

## Indicator 2.4.1

### Indicator Name, Target and Goal

**Indicator 2.4.1** Proportion of agricultural area under productive and sustainable agriculture

**Target 2.4** By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

**Goal 2** End hunger, achieve food security and improved nutrition and promote sustainable agriculture

### Definition and Rationale

#### ○ Definition

Sustainable agriculture is evaluated from three dimensions, which are economic dimension, social dimension, and environmental dimension. This indicator is a proxy indicator and consists of seven sub-indicators (two from economic dimension, two from social dimension, and three from environmental dimension), and for each sub-indicator, the trend towards productive and sustainable agriculture and the current status with respect to productive and sustainable agriculture are scored. The overall proxy score is calculated by averaging the scores of sub-indicators.

#### ○ Concepts

Over the past 30 years, the definition and measurement of sustainable agriculture has been much debated since there has been no internationally agreed method to measure it. The SDG process created the opportunity to develop a commonly accepted measurement method. During a meeting in December 2022, the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs), which governs the overall SDG monitoring process, endorsed the new methodology relating to SDG indicator 2.4.1, which operationalizes an internationally agreed definition of sustainable agriculture.

- Rationale and Interpretation:

Monitoring the sustainability of agriculture is a central concern of the international cooperation efforts, such as the 2030 Agenda, the Food Systems Summit and the Climate Convention. Since this proxy indicator is calculated by FAO, using the data which are already existing mainly in FAOSTAT, the data coverage is high. In this light, this proxy indicator is suitable to temporally replace the original indicator 2.4.1, whose data coverage is extremely low, in order to provide a first gauge of countries' progress towards sustainable and productive agriculture.

### **Data Sources and Collection Method**

We use the scores calculated by FAO, not by Japanese national statistics office.

### **Method of Computation and Other Methodological Considerations**

- Computation Method

Scores assigned to each sub-indicator based on the applicable method (Gross production value per hectare, Gross output diversification, Cropland nitrogen use efficiency, Agriculture component of water stress, GHG emissions intensity in agriculture, Agricultural value added per worker, Informal employment in agriculture) are averaged, and the average score determines the classification of the country into one of five bands with respect to the trend towards productive and sustainable agriculture as well as status with respect to productive and sustainable agriculture, as follows:

| Score      | Trend towards productive and sustainable agriculture                      |
|------------|---|
| 1 –< 1.5   | Band 1: Deterioration away from productive and sustainable agriculture    |
| 1.5 –< 2.5 | Band 2: Slight deterioration from productive and sustainable agriculture  |
| 2.5 –< 3.5 | Band 3: No improvement towards productive and sustainable agriculture     |
| 3.5 –< 4.5 | Band 4: Slight improvement towards productive and sustainable agriculture |
| 4.5 – 5    | Band 5: Improvement towards productive and sustainable agriculture        |

| Score      | Current status with respect to productive and sustainable agriculture              |
|------------|--|
| 1 –< 1.5   | Band 1: Very far from achieving productive and sustainable agriculture             |
| 1.5 –< 2.5 | Band 2: Far from achieving productive and sustainable agriculture                  |
| 2.5 –< 3.5 | Band 3: At a moderate distance to achieving productive and sustainable agriculture |
| 3.5 –< 4.5 | Band 4: Close to achieving productive and sustainable agriculture                  |
| 4.5 – 5    | Band 5: Productive and sustainable agriculture already achieved                    |

The two conditions for proceeding to the calculation (if not met, no score is calculated) are:

- 1) A minimum of 4 out of 7 sub-indicator are available for the country
- 2) A minimum of 1 sub-indicator for social & economic dimension and 2 sub-indicators for the environmental dimension

Of the 7 indicators, only 2 have a numerical target (Cropland nitrogen use efficiency and Agriculture component of water stress), whereas all the other 5 proxy measures will be treated as indicators without a numerical target. Therefore, the four main progress assessment methods, considering the trend and the current status for indicators with and without a numerical target, are as follows:

|  |  |
|--|--|
| Trend assessment for indicators with a numerical target: Ratio actual vs. required ( <u>CR</u> ) | Trend assessment for indicators without a numerical target: actual growth (CAGR) compared to <u>baseline</u> |
| Status assessment for indicator with a numerical target: <u>distance to the target</u>           | Status assessment for indicators without a numerical target: <u>quintile distribution</u>                    |

The compound annual growth rate (CAGR) for is calculated as:

$$CAGR_a = \left( \frac{x_t}{x_{t_0}} \right)^{\frac{1}{t-t_0}} - 1$$

where  $t_0$  (2015) is the beginning of the assessment period.

The ratio of actual vs. target growth rate (CR) is calculated as:

$$CR = \frac{CAGR_a}{CAGR_r} = \frac{\left( \frac{x_t}{x_{t_0}} \right)^{\frac{1}{t-t_0}} - 1}{\left( \frac{x^*}{x_{t_0}} \right)^{\frac{1}{2030-t_0}} - 1}:$$

#### ○ Comments and limitations

When some of the sub-indicators are unable to be calculated, the overall score for this proxy indicator is calculated using only the scores of available sub-indicators.

## References

<https://unstats.un.org/sdgs/metadata/files/Metadata-02-04-01proxy.pdf>

## Custodian Ministries of Data

Ministry of Agriculture, Forestry and Fisheries (MAFF)

(Food and Agriculture Organization of the United Nations (FAO))

**Custodian Ministries of Related Policies**

Ministry of Agriculture, Forestry and Fisheries (MAFF)

**International Organizations**

Food and Agriculture Organization of the United Nations