

Indicators of environmental quality

Safeguarding resources is done through monitoring procedures. This shouldn't be an end in itself, but should help explain why an environment deteriorates. This is done through collecting data as well as periodically and constantly monitoring the environment to increase understanding of environmental dynamics and prevent irreversible damage.

With this in mind, user-friendly tools like indicators and indexes are used for monitoring in order to describe the systems' various anthropic and environmental aspects.

The OECD defines the indexes as a set of parameters or combined or weighted indicators. Tools must be simple but effective, so as to describe the phenomenon as accurately as possible.

Indicators must firstly describe an environmental situation by using a limited number of parameters and measures compared to what is generally used for an accurate description of the phenomenon. Secondly, they must simplify understanding so that "non experts" of scientific-environmental issues can easily use the informative values from the indicators.

Based on an OECD model, the EEA (European Agency for the Environment) defined a model that relates different classes of indicators to each other.

These classes are sub-divided into:

Driving forces that represent primary anthropic activities;

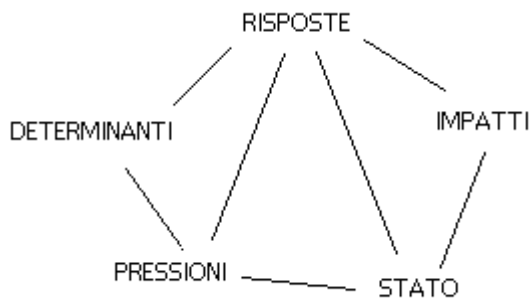
Pressures, like for example, drains flowing into bodies of water, waste production, etc;

State and, especially, quality of the environment;

The categories of indicators and indexes covering **State** describe the quality of the environment, ie the state of health of a lake or river's ecosystem. They are very useful therefore to understand the capacity limit of a body of water;

Impacts on ecosystems and health;

Responses are regulations and plans for action to restore sustainability conditions of pressures on the environment. They are measures taken to protect environmental resources without damaging them irreversibly.



Responses

Impacts

State

Pressures

Driving forces

Over the last few decades, the aim of environmental monitoring has evolved from describing changes in the concentration of polluting substance in waters through chemical-physical and bacteriological analysis to assessing damage caused by anthropic influence on the biocoenosis and throughout ecosystems.

When monitoring bodies of water, the most used and standardised biological indexing methodologies take reference from zoo-macroinvertebrates, as the bio-indicator community. When following a specific procedure, this IBE Index (Extended Biotic Index) is straightforward to calculate.

The Trophic Index (TRIX) is also used to express the degree of eutrophication in a lake.