



Indicator assessment method

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Environmental reporting indicators provide information on the state and development of the environment based on available data. They are accompanied by an assessment and a comment that help interpret the chart. The assessments are performed by the experts who are responsible for the various thematic areas. Where binding targets (target values, limit values) exist, they are used as the basis for the assessment.

Two aspects are assessed: state and trend. The state concerns the most recent data. The trend considers the development during the period of observation. Future developments are not discussed.

Three categories are used to describe the state and trend:

State	Trend
 Good <i>No negative impact on the environment, health or infrastructure. The limit values are respected.</i>	 Positive <u>Indicators without a deadline for reaching the target:</u> <i>The observed development is heading in the same direction as the targeted development.</i> <u>Indicators with a deadline for reaching the target:</u> <i>The target may be reached or exceeded by the deadline if the observed development continues.</i>
 Medium <i>The impacts on the environment, health or infrastructure are manageable. The state is close to the limit values.</i>	 Unsatisfactory¹ <u>Indicators without a deadline for reaching the target:</u> <i>The observed development is stable, but an increase or decrease is desired.</i> <u>Indicators with a deadline for reaching the target:</u> <i>The development is moving in the right direction but is insufficient to reach the target by the deadline.</i>
 Poor <i>Negative impacts on the environment, health or infrastructure. The limit values are not respected.</i>	 Negative <i>The observed development is moving in the opposite direction from the targeted development.</i>
X Impossible to evaluate	X Impossible to evaluate

¹ The Federal Statistical Office (FSO) uses the term "unchanged" to describe this category.

1. Assessment of the state

The state is assessed on the basis of the limit values specified in the legislation. Where no limit values are specified, the state is assessed according to expert opinions. The arguments justifying the assessment are explained in the comments on the indicator.

2. Assessment of the trend

The trend is assessed according to the method used by the Federal Statistical Office (FSO) for sustainable development indicators². This method consists in comparing the targeted trend to the observed trend, which is calculated on the basis of available data.

While this method serves as a framework for assessing indicators, it should not be blindly applied. For FOEN indicators, the assessments that are obtained using this method are subject to a critical review by experts. If they find that the assessment is irrelevant and other factors should be taken into consideration, they may as a last resort change it and justify their decision in the comment on the indicator.

The trend assessment method has 3 steps:

- 1) Determine the targeted trend
- 2) Calculate the observed trend on the basis of available data
- 3) Describe the observed trend by comparing it to the targeted trend.

2.1. Targeted trend

2.1.1. Indicators without a quantified objective that must be reached by a set deadline

Without a quantitative objective, the expert determines the desired trend for the observed parameter, which is one of the following:

- growth
- decrease
- stabilisation



2.1.2. Indicators with a quantified objective that must be reached by a set deadline

If there is a quantified objective that must be reached by a set deadline, the targeted trend corresponds to the theoretical path that should be followed to reach the objective by the set deadline.

2.2. Observed trend

The observed trend is calculated on the basis of available data. This calculation depends on the presence or absence of a quantified objective with a set deadline as well as on the periodicity and length of the time series.

² Source: Federal Statistical Office (FSO), Monet – Summary of Indicator, April 2012.

2.2.1. Indicators without a quantified objective that must be reached by a set deadline

When a quantified objective with a set deadline has not been specified, the observed trend corresponds to the change in % calculated during the period analysed. To reduce the influence of particular values on the initial $x(t_0)$ and final $x(t_1)$ years, the average values of the last three available years and the average values of the first three years of the period concerned are considered.

$$\text{Change in \%} = \left(\frac{\frac{x(t_{1-2}) + x(t_{1-1}) + x(t_1)}{3}}{\frac{x(t_0) + x(t_{0+1}) + x(t_{0+2})}{3}} - 1 \right) \times 100$$

Whereas t_0 = date of the first value collected in the period considered for the assessment and t_1 = date of the last value collected.

When the indicator has a periodicity greater than one year or when the time series has less than 6 measures, the change is the ratio between the last available value of the indicator (or final value $x(t_1)$ at time t_1 and the initial value $x(t_0)$ at time t_0 .

$$\text{Change in \%} = \left(\frac{x(t_1)}{x(t_0)} - 1 \right) \times 100$$

Whereas t_0 = date of the first value collected in the period considered for the assessment and t_1 = date of the last value collected.

The observed trend is assessed as

- growth ↗ if the change is > 3%
- decrease ↘ if the change is < -3%
- stabilisation → if the change is between -3% and 3%

2.2.2. Indicators with a quantified objective that must be reached by a set deadline

The observed trend is the ratio between the average annual change of the observed indicator between a final value $x(t_1)$ at time t_1 and an initial value $x(t_0)$ at time t_0 and the theoretical average annual change to reach the target $x(t_z)$ at the set date t_z (also called the theoretical path). The observed trend corresponds to the deviation from the theoretical path (in %).

$$\text{Deviation from theoretical path in \%} = \frac{\frac{x(t_1) - x(t_0)}{t_1 - t_0}}{\frac{x(t_z) - x(t_0)}{t_z - t_0}} \times 100$$

Whereas t_0 = date of the first value collected in the period considered for the assessment, t_1 = date of the last value collected and t_z = date on which the objective must be reached.

2.3. Assessment

The comparison between the targeted trend and the observed trend makes it possible to describe the observed trend.

2.3.1. Indicators without a quantified objective that must be reached by a set deadline

For indicators without a quantified objective that must be reached by a set deadline, the assessment is

- “positive” if the observed trend is heading in the same direction as the targeted trend
- “unsatisfactory” if the observed trend is stable, but an increase or decrease is desired
- “negative” if the observed trend is moving in the opposite direction from the targeted trend

Targeted trend	Observed trend	Assessment
		
		
		
		
		
		
		
		
		

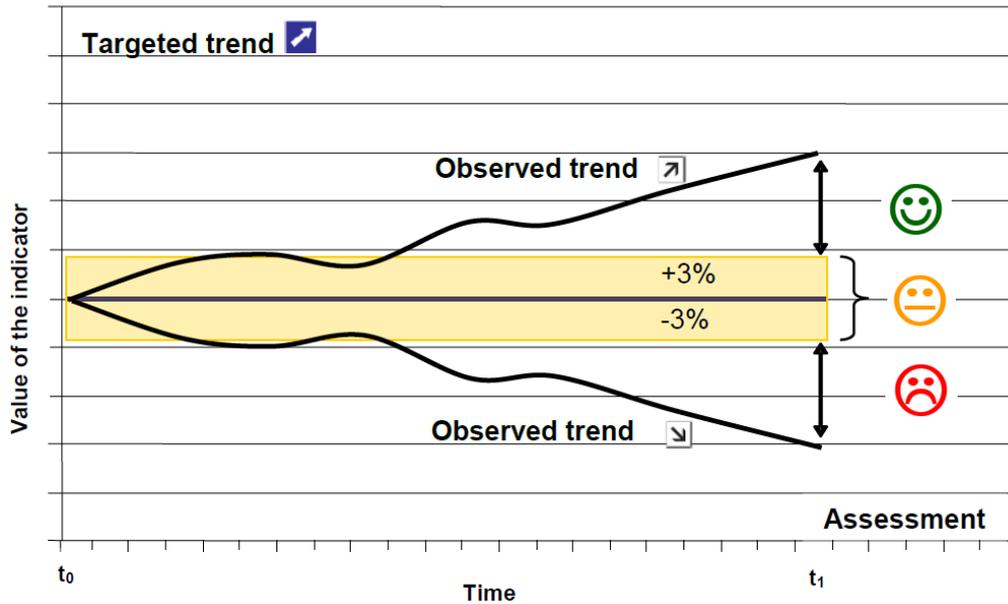


Fig. 1: Description of an indicator without a quantified objective that must be reached a set deadline

2.3.2. Indicators with a quantified objective that must be reached by a set deadline

For indicators with a quantified objective that must be reached by a set deadline, the targeted trend corresponds to the theoretical path to reach or exceed the objective by the set deadline. The observed trend is described as

- “positive” if it is higher or equal to 97%. The observed trend makes it possible to reach or exceed the objective by the deadline.
- “unsatisfactory” if it is between 97% and 0%. The trend is heading in the right direction but is insufficient to reach the objective by the deadline.
- “negative if it is lower than 0%. The trend is heading in the wrong direction.

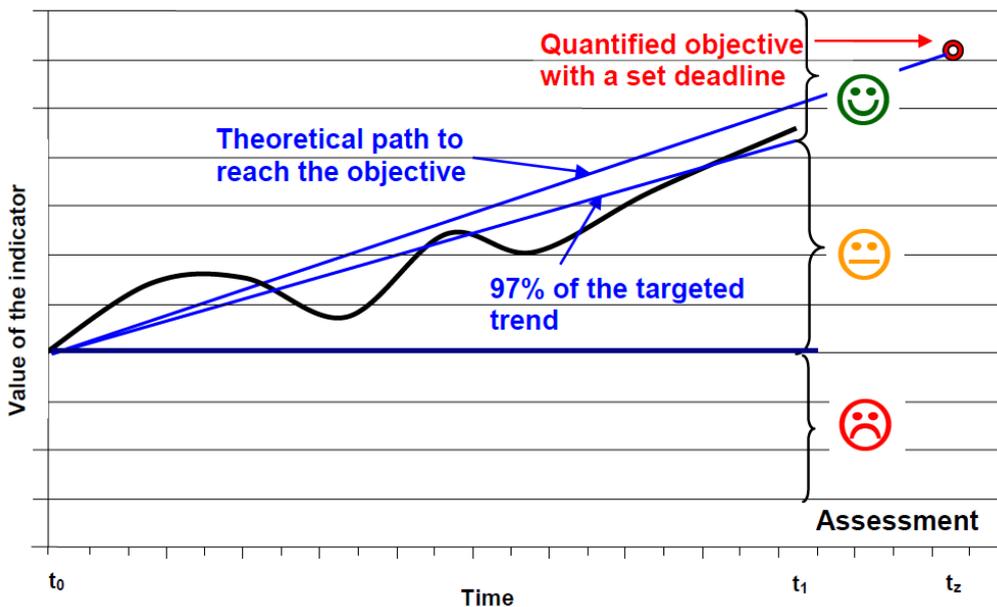


Fig. 2: Description of an indicator with a quantified objective that must be reached by a set deadline

2.4. Special cases

2.4.1. Indicators with several variables

When the indicator has several variables, each variable is assessed separately based on the above mentioned cases in the figures. A positive assessment gives a result of +1, a negative assessment a result of -1, and an unsatisfactory assessment a result of 0. If the sum of the results is > 0 , the trend is described as “positive,” if the sum is $= 0$, the trend is described as “unsatisfactory” and if the sum is < 0 , the trend is described as “negative.”

2.4.2. Major changes in the data series

The method used to describe the trend takes only the first and last values of the data series into consideration. The data between the two are not considered in the calculation of the observed trend. That is why this method is not used to assess a data series that shows major annual changes. In such cases, the experts decide whether the trend can be assessed on the basis of other criteria or if it is impossible to evaluate.