ECONOMICS AND THE ENVIRONMENT

THE IMPLEMENTATION CHALLENGE OF THE WATER FRAMEWORK DIRECTIVE

POLICY SUMMARY TO THE GUIDANCE DOCUMENT

A GUIDANCE DOCUMENT: WHAT FOR?

This non-legally binding document aims at **guiding experts and stakeholders in the implementation of the economic elements of the Water Framework Directive**, with specific focus on its 2004 requirements. You will find this guidance useful if you are developing national strategies for implementing the Directive or if you are involved in the preparation of river basin management plans. It will help you in:

- Understanding the economic analysis and its expected results;
- Undertaking the economic analysis;
- Leading and managing experts that will develop the economic analysis;
- Using the results of the economic analysis for aiding decision making and supporting the development of river basin management plans;
- Reporting on the economic analysis to the European Commission as required by the Directive.

The document has been **developed by an informal European working group of experts and stakeholder**s in the context of the common strategy agreed by Member States and the Commission for supporting the implementation of the Water Framework Directive.

It builds on:

- The expertise and experience of members of the working group;
- The results of pilot studies carried out in selected river basins throughout Europe;
- Regular interactions with technical experts and other working groups of the common implementation strategy;
- Input and feedback from a wide range of experts and stakeholders that participated in a series of workshops and conferences.

INTEGRATING ECONOMICS INTO WATER MANAGEMENT AND POLICY

With high environmental concerns and limited financial resources in many parts of Europe, economics is increasingly called upon for supporting sustainable water management and water policy decision-making.

In the European Community, **the Water Framework Directive clearly integrates economics into water management and policy making**. To achieve its environmental objectives in the most effective manner (i.e. good water status for all waters), the Directive calls for:

- The application of economic principles (e.g. the **polluter pays principle**);
- The use of economic approaches and tools (e.g. **cost-effectiveness analysis**); and
- The consideration of economic instruments (e.g. **water pricing**).

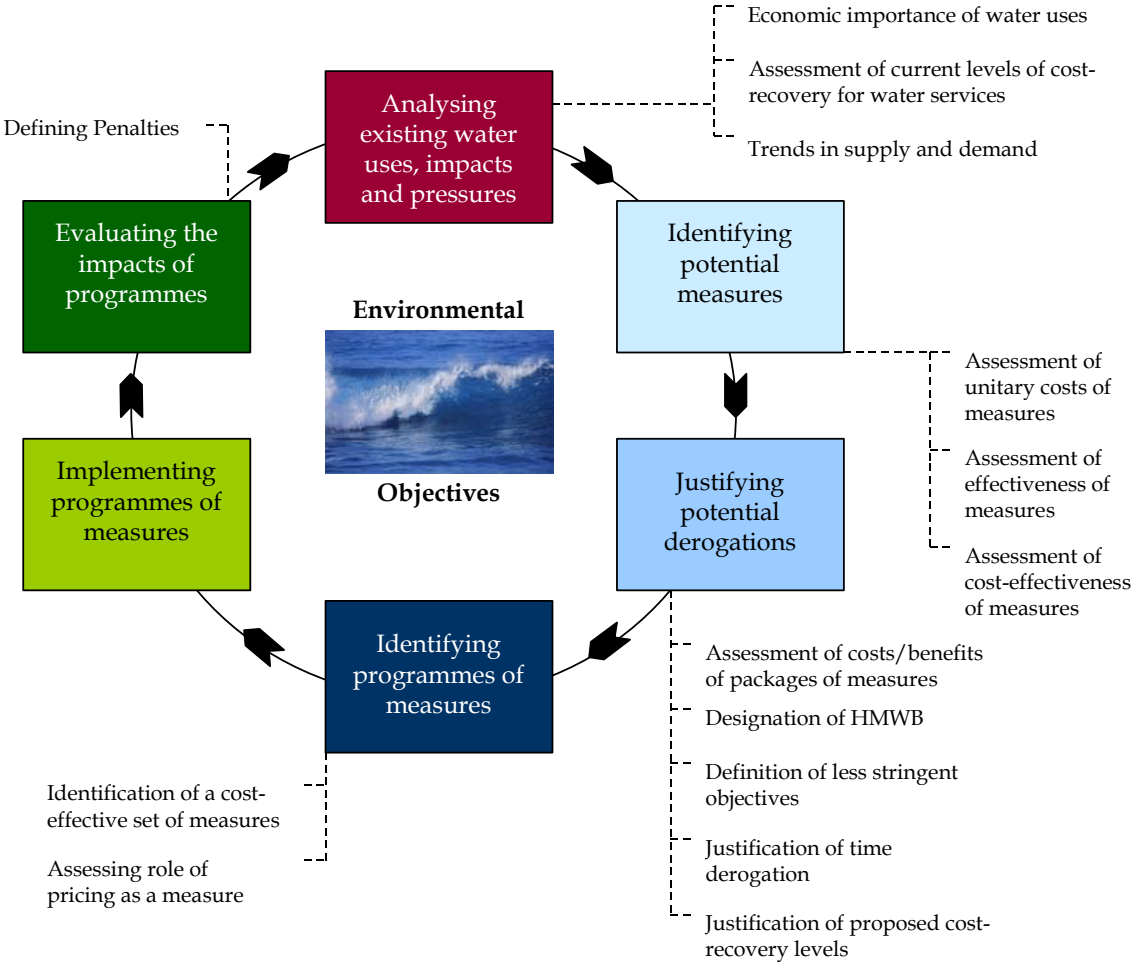
The different functions of the economic analysis in the Water Framework Directive

Economic issues are mainly dealt with in Article 5 (*Characteristics of the river basin district, review of environmental impact of human activity and economic analysis of water use*), Annex III (*Economic analysis*) and in Article 9 (*Recovery of costs for water services*) of the Directive. However, economic elements are found in other parts of the Directive's text. Overall, the main functions of the economic analysis include:

- To carry out an *economic analysis of water uses* in each River Basin District (RBD)
- To assess *trends* in water supply, water demand and investments
- To identify areas designated for the protection of *economically significant aquatic species*
- To designate heavily modified water bodies based on assessment of *impact* (including economic impact) on existing uses and *costs* of alternatives for providing the same beneficial objective
- To assess current levels of *cost-recovery*
- To support selection of programme of measures on the basis of *cost-effectiveness* criteria
- To assess the potential role of *pricing* in programmes of measures – implications on cost-recovery
- To estimate the need for potential (time and objective) derogation from the Directive's environmental objectives based on assessment of *costs and benefits* and of *costs* of alternatives for providing the same beneficial objective
- To assess possible derogation resulting from new activities/modifications, based on assessment of *costs and benefits* and costs of alternatives for providing the same beneficial objective
- To evaluate *costs* of measures to identify *cost-effective* way to control priority substances

Although scattered through the Directive's text, the different elements of the economic analysis to be developed should be well integrated in the policy decision and management cycle (see *Figure 1*).

Figure 1 – Economic elements are linked and must be integrated



IF YOU ARE LOOKING FOR GUIDANCE ON HOW TO DEAL WITH…

- **The economic analysis of water uses -** What is the economic significance of water in your river basin district? What are key economic drivers influencing pressures and water uses? How will these economic drivers evolve over time, and how will it influence pressures? How will water demand and supply evolve over time, and which problems is it likely to cause?
- **The economic assessment of potential measures for reaching good water status -** What is the least-costly set of measures that will ensure good water status? How much will it cost to reach good water status? What is the likely economic impact of proposed measures on key economic sectors/water uses? How to determine whether the costs of achieving good water status are considered to be disproportionate so that derogation may be appropriate?
- **The assessment of the recovery of the costs of water services -** How much do current water services cost? Who pays for these costs, and what is the current cost-recovery level? Which impact proposed programmes of measures are likely to have on cost-recovery?

Then, this document will provide useful methodological guidance and range of approaches and tools on what to do, how to do it, and when to do it in the context of the implementation of the Water Framework Directive and the preparation of integrated river basin management plans. In particular, the guidance proposes a **three-step approach for providing a coherent and logical framework to the different functions of the economic analysis** required for meeting the Directive's requirements:

1. **Step 1 - Characterising the river basin** in terms of the economics of water uses, trends in water supply and demand and current levels of recovery of the costs of water services;
2. **Step 2 -** Identifying water bodies or group of water bodies not achieving the environmental objective of the Directive (i.e. **identifying gaps or risks of failure** in achieving objectives);
3. **Step 3 -** Supporting the development of the **programme of measures** to be integrated in river basin management plans **through cost-effectiveness analysis** and justifying from an economic point of view possible (time, objective) derogation.

The graph and the timing charts on the next page present the logical flow of this three-step approach, stressing more particularly the objective of each step, the type of analysis to be carried out, what the economic analysis feeds into, and key deadlines. This figure includes two areas where economic issues are at stake but that are more difficult to position in time:

- The identification and designation of heavily modified water bodies (Article 4.3);
- The justification of objective derogation because of new morphological modification, over-abstraction of aquifers or new sustainable economic activities (Article 4.7).

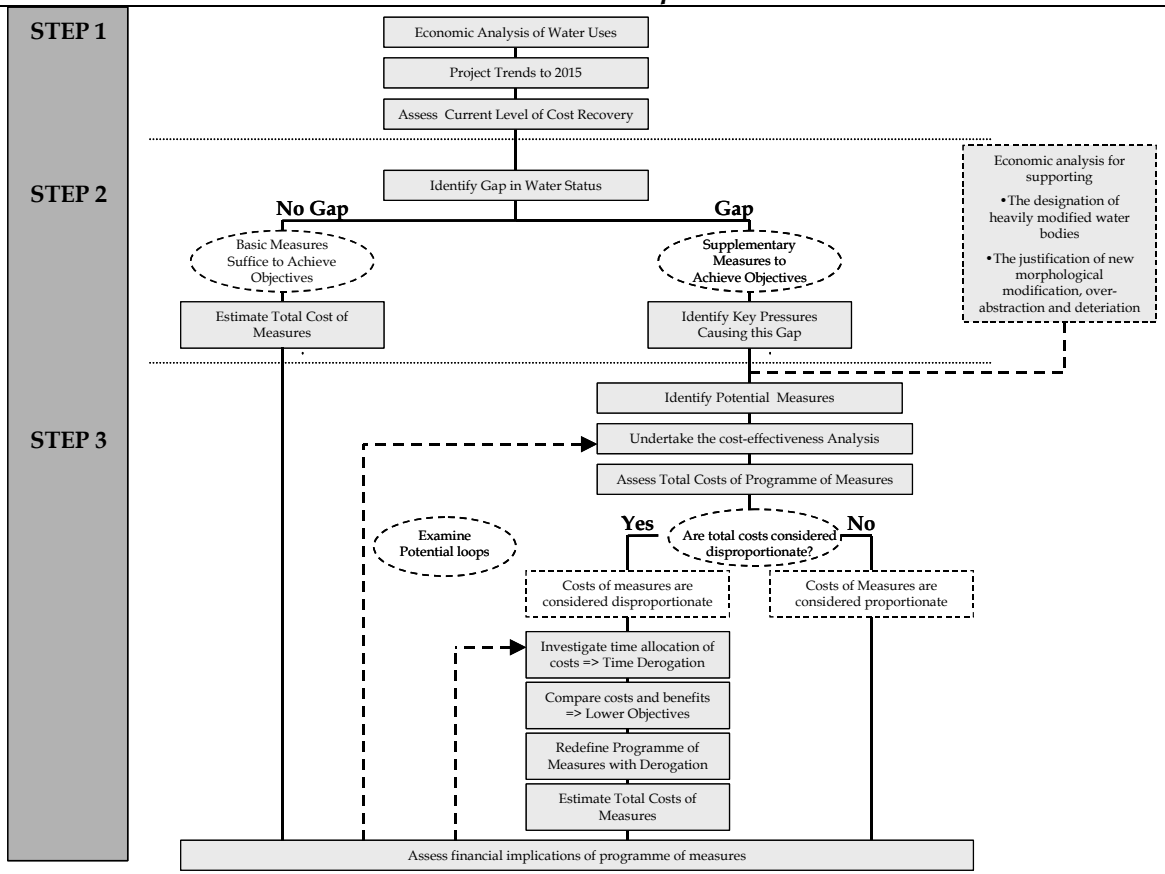
What you will <u>not</u> find in this guidance document

The guidance document focuses on the economic analysis required for supporting the development of River Basin Management Plans, with specific attention to the 2004 requirements. The guidance does <u>not</u> focus on:

- How to develop incentive pricing policies according to Article 9;
- How to develop and implement other economic and fiscal instruments as mentioned in Annex VI;
- How to develop an economic analysis for supporting the development of penalties that provide incentive according to Article 23.

A BIRD'S VIEW TO THE THREE-STEP APPROACH

Objective	*The Three Steps*	*Feed Into*	*Timing*
To characterise River Basins	**STEP 1**	• Economic Analysis of Water Uses • Help identify protected areas	***By 2004***
To identify significant water management issues	**STEP 2**	• Preparatory documents for RBMP • Interim Overview of Significant Water Management Issues	***By 2006*** ***By 2007***
To help identify a cost-effective programme of measures *To assess cost-recovery and incentive pricing and their economic impact*	**STEP 3**	• Draft RBMP • River Basin Management Plan • Adequate pricing and cost-recovery	***By 2008*** ***By 2009*** ***By 2010***



Is that it?

No, most of the steps of the economic analysis will need to be repeated at later stages as further management cycles are required and proposed. Furthermore, The Directive sets out very clear timeframes for each of these repetitions, timed slightly differently from this first iteration. Thus, be careful to respect future deadlines!

BEFORE STARTING THE ECONOMIC ANALYSIS

Three elements are seen as key to undertaking the economic analysis.

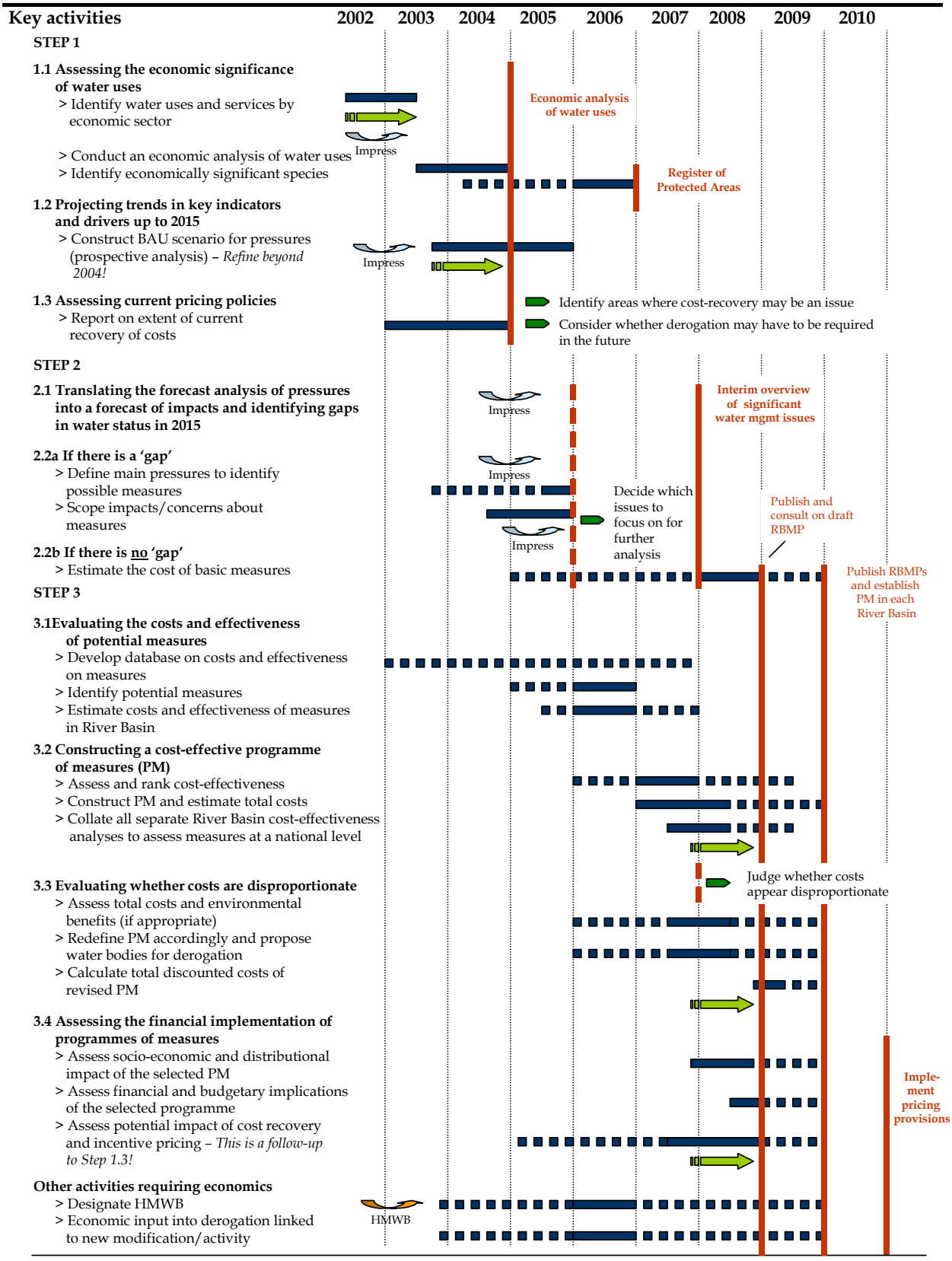
- **Information and knowledge –** A wide range of economic (e.g. economic characteristics of main water uses, costs of measures and water services, cost-recovery mechanisms, economic impacts, benefits) but also technical (e.g. effectiveness of measures) information and knowledge is required for complying with the economic requirements of the Water Framework Directive. Today, such information and knowledge may not be readily available, or available at spatial scale not relevant to aid decision-making.
- **Capacity –** The economic expertise required for undertaking the economic analysis for the Water Framework Directive, i.e. practical, applied and accounting for the hydrological cycle, is rare. Capacity building is seen as key to effective and successful economic analysis for supporting the development of river basin management plans.
- **Integration with the decision making process –** The economic analysis will deliver information and results that need to support decision-making. Specifically, it needs to be linked to another of the Water Framework Directive innovation, i.e. information, consultation and participation of the public and interested parties.

In general terms, you will need to address the following questions before starting the economic analysis:

- How to organise and manage the economic analysis?
- Who should get involved in carrying out the economic analysis? How should the economic analysis be integrated with other disciplines and expertise and at which stages of the Water Framework Directive implementation process?
- Which information is available today, and what additional information is needed for carrying out the economic assessment necessary to assist decision-making?
- Which output and indicators should be produced by the analysis for taking decisions, and for informing and reporting about these decisions?
- Which financial and human resources are required and available for undertaking the economic analysis?

Two activities are seen as key in preparing the economic analysis *per se*:

- A **feasibility study–** Its main purpose is to assess whether the proposed economic approach can be made operational under current situations. It aims at evaluating the consistency of the overall approach to be developed and identifying key constraints and problems in terms of information and knowledge, human and financial resources and organisational arrangements likely to be faced when undertaking the economic analysis.
- A **critical path analysis –** Illustrated on the following page, its main purpose is to identify what needs to be done by when to fill the most important gaps in the economic analysis and to logically link the economic analysis with other activities required for the development of river basin management plans and for implementing the Directive.


Key activities
2002
2003
2004
2005
2006
2007
2008
2009
2010
STEP 1
1.1 Assessing the economic significance of water uses
> Identify water uses and services by economic sector
> Conduct an economic analysis of water uses
> Identify economically significant species
Impress
Economic analysis of water uses
Register of Protected Areas
1.2 Projecting trends in key indicators and drivers up to 2015
> Construct BAU scenario for pressures (prospective analysis) – Refine beyond 2004!
Impress
1.3 Assessing current pricing policies
> Report on extent of current recovery of costs
Identify areas where cost-recovery may be an issue
Consider whether derogation may have to be required in the future
STEP 2
2.1 Translating the forecast analysis of pressures into a forecast of impacts and identifying gaps in water status in 2015
Impress
Interim overview of significant water mgmt issues
2.2a If there is a 'gap'
> Define main pressures to identify possible measures
> Scope impacts/concerns about measures
Impress
Decide which issues to focus on for further analysis
Publish and consult on draft RBMP
2.2b If there is no 'gap'
> Estimate the cost of basic measures
Impress
Publish RBMPs and establish PM in each River Basin
STEP 3
3.1Evaluating the costs and effectiveness of potential measures
> Develop database on costs and effectiveness on measures
> Identify potential measures
> Estimate costs and effectiveness of measures in River Basin
3.2 Constructing a cost-effective programme of measures (PM)
> Assess and rank cost-effectiveness
> Construct PM and estimate total costs
> Collate all separate River Basin cost-effectiveness analyses to assess measures at a national level
Judge whether costs appear disproportionate
3.3 Evaluating whether costs are disproportionate
> Assess total costs and environmental benefits (if appropriate)
> Redefine PM accordingly and propose water bodies for derogation
> Calculate total discounted costs of revised PM
3.4 Assessing the financial implementation of programmes of measures
> Assess socio-economic and distributional impact of the selected PM
> Assess financial and budgetary implications of the selected programme
> Assess potential impact of cost recovery and incentive pricing – This is a follow-up to Step 1.3!
Imple-ment pricing provisions
Other activities requiring economics
> Designate HMWB
> Economic input into derogation linked to new modification/activity
HMWB
Key to symbols:
Time required for the economics assessment activity
Time required for the consultation process
Directive requirement
Internal deadline necessary for timing economic activities
Considerations for policy-makers
Phasing in and refinement of economic assessment activity
Footnote:
Expertise
Cooperation with other expertise/discipline is required. HMWB = Identification and designation of heavily modified water bodies; IMPRESS = Analysis of pressures and impact.

AND FOR 2004!

The Water Framework Directive specifies a series of reporting dates for key tasks and activities aimed at the development and implementation of river basin management plans. And 2004 is the first major deadline aimed at characterising river basin districts as referred to primarily in Article 5 and relevant annexes of the Directive. Thus, 2004 is also the first milestone for the economic analysis that will require for each river basin district:

- Undertaking the **economic analysis of water uses –** the main objective is to assess how important water is for the economy and socio-economic development of the river basin district. It will provide the river basin's economic profile in terms of general indicators, e.g. economic turnover, gross income, employment or number of beneficiaries for significant water uses. The importance of economically significant aquatic species is also highlighted. The analysis needs to pave the way for the assessment of significant water uses to be reported to the public in 2007 and the ensuing cost-effectiveness analysis, by initiating investigations of likely tradeoffs between socio-economic development and water protection within the river basin.
- Investigating the dynamics of the river basin and providing economic input into the **development of a baseline scenario** - The specific role of the economic analysis is the assessment of forecasts in key economic drivers likely to influence pressures and thus water status. Focus is likely to be on changes in general socio-economic variables (e.g. population growth), in key sector policies that influence significant water uses (e.g. agricultural policy), in economic growth of main economic sectors, in implementation of planned investments linked to existing water regulation.
- Assessing **current levels of recovery of the costs of water services**, in accordance to Article 9 of the Water Framework Directive - Key elements to be investigated include the status of water services, the extent of the recovery of the costs (financial, environmental and resource costs) of these services, the institutional set-up for cost-recovery and the contribution of key water uses to the costs of water services.
- Preparing for the **cost-effectiveness analysis** - To reduce the existing gaps in cost information, it is proposed to collate data on the costs of key measures to be considered for the development of river basin management plans. Range of costs (minimum, maximum) will be estimated and collected for individual measures, along with key parameters influencing these costs. Emphasis will be on costs that are non site-specific (i.e. financial costs of measures, indirect non-water related environmental costs) and on basic measures. Information on the indirect economic impact and water-related environmental costs of measures may start to be collected if felt necessary. Unlike other tasks that will be performed for each river basin district, this activity may be effectively undertaken at the national or European level.
- Proposing activities for **enhancing the information and knowledge base** - Practical steps and measures will be identified for filling key economic-related information and knowledge gaps, both identified during the characterisation of the river basin and likely to arise when undertaking the cost-effectiveness analysis. National co-ordination between river basin districts may also be very relevant for improving the information and knowledge base.

MANAGING THE PROCESS RIGHT

Ensuring the economic analysis adequately support decision-making towards achieving good water status will require a well-managed process. A series of key principles for developing the economic analysis process can be identified.

- **Integration –** Economics being only one of the parameters informing decision making, the economic analysis needs to be integrated with other expertise and analyses in supporting the development of river basin management plans. Integration needs to start as early as possible, for example for the characterisation of river basins where pressures, impacts and the economic importance of pressures/uses need to be analysed jointly.
- **Proportionate –** Efforts and more detailed economic analyses should be concentrated on significant water management issues, areas with conflicts between uses and where the integration between environment, economic and social issues is problematic. Overall, it should focus on where it can help in taking better decisions.
- **Policy-relevant –** the analysis should ensure it aids decision making, i.e. by supporting decisions, informing about possible policy choices or justifying these choices to policy makers and to the public/stakeholders.
- **Iterative and gradual –** The analysis should start with existing information and knowledge. A systematic identification of gaps in information and knowledge that needs to be filled for better decisions will lead to regular updates of the analysis itself.
- **Participatory –** Integrating stakeholders into the economic analysis can prove very useful as it brings expertise and information, it provides opportunities to discuss and validate key assumptions and it increases the ownership and acceptance of the results of the economic analysis. It is important to start the participation process early (e.g. as part of the characterisation of the river basin to be completed by 2004) to improve its effectiveness.
- **Transparent –** The economic analysis should systematically report on information, assumptions and approaches used for obtaining results. This ensures the analysis can be easily updated as new information and methods are developed. It is also a pre-requisite to enhanced information, consultation and participation of the public/stakeholders.

FURTHER DEVELOPMENT NEEDED…

Overall, using the present guidance will help developing practical experience, will increase the knowledge base and will develop capacity in the integration of economics into water management and policy.

Selected issues can already be identified as requiring further investigation.

- On **environmental and resource costs (benefits)** - How can methods for assessing environmental costs (benefits) that would be of direct use for developing river basin management plans be operationalised?
- On **uncertainty** - Which approaches can be proposed to water managers for integrating uncertainty into decision making?
- On **effectiveness** – How can the effectiveness of individual measures and of combination of measures be assessed?
- On **indirect economic impact** – Which methods can be used for assessing the indirect economic impact of potential measures on key economic sectors?
- On **pricing** – Which approach for supporting the development of incentive pricing and reporting on cost-recovery for 2010?

Most of these issues will need to be tackled jointly by economists and technical experts, the emphasis being on practical and operational approaches that can be applied by practitioners dealing with the development of integrated river basin management plans.

Continuing the collaborative effort that has led to the present guidance will be instrumental in moving forward and ensuring progress is made for an effective implementation of the Water Framework Directive. Such collaborative efforts will include:

- Providing **support to the use of the guidance** and implementation process and collating feedback and lessons from this process;
- Ensuring **integration** between economics and other expertise (working groups) through specific joint activities and projects for integrated testing of guidance in pilot river basins;
- Making operational specific economic **methodologies and approaches** (e.g. development of a database on water-related environmental costs/benefits).