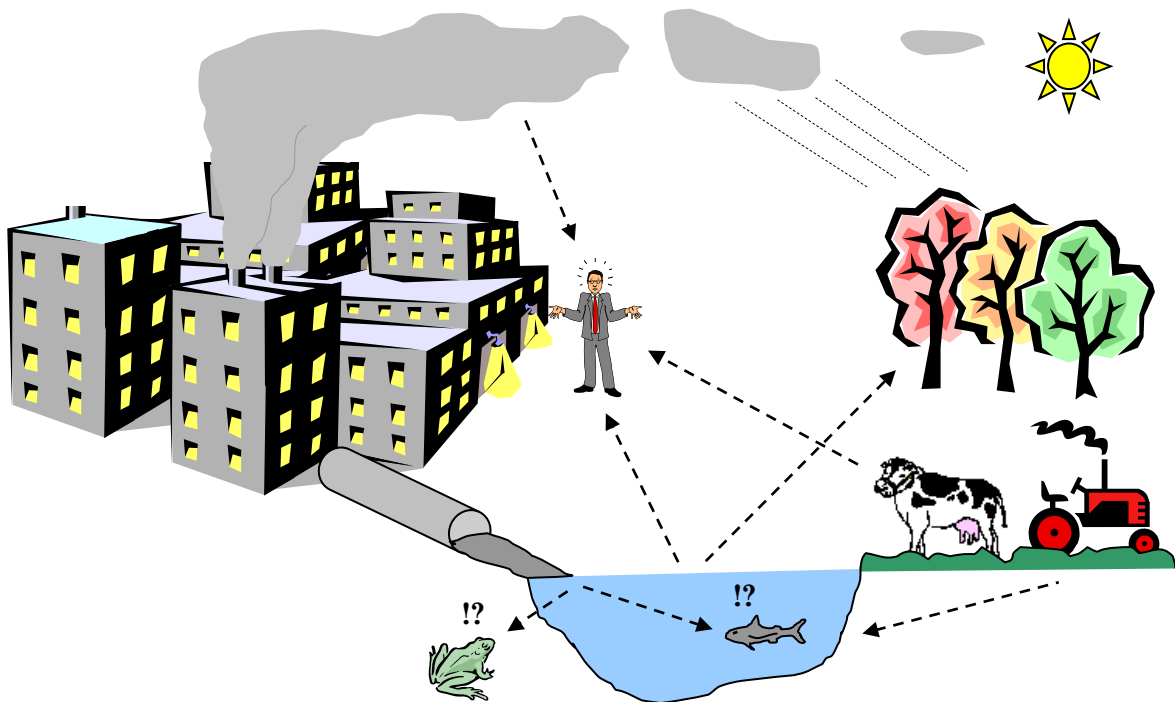∫

Environmental Studies:

a Rational Approach

Data analysis

Prospective models

Expertise of ongoing projects

Environmental protection is usually quite difficult. Scientifically speaking, it requires models which are always complex. However, it has a great social importance. This is a domain where data are not numerous, where knowledge is limited, but expectations are high, from the public, the politicians, and the industry.

Our Company, SCM SA, has been in existence for more than 28 years, and we developed progressively technical competences in various domains connected with environmental studies: air, soil, water pollution, best use of water resources, and so on.

Above all, we developed strong competences in the economic analysis of projects: those which will be profitable, and those which survive only from temporary subsidies.

Data analysis, for air, soil, water pollutions

Many parameters need to be considered, and the physical laws of propagation are usually quite complicated. Air pollution, for instance, depends on the pollutant source, but also on meteorological conditions: winds, sun, atmosphere condition, and so on, and they act differently in a city or in a forest.

In order to handle these difficulties, we developed robust probabilistic methods, which indicate the most important parameters, taking uncertainties into account. We may for instance elaborate a predictive model (dealing with the threshold of toxicity of some chemical product in an ecosystem, with air quality at a given place, and so on), which will help the authorities make proper decisions. For instance, is it appropriate to put restrictions upon car traffic, in a given street of city, in certain circumstances?

Technical expertise of existing models

Quite often, a decision is taken from a numerical simulation, instead of true data. What is the value of this simulation? This is often unclear, and very hard to check. We will perform a critical analysis of such models: What laws are used? Are they appropriate, or oversimplified? How are the uncertainties taken into account? Quite often also, some parts of a model are detailed, and some others are very imprecise, which leads to poor results.

Rough computations about equipment

Quite often, any environmental network requires complex equipment, which are costly and interdependent. Before making precise computations, we perform a preliminary approach, of general nature, which will indicate the main costs and benefits, depending on various situations. Our experience is that this coarse approach is often neglected, and the studies turn too quickly to precise computations. People turn to details, whereas the general picture has been neglected.

Critical analysis of economic models

This is quite frequent about environmental concerns: many decisions are taken on the grounds of incomplete information and are based upon irrational motivations. The dangers of a situation are over-estimated, the costs of the solutions are under-estimated, the acceptability by the public is taken for granted, the assumptions about tariffs are arbitrary, and so on.

We analyze, in each situation, what will be the effective return of the project: subsidies are limited in time and create only temporary advantages. We investigate the negative sides of the decisions, which has been hidden or neglected. Our task is therefore to come with an honest analysis of the business model for such a project.

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