

FAO SDG Progress Report: “Tracking progress on food and agriculture-related SDG indicators 2020”

Methodological Annex – Methods for assessing current status and trends

Assessing progress towards SDG targets: Introduction

The 2030 Agenda and the Sustainable Development Goals have put increased pressure on UN statistical programmes to provide more up-to-date information for monitoring sustainable development and providing timely evidence for policy makers.

One area that has received increasing attention in recent months, particularly since the UN Statistical Division compiled the first SDG Progress Chart in September 2019, is the assessment of trends towards SDG targets. With only ten years left until the due date of the 2030 Agenda, it is becoming ever more important to gain a clear picture of how quickly countries, regions, and the world as a whole are progressing to meet the SDG targets, and what the likelihood is that these will indeed be met by 2030, based on current trends.

To improve on the first UN SDG Progress Chart, a dedicate Task Team was Launched in February 2020 under the aegis of the Interagency and Expert Group on SDG indicators (IAEG-SDG). This Task Team, of which FAO is a member, developed guidance and further streamlined the methodology and design of the SDG Progress Chart, whose second edition was released in July 2020.

In the same vein, this report draws on the UN SDG Progress Chart’s overall approach for analyzing trends, relying on established, quantitative approaches for assessing the status of achievement and the trend over time. In the technical annex below, the first section describes the methods for assessing the current status and the methods for assessing trends, while the second section provides an indicator-specific fiche detailing the specific combination of methods used, taking into account all relevant parameters, including the normative direction, the nature of the indicator itself, and the existence of a clear numerical yardstick.

A major distinction is made for indicators underpinning targets with a clear numerical yardstick, and those without a numerical yardstick. It should be recalled that only a minority (about 30 percent) of all SDG targets have an explicit numerical yardstick, which poses a serious challenge to the assessment of progress. Some international organizations have come up with creative ways of bypassing this problem, for instance by setting the global or regional “target” as the average of the top 5 performing countries. However, such methods carry important risks as they effectively blur the boundaries between the roles of statisticians and legislators.

Therefore, in the absence of a numerical yardstick, this report will only assess whether progress is going in the right direction or not, and if so, whether improvement is being made at a good or only fair pace, while for the level of achievement, the report will provide summary picture of the current situation by associating each country to the corresponding quintile of the distribution of indicator values.

It should also be noted that not all indicators under FAO custodianship are eligible for this type of progress assessment. Specifically, eight out of the 21 indicators are not included in this assessment because they did not meet the required criteria (which in most cases, relate to the sparsity of available data).

Annex 1 – Methods for assessing the current status

1.1 Indicators with a numerical target set in the 2030 Agenda

The current distance to the target is calculated only when a numerical target exists and is explicitly set by the 2030 Agenda, as follows:

$$d_{it} = \begin{cases} x^* - x_{it}, & \text{when the desired direction is an increase over time} \\ x_{it} - x^*, & \text{when the desired direction is a decrease over time} \end{cases}$$

Here x_{it} denotes the numerical value of the generic SDG indicator for country i in year t ; while x^* is the target value of the generic SDG indicator (to be reached by 2030).

This distance measure is 0 for indicators having already reached the target (at the time of the assessment).

The distance of a generic region g to the target is

$$d_{gt} = \begin{cases} x^* - x_{gt}, & \text{when the desired direction is an increase over time} \\ x_{gt} - x^*, & \text{when the desired direction is a decrease over time} \end{cases}$$

This distance can be easily interpreted if the indicators are expressed as proportions.

The distance measure can also be calculated for indicators expressed as a score.

Legend of symbols for assessing the current status

Symbol	Meaning	General outcome
+++	Target already met	Positive
++	Very close to the target	Positive
+	Close to the target	Positive
-	Far from the target	Negative
--	Very far from the target	Negative

1.2 Indicators without a numerical target

In the case of indicators without a numerical target, the distance to the target cannot be calculated. For analytical purposes, it is useful however to provide a summary picture that describes the current worldwide distribution of the indicator. For this reason, we have decided to associate each country to the corresponding quintile. The quintiles divide the entire distribution of countries into five equal groups, according to their indicator value: the first quintile contains the bottom fifth of the countries on the indicators scale (i.e. the 20 % of the countries with the lowest value), the second quintile represents the second fifth (from 20 % to 40 %) etc.; finally the fifth quintile represents the top 20 % countries, i.e. those with the highest values of the indicator.

Quintiles are calculated only at the country level and not at the regional level.

Annex 2 – Methods for trend assessment

2.1 Indicators having a numerical target

A simple method for assessing the trend of numerical indicators having a numerical target (set by the 2030 Agenda) consists in comparing the actual growth with the growth required to reach the target. Assuming a geometric growth over time, we can derive the following two mathematical expressions:

Actual growth: (setting t_0 as baseline year)

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

Required growth:

$$CAGR_r = \left(\frac{x^*}{x_{t_0}} \right)^{\frac{1}{2030-t_0}} - 1$$

where x^* is the numerical target to be reached by 2030.

When the SDG target is 0 ($x^*=0$), in order to obtain a meaningful estimate of $CAGR_r$, it is necessary to replace x^* with a value very close to it, but strictly greater than 0. This is justified also on theoretical grounds, given the measurement errors associated with the SDG indicator estimation process, and the objective increasing difficulties for the policy measures to completely eradicate a developmental problem, obtaining an estimate of the SDG indicator equal to 0.

Ratio actual vs. required:

$$CR = \frac{CAGR_a}{CAGR_r}$$

Indicators expressed as **scores** ranging from 1 (worst) to 5 (best) require a separate approach that basically consists in a categorization of all the possible combinations between the latest score and the score in the baseline year:

Criteria for judging the trend by comparing the latest score with the previous score

Rule	Color	Assessment category
baseline>=1 AND latest=5	Dark green	Target already met (TAM)
(latest-baseline)>=2 AND latest<5	Green	Improvement (>>)
(latest-baseline)=1 AND latest<5	Light green	Slight improvement (>)
baseline=latest (both NOT equal to 5)	Orange	No improvement (stagnation) since baseline (=)
Latest < baseline	Red	Deterioration/movement away from the target (<<)

2.2 Indicators without a numerical target

In case of indicators without a numerical target, it is only possible to assess the actual growth (t_0 denotes the baseline year):

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

Different criteria can be used to assess the CAGR, depending on the sign of the normative direction and also on the fact that for some indicators a situation that remains unchanged over time (not increase or not decrease) can be judged positively.

2.3 Legend and interpretation of symbols related to trend assessment

Symbol	Meaning	General outcome	Note
TAM	Target already met	Positive	ONLY for indicators having a numerical target explicitly defined by the 2030 Agenda
>>	Significant improvement	Positive	
>	Slight improvement	Positive	
>=	Slight or no improvement	Positive	Needed only for indicator where the no-change over time is a positive outcome (normative direction of the indicator is “NOT increase” or “NOT decrease” over time, i.e. the target of the indicator include terms like “maintain” etc.)
=	No improvement (stagnation)	Negative	
<	Slight deterioration	Negative	
<<	Significant deterioration	negative	

SDG 2.1.1

Target value: 2.5%

Normative direction: decrease

Last available data refer to 2019 for regions, 2018 for countries (3-year average 2017-2019)

Assessment of the current status (last available data): distance to the target

Criteria for judging the current distance from the target

Bounds	Group	Symbol
$d_{it} = 0$	Target already met	+++
$0 < d_{it} \leq 0.05$	Very close to the target	++
$0.05 < d_{it} \leq 0.10$	Close to the target	+
$0.10 < d_{it} \leq 0.25$	Far from the target	-
$d_{it} > 0.25$	Very far from the target	--

Assessment of the trend from 2015 (baseline year): actual growth compared to the required growth to reach the target (CR)

Criteria for judging the trend by comparing actual with the required growth

Level or ratio CR	Color	Assessment category
$x \leq x^*$	Dark green	Target already met (TAM)
$CR \geq 0.95$	Green	On-track to achieve the target (>>)
$0.10 < CR < 0.95$	Yellow	On-path, but too slow to achieve the target (>)
$-0.10 \leq CR \leq 0.10$	Orange	No improvement (stagnation) since baseline (=)
$CR < -0.10$	Red	Deterioration/movement away from the target (<<)

SDG 2.1.2

Target value: 5%

Normative direction: decrease

Last available data refer to 2019

Assessment of the current status (last available data): distance to the target

Criteria for judging the current distance from the target

Bounds	Group	Symbol
$d_{it} = 0$	Target already met	+++
$0 < d_{it} \leq 0.05$	Very close to the target	++
$0.05 < d_{it} \leq 0.10$	Close to the target	+
$0.10 < d_{it} \leq 0.25$	Far from the target	-
$d_{it} > 0.25$	Very far from the target	--

Assessment of the trend from 2015 (baseline year): actual growth compared to the required growth to reach the target (CR)

Criteria for judging the trend by comparing actual with the required growth

Level or ratio CR	Color	Assessment category
$x \leq x^*$	Dark green	Target already met (TAM)
$CR \geq 0.95$	Green	On-track to achieve the target (>>)
$0.10 < CR < 0.95$	Yellow	On-path, but too slow to achieve the target (>)
$-0.10 \leq CR \leq 0.10$	Orange	No improvement (stagnation) since baseline (=)
$CR < -0.10$	Red	Deterioration/movement away from the target (<<)

SDG 2.5.1a

Target value: NA

Normative direction: not decrease

Last available data refer to 2019

Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional level)

Assessment of trend from 2016 (baseline year): actual growth (CAGR)

Criteria to judge the actual growth (CAGR)

Values of actual growth rate	Color	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$-0.005 \leq CAGR_a \leq 0.01$	Light green	Slight or no-improvement since baseline-year (>=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 2.a.1

Target value: NA

Normative direction: increase

Last available data refer to 2018

Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at the regional level)

Assessment of the trend from 2015 (baseline year): actual growth (CAGR)

Criteria to judge the actual growth (CAGR)

Values of actual growth rate	Color	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$0.005 < CAGR_a \leq 0.01$	Light green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	yellow	No improvement since baseline-year (=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 6.4.1

Target value: NA

Normative direction: increase

Last available data refer to 2017

Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at the regional level)

Assessment of the trend from 2015 (baseline year): actual growth (CAGR)

Criteria to judge the actual growth (CAGR)

Values of actual growth rate	Color	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$0.005 < CAGR_a \leq 0.01$	Light green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	yellow	No improvement since baseline-year (=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 6.4.2

Target value: NA

Normative direction: Decrease if baseline value >25%

Last available data refer to 2017

Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional level)

Assessment of the trend from 2015 (baseline year): actual growth (CAGR) (no assessment of the trend if the baseline value is below 25%)

Criteria to judge the actual growth (CAGR) if baseline value <25%

Values of actual growth rate	Color	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$0.005 < CAGR_a \leq 0.01$	Light green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	Yellow	No improvement since baseline-year (=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	Red	Deterioration since baseline-year (<<)

SDG 14.4.1

Target value: NA

Normative direction: increase

Last available data refer to 2017

Assessment of the current status (last available data): Not Applicable (data available only for global and marine zones)

Assessment of the trend from 2015 (baseline year): actual growth (CAGR)

Criteria to judge the actual growth (CAGR)

Values of actual growth rate	Color	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$0.005 < CAGR_a \leq 0.01$	Light green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	Yellow	No improvement since baseline-year (=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	red	Deterioration since baseline-year (<<)

SDG 14.6.1

Target value: 5 (score)

Normative direction: increase

Last available data refer to: 2020

Assessment of the current status (last available data): distance to the target ($x^* = 5$)

Criteria for judging the current distance from the target

Bounds	Group	Symbol
$d_{it} = x^* - x_{i,2020} = 0$	Target already met	+++
$d_{it} = x^* - x_{i,2020} = 1$	Very close to the target	++
$d_{it} = x^* - x_{i,2020} = 2$	Close to the target	+
$d_{it} = x^* - x_{i,2020} = 3$	Far from the target	-
$d_{it} = x^* - x_{i,2020} > 3$	Very far from the target	--

Assessment of the trend from 2018 (baseline year): comparison of scores

Criteria for judging the trend by comparing the latest score with the previous score

Rule	Color	Assessment category
Baseline=1 to 5 Latest=5	Dark green	Target already met (TAM)
(latest-baseline) \geq 2 AND latest<5	Green	Improvement (>>)
(latest-baseline)=1 AND latest<5	Light green	Slight improvement (>)
baseline=latest (both NOT equal to 5)	Orange	No improvement (stagnation) since baseline (=)
Latest<baseline	Red	Deterioration/movement away from the target (<<)

SDG 14.7.1

Target value: NA

Normative direction: increase

Last available data refer to 2017

Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional level)

Assessment of the trend from 2015 (baseline year): actual growth (CAGR)

Criteria to judge the actual growth (CAGR)

Values of actual growth rate	Color	Assessment category
$CAGR_a > 0.01$	Dark green	Improvement since baseline-year (>>)
$0.005 < CAGR_a \leq 0.01$	Light green	Slight improvement since baseline-year (>)
$-0.005 \leq CAGR_a \leq 0.005$	Yellow	No improvement since baseline-year (=)
$-0.01 \leq CAGR_a < -0.005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.01$	red	Deterioration since baseline-year (<<)

SDG 14.b.1

Target value: 5 (score)

Normative direction: increase

Last available data refer to: 2020

Assessment of the current status (last available data): distance to the target ($x^* = 5$)

Criteria for judging the current distance from the target

Bounds	Group	Symbol
$d_{it} = 5 - x_{i,2020} = 0$	Target already met	+++
$d_{it} = 5 - x_{i,2020} = 1$	Very close to the target	++
$d_{it} = x^* - x_{i,2020} = 2$	Close to the target	+
$d_{it} = x^* - x_{i,2020} = 3$	Far from the target	-
$d_{it} = x^* - x_{i,2020} > 3$	Very far from the target	--

Criteria for judging the trend by comparing the latest score with the previous score

Rule	Color	Assessment category
Baseline \geq AND latest=5	Dark green	Target already met (TAM)
(latest-baseline) \geq 2 AND latest<5	Green	Improvement (>>)
(latest-baseline)=1 AND latest<5	Light green	Slight improvement (>)
baseline=latest (both NOT equal to 5)	Orange	No improvement (stagnation) since baseline (=)
Latest<baseline	Red	Deterioration/movement away from the target (<<)

SDG 15.1.1

Target value: NA

Normative direction: NOT decrease

Last available data refer to 2020

Assessment of the current status (last available data): quintiles of the distribution of country values (no assessment at regional level)

Assessment of the trend from 2015 (baseline year): actual growth (CAGR)

Criteria to judge the actual growth (CAGR)

Values of actual growth rate	Color	Assessment category
$CAGR_a > 0.001$	Dark green	Improvement since baseline-year (>>)
$-0.0005 \leq CAGR_a \leq 0.001$	Light green	Slight or no-improvement since baseline-year (>=)
$-0.001 \leq CAGR_a < -0.0005$	Orange	Slight deterioration since baseline-year (<)
$CAGR_a < -0.001$	red	Deterioration since baseline-year (<<)