

AquaMoney

AquaMoney Policy Brief No. 1

Economic valuation of environmental and resource costs and benefits in the European Water Framework Directive

Contract no. SSPI-022723

About AquaMoney

AquaMoney brings together 16 renowned European research institutes with the objective of developing and testing practical guidelines for the assessment of environmental and resource costs and benefits (ERCB) in the context of the European Water Framework Directive (WFD). The concept of environmental and resource costs and benefits plays a central role in the economic analysis of the WFD, in particular in relation to the cost recovery of water services (Article 9 WFD) and exemptions based on disproportionate costs (Article 4 WFD). So far, no practical guidelines exist for their assessment. AquaMoney will address this omission. The project consortium is supported by an Advisory Board of 30 governmental and non-governmental WFD river basin policy and decision-makers.

Over a three-year period, from April 2006 to March 2009, AquaMoney will:

- develop guidelines related to the assessment of ERCB, with particular focus on the transferability of the economic values associated with ERCB, and
- test these guidelines in 10 European pilot river basins, including the international river basins of the Danube, Rhine and Scheldt.

The experiences in the case studies will be used to refine the guidelines and develop practical recommendations for practitioners and policy makers who commission economic valuation studies. The use of a common valuation design in the different case studies will permit investigation of techniques for transferring economic values for ERCB across water bodies within and between river basins. Special attention will be paid to the development of lists with (transfer) values for the different goods and services provided by aquatic ecosystems and environmental damage categories associated with different types of water use. A separate study will be carried out into the feasibility of the development of GIS based value maps for European river basins based on available environmental and biological monitoring data and socio-economic census or population data.

Aquamoney is a research project funded under the 6th EU Framework Programme.





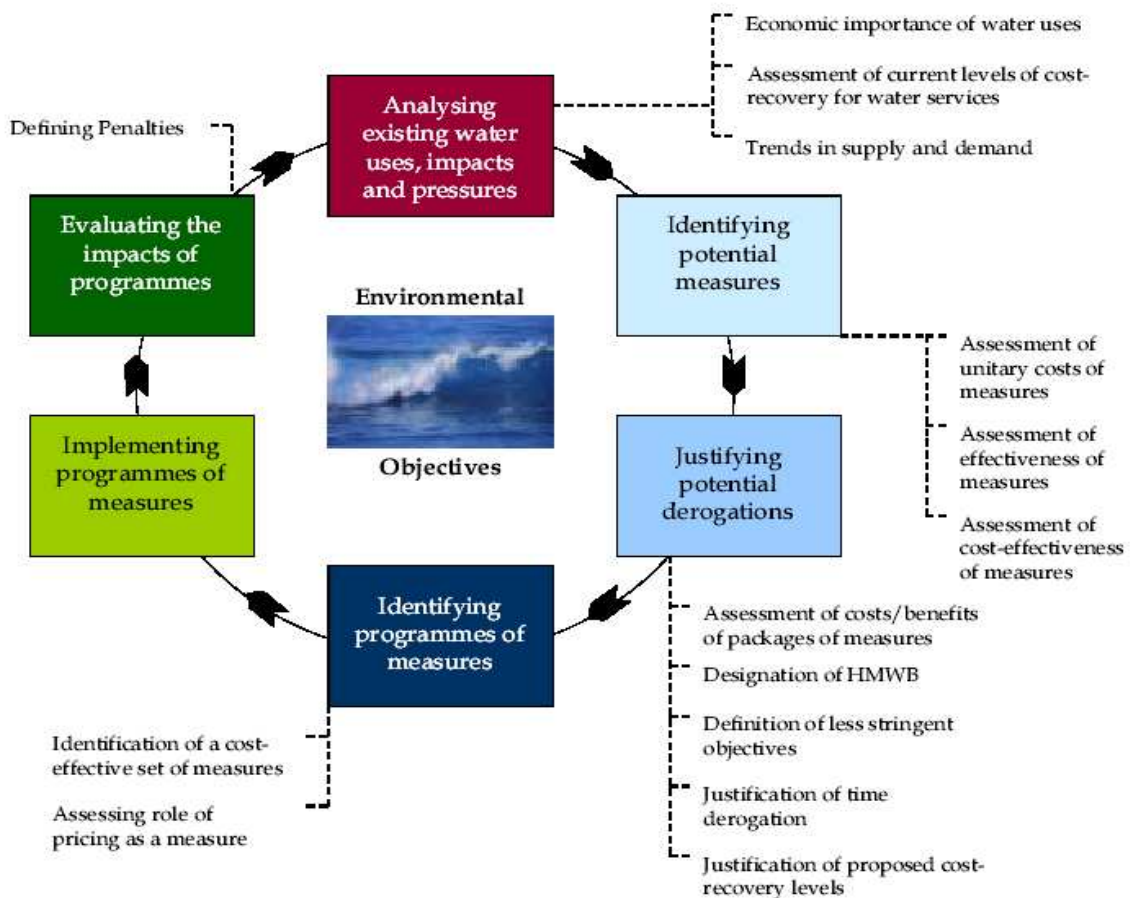
The role of economics in the WFD

The WFD, adopted in 2000, is one of the first European directives in the domain of water, where economics is an integral part of the decision-making processes surrounding its implementation in Member States. In order to achieve good chemical and ecological water status, the Directive's main objective, the Directive calls for the adoption and application of:

- **Economic principles** such as the polluter pays principle
- **Economic tools and methods** such as cost-effectiveness analysis
- **Economic instruments** such as water pricing.

The Guidance Document on the Economic Analysis prepared in 2002 by the European Water and Economics Working Group (WATECO) advises how the various elements of the economic analysis should be integrated in the policy and management cycle in order to aid decision-making when preparing the river basin management plans. The integration of economics throughout the WFD policy and decision-making cycle is presented in the figure below.

More recently, the CIS working group ECO2 has looked at the issue of ERCB in greater detail. However, its approach was primarily conceptual, and therefore did not provide practical guidelines for assessing environmental and resource costs and benefits.





The economic analysis in the WFD can be summarised as follows:

Time path

- | | | |
|--|------|---|
| 1. Economic characterisation of the river basin (Article 5), including assessment of the economic significance of water use and current cost recovery of water services, including environmental and resource costs | 2005 | ↓ |
| 2. Evaluation of the costs and effectiveness of proposed programmes of measures to reach the environmental WFD objectives (Article 11) | 2007 | |
| 3. Assessment whether the proposed programme of measures results in disproportionate costs compared to the WFD objectives (Article 4) | 2008 | |
| 4. Introduction and evaluation of complementary incentive water pricing structures based on Polluter Pays Principle and cost recovery (Article 9) | 2009 | |

Article 9 (cost recovery of water services) is the only Article in the Water Framework Directive where environmental and resource costs are mentioned explicitly: it states that Member States shall take account of the principle of recovery of the costs of water services, *including environmental and resource costs*. However, in the context of selecting cost-effective programmes of measures (Article 11), environmental and resource costs and benefits can signal to what extent the environmental objectives are met, and if not, what the associated costs are, including residual environmental damage costs and any costs arising as a result of an inefficient allocation of water and pollution rights. Further, Article 4 WFD states that exemptions are possible if the cost of reaching good ecological status are disproportionate. In order to evaluate the extent to which this is the case, one also has to know the economic benefits associated with reaching the environmental objectives.

The economic value of water

Water is increasingly considered an economic good, as also reflected by the role economics plays in the WFD. Water adds value in economic production processes as a source (extraction) and a sink (emission). Important economic valuation methods here include production function approaches, which estimate the value added of water as an input factor in economic production. Examples include water used for irrigation, food processing, paper industry and other water dependent activities. Also avoided cost approaches are often used to demonstrate the economic significance of good ecological functioning of water systems, resulting in reduced wastewater or drinking water treatment costs. However, in many cases water provides so-called public goods and services for which no direct or indirect market prices are available and whose benefits are in this sense hard to measure compared to production function and cost based approaches. Examples are landscape, wildlife and recreational amenities provided by lakes, rivers and wetlands. An important question in the WFD is: what is the economic value associated with the non-market benefits of reaching good ecological status for all water bodies? *Non-market valuation methods* have been developed by environmental economists to estimate these economic values, including contingent valuation, choice experiments and recreational travel cost models. AquaMoney will provide guidelines for their application based





on further testing in practical case studies.

AquaMoney structure

Work Package 1: Identification of policy maker demand for practical guidelines to assess ERCB

As a first step, key issues in definition and assessment of ERCB will be identified with the help of governmental and non-governmental policy makers and stakeholders included in the Advisory Board and otherwise involved in the AquaMoney case studies. This will result in a number of guideline development criteria.

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Work Package 2: Database development and meta-analysis

Existing data and information in European Member States about the economic values (benefits) associated with different types of water use will be opened up, included in a database and converted to readily applicable transfer values with the help of meta-analysis.

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Work Package 3: Development of guidelines

Two different types of practical guidelines for the assessment and economic valuation of environmental and resource costs and benefits will be developed:

- An authoritative technical guideline targeted at practitioners and economic experts
- A Terms of Reference (ToR) for policy makers who commission economic valuation studies and use the results in actual decision-making.

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Work Package 4: Guideline testing in pilot river basin studies

The technical guidelines will be tested in practice across 10 European river basins, including three international river basins:



International Danube basin (HU, RO, AUT)

The case study is conducted by the Research Institute for Soil Science and Agricultural Chemistry (RISSAC) in Budapest, Hungary. Other participating institutes are Corvinus University of Budapest, University of Bucharest, and Institute for Advanced Studies Carinthia in Vienna.

Contact person: Ms. Zsuzsanna Flachner (flachner@rissac.hu)

International Scheldt basin (FR, B, NL)

This case study is led by the Flemish Institute for Technological Research (VITO), with support from the Institute for Environmental Studies (IVM) Vrije Universiteit Amsterdam, and the Agence de l'Eau Artois Picardie.

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International Rhine basin (FR, NL)

The case study is led by Bureau de Recherches Géologiques et Minières (BRGM), the French Geological Survey, with support from the Institute for Environmental Studies (IVM), Vrije Universiteit Amsterdam.

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Odense basin (DK)

Contact person: Prof. Alex Dubgaards, Royal Veterinary and Agricultural University (KVL) (Alex.Dubgaard@flec.kvl.dk)





Po basin (IT)

Contact person: Mr. Davide Viaggi, University of Bologna (dviaggi@agrsci.unibo.it)

Humber basin (UK)

Contact person: Prof. Ian Bateman, University of East Anglia (UEA) (i.bateman@uea.ac.uk)

Nemunas basin (LT)

Contact person: Ms. Rasa Ščeponavičiūtė, Center for Environmental Policy (AAPC) (rasa@aapc.lt)

Morsa catchment (NO)

Contact person: Mr. David Barton, Norwegian Institute for Water Research (NIVA) (david.barton@niva.no)

Pinios basin (GR)

Contact person: Prof. Michalis Skourtos, University of the Aegean in Mytilini, Lesvos (mskour@aegean.gr)

Guadalquivir basin (ES)

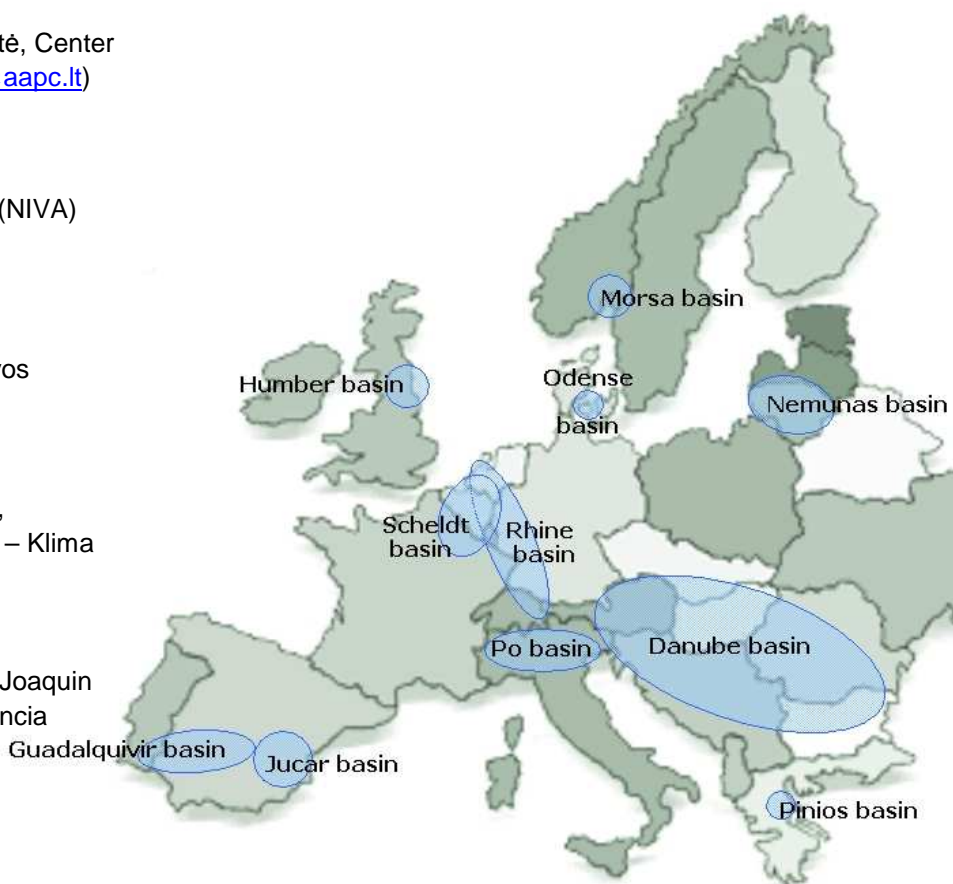
Contact person: Ms. Julia Martín-Ortega, BC3 Basque Centre for Climate Change – Klima Aldaketa Ikergai (julia.martin.ortega@bc3research.org)

Jucar basin (ES) Contact person: Prof. Joaquin Andreu, Universidad Politécnica de Valencia (ximoand@upvnet.upv.es)

Work Package 5: Dissemination of results

Progress and (intermediate) results will be published and updated regularly on the AquaMoney project website.

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More information can be obtained from the AquaMoney website:

www.aquamoney.org

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