries. The bars are color-coded to indicate all producers (blue) and small-scale producers (orange).
2.A.1: THE AGRICULTURE ORIENTATION INDEX FOR GOVERNMENT EXPENDITURES

**Status:** Tier 1

**Definition:** Agriculture Share of Government Expenditures, divided by the Agriculture Share of GDP, where Agriculture refers to the agriculture, forestry, fishing and hunting sector.

**Data sources:** Agriculture Share of Government Expenditures is based on FAO’s annual Government Expenditures in Agriculture (GEA) questionnaire.

Comparable data can also be derived from IMF questionnaire on Government Expenditures

**Challenge:** Country implementation of COFOG and GFS methodologies; coverage of all levels of government
**INDICATOR 2.A.1 – METHODOLOGY & CLASSIFICATIONS**

**AOI =** Agriculture share of government expenditure

- **Governance Finance Statistics methodology**
- **The Classification of the Functions of Government**
- **System of National Accounts**
- **International Standard Industrial Classification of All Economic Activities**

* Agriculture including Forestry, Fishing and hunting
**TABLE A: Government expenditure on agriculture and related functions**

<table>
<thead>
<tr>
<th>Functional classification2</th>
<th>General Government</th>
<th>Memorandum : Central Government (Including Social Security Funds of central government)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budgetary Units</td>
<td>Extrabudgetary Units</td>
</tr>
<tr>
<td>EXPENDITURE (TOTAL OUTLAYS)</td>
<td>Central Government</td>
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<tr>
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<tr>
<td>Fishing and hunting</td>
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<tr>
<td>7048 R&amp;D Economic Affairs</td>
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<td>R&amp;D Agriculture, forestry, fishing, and hunting</td>
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<td>7055 R&amp;D Environmental Protection</td>
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<tr>
<td>Protection of Biodiversity and Landscape</td>
<td></td>
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<tr>
<td>7054</td>
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<tr>
<td>Environment protection</td>
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<td>Ministry/Institution</td>
<td>Department/Program</td>
<td>Activity Description</td>
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</tr>
<tr>
<td>Ministry of Agriculture</td>
<td>Administration and HR Management</td>
<td>Acquisition Of Household &amp; Institutional Equipment</td>
</tr>
<tr>
<td>Ministry of Livestock Development and Fisheries</td>
<td>Fisheries Development Division</td>
<td>Basic Salaries - Pensionable Posts</td>
</tr>
<tr>
<td>Ministry of Natural Resources and Tourism</td>
<td>Forestry and Beekeeping</td>
<td>Routine Maintenance And Repair Of Vehicles And Transportation Equipment</td>
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<td>Ministry/Institution</td>
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<td>Ministry of Natural Resources and Tourism</td>
<td>Forestry and Beekeeping</td>
<td>Routine Maintenance And Repair Of Vehicles And Transportation Equipment</td>
</tr>
</tbody>
</table>
5.A.1: (A) PROPORTION OF TOTAL AGRICULTURAL POPULATION WITH OWNERSHIP OR SECURE RIGHTS OVER AGRICULTURAL LAND, BY SEX; AND (B) SHARE OF WOMEN AMONG OWNERS OR RIGHTS-BEARERS OF AGRICULTURAL LAND, BY TYPE OF TENURE

• **Status:** Tier II

**Definition:** Part (a) measures the *incidence* of people with ownership or secure rights on agricultural land, disaggregated by sex, whereas part (b) focusses on the *gender parity* measuring the extent to which women are disadvantaged in ownership / rights over agricultural land.

**Data source:** New questionnaire (minimum 5 questions) that should be incorporated in a national household survey (DHS, MICS, LSMS, Multipurpose, Household Budget Survey etc.)

**Challenge:** Definitions, proxy questions, proxy respondents
5.A.1: (A) PROPORTION OF TOTAL AGRICULTURAL POPULATION WITH OWNERSHIP OR SECURE RIGHTS OVER AGRICULTURAL LAND, BY SEX;

Sub-indicator a

Women

# of women with ownership or secure rights over agricultural land
Total female agricultural population (in ag HHs)

Men

# of men with ownership or secure rights over agricultural land
Total male agricultural population (in ag HHs)

Adult women without land tenure rights

Adult women with land tenure rights

Adult men without land tenure rights

Adult men with land tenure rights
5.A.1: (B) SHARE OF WOMEN AMONG OWNERS OR RIGHTS-BEARERS OF AGRICULTURAL LAND, BY TYPE OF TENURE

**Sub-indicator b**

\[
\frac{\text{# women with ownership or secure rights over agricultural land}}{\text{Total people with ownership or secure rights over agricultural land}}
\]

- Total adult agricultural population (in ag HHs) with land tenure rights
- Adult women with land tenure rights
- Adult men with land tenure rights
5.A.1: OWNERSHIP OR SECURE RIGHTS OVER AGRICULTURAL LAND

The 2020 World Census of Agriculture proposed an *internationally agreed land use classification*, according to which there are *nine basic land use classes* (LU1-LU9) and agricultural land is a subset (LU1-LU5).

<table>
<thead>
<tr>
<th>LU1</th>
<th>LU2</th>
<th>LU3</th>
<th>LU4</th>
<th>LU5</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAND UNDER TEMPORARY CROPS</td>
<td>LAND UNDER TEMPORARY MEADOWS AND PASTURES</td>
<td>LAND TEMPORARILY FALLOW</td>
<td>LAND UNDER PERMANENT CROPS</td>
<td>LAND UNDER PERMANENT MEADOWS AND PASTURES</td>
</tr>
</tbody>
</table>

The definition of agricultural land for indicator 5.a.1 is taken from this framework, thus it focuses on the first 5 classes.

An exception can be made for farmyards, if they are considered to have an important role on the household economy and food security.
5.A.1: OWNERSHIP OR SECURE RIGHTS OVER AGRICULTURAL LAND

**Reported ownership**
- Measures whether people consider themselves owners
- Need not – & cannot – be objectively verified
- For understanding people’s motivations and behaviors on asset ownership and gaps between law and practice

**Documented ownership**
- Measures existence of document an individual can use to claim tenure rights in law over asset
- Type of document and rights conferred by document will vary by country but should be enforceable by law

**Right to sell**
- Measures ability of individuals to permanently transfer asset for cash or in-kind benefits

**Right to bequeath**
- Measures ability of individuals to give asset by oral or written will to another person after his/her death

**Alienation rights**

**Two key tenets:**
- There may be certain ownership rights no individuals hold due to the tenure systems governing property rights in a given country
- Even when the full set of ownership rights exists, they may not all be vested in one individual
5.1.1: **Ownership or Secure Rights Over Agricultural Land**

**Recommendations on the Definition of Asset Ownership**

For comparability at the international level, **ownership of priority assets** is best defined as documented ownership or the rights to alienate the asset.

- Documented Ownership
- Right to Sell
- Right to Bequeath

At the national level, **countries** will need to **assess the legal frameworks** and **social norms governing access** to assets (countries may want to measure the full set of ownership rights depending on policy objective).
5.1.1: OWNERSHIP OR SECURE RIGHTS OVER AGRICULTURAL LAND

RESPONDENT RULES

During data collection, two approaches that can be followed with regards to the respondent:

**Proxy Reporting**

The selected respondent (head of HH or most knowledgeable on topic) provides info for assets owned by HH members.

**Self Reporting**

The selected respondent(s) provides info on assets he/she owns. This approach captures people’s self-perception of what they own rather than what somebody else (the proxy) believes they own.
5.A.1: OWNERSHIP OR SECURE RIGHTS OVER AGRICULTURAL LAND

DATA COLLECTION STRATEGIES

The recommendations on the data collection strategies depend on the objective.

<table>
<thead>
<tr>
<th>OBJECTIVE OF THE DATA COLLECTION</th>
<th>TYPE OF SURVEY</th>
<th>RECOMMENDATIONS ON WHOM TO INTERVIEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREVALENCE OF ASSET OWNERSHIP</td>
<td>- Append to existing survey</td>
<td>- 1 or more randomly selected adult hh member</td>
</tr>
<tr>
<td>PREVALENCE OF ASSET OWNERSHIP AND INTRAHOUSEHOLD DYNAMICS</td>
<td>- Standalone survey</td>
<td>- All adult hh members</td>
</tr>
<tr>
<td></td>
<td>- Append to existing survey</td>
<td>- 1 randomly selected adult member + partner if available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 1 randomly-selected couple + 1 additional randomly-selected non-partnered adult member</td>
</tr>
</tbody>
</table>
12.3.1 GLOBAL FOOD LOSS INDEX

- **Status**: Tier II

- **Definition**: measures the totality of losses occurring from the time at which production of an agricultural product is recorded until it reaches the final consumer as food. While calculated on a quantity basis, it is subsequently transformed to dietary energy supplies (in kcal) per capita allowing consistent aggregation and then indexed.

- **Data sources**: loss quantities in the Food Balance Sheets as collected by FAO through its Annual Production Questionnaires to the countries.

- FAO advocates for a survey based and nationally representative collection of data. Other data collection methods can be used for cost-efficiency, such as experimental design and estimation models.

**Challenge**: Select commodities; Identify critical loss points; develop various instruments to collect loss data
STATE OF PLAY: SDG 12.3 TARGET AND INDICATORS

Food Loss Index
Focuses on decreasing losses in the supply side of the supply chain

“By 2030, …reduce food losses along production and supply chains, including post-harvest losses.”

Waste Index
Focuses on retail and consumer sectors and improving efficiency on the demand side of the supply chain

“…halve per capita global food waste at the retail and consumer levels.”
Indicator 12.3.1 - Global Food Loss Index (GFLI)

The GFLI weights countries’ FLI by value of production to obtain

$$GFLI_t = \frac{\sum_{i=1}^{G} FLI_{it} \times w_{it_0}}{\sum_{i=1}^{G} w_{it_0}} \times 100 = \frac{\sum_{i=1}^{G} FLI_{it} \times \left[\sum_{j=1}^{J} V_{ijt_0}\right]}{\sum_{i=1}^{G} \left[\sum_{j=1}^{J} V_{ijt_0}\right]} \times 100$$

$$= \frac{\sum_{i=1}^{G} FLI_{it} \times \left[\sum_{j=1}^{J} p_{ijt_0} q_{ijt_0}\right]}{\sum_{i=1}^{G} \left[\sum_{j=1}^{J} p_{ijt_0} q_{ijt_0}\right]} \times 100$$

Where:

- $w_{it_0} =$ country weights = agricultural value of production of country $i = V_{t_0} = q_{ijt_0} p_{ijt_0}$
- $FLP_{it} =$ Food Loss Percentage of country $i$ in year $t$.
- Commodities $j=1,2,...,J$; Country $i=1,2,...,I$; $t_0 =$ base year
BOUNDARIES BETWEEN THE FLI AND THE FWI

Extreme Events
SDG 1.5

Pre-harvest/Pre-slaughter

Harvest/Slaughter

On-farm Post-harvest/Slaughter Operations

Transport Storage Distribution

Processing & Packaging

Retail

Public & Household Consumption

Losses in the FBS

Food Loss Index
SDG 12.3.1.a

Food Waste Index
SDG 12.3.1.b

Harvest losses
can be added to the index coverage and measured with crop-cutting surveys

Food Losses Index at the national level
SDG 12.3.1.a
**MEASURED DEFINITION OF FOOD LOSSES**

**Food losses** Crop and livestock product losses cover all quantity losses along the supply chain for all utilizations (food, feed, seed, industrial, other), up to but not including the retail/consumption level. Losses of the commodity as a whole (including edible and non-edible parts) and losses, direct or indirect, that occur during storage, transportation and processing, also of relevant imported quantities, are therefore all included.

- Quantities
  - that leave the chain for any reason
  - all supply stages
  - non-food utilizations are NOT losses
  - edible + inedible parts
Indicator 12.3.1 - Global Food Loss Index (GFLI)

The GFLI weights countries’ FLI by value of production to obtain

\[ GFLI_{it} = \frac{\sum_{i=1}^{G} FLI_{it} \times w_{it_0}}{\sum_{i=1}^{G} w_{it_0}} \times 100 = \]

\[ = \frac{\sum_{i=1}^{G} FLI_{it} \times \left[ \sum_{j=1}^{J} p_{ijt_0} q_{ijt_0} \right]}{\sum_{i=1}^{G} \left[ \sum_{j=1}^{J} p_{ijt_0} q_{ijt_0} \right]} \times 100 \]

Where:

- \( w_{it_0} \) = country weights = agricultural value of production of country \( i = V_{t_0} = q_{ijt_0} p_{ijt_0} \)
- \( FLI_{it} \) = Food Loss Index of country \( i \) in year \( t \).
- Commodities \( j=1,2,...,J \); Country \( i=1,2,...,I \); \( t_0 = \) base year
Indicator 12.3.1 - Countries’ Food Loss Index (FLI)

Food Loss Index

\[ FLI_{it} = \frac{FLP_{it}}{FLP_{it_0}} \times 100 \]

\[ FLP_{it} = \frac{\sum_j l_{ijt}(q_0*p_0)}{\sum_j (q_0*p_0)} = \text{Food Loss Percentage in country i at year t} \]

\[ l_{ijt} = \text{loss percentage (estimated or observed)} \]

Where: \( i = \text{country}, j = \text{commodity j}, t = \text{year}, t_0 = \text{base year} \)
Underlying national data: compiling the Food Loss Percentage, by commodity

Each commodity’s supply chain can be disaggregated down to stage.

Estimates for the different stages can come from various instruments and tools.

Nationally Representative Loss percentages ($l_{ijt}$) by commodity

Weighted Aggregation of all commodities in the country basket $\Rightarrow$ FLP

Food Loss Percentage$_{it}$ = $\frac{\sum_j l_{ijt} \times \text{weights}_{t=0}}{\sum_j (\text{weights}_{t=0})}$
FLI - MAIN PRINCIPLES AND METHODOLOGY

1. Focuses on 10 key commodities in 5 main groups
2. Measures Food Loss Percentages (FLP) and not on total losses
3. Monitors changes in the Food Loss Percentage over time
4. Based on nationally representative loss percentages along the supply chain
DATA COLLECTION METHODS: GUIDELINES ON THE MEASUREMENT OF LOSSES

Measuring $l_{ij}$ is at the core of the matter.

- Range of surveys and sample-based statistical tools
- To obtain nationally representative loss estimates in a cost-effective manner
- Grounded in the National Statistics Systems
- Drawn from 40 years of methodological literature and field practice

Grains

Published and tested

Fruits and Vegetables, Milk and Meat, Fish and products
FAO CAPACITY DEVELOPMENT STRATEGY FOR SDG REPORTING: OPPORTUNITIES

Enlarge the pool of SDG monitoring experts

- Capacity development efforts:
  - E-learning courses for SDG indicators
  - Training-of-Trainers & Regional workshops

Support to national data collections

- Ensure hands-on regional training on farm-based indicators (Sept/Oct 2019) follow up with in-depth national training
- Producing new survey/tools as global public goods (e.g. AGRIS)
- Partnering with other IOs to add short modules to internationally-led surveys and streamline data reporting (MICS, LSMS, DHS)
- Use of new cost-effective methods and new data sources (e.g. remote sensing)
- Direct support countries with methodology, definitions and data analysis

New institutional arrangements at FAO: the Office of the Chief Statistician
ON LINE SUPPORT & CONTACT INFORMATION


https://elearning.fao.org/

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