

Disproportionate Costs in the EC Water Framework Directive – The Concept and its Practical Implementation

By Benjamin Görlach¹ and Britta Pielen²

Paper presented at the envecon 2007 Applied Environmental Economics Conference
London, 23 March 2007

I Introduction

The EC Water Framework Directive (WFD) introduced several innovations into European water policy, including the integration of economic approaches. Throughout its implementation, economic instruments (e.g. water pricing), methods (e.g. cost-effectiveness analysis) and principles (e.g. the polluter-pays-principle) are used to reach the Directive's objectives. Economic considerations can also play a role to justify exemptions from the overarching aim of the Directive, i.e. to achieve good status of all water bodies by 2015. If reaching this objective in time should be disproportionately costly, either the 2015 deadline may be extended, or the objective may be relaxed. However, the practical interpretation of the terms "disproportionately costly" remains disputed: in proportion to what are costs considered as disproportionate, and what is the threshold value for disproportionality? The WFD itself does not provide any guidance on this, but leaves it to the Member States to substantiate the concept.

Ultimately, the judgement on the disproportionality of costs will be a political decision. Accordingly, objective criteria will have to be developed to ensure a transparent decision making process. By now, discussions on how to deal with disproportionate costs in an even-handed, transparent and pragmatic way have started in most Member States, which constitutes a good opportunity to take stock of the emerging approaches and evaluate them.

The paper first investigates the concept of disproportionate costs from an economic and a political perspective and clarifies its scope of application in the WFD. Subsequently, it reviews the approaches suggested in selected Member States (D, F, NL and UK), and evaluates them with regard to their economic foundations, scope of application, practicability and effectiveness. In this context, the paper describes how the EU-funded research project AquaMoney may support the decision making for those criteria that involve a monetary valuation of water resources. Finally, the contribution investigates in how far the ability-to-pay of affected parties can serve to justify an exemption. To this end, the results of a recent research project funded by the German *Länderarbeitsgemeinschaft Wasser* (LAWA) are

¹ Ecologic – Institute for International and European Environmental Policy, Pfalzburger Strasse 43-44, D-10717 Berlin, phone: +49/30/86880147, email: goerlach@ecologic.de

² Chair for Environmental Technology/ Environmental Management, Faculty of Economics at University of Leipzig, Marschnerstr. 31, D-04109 Leipzig, phone: +49 341 9733876, email: pielen@wifa.uni-leipzig.de

presented, which investigated different ways of measuring ability-to-pay in practice and proposed a step-by-step process for the practical assessment.

II Disproportionate costs in the Water Framework Directive

Article 4 of the WFD specifies the environmental objectives of the Water Framework Directive, i.e. the “good status” for ground- and surface waters and the “good ecological potential” for heavily modified water bodies. It also specifies several conditions under which exemptions from these objectives can be applied for, including economic conditions (disproportionate costs).

More specifically, two types of exemptions foreseen under Article 4 will be investigated more closely in this paper: Article 4.4 specifies the conditions under which the 2015 deadline for achieving the good status may be extended (to 2021 or to 2027); Article 4.5 specifies the conditions under which the environmental objectives may be permanently lowered to less stringent levels. It is generally understood that the lowering of objectives requires a more thorough justification than the extension of the deadline, as the former has a permanent effect.

Economic considerations are one of the possible justifications that can be invoked to justify an exemption, both for a temporal exemption and for less stringent objectives. Other justifications include technical unfeasibility or natural background conditions that prevent the achievement of the WFD objectives. Thus, a temporal exemption may be applied for if completing the necessary improvements to achieve good status before 2015 would be “disproportionately expensive”. A lowering of objectives can be applied for if achieving the objectives would be disproportionately expensive irrespective of the timing.

However, the practical interpretation of the terms “disproportionately expensive” remains disputed. The two main questions are

- in proportion to *which reference* costs should be considered as disproportionate, and
- what the *threshold* is beyond which costs are considered as disproportionate.

The WFD itself does not provide any guidance on this, but leaves it to the Member States to substantiate the concept. Some explanatory guidance on this issue has since been developed in the European working groups established under the WFD Common Implementation Strategy (CIS), notably the CIS groups Wateco and DG Eco 2. In addition, the discussion on possible ways to substantiate the concept and make it operational has begun in several Member States.

III The concept of disproportionate cost: possible criteria

As explained, one key consideration in the decision on exemptions is *in proportion to what* costs are considered as disproportionate, i.e. the choice of the reference point. One obvious candidate are the (monetised) benefits of implementing the WFD. Other potential options include the resources available to those who have to pay for WFD implementation, or the cost of comparable measures in other locations.

From a welfare economic point of view, the judgement on the disproportionality of costs is reminiscent of a classical cost-benefit analysis: in this understanding, costs are considered as disproportionate if they exceed the monetised benefits of achieving ‘good status’ in a water body (or, possibly, if costs exceed benefits by a certain “safety margin”). From a theoretical perspective, monetised benefits are the most satisfactory reference. In contrast to other possible references, they are

the only criterion that ensures that the chosen solution is socially desirable and efficient, in the sense that social benefits exceed social costs.³

However, it must be noted that criteria based on monetary valuation continue to meet reservations by decision makers. Objections can be practical, because it appears infeasible to conduct cost-benefit analyses for hundreds and thousands of water bodies, as well as conceptual, because decision makers in water management often lack experience with monetary valuation techniques, and doubt their usefulness.

In addition to the comparison of costs and benefits in monetary terms, the distribution of costs among the affected parties, and their ability-to-pay, may also figure in the decision-making process. Accordingly, criteria that could be considered in the process are

- whether benefits accrue to those who bear the costs;
- whether costs to firms or sectors exceed the fair proportion as demanded by the polluter-pays-principle;
- whether the costs of the WFD leads to increases in the cost of water supply to private households, and consequently to undue social hardships,
- whether costs to firms or sectors exceed the financial carrying capacity of firms or sectors (measured e.g. in relation to profit margins), leading to an unacceptable financial burden for firms, or
- whether overall costs of measures for achieving good status in a river basin exceed a certain threshold (e.g. a percentage of GDP or a share of the available public budget).

From a theoretical perspective, these criteria are irrelevant for the social efficiency of the proposed course of action – since the affected parties could be compensated if they are burdened beyond their ‘fair share’. However, for the practical negotiation with stakeholders, such considerations are crucial, since possible compensation mechanisms are easier devised in theory than implemented in practice.

Likewise, it can be argued that all costs will eventually end up being paid by households as consumers or as taxpayers: where the WFD implementation causes costs for businesses and public utilities, they will try to pass on these costs to consumers (depending on their competitive situation). Where the WFD leads to increased public expenditure for water management, or where hardships for certain economic sectors are compensated from the public budget, these costs will be covered by taxpayers, either through increased taxes and charges, or through reduced supply of other public services. Thus, eventually, the question is what additional burden can be considered as acceptable for each household. This, in turn, boils down to assessing the individual’s willingness to pay, which is the measure that is also used to calculate the benefits of the WFD in monetary form.

IV European Approaches to the Concept of Disproportionate Cost

While the WFD itself did not specify the concept of disproportionate costs, there have been attempts to reach a common understanding of the concept in the frame of the Common Implementation Strategy (CIS) process. There are at least two reasons why such a common understanding is called for:

³ That said, it should be kept in mind that the WFD objective of good status for all water bodies is fixed in principle, and that exemptions from this objective should remain exceptions. Thus, the assessment of disproportionate costs to justify an exemption should not be seen as an ex-post CBA test of the WFD objectives.

- The level playing field argument: as noted, exemptions may be applied for if achieving the WFD objectives would lead to unacceptable hardships for the affected sectors, and jeopardise their economic viability. For firms that operate in a competitive market, such exemptions may constitute a competitive advantage over their competitors in countries where exemptions are handled differently. Thus, for example, if olive farmers in Spain may continue to use scarce groundwater resources for irrigation, as other options are considered as disproportionately costly, Greek olive farmers would (rightfully) demand that the same criteria should be applied for them.
- The upstream-downstream argument: if an exemption is granted to upstream water users in one country, but not to downstream water users in a neighbouring country, the end result may be inefficient. For example, municipal waste water treatment plants in the upstream country might call for an exemption, as the upgrading of P removal and the ensuing increase in waste water charges is considered socially unacceptable. If the downstream country applies different criteria for disproportionality, it may end up with even higher costs for waste water treatment: to achieve good status, it would need to reduce P emissions even further, to compensate for the additional P load from the upstream country. This may lead to situations where the marginal costs of P reductions in the downstream country are much higher than in the upstream country.

The earliest attempts at reaching a European understanding of the economic aspects of the WFD were made in the CIS Working Group on Water and Economics (Wateco), which published an extensive guidance document in 2002. The document mainly describes proportionality as an issue of costs vs. benefits – albeit with several qualifications – and mentions ability to pay as a secondary criterion, which “the decision maker may also want to take into consideration.” Regarding the comparison of costs and benefits, the document argues that costs should only be considered as disproportionate if they exceed benefits by an appreciable margin, and that both qualitative and quantitative elements should be included in the comparison of costs and benefits. As a more general caveat, the Wateco guidance document underlines that the decision on disproportionality is a political judgement informed by economic information.

More recently, a document produced by the CIS Working Group on Environmental Objectives (published in June 2005) has further specified the role of exemptions in the WFD and the requirements for an economic justification of exemptions. While the document does not give any concrete recommendations on how disproportionate costs should be assessed, it does call for a “harmonised, comparable and transparent approach” for the application of exemptions, to be coordinated within river basin districts and Member States. The document notes that Member States need to step up their efforts to assess social and environmental benefits and costs of measures, as many assessments of disproportionate costs would be incorrect without such information. However, the document also concedes that Member States need to consider the costs associated with the collection of information, and recommends a pragmatic approach towards the assessment of benefits, in monetary terms or otherwise.⁴

V Approaches from selected EU Member States

For the following examples, it should be borne in mind that until now, no single Member State has reached a definite decision on how they will address the issue of disproportionate costs. The following observations are therefore based only on discussion papers, research reports, presentations and informal exchange. They should consequently be considered as work in progress, documenting the

⁴ In November 2006, a further Working Group has been set up in the CIS process specifically to deal with exemptions; however, no published results of this group were available at the time of writing.

current state of play, but bearing in mind that the approaches eventually adopted may well differ from the current propositions. The presented approaches are furthermore far from exhaustive, but rather represent a selection of some Member States where the discussion is more advanced than in others.

From the grey literature on the issue, two main foci can be determined: on the one hand, documents discuss possible criteria for disproportionality, and on the other hand, they investigate which methods can / should be used to test for disproportionate costs. In the latter case, one main concern is the use of monetary valuation methods, and the question how the analytical rigour of the test can be adjusted in proportion to the complexity of the decision situation.

France: pragmatic and social-minded approaches

In France, the discussion on disproportionate costs is mainly influenced by the water agencies, which are responsible for the WFD implementation at the river basin level. In the following, two examples from Seine-Normandy and Artois-Picardie will be considered, which may be counted among the more advanced administrations in the field of economic analysis.

For Seine-Normandy, a pragmatic approach has been put forward by Laurans (2006). He sees a main role of the proportionality criterion in adjusting Member States' efforts to economic feasibility. As the interpretation of proportionality touches upon issues of intra-European fairness and competition, it needs to be based on sound reasoning and evaluation. At the same time, Laurans cautions that the analysis should not employ complex economic methods to make a point that is obvious to everyone anyway. In order to focus economic analysis on those issues where it actually has added value for decision making, Laurans suggests a two-stage approach:

- In a first step, proportionality of costs is assessed in proportion to the current level of expenditure. If the annual costs of all measures needed to achieve good status do not exceed the current expenditure for water management by more than 20%, they would *not* be considered as disproportionate. If they do exceed 20%, a more detailed analysis is needed. While Laurans admits that the 20%-threshold is selected somewhat arbitrarily, it appears practical, also when considering the uncertainties associated with cost estimates. Thereby, the first step serves as a simple pre-test to screen out cases where no further analysis is needed.
- If the additional costs of WFD implementation exceed 20% of current water management expenditure, this would not lead to an exemption automatically: exemptions should only be applied for where the additional costs are not balanced by corresponding additional benefits. In the second step, the proportionality of costs should therefore be assessed by comparing costs and benefits of the planned measures. To this end, market benefits (such as tourism and drinking water supply) should be considered as well as non-market benefits (such as non-use values of improved water quality). To value the latter category in monetary terms, Laurans suggests the use of benefit transfer. He also cautions that the results of the cost-benefit analysis should not be misunderstood as prescribing a certain course of action, but should rather serve as a basis for discussion with stakeholders. In this way, decisions are ultimately reached through a political debate, informed by economic analysis.

In a 2005 discussion paper, Arnaud Courtecuisse (2005) of the neighbouring Artois-Picardie Water Agency suggests an assessment of disproportionate costs on the basis of household incomes and the costs of water supply. The key criterion he suggests for this test is the ratio between the average household water bill and the average disposable household income in the Artois-Picardie region. For the 5 million people living in this region, water price in 2004 was 3,28 Euro / m³ on average, but exceeding 5 Euro in some areas. At the same time, some of these areas were also those with lowest household incomes (for Artois-Picardie as a whole, average income is 20% below the French national

average). As a consequence, several communities were identified where the average costs of water supply and wastewater treatment exceed 3% of the available household income. This, Courtecuisse argues, exceeds a 2% threshold level advocated by the OECD and the EU, leading him to conclude that the current costs of water supply and wastewater treatment are already disproportionate in some areas.

While this approach appears very useful to highlight the social dimension of disproportionate costs, it is at the same time unsatisfactory as it disregards possible transfers between communities as well as the potential for socially adjusted water pricing, based on households' ability to pay. In this way, the approach appears to suggest that exemptions should be applied in poorer areas with serious environmental problems – which obviously conflicts with the idea of solidarity. Furthermore, the approach adopts a narrow perspective, by focusing only on drinking water supply: in this way, it suggests that measures should be covered predominantly (or exclusively) by drinking water customers, and that improvement of water status primarily serves to improve drinking water supply.

Netherlands: assessing proportionality at the national level

In a 2005 report to the Dutch Water Management Agency RIZA, Roy Brouwer discusses possible approaches to defining disproportionate costs. As the term “disproportionate costs” is not defined in economic theory, Brouwer suggests to define it based on the financial and economic consequences of the employed means (= measures) and the effects achieved through them (= good status). He emphasises the difference between financial and economic impacts: while the financial impacts are the net costs of a measure, the economic impacts stem from the distribution of the net costs among different economic actors. To assess the impacts of a certain cost distribution, it is necessary to consider the economic carrying capacity of the affected actors, i.e. their ability to pay.

The distinction between financial and economic impacts is reflected in the choice of tools that Brouwer suggests to test for disproportionality. While the net costs should be assessed through a cost-benefit-analysis, the economic impacts should be assessed through an economic analysis of financial flows, in order to assess the burden imposed on actors and sectors.

On the issue of possible criteria for disproportionality, Brouwer underlines that neither do objective criteria exist for this decision, nor could they be derived from other legislation, such as the FFH-Directive. Brouwer lists several possible criteria for disproportionality, including:

- The impact of measures on BSP-level and –growth (disaggregated for regions and sectors);
- The impact of measures on prices, taxes and charges, and consequently on available household income;
- The sectoral distribution of burdens between households, agriculture and industry;
- For individual firms, ability to pay could be assessed based on profit margins and liquidity.

In this context, Brouwer underlines that, no matter who bears the costs in the first instance, ultimately costs will largely be covered by households, be it through higher prices, taxes or charges. However, there is no simple measure to answer the question up to which share of household income costs can be considered as acceptable. Thus, one ultimately arrives back at the conclusion that the decision on disproportionality is a political decision. Thus, there is no clear-cut answer to the societal and political value of improving water quality, and to the question which burdens and sacrifices are justified to achieve it. Economic tools can inform this debate, but they cannot provide a conclusive answer to it.

Also as a contribution to this question, a nationwide analysis of willingness to pay for improvements in water status was conducted in the Netherlands in 2004 (Brouwer 2004). This analysis found that

households on average were prepared to pay between 90 and 105 Euro per year for water quality improvements that would be required to meet the WFD objectives. Aggregated on the national level, this corresponds to an annual willingness to pay of 625 to 725 million Euro, equivalent to a 20% increase over the current expenditures for water management.

UK: many roads to disproportionality

One of the most exhaustive and earliest discussions of possible criteria for disproportionate costs has been provided by Postle et al. (2004).⁵ For the decision on exemptions, they suggest a flexible approach, whereby the depth of the analysis is adapted to the complexity of the decision situation. The analytical approaches range from a simple weighing of qualitative or semi-quantitative elements to a full social cost-benefit analysis. At what level of detail the analysis is conducted depends i.a. on the level of consent between affected parties on the appropriate course of action, the degree to which alternative measures affect the different dimensions of the good status objective; and the existence of significant costs or advantages for third parties.

Postle et al. describe the disproportionate cost assessment as an additional step that follows the cost-effectiveness analysis for the selection of measures. As a basis for this assessment, a broad range of criteria are discussed (p. 15), including

- A comparison of social costs to social benefits, where disproportionality would be determined through some threshold ratio of costs to benefits;
- A comparison of the costs of measures per unit of effectiveness across economic sectors and / or river basins;
- Calculation of the marginal benefit-cost ratio of including additional measures into a set of measures;
- The degree to which the sectoral distribution of costs corresponds to the polluter pays principle;
- The expenditure on water protection measures incurred by a particular sector in the recent past;
- Implications of the cost of measures for the economic viability of a sector or firm; and
- The distribution of costs and benefits across all sectors in society.

Based on a discussion of these possible criteria, the authors recommend a combined approach, incorporating the following elements:

1. The net present value of the programme of measures (along with properly caveated benefit-cost ratios);
2. A simplified economic viability assessment based on financial data for the affected firms / sectors;
3. Sector-level estimates of present value costs and predicted contribution of each sector to the total benefits, thereby indicating in how far the proposed solution is in line with the polluter pays principle, and
4. A distributional assessment indicating the end incidence of costs and benefits.

⁵ Building on these results, possible criteria and their practical implementation are the focus of a separate research project under the UK Collaborative Research Programme. Unfortunately, the results of this project were not yet available at the time of writing (February 2007).

Like most other authors, Postle et al. underline that the decision on disproportionate costs is ultimately a political decision. To make sure that the public interest is adequately reflected, they argue that the cost-benefit analysis should be the main basis for decisions. The distributional assessment would then serve to accommodate the concerns and objections of affected sectors.

Among the examples considered here, it appears that the UK position is the most systematic approach, and most solidly embedded in economic methodology. It is also the approach that gives the most prominent role to economic valuation methods in the decision process, even though it also allows for simplifications and shortcuts in the analysis.

Scotland: ensuring a proportionate approach in the decision on proportionality

A 2005 report for the Scotland and Northern Ireland Forum for Environmental Research (SNIFFER) (Interwies et al. 2005) takes a slightly different approach to the issue of disproportionate cost. The focus of the report is not so much to discuss possible criteria for disproportionality. Instead, based on the discussion in the UK, the report departs from the observation that the benefits of measures, expressed in monetary terms, are expected to play a central role in the disproportionate cost assessment. Against this background, the authors investigate what role economic valuations could / should play for different types of decisions.

The report generally assumes that the complexity of decision situations is lower in Scotland than it is in England, as both the total number and the variety of pressures affecting water bodies is lower in Scotland. Therefore, a less detailed decision support system appears appropriate. For the disproportionate cost assessment, the report therefore recommends a staged approach, which uses a number of assessment tools in increasing order of complexity.

- The initial test, whether measures may constitute a disproportionate burden for individual firms is done using a simple proforma, mainly relying on the expert knowledge of the local official;
- Based on the aggregated firm-level test results, a sectoral analysis may be conducted at the regional level (i.e. all of Scotland), in which the economy-wide impacts of programmes of measures are assessed. This analysis would include both qualitative and quantitative elements. Results would then be used as input for discussions with stakeholders representing the sectors.
- The next step would then be a regional cost-benefit-analysis (i.e. for all of Scotland), which aggregates the results of the previous analyses across sectors. This analysis should investigate possible exemptions and modifications of the programmes of measures on an aggregated level, including the potential for “higher-order” instruments such as economic instruments.
- If agreement with stakeholders and affected firms cannot be achieved on this basis, a local-level cost-benefit of the proposed measures would become necessary. This should be limited to a small number of the most contentious cases.

In this way, it should be ensured that the use of elaborated economic valuation methods remains limited to few, selected cases, in which the complexity of the decision (and underlying interests) justifies the use of more elaborate tools. This may include e.g. the following instances:

- Water bodies affected by multiple pressures, which may in addition act mutually independent and / or come from upstream sources;
- Decisions that may lead to significant economic impacts, e.g. measures that threaten the economic viability of a firm / sector in a region, and which may have significant impacts on economic activity and employment in a region;

- Cases in which consensus on necessary measures cannot be reached, or where the affected parties stage vocal opposition to the planned measures.

The Scottish approach thereby provides a relatively detailed and multi-faceted suggestion how decision support tools of different analytical depth can be combined effectively. One aspect that sets the Scottish approach apart from other contributions is the strong emphasis on stakeholder participation, whereby economic assessment tools are interpreted as a means to actively involve stakeholders in the assessment process.

Critical evaluation

It should be reiterated that the small number of documents from selected European countries considered here can at best give a snapshot of the current state of discussion and its general direction. It should also be borne in mind that the analysed documents only sketch out options and suggest possible approaches: the approaches that will eventually be adopted may well differ considerably from these suggestions.

One striking commonality among the analysed documents is the predominance of pragmatic approaches. The majority of approaches emphasises the need to establish a hierarchical and sequential order among the different test criteria, with the aim of keeping the necessary analytical effort within bounds. In this context, monetary assessment methods are often invoked only at an aggregated, national level, or they are considered as the last resort, if all efforts to reach an agreement based on qualitative information should fail. A further commonality is the central role attached to stakeholder involvement, which effectively determines the scope of application for more elaborate tools. Where all affected parties agree that costs are clearly not disproportionate (or, where all parties agree that the opposite is the case), a full quantitative analysis may be omitted. One related point that is underlined by all authors is the political nature of the decision on disproportionate costs: while economic methods can deliver useful information upon which the decision on disproportionate cost can be based, the decision is a political decision, and should be reached through political debate.

VI Demand and supply for monetary valuation in decisions on exemptions

As the previous chapters have demonstrated, in principle, a comparison of costs and benefits in monetary terms should offer the soundest way of assessing disproportionate costs. However, in practice, the use of monetary estimates will be limited in many EU Member States – either because of practical limitations, or because of reservations towards economic methods, or because of reservations disguised as practical limitations.

In order to provide some guidance and support for the use of monetary valuation methods in the WFD implementation, the European Commission's Directorate General Research is currently funding the AquaMoney research project.⁶ During three years, the project will assess policy maker demand for economic information in the implementation of the Water Framework Directive; it will develop practical guidelines on how to assess environmental and resource costs and benefits in the WFD context; it will test these guidelines in 10 European river basins, and it will translate the experiences from these tests into practical policy guidelines.

As a part of this project, a survey of decision makers involved in the WFD implementation was conducted in January – March 2007. The aim of this survey was to assess how economic elements of the WFD, including the decision on disproportionate costs, will be handled in the different Member

⁶ For more details, see www.aquamoney.org

States, what demand exists for which types of economic information, and where decision makers see a need for further practical guidance.⁷

In one section of this survey, decision makers were asked to indicate which types of information were most likely to be used in the decision on disproportionate costs. To this end, respondents were presented with six different types of information (qualitative information, non-monetary quantitative information, monetary information based on standard values, monetary information based on benefit transfer, monetary information based on original valuation studies, and monetary information based on economic modelling), and asked to rank these into three relevance categories (main type of information for the decision, supporting information, and information that will not be used).

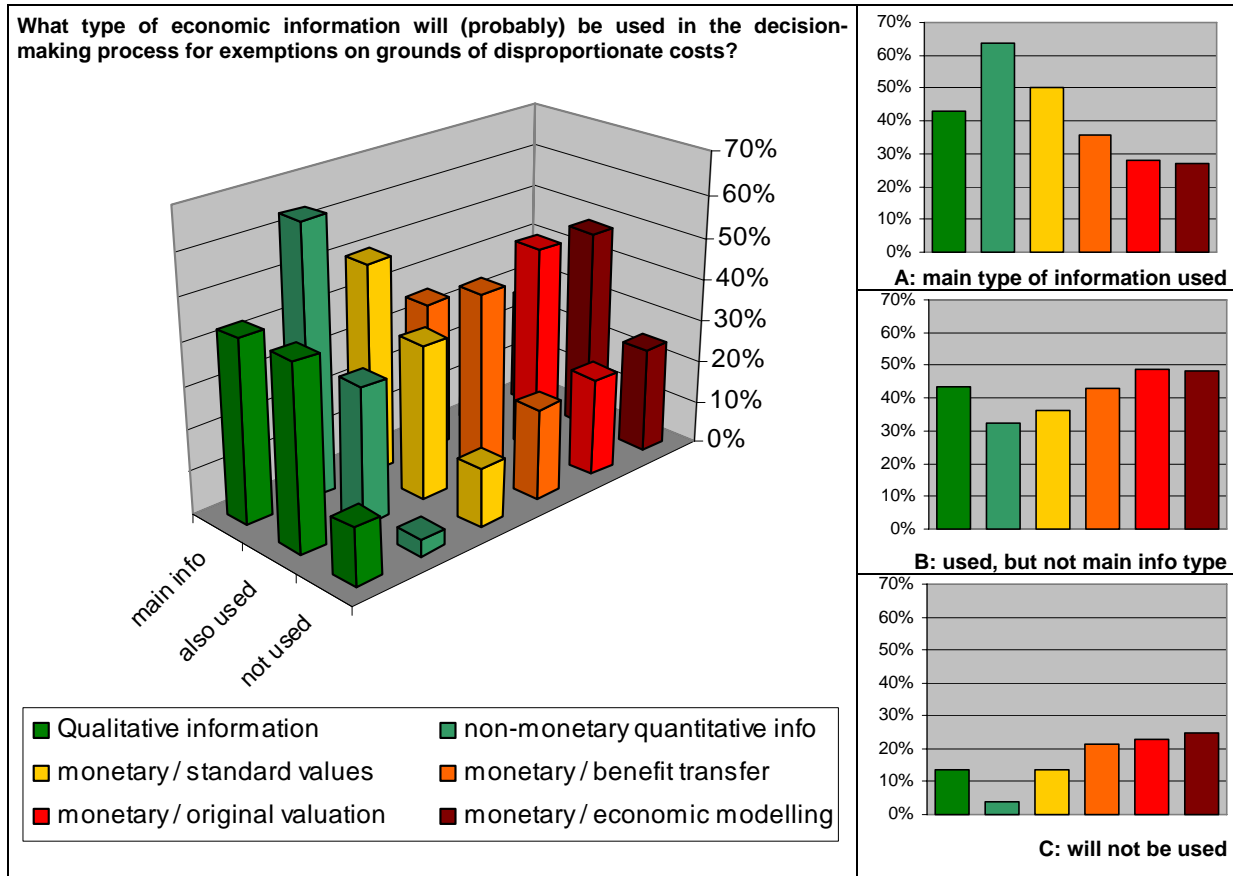


Figure 1: Information types used in the assessment of disproportionate costs

The category that was identified most frequently as crucial for the decision was quantitative non-monetary information: respondents from two-thirds of the surveyed countries indicated that this would be a main input upon which decisions will be based. By contrast, in only about 25% of the Member States surveyed, monetary information based on original valuation studies and on economic valuation is expected to play a central role in the decision. The monetary information that will presumably be used most widely are standard values (identified as a key input in half of the Member States), followed by values derived through benefit transfer (a main source of information in a third of the Member

⁷ The following section presents some preliminary results of this survey, based on responses from 30 decision makers in 13 countries. The definite results will be published on www.aquamoney.org towards mid-2007.

States).⁸ Notably, respondents from more than a fifth of the surveyed Member States responded that neither benefit transfer, nor original valuation studies, nor economic modelling would be used in the decision.

There are several possible explanations for the somewhat modest role of economic valuation in disproportionate costs assessments. These include

- Practical limitations, such as limited financial resources to commission valuation studies, limited staff with the necessary expertise, etc. Original valuation studies, if done well, can be costly and time-consuming. The number of environmental economists, or other people with adequate expertise, working in public administration is mostly limited. Similar constraints also apply in academia – within the economic science, environmental economics tends to play a relatively minor role. As a consequence, most European countries train only few environmental economists, and administrative tasks that might benefit from economic knowledge are often carried out by non-economic staff. As a consequence, a considerable share (40%) of the policy makers interviewed for the AquaMoney project agreed with the statement that “Economic valuation methods could be useful in theory, but in reality they aren’t due to practical constraints.”
- Opposition to monetary valuation as such. This can either be based on ethical grounds, as the idea of assigning a monetary value to the environment, and the implication that it can be bought and sold and used at will, may (appear to) conflict with other, religious or spiritual values attached to nature. Or, opposition can be based on concerns that economic valuation methods are a prescriptive “truth machine”, and therefore threaten established political decision making processes. Fundamental opposition to monetary valuation is more prominent in some countries than in others. Indeed, the political culture in some countries, especially in the North and Northwest of Europe appears to be more open to the use of valuation results as policy support. Notably, the decision makers interviewed for the AquaMoney project were fairly supportive of monetary valuation in support of policy decisions: a vast majority of respondents agreed to the statement that “economic valuation methods are a valuable addition to the decision making process” (82% agreement), and that they “help to improve the quality and accuracy of decisions.” (76% agreement).
- In principle, gaps in methodology should not be the main constraint that inhibits a wider use of monetary valuation methods: the methods themselves are fairly well established, and have been researched fairly intensively in recent years. Thus, there is no lack of methodological developments, and no shortage of guidance on the theory of monetary valuation. What remains a challenge is the application of theory to real-life policy questions: most academic research tends to focus on the development and refinement of innovative valuation methods, whereas the practical implementation calls for robust and inexpensive tools, which should deliver information that is immediately relevant for political decisions, and which should ideally be usable for staff with little economic training.

In this context, the main contribution of the AquaMoney project will be in the latter category: through the development of practical guidelines, targeted at people working in the field, and taking account of policy maker demand, the aim is to produce a set of guidelines that is immediately relevant for WFD implementation. The contribution of the project to the other fields will be of a more indirect nature: through the involvement of policy makers, e.g. through the projects’ Advisory Committee, the

⁸ In the questionnaire, standard values were explained as “unitary values for particular costs or benefits that are centrally collected and applied to different situations without further adaptation (e.g. the cost of a “standard” fish pass or a “standard” filter).”

AquaMoney project may be able to show decision makers “what economics can do for you”. And while the project cannot do anything about limited public budgets, it may contribute to lowering the costs of valuation studies, e.g. by emphasising relatively inexpensive tools such as benefit transfer.

VII Towards an operationalisation of disproportionate cost

As mentioned, there are different reasons why decision makers in some countries may be reluctant to rely (exclusively) on economic valuation methods for the assessment of disproportionate costs. In these cases, an assessment of actors’ ability-to-pay provides an alternative option. The Wateco Guidance Document (Annex IV.I.91) was the first official document to introduce the economic situation of actors as a possible factor in the disproportionate cost assessment (see also section IV above). Considerations of ability-to-pay were introduced as a secondary criterion, which decision makers may “also take into consideration”. However, the Wateco document did not provide concrete guidance on how such an assessment could be undertaken, but merely stressed the need for transparent and even-handed procedures.

A recent research project funded by the German *Länderarbeitsgemeinschaft Wasser* (LAWA) aimed at filling this methodological gap and investigated different ways of measuring ability-to-pay in practice and proposed a step-by-step process for the practical assessment (Klauer et al. 2007). The project was intended to provide a “box of ideas” for the German *Länder* on how to proceed with the designation and justification of exemptions without having to engage in extensive economic modelling or valuation projects. It should be noted that the project’s results do not have the status of an agreed upon national methodology, and that it is up to the *Länder* whether they choose to implement the project’s recommendations, or develop their own procedures.⁹

Within the project, three categories of criteria were developed and investigated for assessing the different actor groups’ ability-to-pay for the costs of measures. They fulfil different functions and are used at different stages of the assessment process:

1. *Screening-criteria* at water body scale, allowing for a rough assessment of the proportionality of costs on the basis of easily accessible data, thereby aiding the decision on whether further costly and time consuming in-depth analyses are justified;
2. Criteria for assessing the *proportionality of costs for non-state actors* (i.e. households, firms or user associations) at water body scale, including an analysis of the potential for achieving proportionality by redistributing costs between groups of actors;
3. Criteria for investigating the *proportionality of the overall costs of measures borne by the state*. This assessment is undertaken at the scale of the German *Länder*.

Standardised information sheets were developed for each criterion, providing an exact definition of the criterion, information on the spatial scale at which it should be applied, the cost categories considered in the assessment and suggestions for the practical operationalisation of the criterion. Finally, and based on these, the overall suitability of each criterion for the disproportionate cost assessment was described. The following table provides a brief overview on the different criteria.

⁹ The final report (Klauer et al. 2007) is pending approval at the time of writing (March 2007). An extensive English summary of the project’s report will soon be available and can be obtained from the authors.

Table 1: Criteria for assessing actors' ability-to-pay (adapted from Klauer et al. 2007)

Category	Criterion	Definition	Recommendation	
Category 1: Screening-Criteria	Comparison of costs for single measures within different water bodies of similar water quality	Should a single measure within one water body be x-times more expensive than in other water bodies, a closer investigation of the proportionality of the costs is justified.	☺	Suitable criterion for the pre-assessment of disproportionality.
	Cost-effectiveness relationship of single measures in different water bodies	Should a single measure in terms of its environmental effects be x-times more expensive in one water body than on average in other water bodies, a closer investigation of the proportionality of costs is advised.	☺	Suitable criterion for the pre-assessment of disproportionality.
	Comparison of the costs of programmes of measures in different water bodies of similar water quality	If the programme of measures is x-times more expensive in one water body than on average in other water bodies of similar water quality, an in-depth analysis of proportionality is justified.	☺	Suitable criterion for the pre-assessment of disproportionality.
	Costs of programmes of measures in comparison to current expenses for water resources management	Should the costs of programmes of measures exceed current expenses for water resources management by x%, further investigations should be undertaken.	☺	Suitable criterion for the pre-assessment of disproportionality.
Category 2: Proportionality for Non-State Actors	Cost allocation in relation to pollution caused	Costs of measures are considered as disproportional, if the share of the costs to be bore by an actor exceed his contribution to the problem by x%	☹	Not a suitable criterion.
	Costs in relation to average firm profits in an economic sector	Should the costs of measures to be borne by a firm exceed x% of the average firm's profit within this sector, the measure is considered disproportionate	☺	Partially suitable criterion.
	Average share of expenses for water resource management / environmental protection in the turnover of an economic sector	If the share of expenses for water resources management / environmental protection in the turnover of a firm exceed the sectors' average by x%, the costs of measures can be considered disproportionate for the firm.	☺	Suitable criterion.
	Costs in relation to average disposable household income	Costs of measures can be considered disproportional for households, if the expenses incurred by households (e.g. for water services) exceed x% of the average disposable income.	☺	Suitable criterion.
	Costs in relation to the average current expenses of the agencies responsible for maintenance of water courses	Costs of measures can be considered disproportionate for the responsible agencies if they exceed current expenses by x%.	☹	Not a suitable criterion.
Category 3: Proportionality at State level	Costs in relation to the state budget	If the budget relevant costs for all programmes of measures within one <i>Land</i> exceed x% of the available public budget, they can be considered as disproportionate.	☺	Partially suitable criterion.
	Costs in relation to GDP	If the overall economic costs of programmes of measures exceed x% of the GDP of the <i>Land</i> they can be considered as disproportionate.	☺	Suitable criterion.

On the basis of these criteria, a step-by-step process was designed for the disproportionate cost assessment. In a **first step**, the proportionality of costs is assessed at water body level, with the help of the screening-criteria and the criteria for non-state actors (see Figure 2). It is important to note that exemptions on the basis of disproportionality for non-state actors can only be justified, if all possibilities for redistributing costs among actors (and ultimately to the state) have been considered.

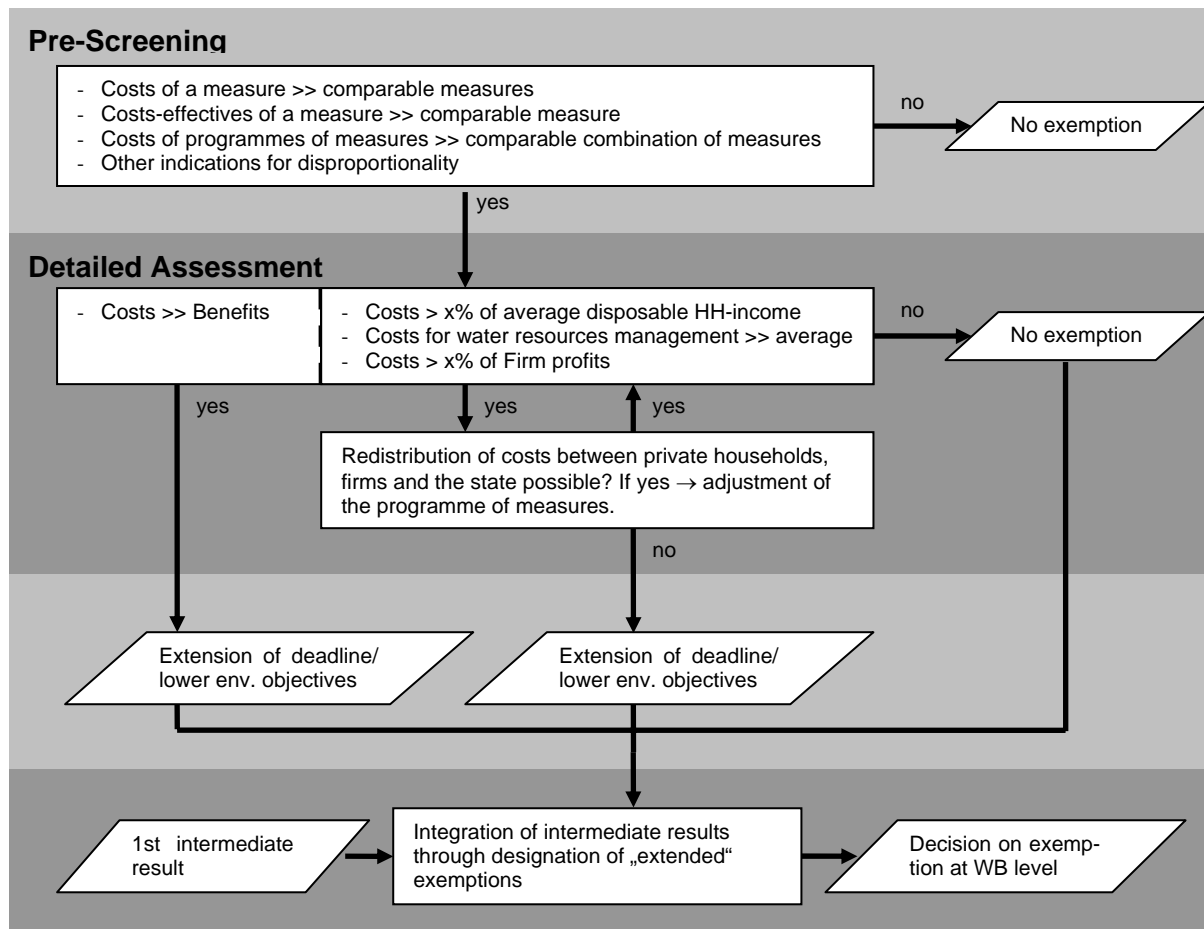


Figure 2: Step 1 of the assessment process (adapted from Klauer et al. 2007)

In a **second step**, the disproportionality of costs is assessed at the level of the German *Länder*, using the criteria for analysing disproportionality at state level (see Table 1). As the available budget for water resources management is highly dependent upon political framework conditions, the investigation for potential extensions of deadlines is only undertaken until 2021. It is assumed that budget restrictions alone cannot justify exemption in the longer term.

In a **third** and final **step**, measures have to be prioritised at the level of the German *Länder*, detailing which measures are to be undertaken in which water body (spatial prioritisation) and when (time prioritisation). Developing guidance on the process of prioritisation has not been part of the project, but was identified as a field for future research. Figure 3 illustrates step two and three of the assessment process.

In order to test the practicability of the proposed criteria and the assessment process two case studies on the removal of nitrogen from groundwater and on the passability of rivers were conducted. While further concretisations of the criteria were necessary in order to suit the exact situation in the case studies, the proposed procedure proved to be a helpful and sufficient tool for the decision on the proportionality of costs of measures for the different actor groups. Further concretisations and pilot testings at *Länder* level were however considered helpful in order to facilitate an area-wide application of the proposed methodology.

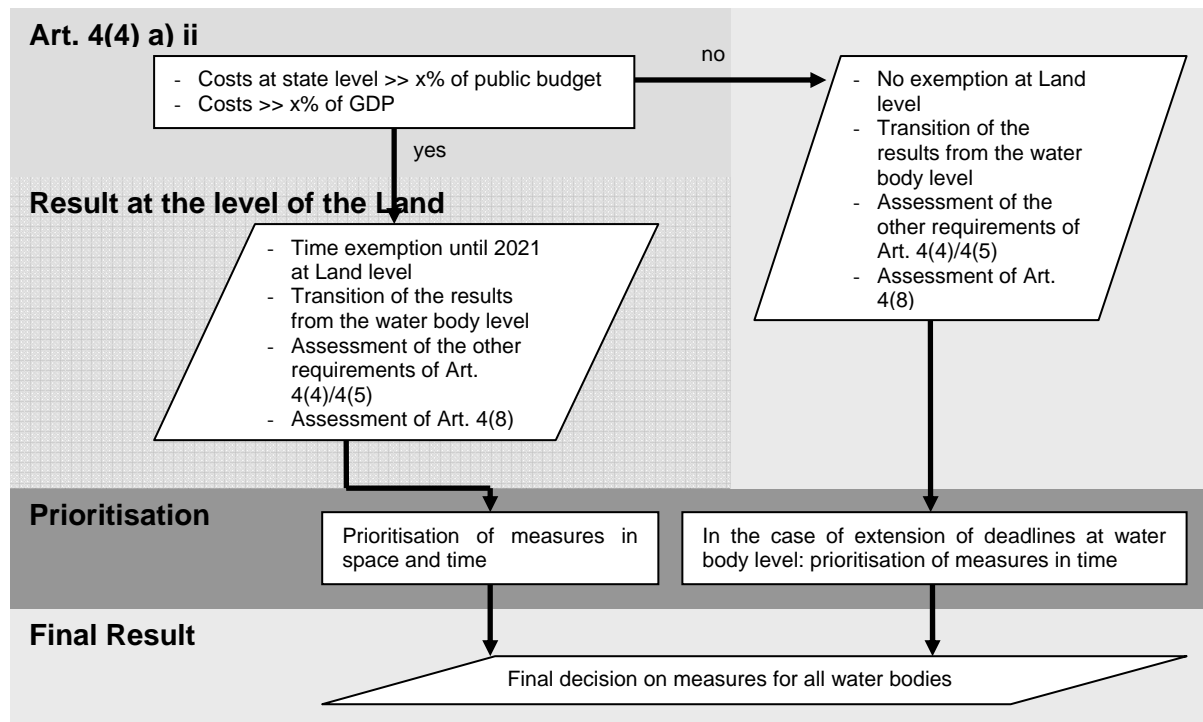


Figure 3: Step 2 and 3 of the assessment process (adapted from Klauer et al. 2007)

VIII Conclusions

The WFD is the first major piece of EU environmental legislation that involves economic tools and approaches. This continues to be a challenge for decision makers throughout Europe – perhaps less so in countries where economic appraisal is already well-established, but certainly in many parts of continental Europe, where there is no tradition of such tools and approaches.

While the first years after the implementation of the Directive were used for the discussion of concepts and ideas, the recent years have seen a shift towards the practical implementation of these concepts. This means that increasingly, local-level practitioners (who are mostly not economists) become involved in the debate, and that the focus is now more on workable approaches than on methodologies.

Together with the selection of measures, the decision on disproportionate costs is certainly one central element where economic approaches can make a key contribution to the implementation of the Water Framework Directive. The decision on exemptions is arguably one of the most important decisions in the implementation process, as it determines what will eventually remain of the Directive's ambitious objectives. All scholars acknowledge that the decision is ultimately a political one. Therefore, objective criteria will have to be developed to ensure a transparent and even-handed decision making process.

As the concept of disproportionate costs is defined neither in the Directive, nor as a common term in environmental economics, it is up to the Member States to define the concept and devise ways of making it operational. Work on this has started in several Member States, resulting in a fruitful "competition of ideas". The existing work shows some pragmatism: while the disproportionate cost assessment *prima facie* looks like a case for a cost-benefit analysis, the emphasis of many papers is not so much on how to value benefits in monetary terms, but rather how to limit and focus the need for original valuation studies. At the same time, a range of other criteria (such as affordability, ability to pay considerations) are discussed as well.

While the current competition of ideas is helpful to stimulate thought and exchange ideas, there is also a need to ensure that the different national approaches remain compatible, at least within international river basins. While a common EU-wide methodology on disproportionate costs does not appear as a realistic goal, consensus should be achieved on a number of key aspects.

One of the most important remaining open questions concerns the relation between costs-benefit criteria and ability-to-pay of actors: should affordability considerations serve as a second-order criterion, or are they a sufficient criterion for disproportionality? While cost-benefit considerations are the sounder option from a methodological point of view, affordability criteria may be implemented more easily as they do not involve monetary valuation of benefits. They may therefore offer an attractive approach in particular for the first round of river basin management plans: in this first round, a number of Member States with limited experience in economic valuation studies will find it very difficult to develop robust and reliable monetary estimates of the involved costs and benefits. Therefore, a disproportionate cost assessment based on solid criteria for the ability-to-pay of actors as recently suggested for Germany may offer an attractive procedure for 2009. Nevertheless, the finding remains valid that more information on the benefits of WFD implementation is needed, be it in monetary terms, in non-monetary quantitative units, or in qualitative form.

In this process, the AquaMoney project may make a substantial contribution. Besides its obvious output – a set of practise-oriented guidelines targeted at decision makers – it will also facilitate the exchange between researchers and decision makers in the different Member States, and may enhance the convergence of approaches by delivering targeted assistance for policy-makers. Last not least, the project may help to reduce reservations among decision makers towards the use of economic tools and approaches by emphasising the services that economics can deliver for decision makers.

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