Preliminary remarks

For almost 15 years, economic assessment has played an increasingly important role in the management of water and aquatic environments. Environmental economic assessment, which is more social-economic than financial in nature, consists of analysing all the activities of economic agents (individuals, the State, companies, non-profit organisations, etc.) and their effects on society and the environment in order to determine the quantitative and qualitative consequences, both positive and negative.

Remarks on environmental economic assessments

Environmental economic assessment is a branch of economics that is part of both economic assessments and environmental economics. It deals with evaluating, in economic terms, the effects on the environment of certain activities in view of integrating that information into an overall analysis of a policy or project. The effects may be negative, e.g. the damage caused by environmental degradation, or positive, e.g. the advantages resulting from an improvement to the environment.

The activities analysed may:

- target environmental protection (preservation or restoration);
- concern economic activities, e.g. power generation, or construction of infrastructure, e.g. a highway, that have effects on the environment (positive and/or negative) and may require preventive or curative measures. In the environmental field and particularly concerning water and aquatic environments, economic analysis can contribute to solutions in three main ways:
- it can demonstrate that hydrosystems are a natural capital and a source of goods and services;
- it can present the services, whether potential or effective, provided by hydrosystems in economic terms and compare them with the costs required to safeguard those services. This approach is a means to contrast the costs and benefits to be expected from a planned project. The purpose of environmental economic assessment is thus to assign economic value to the potential environmental degradation or improvements which can then be compared to the cost of a project. For an SBMP (sub-basin management plan) or WFD implementation, the objective is not to assign systematically a price to each factor (which would in any case be difficult and produce uncertain results), but rather to stress the existence of these various values during discussions and decision-making processes;
- it attempts to propose a balanced, long-term and efficient distribution of resources depending on the various needs.

Open negotiations are an essential step in the collective formulation of a project in that they take the public interest into account and do not reduce the choices to a set of optimisations.

Economic assessment contributes to the negotiation process by providing local stakeholders with useful information.

The use of economic assessments for management of water and aquatic environments was significantly boosted by the WFD and by the progressive development of SBMPs.

Economic assessment for the WFD and SBMPs

The European water framework directive, voted in December 2000, requires that the Member States reach ambitious environmental objectives for all water bodies in all the major river basins (river-basin districts as per the WFD).

The directive set four essential objectives:

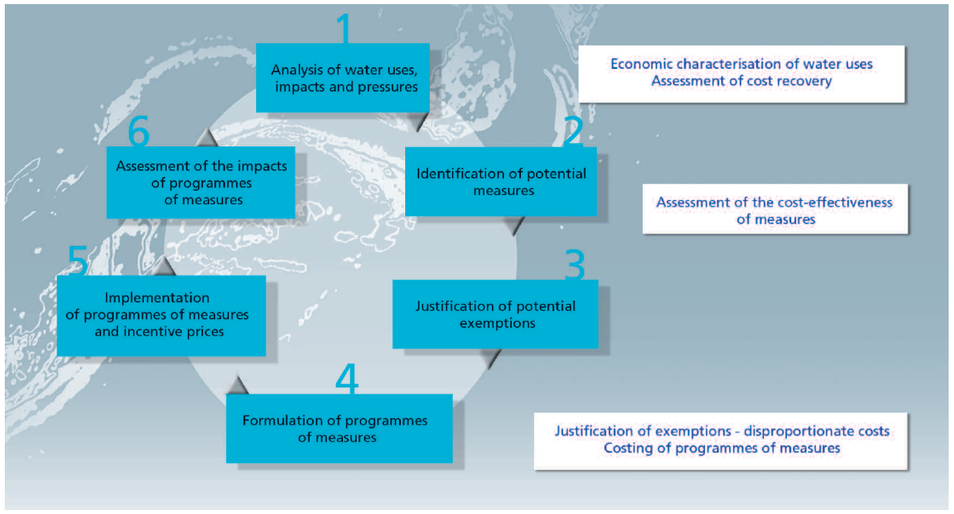
- no further deterioration of water resources;
- reaching good status or good potential of water bodies by 2015;
- reducing or eliminating pollution by priority substances;
- complete compliance with all standards in protected zones by 2015.

To reach these objectives in each river-basin district, it is necessary to characterise the pressures and impacts, run economic analysis of water uses (article 5), draft a water-management plan (article 13) and set up a programme of measures (article 11). In addition, participation by the public is mandatory (article 14).

Economic analysis plays a major role in WFD implementation. It serves as a decision-aid tool throughout the planning process because it can be used to:

- assess and contrast the economic value of water uses and the related issues;
- estimate the degree of cost recovery and the incentive value of price levels;
- determine the most cost-effective combinations of measures to achieve environmental objectives;
- justify exemptions for deadlines and/or objectives on the basis of disproportionate cost.

Economic assessments are thus part of a dynamic process that must be renewed for each WFD cycle.



The economic-analysis cycle in the WFD (source: Economics and the Environment – The Implementation Challenge of the Water Framework Directive, Common Implementation Strategy for the Water Framework Directive (2000/60/EC), Guidance document n°1, 2003).

Economic assessments are used during the three key steps in WFD planning.

Characterising water uses and assessing cost recovery by producing a report on water-related economic activities and informing on who pays what.

The purpose of this step is to inform on the issues involved in water management in the river basin by:

- describing water uses as well as their social and economic importance;
- studying potential changes in economic activities, in pressures on water resources and in the effects of current water policies;
- assessing cost recovery achieved by water and sanitation services.

This work is carried out in the process of drafting the report. When the necessary data do not exist, the goal is to identify the gaps and report on the work undertaken to eliminate them.

Preparing cost-effective programmes of measures to reach environmental objectives as inexpensively as possible.

This step represents the main contribution to the preparation of the river-basin management plan. Economic analysis serves to:

- select measures according to their cost-effectiveness ratio;
- roughly determine the cost of a programme of measures required to reach good status.

Justifying exemptions and final costing of the programme of measures to avoid exceeding financial limits.

During this step, economic analysis is used to justify any exemptions to objectives due to disproportionate costs. Cost-benefit analyses must be run. The ability of water stakeholders to pay is also assessed. The final cost of the programme of measures is then calculated and the funding conditions are set.

The applicable regulations stipulate that economic analysis must also play an important role in preparing SBMPs.

The Environmental code contains the following articles concerning economic aspects:

- article R 212-36 states that "the characterisation report for the SBMP must include:

1. An analysis of the existing aquatic environment;
2. A list of how water resources are used;
3. A presentation of the main possibilities for exploiting the resources given the foreseeable changes in rural and urban areas and in the economic situation, as well as the impact on the resources of the programmes mentioned in the second paragraph of article L. 212-5;
4. An assessment of the hydroelectric potential of each geographic area."

- article R 212-46 states that "The plan for the development and sustainable management of water resources and aquatic environments must include:

1. A summary of the characterisation report required by article R. 212-36;
2. A presentation of the main issues involved in water management in the river sub-basin or set of sub-basins;
3. Definition of the general objectives selected to comply with the principles listed in articles L. 211-1 and L. 430-1, identification of the priority means to achieve those objectives, notably concerning optimum use of existing or planned infrastructure, and the schedule for their implementation;
4. Information on the deadlines and conditions under which the decisions on water issues made by the administrative authorities within the perimeter set by the plan must comply with said plan;
5. An estimate of the physical and financial means required to implement and monitor the plan."

It follows that the economic assessments required during the preparation of an SBMP comprise five steps.

Draw up the list of the significant water uses and functions in the entire aquatic environment, plus the list of potential uses and those currently inhibited by the status of the water resources and the environment.

The potential impacts on the areas upstream and downstream of the SBMP perimeter, notably when the perimeter is only partially set, must not be neglected.

Provide information on the contents of the scenarios selected or proposed, concerning the action programmes and the water uses impacted positively and/or negatively.

Economic analysis requires that the objectives be presented in terms of well defined measures for subsequent costing.

Estimate the investment and operating costs of the action programmes for each scenario and list, without necessarily costing, the related expenses incurred by implementation of the measures and by the full extent of the uses made possible by the action programmes (e.g. the development of tourism following an increase in recreational uses).

Estimate the economic gains produced by the various scenarios and related programmes.

This calculation of the benefits consists of estimating the degree to which a scenario will or will not produce an improvement (or inhibit degradation) of the natural environment and the related water uses.

Finally, once the assessment has been carried out, it is necessary to draft a decision-aid report including summaries and scenario results (total costs and benefits for the period studied with discounted values) to serve as a basis for informed discussion during the preparation of the SBMP.

The purpose of this book

The purpose of this book is to provide information on the use of economic assessments for water management in order to clarify and better understand the issues involved. More precisely, it will attempt to answer the following questions:

- what are the actual components of the economic analyses?
- what work do they involve and what results may be expected?
- why are they necessary for WFD implementation or for the preparation of an SBMP?
- what are the best practices to be followed and the pitfalls to be avoided?

This book comprises five main parts:

- characterisation of water uses;
- assessment of costs;
- assessment of environmental impacts;
- cost recovery;
- disproportionate costs.