

“Capacity Building and Strengthening Institutional Arrangement”

Analysis and sampling of water and water pollution

Adoption of conceptual models to integrate data about water quality for reporting

Ms. Maria Giuseppina Farrace

APAT

Agency for Environmental Protection and Technical Services

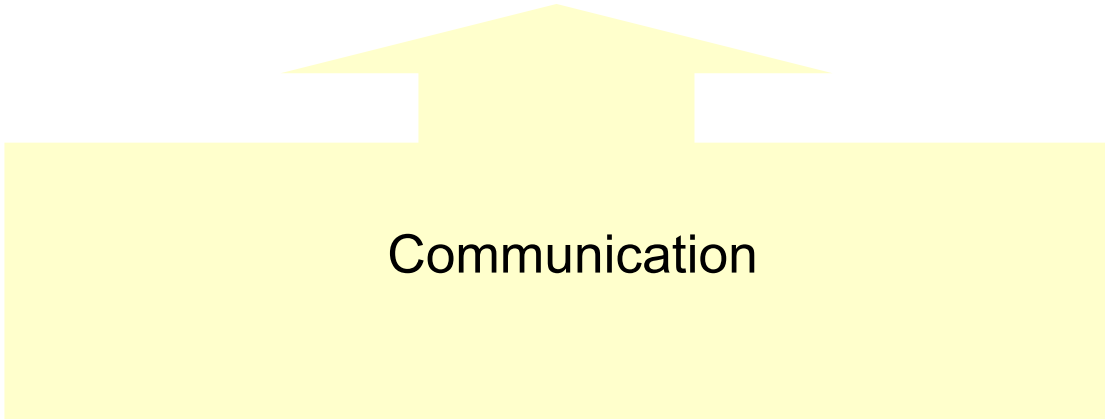
Environmental and water quality reports

Environmental and water quality reports seek to make concrete the objective of the Aarhus Convention (UNECE Convention).

The aim of the Convention is to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being.

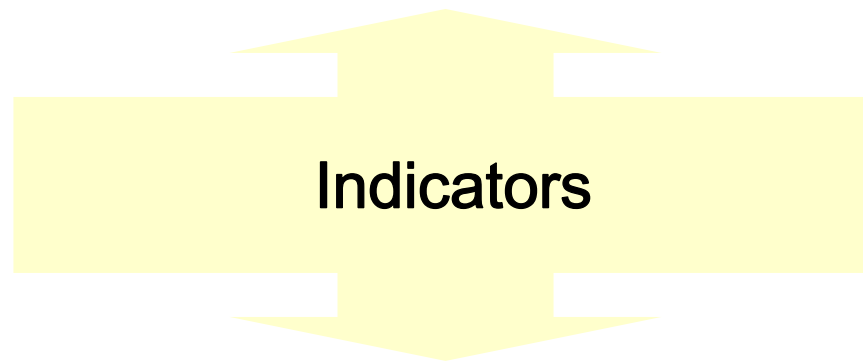
Each Party shall guarantee:

- The rights of access to the information;
- Public participation in decision making;
- Access to justice in environmental matters.



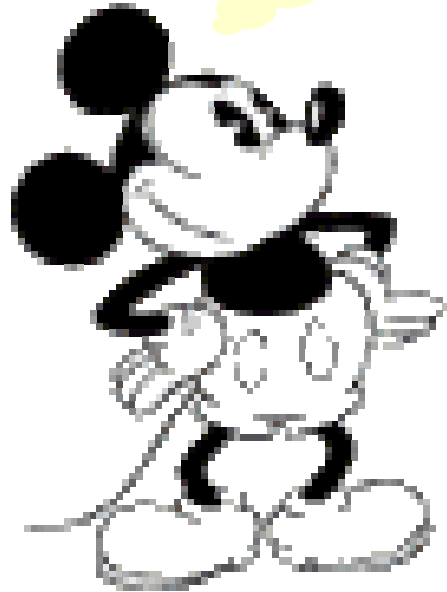
Communication

How performing environmental communication?



Communication demands simplicity: indicators always simplify a complex reality and their main function is communication!

Indicators?



Environmental indicators communicate those aspects regarded critical or typical for the complex interrelation (DPSIR model) between natural species and abiotic components of the environmental system.

Which are the main purposes of the environmental indicators?

1. To supply information on environmental problems, in order to enable policy-makers to value their seriousness;
2. To support policy development and priority setting, by identifying key factors that cause pressure on environment;
3. To monitor the effects of policy responses;

4. To be as a powerful tool to raise public awareness on environmental issues;
5. Providing information on driving forces, impacts and policy responses, in a common strategy to strengthen public support for policy measures.

What is an indicator?

By OECD

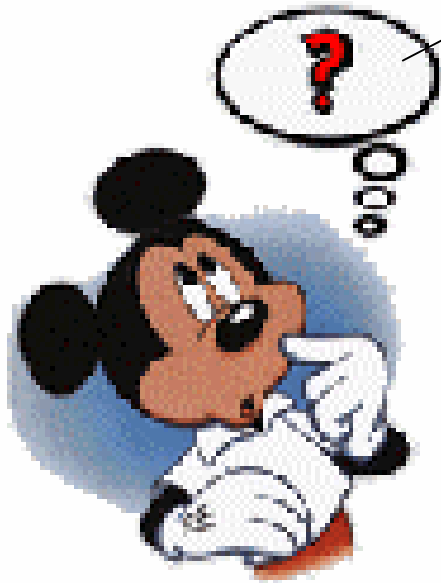
A parameter, or a value derived from parameters, which points to, provides information about, describes the state of a phenomenon/environment/area, with a significance extending beyond that directly associated with a parameter value.

By EEA

A parameter or a value derived from parameters that describe the state of the environment and its impact on human beings, ecosystems and materials, the pressures on the environment, the driving forces and the responses steering that system. An indicator has gone through a selection and/or aggregation process to enable it to steer action.



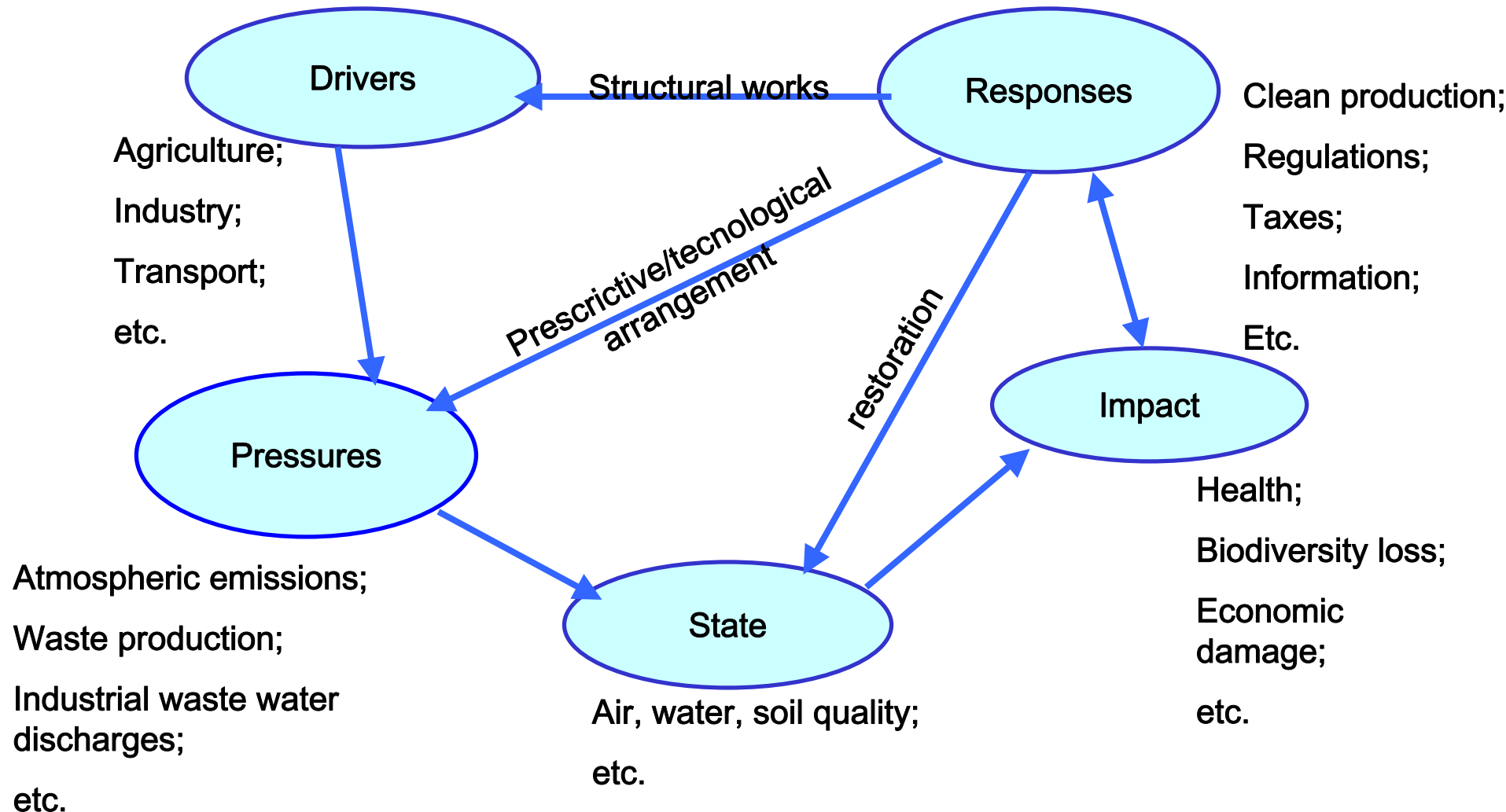
DPSIR model

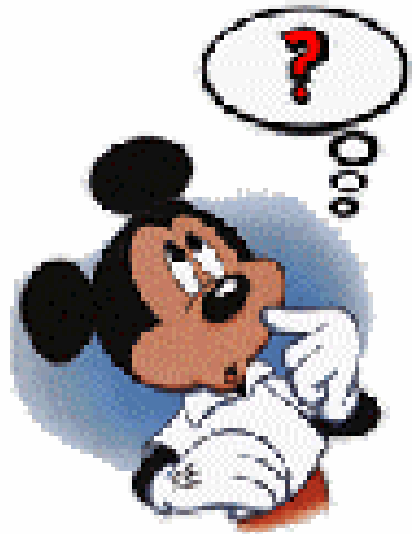


DPSIR?

It is a system analysis view or a conceptual model of the relations between the environmental system and the human system.

The DPSIR framework

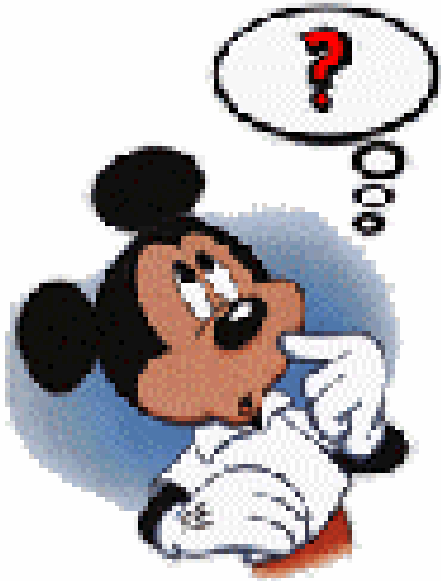




- **Driving force indicators**: describe the social, demographic and economic developments in societies and the corresponding changes in life styles, overall levels of consumption and production patterns;
- **Pressure indicators**: describe developments in release of substances (emissions), physical and biological agents, the use of resources and the use of land;



- **State indicators**: give a description of the quantity and quality the condition of physical phenomena (such as temperature), biological phenomena (such as fish stock) and chemical phenomena (such as atmospheric CO₂ concentration) in a certain area;
- **Impact indicators**: describe the impacts on human beings, ecosystems and man-made capital resulting from changes in environmental quality.



- **Response indicators**: refer to responses by groups (and individuals) in society, as well as government attempts to prevent, compensate, ameliorate or adapt to changes in the state of the environment.

Which
 typology of
 indicators?



Indicators can be classified
 into 4 different tipologies.

Descriptive

Performance

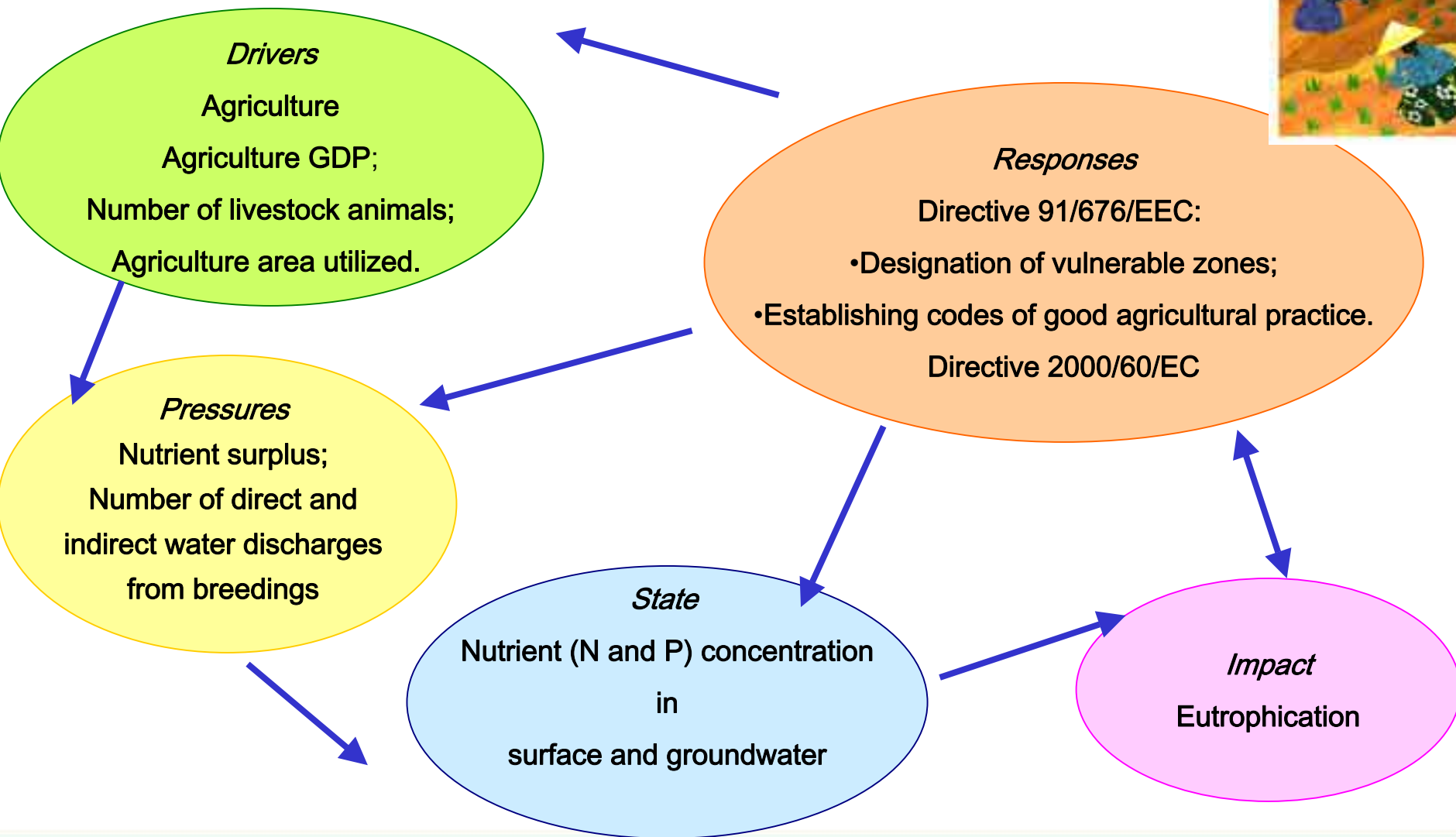
Efficiency

Policy effectiveness

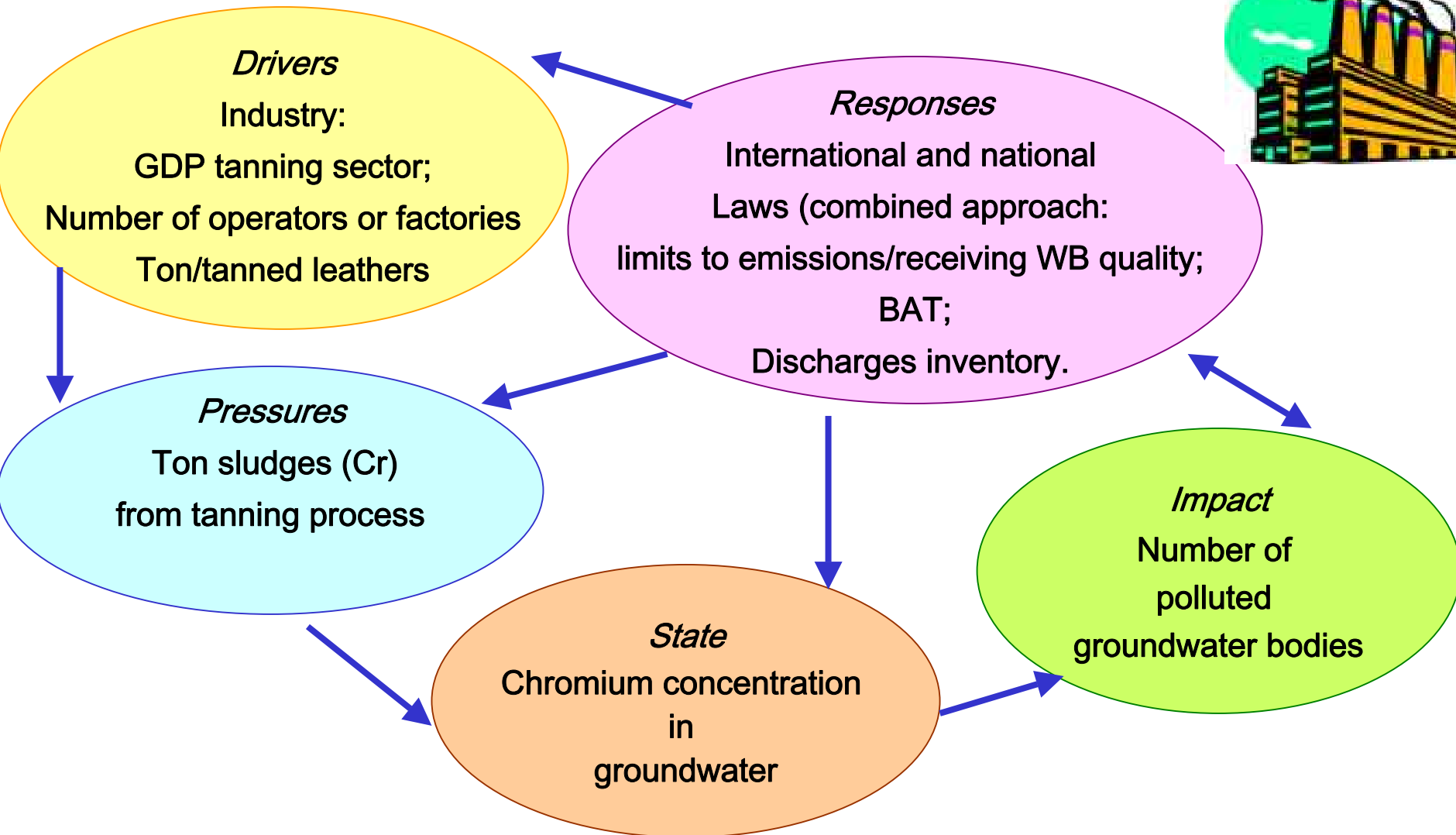
Descriptive indicators

They are often used by nations and international bodies to describe the actual situation to the main environmental issues, such as water nutrient pollution, fishery environmental impact, aquaculture environmental impact.

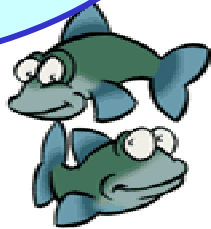
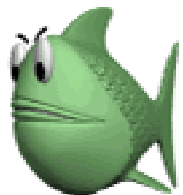
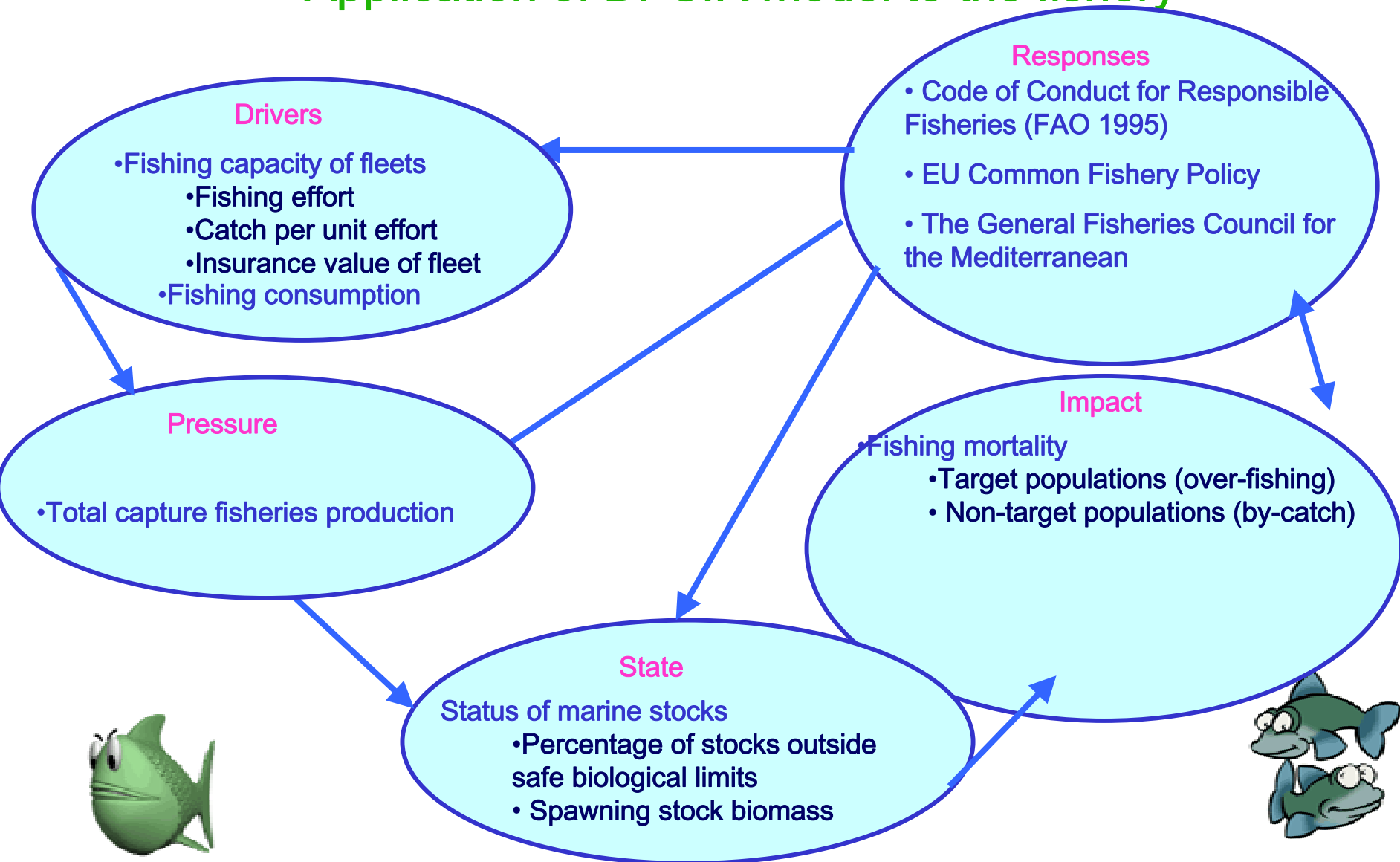
Application of DPSIR to nutrients from agriculture



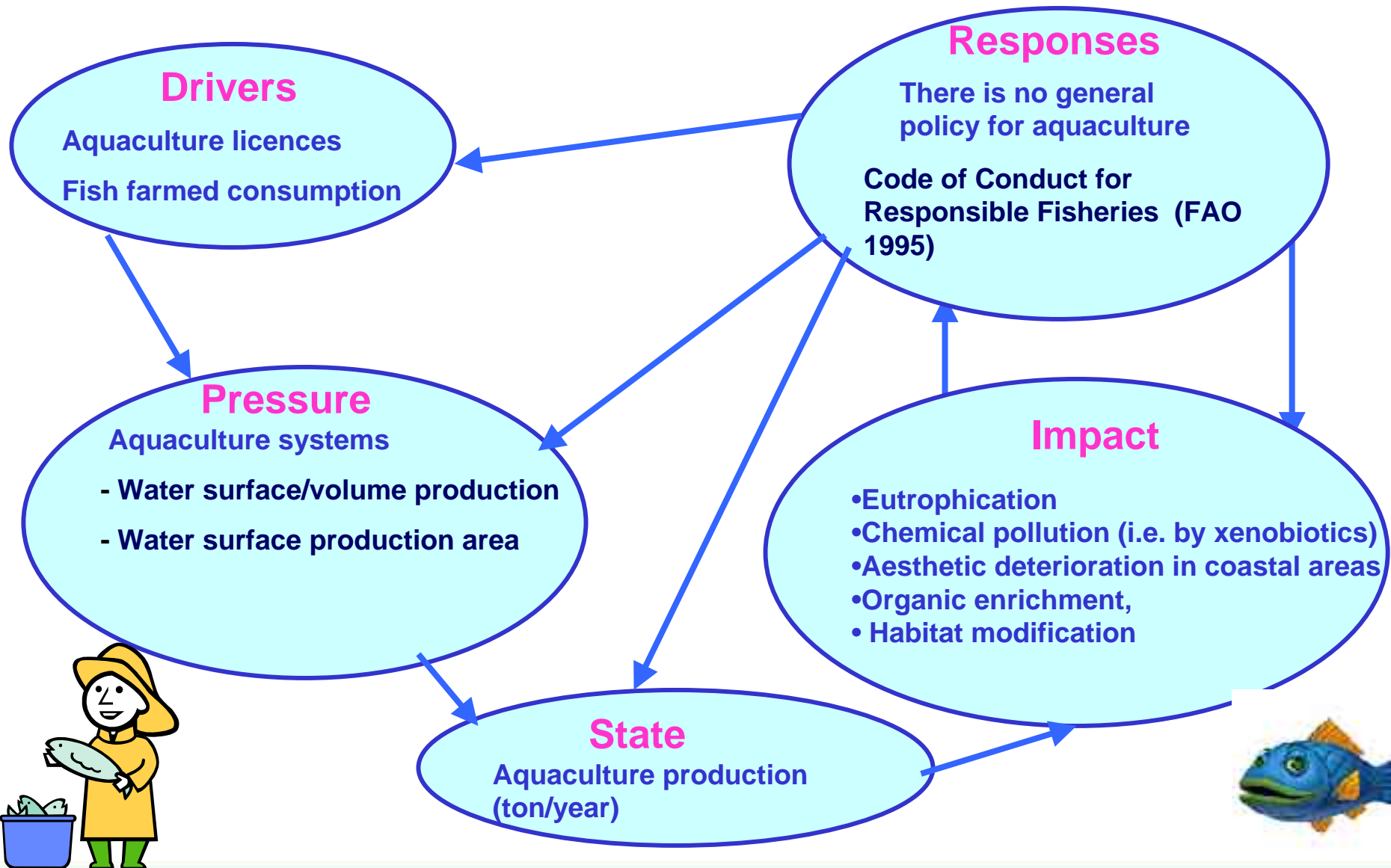
Application of DPSIR model to the tanning process



Application of DPSIR model to the fishery



Application of DPSIR model to the aquaculture



Bibliography

- ANPA, Milella P.P., Mussapi R., Fabiani C. Stato dell'arte sul settore della concia – Aspetti socio-economici ed ambientali. (1998)
- OECD. Towards sustainable development, Environmental indicators. (1998);
- EEA. The Indicator Fact-sheet Model.
- EEA. Technical report No 25 – Environmental indicators: Typology and overview. (1999)