Policy Maker Demand for Economic Information

Assessment of Policy Maker Demand for Economic Information in the Implementation of the EC Water Framework Directive

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Content

Summary

- This document presents an assessment of policy maker demand for economic information in the implementation of the EU Water Framework Directive. The assessment was carried out as an input into the development of AquaMoney guidelines on valuation of environmental and resource costs in the implementation of the Water Framework Directive. Based on the assessment, a list of criteria has been developed that translates the findings into requirements for the guidelines.
- In the vast majority of Member States, work has started on the **assessment of environmental and resource costs**. Awareness of the issue is generally high. However, the work conducted is often still in an early stage, where the conceptual groundwork is being laid, but no definite decisions have been made.
- For some part, the **institutional responsibilities** of dealing with economic elements of the WFD have not been decided, especially regarding the assessment of disproportionate costs. Generally, where responsibilities have been decided, an important role is foreseen for the central government. In terms of institutional responsibilities, there are only few and small differences between cost recovery and disproportionate cost issues.
- Many countries **concentrated their activities regarding WFD and economic valuation** within one department of the central government (6 out of 15 countries only delivered one questionnaire filled in by the central authority of WFD-related issues), or delivered a questionnaire that was accorded by several departments of the central government.
- A substantial share of the countries considered – more than 40% – have not yet decided which **definition of environmental and resource costs** they are going to apply. Among those that have adopted a definition, the vast majority follows the definitions provided by the WATECO guidance document (and only these). The definitions proposed by the CIS Drafting Group Eco2, by contrast, play a much smaller role, and are only used together with the WATECO definition. This may be, because the Eco2 results were disseminated rather late and have not had the time to reach the status WATECO has. In addition, a few countries have developed their own definitions; those that have done so do not distinguish between environmental costs and resource costs as separate concepts, but treat them as one concept.
- Among the **guidance documents used**, the WATECO guidance is by far the most well-known and popular, used by almost half of respondents. The more recent DG Eco2 guidance, by contrast, is used much less. National-level guidance material until now plays a minor role in supporting the implementation process. Finally, a third of the respondents have not decided which guidance documents they are going to use.
- Regarding the **need for guidance on economic aspects**, the aspects where guidance is most urgently required are essentially the ‘bread and butter’ of implementing the economic elements of the WFD, i.e. how to define environmental and resource costs and, how to calculate cost recovery levels for environmental and resource costs; how to define disproportionate costs in the context of exemptions, and how to assess disproportionality. Another procedural aspect where guidance was requested is the process of screening and prioritisation, i.e. targeting efforts where they are most effective.
- In terms of the **qualities of guidance**, it should above all be pragmatic in its approach. In addition, it should be comprehensive and built up in a modular way so that the needed information can be easily retrieved. Finally guidance should be specifically targeted at the actual decisions that need to be taken in the WFD implementation.
- As regards the **features** that guidance should have, the two elements that are above all rated as useful are practical explanations of valuation methods and illustrative case studies. Further features that are also considered as helpful are ‘do’s and don’ts’ and information on data sources. At the same time, references to the academic discourse on valuation are clearly not considered as necessary.
- In terms of the **types of economic information used** in the different WFD-related decisions, there is a tendency to resort to simplified forms of economic information, such as standard values, benefits transfer or non-monetary quantitative information. Economic modelling generally plays a lesser role, except for the selection of cost-effective measures. The relevance of original valuation studies is generally low. Strikingly, they are seen as most relevant for the selection of cost-effective measures, and lowest for the assessment of disproportionate costs – which is contrary to what could have been expected. At the same time, there are only few Member States that do not intend to use economic valuation methods at all.

- Asked about the **relevance of economic valuation** for decision making, most respondents consider them as relevant, if not essential for decision making. Yet, in the context of the Water Framework Directive, economic valuation is considered mostly relevant in the middle stages of decision making, and particularly so for the communication of a decision to stakeholders and for choosing an option. However, few respondents saw economic valuation as relevant in the early or the late stages of decision making.
- Regarding the **attitudes towards economic valuation methods**, the picture that emerges is that the respondents are generally in favour of using such methods, and see them as a valuable addition for decision making related to the WFD. The main qualification that is made by some respondents is that practical limitations, and in particular budgetary limits, may limit the use and usefulness of economic valuation methods.

1. Introduction

The EU Water Framework Directive (WFD) (Directive 2000/60/EC) represents one of the major pieces of EU environmental regulation. After several years of negotiations, the Directive entered into force in 2000. It provides a regulatory framework for all water policies in Europe, and integrates several existing pieces of EC regulation, such as the Nitrates Directive (91/676/EEC), the Groundwater Directive (80/68/EEC) or Urban Waste Water Directive (91/271/EEC).

The Water Framework Directive introduced several innovations into European water management, such as an integrated approach to water policy and management (integrating surface- and groundwater, inland as well as coastal waters etc.), the organisation of water policies in river basins rather than along administrative boundaries, or a central role for stakeholder participation in the implementation process. The Directive also introduced several economic elements into water management. In fact, arguably, the WFD has been the first major environmental Directive in Europe that systematically included economic approaches. Thus, throughout the implementation of the WFD, 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 approaches were integrated in the WFD in order to ensure that the water quality objectives of the Directive would be achieved at a justifiable cost to society. Water management, and in particular waste water treatment, is one of the costliest domains of environmental policy in general. It clearly makes economic sense to control the costs of water management infrastructure, and to spend it efficiently: water management infrastructure is costly, and it also has a long lifetime, often exceeding 50 years. Therefore the flexibility to correct inefficient planning decisions in the past is often limited.

Besides the expected impact on the efficiency of water management, the economic elements of the WFD also serve to bring more transparency into the political debate. Some water use(r)s will inevitably be adversely affected by the WFD implementation, be it through higher water prices / charges, or through use restrictions and through new regulations and the associated compliance cost. Often, the decision on the most efficient way forward also involves a decision on which sector will be burdened with additional costs – e.g. if P emissions are reduced by targeting diffuse pollution from agriculture, or by upgrading sewage treatment installations; or if scarce water resources are re-allocated between different water uses. Such decisions will often lead to complaints by individuals, firms and economic sectors that see their burdens as excessive or disproportionate, and possibly demand compensation for alleged hardships.

The polluter-pays-principle (embedded in Article 9 WFD and in the preamble) provides a general orientation on how to address such conflicts. However, the principle itself is no more than a general principle, which needs to be substantiated in the practical implementation, and weighed against other considerations. In this process, economic analysis can help to base the discussions on the polluter-pays-principle and claims about disproportionate costs on a more solid economic basis, and to put the claims and demands of different groups into perspective.

While the economic elements of the WFD may thus deliver some benefits – by increasing the efficiency of water management and –policy, and by making water policy decisions more transparent and evidence-based – there are clearly some limitations and drawbacks to it. Most of all, implementing the economic elements of the WFD presents a considerable administrative challenge. Only few EU Member States have an established tradition of using economic analysis in support of water management decisions (or, for that matter, in environmental policies in general). In most Member States administrations, there is still little familiarity with economic tools and approaches. Since most decision makers in water management have a technical, legal or natural science background, decisions tend to be taken rather on the grounds of technical feasibility / practicality, with economic considerations restricted to the immediate financial costs of planned measures.

This presents a particular challenge for the economic elements of the Water Framework Directive. If the objectives of economic analysis as policy support are not communicated well, and understood by decision makers, there is a risk that the economic elements of the WFD are reduced to mere reporting duties, i.e. a constructed justification for decisions that were taken on other grounds. Such a procedure would merely create a bureaucratic hassle without delivering an added value for the implementation of the WFD. It is therefore crucial to have practicable hands-on guidance for decision makers, which communicates the objectives and the requirements of the economic elements of the WFD in a clear and understandable way.

At the same time, it is of key importance to keep the analytical and administrative effort required for the economic elements of the WFD within reasonable bounds. All across Europe, decisions in the course of the WFD implementation require economic answers. However, the number of economists working on these issues is often quite limited. This underlines the need hence need for a focused and proportionate approach to economic analysis.

2. Economic Elements of the WFD Implementation

2.1 Overview

The Water Framework Directive was the first major piece of environmental regulation in Europe that systematically integrated economic considerations in the decision making. The economic considerations are mainly embodied in three (interrelated) processes:

- Article 11 WFD (cost-effectiveness analysis): Article 11 of the Directive mandates the establishment of "programmes of measures" to achieve the WFD objective of good ecological status (potential). Annex III of the Directive further specifies that the "most cost-effective combination of measures" should be included in these programmes of measures. This is generally interpreted as a requirement to conduct a cost-effectiveness analysis (or some comparable analysis) prior to establishing the programme of measures.
- Article 4 (disproportionate cost analysis): allowing for an extension of the 2015 deadline, or a lowering of the objective to less strict levels, if the costs of achieving the objective in time should be disproportionate.
- Article 9 (cost recovery): calls for the recovery of costs of water services, including environmental and resource costs. Also specifies that water services should make an adequate contribution to the cost recovery of water services.

In the following, these concepts are explained in greater detail. In this context, particular emphasis is placed on the role of monetary valuation in the decision making process.

2.2 Cost-effectiveness and the Programme of Measures

The programme of measures is the central element through which the WFD objective of good status should be reached. Article 11 WFD requires that programmes of measures have to be established for each river basin district by 2009 at the latest, and that the measures contained therein should become operational by 2012. Article 11 further distinguishes between "basic measures" and "supplementary measures", where the former include the minimum requirements to be complied with, such as the implementation of measures that were already required by previous European water legislation. "Supplementary measures", by contrast, are those measures required in addition to the minimum requirements, in order to achieve the objectives of the WFD.

While there is no mentioning of costs or benefits in Article 11 itself, Annex III of the WFD introduces the additional specification that the programme of measures should include the "most cost-effective combination of measures in respect of water uses." Thus, while the WFD does not require the use of a cost-effectiveness analysis as such, it does require that the programme of measures should be cost-effective. However, it is generally understood that a cost-effectiveness analysis, or a comparable procedure, should precede the establishment of programmes of measures, in order to ensure that the WFD objectives are reached at least cost.[1]

Article 11 does not require that the selection of measures should be guided by cost-benefit comparisons, nor that programmes of measures should pass a cost-benefit test. In general, monetary valuation studies will therefore not play any significant role in this process.

[1] *See e.g. Interwies et al. 2004, Postle et al. 2004*

As the programmes of measures under Article 11 are the central vehicle for achieving the WFD objectives, they also include measures to comply with requirements established by other Articles of the Directive. Thus, for example, they will also include measures that contribute to cost recovery and incentive pricing, as required by Article 9 WFD (see section 2.4). Over the last years, several EU Member States have developed guidance documents for the selection of measures under cost-effectiveness considerations, including Germany, the Netherlands and the UK.

2.3 Disproportionate Costs and Exemptions

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 to these objectives can be applied for, including economic conditions (disproportionate costs).

More specifically, two types of exemptions are foreseen under Article 4: 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 specifies the conditions under which the environmental objectives may be permanently lowered to less stringent levels. It is generally understood that the extension of the deadline requires a less thorough justification than the lowering of objectives, as the latter has a permanent effect.

Economic considerations are one of the possible justifications for an exemption, and can be invoked for both 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 by 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 term "disproportionately expensive" remains disputed. The two main questions are, in proportion to ***what*** costs should be considered as disproportionate, and which ***threshold*** should be used to assess disproportionality? 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 was provided by the CIS groups WATECO and DG Eco2.

From a theoretical perspective, the judgement on the disproportionality of costs is reminiscent of a classical cost-benefit analysis: in this reading, costs are disproportionate when they exceed the monetary benefits of meeting 'good status' in a water body. Indeed, the suggestions contained in the WATECO guidance document, and the approaches that have been put forward in different Member States, involve some form of judgement along these lines. More specifically, the WATECO document postulates that costs should appreciate benefits by an appreciable margin to be considered as disproportionate, and that that costs and benefits should include quantitative as well as qualitative benefits.

However, criteria based on monetary valuation are often met with scepticism by decision makers, and are therefore controversial in some Member States. Reservations exist both on practical grounds – where monetary valuation is doubted because it appears infeasible to conduct cost-benefit analyses at the necessary scale – and on a conceptual level, since many decision makers are unfamiliar with monetary valuation techniques, and doubt their usefulness.

In addition to the comparison of costs and benefits, 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, or whether overall costs of measures for achieving good status in a river basin exceed a certain percentage of GDP.

On a theoretical level, these criteria are not relevant for the social efficiency of the proposed course of action – since affected parties could be compensated if they are burdened beyond their 'fair share'. However, for the practical negotiation with stakeholders, they are crucial, especially since possible compensation mechanisms are easier devised in theory than implemented in practice.

One point that all guidance documents and discussion papers agree on, is that the judgement on the disproportionality of costs will ultimately have to be a political decision. Accordingly, objective criteria will have to be developed to ensure a transparent decision making process. While the role of monetary valuation in this process will differ from Member State to Member State, decisions on disproportionate costs will be one of the main fields where monetary valuation techniques can support the WFD implementation.

2.4 Cost Recovery, including Environmental and Resource Costs

Article 9 WFD mandates that "Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs, ... in accordance in particular with the polluter-pays-principle." It further specifies that water-pricing policies should provide an "adequate incentive" for an efficient use of water resources, and that the different water uses (including industry, households and agriculture) should make an "adequate contribution" to the cost recovery of water services.

The terms "environmental costs" and "resource costs" are not defined in the Directive itself. Within the CIS process, definitions were provided in the WATECO guidance document, and later amended (and partly revised) by the drafting group DG Eco2 (see table 2.1).

Table 1 Definitions for 'environmental costs' and 'resource costs'

Term	WATECO definition	DG Eco2 definition
Environmental costs	"The costs of damage that water uses impose on the environment and ecosystems and those who use the environment."	"The environmental damage costs of aquatic ecosystem degradation and depletion caused by a particular water use (e.g. water abstraction or the emission of pollutants)."
Resource costs	"Resource costs are defined as the costs of foregone opportunities which other uses suffer due to the depletion of the resource beyond its natural rate of recharge or recovery (e.g. linked to the over-abstraction of groundwater)."	"[Resource costs are] ... the opportunity costs of using water as a scarce resource in a particular way ... . They equal the difference between the economic value in terms of net benefits of present or future water use ... and the economic value in terms of net benefits of the best alternative water use ... . Resource costs only arise if alternative water use generates a higher economic value than present or foreseen future water use. ... They arise as a result of an economically speaking inefficient allocation of water and/or pollution over time and across different water users ... ."

Thus, the definitions of environmental costs offered by the two documents are quite similar: both documents essentially describe environmental costs as negative externalities. One main difference is that the DG Eco2 definition refers to the degradation of aquatic ecosystems, whereas the WATECO definition is somewhat broader, and includes damage of the environment in general.

Regarding resource costs, the two definitions are somewhat more divergent: while the WATECO definition is explicitly linked to an overexploitation of scarce water resources, this is not the case for the DG Eco2 definition. Instead, in the understanding of the DG Eco2, resource costs arise where scarce water resources are not allocated to their most productive uses, irrespective of whether the total allocation exceeds the available resources.

In principle, the recovery of environmental and resource costs, as stipulated in Article 9 WFD, can be understood as the requirement to internalise external effects. However, it is important to note that Article 9 requires cost recovery only for the costs related to water services. The cost recovery requirement only covers the external effects that these water services impose on the (aquatic) environment (e.g. dams for drinking water provision that obstruct fish migration). It does not include the external effects that other sectors impose on the water environment (and on dependent water services), such as diffuse pollution from agriculture or discharge of pollutants from industry.

Such incidences of pollution are instead covered by a separate provision in Article 9, according to which the different water uses (including industry, households and agriculture) should make an "adequate contribution" to the cost recovery of water services. However, the question what constitutes an adequate contribution, or how the adequacy could be judged, has not been addressed in detail at this stage.

Two further qualifications are in order to put the cost recovery requirement for environmental and resource costs in Article 9 into perspective:

- First, the internalisation of external costs is arguably not the main objective of Article 9. Rather, the main objective of the cost recovery requirement is to ensure the (economic) sustainability of water services, and to reduce or eliminate cross-subsidies between different water users and / or different types public services (e.g. some users paying higher water prices to support lower prices for other user groups, or revenue from publicly owned utilities used to support water supply).
- Secondly, the provisions of Article 9 are not phrased in a very strong way: Thus, the WFD does not oblige Member States to ensure that all environmental and resource costs are internalised through the water pricing system. Instead, it merely states that Member States shall take account of the principle of cost recovery, including environmental and resource costs. This wording does not prescribe that full cost recovery must be achieved, but leaves quite some flexibility to the Member States to interpret the provision.

2.5 Monetary Valuation in the WFD Implementation

As such, the WFD does not contain any mandatory requirement for the use of monetary valuation methods. For example, there is no requirement to assess, let alone monetise, the benefits of implementing the WFD within a river basin or a country. However, there are several instances where monetary valuation can make a useful contribution to WFD decision making, and some instances where it is indispensable.

- The instance where monetary valuation is most likely to play a decisive role is the decision on exemptions on the grounds of disproportionate costs. As elaborated above, the judgement whether costs are disproportionate can be interpreted as a cost-benefit-analysis, where an exemption can be applied if the (monetised) benefits clearly exceed the (monetised) costs. While other interpretations of "disproportionate" are also possible (e.g. in relation to the affected parties' ability to pay), benefits measured in monetary terms are likely to play an important role in many such decisions.
- Monetary valuation methods can also clearly provide relevant input for decisions related to Article 9. This concerns both the assessment of environmental and resource costs, and the degree to which they are currently recovered, as well as the judgement whether the contribution of water uses to the cost recovery of water services is deemed "adequate".

- Monetary valuation methods will presumably be of lesser relevance for decisions related to Article 11 (selection of cost-effective measures). The cost-effectiveness analysis itself does not require monetary valuation: most costs are readily expressed in monetary terms, whereas effectiveness is measured in physical terms (in terms of the environmental objectives to be achieved by the WFD). Monetary valuation techniques therefore only become relevant where an extended form of a cost-effectiveness analysis is applied: e.g., if several options are available to achieve the given objective (good status), and if one of the options delivers significant co-benefits, these co-benefits would not normally be reflected in a cost-effectiveness analysis. For instance, using constructed wetlands for nutrient removal may be more expensive than upgrading of wastewater treatment plans, however, the wetlands deliver additional benefits in terms of biodiversity or landscape impacts. One option of dealing with this is to monetise such co-benefits and to subtract them from the costs.

It should be noted that, for these different fields of application, the objects that is being valued in monetary terms also differs:

- In decisions on exemptions on the grounds of disproportionate costs (Article 4), the objects of monetary valuation are the water-related benefits of achieving the WFD objectives (i.e. the benefits delivered by the measures that will be taken from 2009 onwards, e.g. reduced levels of nutrient pollution and associated reductions in algae blooms;
- In decisions related to the of recovery of environmental and resource costs (Article 9), the objects of monetary valuation are the water-related environmental costs that water services currently impose on the environment, e.g. dams built for drinking water supply that inhibit fish migration, and associated costs (foregone utility) for commercial or leisure fishing;
- In decisions related to Article 11 (extended CEA), the object of valuation are the non-water benefits of measures taken under the WFD (as the water-related benefits are already subsumed under the effectiveness term of the cost-effectiveness analysis).

A further differentiation between these different decision situations relates to their spatial scale and the coverage:

- Exemptions on the grounds of disproportionate costs need to be applied at the level of individual water bodies. For these decisions, monetary valuation will be required for selected, possibly contested cases: First, exemptions will only be applied for in a minority of all water bodies. Second, for those water bodies where an exemption is necessary, only a part of these will justified on the grounds of disproportionate costs (with over justifications including technical unfeasibility or natural conditions). Third, for those exemptions applied for on the grounds of disproportionate costs, not all cases will involve a comparison of (monetised) benefits and (monetised) costs.
- Cost recovery, including environmental and resource costs, needs to be assessed at the level of river basin districts. In principle, for decisions related to cost recovery, environmental and resource costs need to be assessed throughout the river basin district, covering all instances where water services cause adverse impacts on the aquatic environment and its users. However, it is likely that only a few water services in a few instances will lead to environmental and resource costs, thus limiting the need for elaborated calculations.
- As mandated by Article 11, programmes of measures need to be established at the level of river basin districts, thus the cost-effectiveness of measures would also be judged at this level. However, there may be relatively few instances where non-water benefits are a decisive factor; hence decisions will mostly be taken without resorting to monetary valuation methods.

3. Methodology for the survey and analysis of results

The current report serves as a stocktaking and survey of the current thinking in the Member States on environmental and resource costs and benefits in the WFD implementation, and their use in decisions related to Articles 4 and 9 WFD. For the assessment, a questionnaire was developed, comprising 18 questions grouped into five sections: Actors and Processes, Guidelines and Definitions, Expectations of Guidance Material, Analysis Methods, and Relevance of Economic Valuation, plus an explanation of key terms. Members of the AquaMoney consortium provided a number of comments on the questionnaire, which were subsequently integrated. In addition, the questionnaire was pre-tested with selected policy makers to elicit feedback on its structure, understandability, usefulness and level of detail. Based on this feedback, the questionnaire was revised in several iterations. The final version of the questionnaire (AquaMoney Deliverable D13) was submitted to the Commission in November 2006.

The questionnaire was distributed by email to decision makers throughout Europe in December 2006 – January 2007, responses were received from January to April 2007. In several countries, the questionnaire was supported by in-depth interviews conducted with policy makers, either as phone interviews or face-to-face. In Austria, a workshop with decision makers was organised to elicit feedback on the issues addressed in the questionnaire. In addition, a second short version of the questionnaire was produced for the Members of the AquaMoney Advisory Committee, leaving out the first two sections of the longer questionnaire.

Based on these activities, a total of 41 questionnaires from 15 countries were received, including three responses to the shorter questionnaire. In several instances (e.g. UK, NL, Austria), these questionnaires represent (unofficial) country responses that have been accorded by a number of relevant decision makers within the agencies involved in WFD implementation. In several Member States, the questionnaires were furthermore supported by summary documents produced by the case study partners, in which they present additional information on the administrative structures in the respective countries.

Not all questions were addressed by all respondents. Some respondents also used the questionnaire as a structure to provide their own views on the issues raised in the questionnaire, others provided more or less extensive comments. In the case of a French respondent, the response was not documented in form of a questionnaire, but instead the issues raised in the questionnaire were instead addressed in a short status report.

Country	Standard questionnaires	Short questionnaires
Austria	1	
Belgium	2	
Denmark	3	
France	1	
Germany		1
Greece	7	
Hungary	5	
Italy	2	
Lithuania	4	
Netherlands	1	
Norway	2	
Romania	8	
Spain	2	
Sweden		1
UK		1
Sum	**38**	**3**

The analysis is described in greater detail in the corresponding chapters. In general, due to the limited number of questionnaires, only a light form of analysis was carried out, i.e. calculating arithmetic averages for some responses, and ranking of responses based on weighted summation where appropriate. As the number of responses received per country differed considerably – with six of the fifteen countries providing one questionnaire only, and almost half of the questionnaires from Romania, Greece and Hungary alone – country-level averages were calculated for some of the questions.

This was done primarily for the questions where some kind of nationally agreed approach would be expected (e.g. questions on guidelines and definitions used, or on analysis methods employed). For these questions, both the individual results and the country-level averages are presented. For those questions where responses were mainly based on individual opinions of the respondents – e.g. on expectations for guidance material, or attitudes towards economic valuation – only the individual responses are presented, without aggregation to the country level.

Preliminary results of the analysis, sometimes restricted to specific questions, were presented and discussed at a number of internal and external meetings, including the following:

- 2nd AquaMoney plenary meeting in Berlin in March 2007,
- 1st meeting of the AquaMoney Advisory Committee in Berlin in March 2007,
- envecon 2007: Applied Environmental Economics Conference in London in March 2007,
- 2nd meeting of the CIS DG on Environmental Objectives and Exemptions in Brussels in April 2007, and
- international Workshop "How can economics best support water policy decision making? Taking stocks of the first years of WFD implementation" in Alsace in May 2007.

Additional comments on the issues raised in the questionnaire, and on the preliminary results of the assessment of policy maker demand, were elicited from participants of these sessions, and have been reflected in the conclusions drawn.

4. Actors and Processes

This section of the report describes the different actors that are involved in the WFD implementation, and their respective roles in the implementation process. It builds on the information provided in Part 1 of the policy maker questionnaire (actors and processes).

One key objective of the AquaMoney project is to produce guidelines that will provide effective support for the use of monetary valuation methods in the WFD implementation. An obvious precondition to ensure targeted, hands-on support is to understand who will be using the guidelines, i.e. who will be charged with addressing economic aspects of the WFD implementation. In the past, various actors have been involved in this process in the different Member States:

- Many of the economic aspects (such as cost recovery levels at the river basin district level) need to be reported by the competent authorities that were designated by the Member States. The competent authorities may employ in-house economic staff, but economic aspects may also be addressed by officials with no economic background, and little knowledge of economic tools and approaches.
- Economic aspects can also be addressed by a centralised government agency (e.g. a section of the environment agency or the environment ministry), which may provide guidance, gather and distribute economic data, or carry out parts of the analysis that are best done at the national level (such as the investigation of wider economic impacts, economic analysis of policy instruments applicable at the national level, or calculation of generic cost and benefit data that is later applied / adapted at the local level).
- The practical implementation of the WFD may be supported by private contractors, such as engineering and law firms, consultancy firms or research institutes and university. Especially labour-intensive tasks, or tasks that require a high degree of specialised economic knowledge (e.g. carrying out a monetary valuation study) will often be outsourced in this way.

Usually, all of the above will be involved to some extent: e.g., economic valuation guidance is produced by a centralised agency at the national level, it is then applied by consultants at the local level, and the results of this application are then used by institutions at the regional level. Member States will thus rather differ in the relative importance of different actors in the process.

The relative importance of the different actors and institutions is not only determined by efficiency and expediency. Above all, it is shaped by the legal and institutional framework that governs water policy (and environmental policy more generally) in a Member State, i.e. whether there is a more federal or more centralised structure, whether there is a tradition of arranging water policy in river basins, how the requirements of the WFD have been transposed into national law, etc. The size of a Member State is another determinant – in smaller Member States, a more centralised approach would be expected.

4.1 Has work commenced on assessing ERCB?

This question was intended to establish whether countries have started to work on the assessment of ERCB in the first place, and which progress has been made. Respondents were asked to provide references to the most important nationally published output (guidance, methodologies) or briefly summarise the most important ongoing efforts. The question was posed as an open question.

The question was answered by 33 respondents from 12 Member States (five respondents did not provide an answer to this question) and was analysed both on an individual level and for aggregated national averages. From the 33 individual responses, 73% stated that the process in their own country has started, whereas 18% said that the process has not started yet. The remainder (9%) did not have information on the status of assessing ERCB.

Successively the responses were aggregated for each country, assuming that per country the collective answer will reflect the actual situation. The answer 'not known' was not considered here, because at least one respondent answered positively or negatively in each country. As a result, it appears that work has started in 10 out of the 12 Member States covered.

Some respondents remarked that while work on ERCB has started, efforts have been limited, and are not directly connected to the WFD. Another remark was that definitions in the context of ERCB assessment are often inconsistent with the definitions of the WFD. Such non-WFD assessment results are therefore not straightforward to use for WFD purposes. For three of the 12 Member States considered, respondents cautioned that little work has been done on assessing ERCB, describing this as a result of delays in the implementation of the WFD and the absence of specialists with the economical background to anticipate the Articles of the WFD concerning ERCB assessments, within the authority responsible for implementation of the WFD.

Thus, in conclusion, it appears that a large majority of Member States have started to work on assessing environmental and resource costs and benefits. In general, awareness of the issue seems to be high. However, some countries are still in the early stages, and the efforts undertaken so far are not necessarily well integrated with the WFD implementation.

4.2 Ministries or administrative bodies dealing with the assessment of ERCB

The purpose of this question was to gain a better understanding of the administrative authorities working on the assessment of ERCB in the different Member States. This was done in order to better understand who will be the future users of the guidance produced in the AquaMoney project, both in terms of the institutional set-up and responsibilities, and regarding the level of (economic) expertise of those dealing with ERCB assessments.

This question was answered by 37 respondents from 12 Member States (all but one of the received questionnaires). The responses from individuals from one and the same country did not always coincide, thus implying different interpretations of the question. Multiple answers were possible and given by approximately half of the respondents.

For the analysis, the country-specific answers were grouped into four categories:

- National-level institutions
- Regional-level institutions
- Local-level institutions
- Contractors (if work is delegated by the responsible administrative body)

The responses to this question were analysed at the level of individual replies only (meaning that no country aggregation was made). Since multiple answers were possible, 64 single answers were given by 37 respondents. Grouped by categories, the following picture emerges for the responsibility for ERCB assessment (multiple answers possible):

- National-level institutions 84 %
- Regional-level institutions 51 %
- Local-level institutions 16 %
- Contractors 19 %

In addition, one respondent mentioned the importance of international efforts concerning this issue, especially in transboundary river basins.

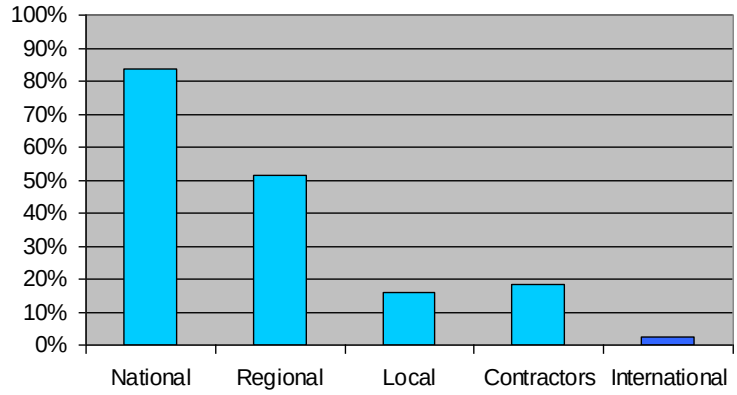

Figure 1 Division of tasks regarding ERCB assessments by authority level, based on individual responses

Of those respondents who stated that the national level is involved in the assessment of ERCB, less than half stated that activities take place only at the national level, whereas more than half indicated that another level was involved as well. In total, 54% of respondents answered that multiple levels are involved in the assessments of ERCB.

For 9 of the 12 Member States represented in (this part of) the survey, more than one response was received. Of these, two gave fully consistent replies, and another 6 agreed on at least one level (mostly the national level).

In a separate response, a French respondent noted the strong role of the six Water Agencies in France for implementing the economic analysis of the WFD. The Water Agencies have a leading role in the economic work, including actual valuation studies. Such studies will be carried out by the economists of the Water Agencies themselves, but may also be subcontracted to consultants. The Ministry of Environment provides scientific and technical support, by preparing specific guidance documents, carrying out synthesis studies and through technical backup when preparing CV survey questionnaires.

Thus, while administrative structures vary between Member States, there is a tendency to address environmental and resource costs at the national level. The overall picture shows a vast majority of activities on a centralised level (often through the national ministries). Another result is that the institutional responsibilities for dealing with these issues appear relatively clear: while the responses from one and the same Member State are not always consistent, the question was answered by almost all respondents.

4.3 Entities handling the issue of cost recovery (Article 9 of the WFD)

In order to get a better idea of which entity generally handles the assessment of cost recovery as required by Article 9 WFD, every respondent was asked to indicate which authority is dealing / will be dealing with such issues in their country. If different parts of the decision making process are handled at different levels, respondents were asked to specify which and where.

This question was answered by 35 respondents from 12 Member States (three respondents did not provide an answer) and analysed both at the level of individual responses and for country-level aggregate figures. Respondents were asked to choose among four categories: local-level staff with economic expertise, local-level staff without economic expertise, centralised agency of economic experts or consultants with economic expertise. Multiple answers were possible, resulting in 47 indications by 35 respondents. More than two thirds of respondents (71%) identified one level only, indicating that the responsibility is not shared between administrative levels. 23% of respondents identified two levels and 6% of respondents identified three levels at which the issue of cost recovery is handled.

Almost half of all respondents (46%) identified a 'centralised agency of economic experts as the level dealing with Article 9 of the WFD. Of these, one half stated that this centralised agency shares this responsibility with another level of governance (either 'consultants with economic expertise' or 'local level staff with economic expertise'). One third of respondents mention 'consultants with economic expertise' as involved in this kind of work. 20% of respondents stated that local level staff with economic expertise would be dealing with cost recovery issues, whereas 17% of respondents stated that local level staff without economic expertise will be involved. 20% of respondents stated that tasks have not been designated yet.

When the data collected for this question is aggregated at the country level, the results change only slightly. In 50% of the analysed Member States a 'centralised agency of economic professionals' is dealing with the work (alone or in co-operation). 'Consultants with economic expertise' are involved in the assessments done in 25% of the Member States, whereas local-level staff is involved only in two Member States (17%). In another two Member States (17%), it has not been decided yet who will deal with Article 9 of the WFD.

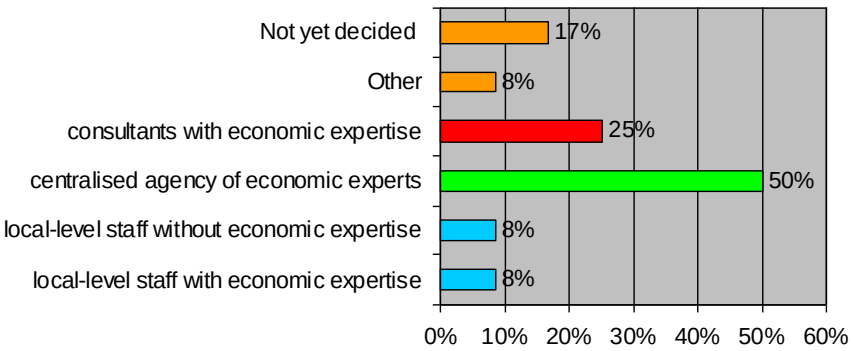

Figure 2 Division of tasks regarding Art. 9 by executive entity, based on aggregated responses -rounded off- per Member State

The responses to this question point to a high degree of centralisation: the 'centralised agency of economic experts' is the predominant type of institution dealing with the issue of cost recovery. This would in most cases be equivalent to a section of a ministry or an government agency. These institutions are often supported by consultants with economic expertise. Only two Member States in this survey indicate that in their country issues of cost recovery are addressed at the local level. In one of these, people without economic expertise deal with the issue. This also suggests that, in the majority of cases, at least basic familiarity with economic concepts and approaches can be assumed.

4.4 Entities handling the issue of disproportionate costs (Article 4 of the WFD)

Another issue where economic valuation methods may have a role to play in the WFD implementation is the assessment of disproportionate costs, which may be invoked to justify an exemption from the general objective of achieving good ecological status in all water bodies by 2015. This issue is not necessarily dealt with by the same authority as the cost recovery issue (Art. 9 of the WFD), not least since exemptions need to be applied at the water body level, whereas cost recovery is addressed at a more aggregated level. Therefore the same question as before was also asked with respect to the assessment of disproportionate costs and exemptions.

This question was answered by 36 respondents from 12 Member States (two respondents did not provide an answer) and was analysed both for individual responses and for aggregated country-level results. Multiple answers were possible, resulting in 46 answers by the 36 respondents. The majority of respondents (75%) identified only one level, 8 respondents identified two levels and one respondent identified three levels at which the issue of disproportionate costs is handled.

Regarding the actual levels from which respondents could choose, the same categories were suggested in the questionnaire as in the previous question (see chapter 3.3 above).

39% of all respondents stated that it had not been decided yet which institutions will deal with the assessment of disproportionate costs in their countries. Another 39% of respondents mention the 'centralised agency of economic experts' as the institutional level to deal with this issue. Smaller percentages (11-14%) of respondents mention the other three categories (consultants and local-level staff with or without economic expertise) as responsible institutions.

When the responses are aggregated at the Member State level, the results change slightly. Respondents from five Member States (42%) stated that these tasks have not been designated yet. At the same time, however, respondents from two of these five Member States did specify the institutions that will most likely be involved. In six Member States (50% of the 12 countries analysed), a 'centralised agency of economic experts' is dealing with disproportionate cost issues, either alone or in co-operation with other institutions. Other than that, local-level staff– with and without economic expertise – deal with the disproportionate costs in 25% of Member States. The same percentage of Member States has 'other' entities than local-level, centralised or consultants, dealing with the issues.

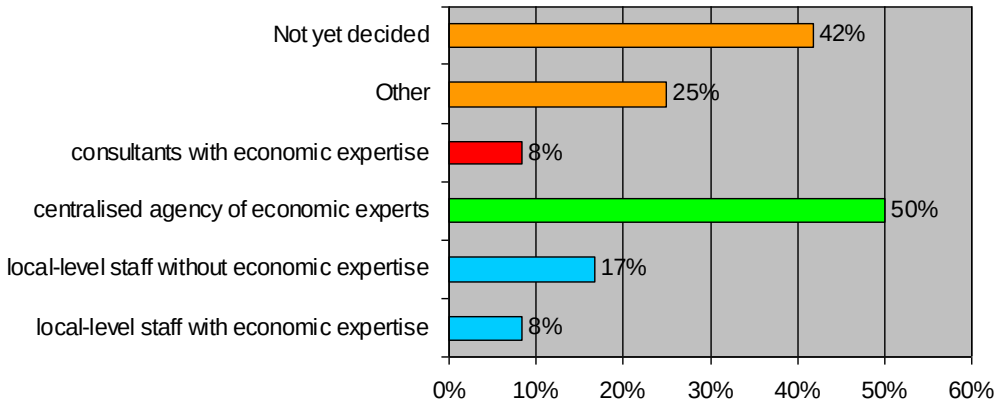

Figure 3 Institutional responsibility for dealing with disproportionate costs issues, results aggregated per Member State

The responses thus indicated both a high degree of uncertainty – where institutional responsibilities have not been decided – and a high degree of centralisation, with centralised agencies involved in disproportionate cost assessments in half of the represented Member States. A comparison between the institutional responsibilities for cost recovery and disproportionate cost issues by and large shows a comparable pattern for both issues. In both cases, the most important role is played by centralised, national-level agencies. Local-level staff – with or without economic expertise – are involved less frequently for both issues. The fact that local-level staff does not play a greater role for disproportionate cost assessment is somewhat surprising – given that exemptions need to be applied at the water body level.

One main difference between the two issues is that there seems to be more clarity about the designation of tasks for the cost recovery issue, whereas institutional responsibilities are less clear for disproportionate costs. This can be explained by the fact that cost recovery levels had to be reported already in the article 5 report in 2005, whereas decisions on disproportionate costs (at least for the first planning cycle) need to be taken first in 2008. Also, marked differences can be discerned for the expected role of consultants and other external support – which is relatively high for the assessment of cost recovery, but minor for disproportionate cost issues. This can be explained by the fact that for the latter political decisions are required, whereas the former issues require economical analysis (for which consultants may be hired).

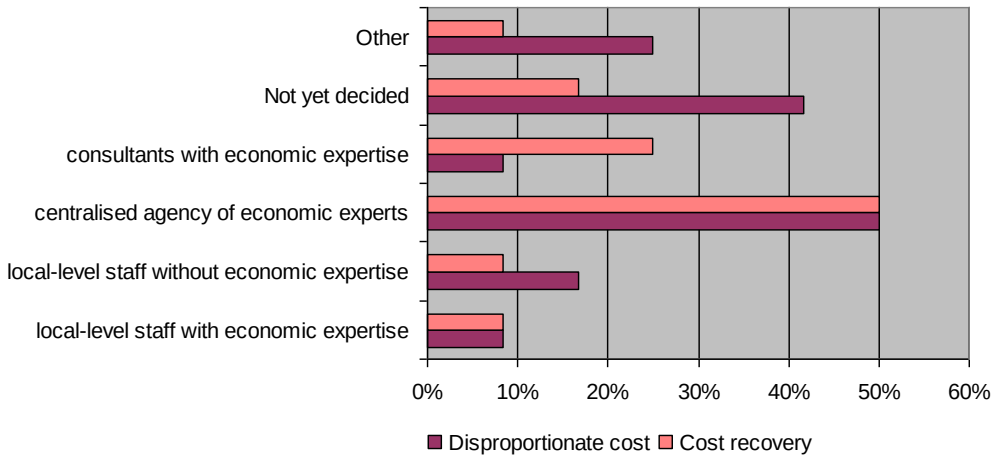

Figure 4 Comparison of administrative bodies dealing with disproportionate and cost-recovery, based on country-level averages

4.5 Summary

In the vast majority of Member States, work has started on the assessment of environmental and resource costs. Awareness of the issue is generally high. However, the work conducted is often still in an early stage, where the conceptual groundwork is being laid, but no definite decisions have been made. Thus, for some part, the institutional responsibilities of dealing with economic elements of the WFD have not been decided, especially regarding the assessment of disproportionate costs. Generally, where responsibilities have been decided, an important role is foreseen for the central government. To some extent, this may be due to the fact that many countries are currently in the stage of developing concepts and methods, which is typically done at the central level, whereas the application of these concepts is done locally / regionally.

Regarding the expertise of the staff involved, the results suggest that some economic expertise can probably be assumed. Finally, in terms of institutional responsibilities, one observation is that there are only few and small differences between cost recovery and disproportionate cost issues – with the central level playing the main role in both cases, and a lesser role for local-level staff. One main difference, though, is that the designation of responsibilities has progressed further in the case of cost recovery than for disproportionate cost issues.

5. Use of Definitions and Guidance Documents

5.1 Definitions of Environmental and Resource Costs

One challenge for the implementing the economic elements of the WFD is that several key concepts are neither defined in the Directive itself, nor are they recognised as standard terms in environmental economics or other disciplines. Therefore, concepts such as "disproportionately costly" or "environmental and resource costs" need to be substantiated by the Member States, which leaves some scope for different interpretations.

Since the adoption of the WFD, several attempts have been made to arrive at joint definitions for these key concepts, above all in the frame of the WFD Common Implementation Strategy (CIS) process. While the documents that are produced in this process are not legally binding, they are nonetheless influential in shaping the debate. For the economic elements of the WFD, definitions of key terms have been put forward by the working group on Water and Economics (WATECO) in 2002, and by the Drafting Groups DG Eco1 and Eco2 (see Table 2.1 in Chapter 2). The definitions of environmental and resource costs provided in these documents are only partly consistent; notably for resource costs, the two definitions differ.

While the definitions developed in the CIS process have established a common basis, and still constitute a common reference point, they have since been further developed and specified. Thus, definitions (or specifications and clarifications of existing definitions) have been put forward by research projects at the European and national level, as well as Communications and less formal notes issued by the European Commission, by conclusions adopted by the meeting of European water directors etc.

Clearly, different definitions favour different (user) groups. There are a number of choices that have an impact on the overall level of costs, and also on the distribution of costs among sectors and actors. This concerns, for example, the questions whether or not environmental and resource costs are treated as separate concepts, and if so, whether resource costs are linked to overexploitation or to an inefficient allocation and whether or not cost recovery should apply only to water-related impacts or also to other environmental impacts.

5.2 Definitions of "environmental costs" and "resource costs" used in the Member States

To get an idea which ERCB definitions are used in the different Member States, respondents were asked to give their view on the definitions for "environmental costs" and "resource costs" that are used in their respective countries. This was based on the expectation that most countries would either adhere to the definitions developed in the WFD CIS process, as presented in the WATECO guidance and in the DG Eco2 information sheet, or that they would develop their own definitions for "environmental costs" and "resource costs", respectively.

The question was answered by 36 respondents from 12 Member States (two respondents did not provide an answer to this question) and was analysed both at the level of individual responses and for country-level averages. Multiple answers were possible, resulting in 40 answers by 36 respondents. If they used definitions of "environmental costs" and "resource costs" other than WATECO and DG Eco2, respondents were asked to further specify their answer. All five respondents who used divergent definitions did so.

Of all respondents, more than a third stated that they use the definitions provided in the WATECO guidance document. Another 11% responded that they use both the WATECO and the DG Eco2 definitions. Only three respondents (8%) use the DG Eco2 definition exclusively. Five respondents (14%) indicated that other definitions were used in their country. Finally, almost a third of all respondents stated that the definition of environmental and resource costs had not been decided yet.

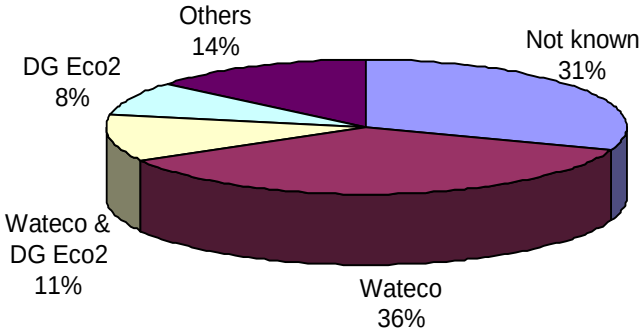

Figure 5 : Definitions of "environmental costs" and "resource costs" used in practice, based on individual responses

When aggregated at the Member State level, the results change only slightly. In 5 of the 12 Member States the definitions used are either not known or have not been decided yet. In the majority of Member States – 7 of the 12 countries for which there is data – only the WATECO definitions are applied. In one Member State (Austria), both the WATECO definitions and the DG Eco2 definitions are used. Three Member States – Denmark, Spain and the Netherlands – use their own definition, and hence neither of the CIS definitions. When aggregated to the Member State level, DG Eco2 was always used in combination with the WATECO definition, therefore there is no Member State that uses the DG Eco2 definitions only.

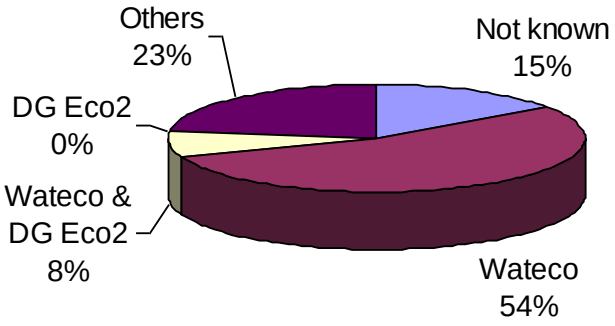

Figure 6 : Definitions of "environmental costs" and "resource costs" used in Member States, based on aggregated results

By way of a conclusion, it is striking that a substantial share of the countries considered – almost 40% – have not yet decided which definition of environmental and resource costs they are going to use. Among those that have adopted a definition, the large majority follows the definitions provided by the WATECO guidance document. In addition, some countries also use the definitions proposed by the CIS Drafting Group Eco2 alongside the WATECO definitions. A smaller number of countries have developed their own definitions; those that have done so usually do not distinguish between environmental costs and resource costs as separate concepts in the way WATECO and DG Eco2 do, but treat them as one concept.

5.3 Guidance documents used by the Member States

Similar to the previous question regarding the use of definitions, the objective of this question was to understand which of the existing guidance documents on economics and the WFD respondents were aware of, and which of these would most likely be used to support the implementation process. In addition, respondents were asked to rank the documents they use in order of their (subjective) importance and usefulness. This included both EU- and national- level documents.

The WFD introduced several innovations and novelties into water management and policy, but left it to the Member States to make these new concepts and ideas operational, and to devise practical ways of implementing them. Apart from the economic considerations, this also includes the re-organisation of water management in river basins, or the prominent role of public participation in the implementation of the Directive. These novelties created a need for explanatory notes and guidance documents that translate out the WFD provisions into more concrete requirements, and suggest ways of dealing with them in practice.

As with the definitions, a first initiative to provide such guidance was taken at the European level, in the CIS working group on Water and Economics (WATECO). The resulting WATECO guidance delivered a comprehensive description of the economic elements of the Water Framework Directive, their function in the implementation process and their objective. It also contained a number of examples from different Member States, where economic tools and approaches were successfully applied to support water management decisions.

However, the WATECO guidance necessarily lacked concretion in several instances, as it basically represented the first attempt to explore the economic elements of the WFD in practical terms. Also, as the guidance was published in 2002, it had a strong focus on the first step of the economic analysis, the initial characterisation of economic uses required for the 2004 reporting by Article 5 WFD. Since the publication of the WATECO guidance, the economic elements of the WFD have been explored in greater details by a number of other working groups under the CIS process, and through research projects in different Member States. In addition, economic elements and opportunities for their implementation have been discussed in a number of conferences, workshops and seminars, both nationally and internationally. This has resulted in a number of discussion papers, background notes and concrete guidance documents for specific economic elements of the Water Framework Directive.

This question was answered by 34 respondents from 12 Member States (four respondents did not provide an answer) and was analysed on the basis of individual responses only. In order to make a distinction between different types of guidance documents, the responses were grouped into categories:

- WFD guidance
  - WATECO
  - DG Eco2
  - Unspecified WFD documents (or the Directive text itself)
- Guidance from other Sources
  - National guidance
  - National law
  - Guidance from other Member States
- None / not decided yet

Multiple answers were explicitly asked for (as respondents were asked to rank the documents), thus resulting in 50 answers by 36 respondents all in all. More than half of respondents (53%) named only one guidance document, one third (32%) listed two documents and the remaining 15% listed three documents or more.

The WATECO guidance document was by far the most well-known and popular guidance, mentioned by almost half of all respondents as the principal source of guidance (i.e. ranked first as the most important and useful document). The information sheet produced by the Drafting Group Eco2 was mentioned by 18% of respondents. With one exception, the DG Eco2 document was ranked at second place, following the WATECO guidance. An additional 9% of respondents mentioned the text of the Water Framework Directive itself as their source of information.[2]

[2] *which, presumably, does not mean that the remaining 94% of respondents do not consult the WFD for the implementation, but rather that they did not consider it as a guidance document.*

Thus, in total, the guidance documents produced in the CIS process (incl. the WFD itself) accounted for half of all responses. A third of the respondents stated that no guidance documents were used in their country, or that they had no knowledge of a particular guidance document. A minority of respondents uses other documents, like guidance documents produced at the national level (15%), guidance from other Member States (12%), or other sources, including national law (15% of respondents).

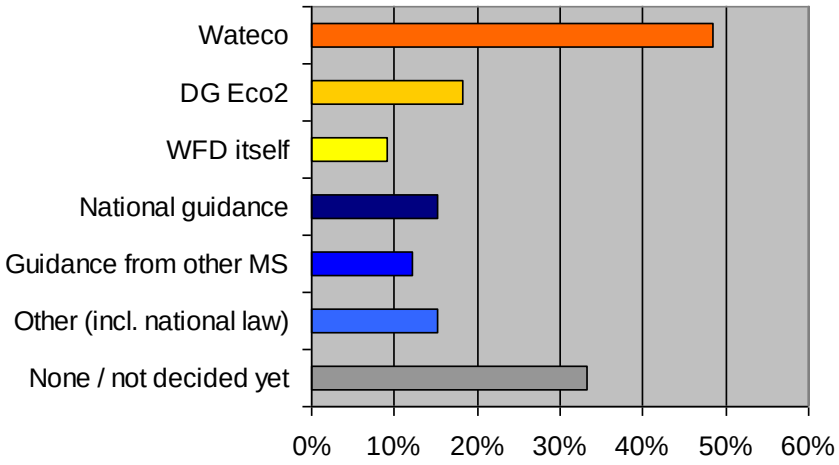

Figure 7 Guidance documents used to aid in dealing with economic elements of the WFD, based on individual responses

Thus, the WATECO document is by far the most well-known and popular guidance document, used by almost half of respondents. The more recent DG Eco2 guidance, by contrast, is used considerably less. National-level guidance material (until now) plays a minor role in supporting the implementation process. Finally, a considerable share of the respondents have not decided which of the available guidance documents they are going to use, or are not aware of them.

It should be noted that the question was apparently understood differently by different respondents, as some respondents also considered the Directive text itself or the corresponding national legislation as 'guidance'. Likewise, it was pointed out in personal communication that some respondents did not list all the guidance that is available specifically on the WFD economic analyses, presumably for lack of time.[3]

5.4 Overall summary

Overall, the picture that emerges from both the employed definitions of environmental and resource costs and the guidance documents used, is that the WATECO document sets the standard as the most well-known and popular reference document. This however does not necessarily mean an EU-wide recognition of the quality of the WATECO document or criticism of the other documents available.

A possible explanation for this could just as well be, that for instance the Eco2 Guidance Document was published so late, that not all experts had grown familiar enough with the document in order to have made an honest decision between the two. The WATECO document has for a long time been the only European offer for guidance and therefore most experts have grown acquainted with it.

[3] *For example, the French Ministry of Environment has produced a number of methodological guidance documents for the assessment of environmental costs and benefits. Each document deals with one specific method. The methodological guides are generally composed of two parts, addressing to different readerships: While the first part provides background information for policy makers and is designed to be accessible to non-economist, the second part provides technical recommendations (good practice) and references for economists in charge of implementing the method in practice. It should also be noted that some countries for which national-level guidance material exists – such as the UK or Germany – were not included in this part of the analysis.*

6. Expectations for Guidance Material on Assessing ERCB

This section of the report contains some of the key results that will help to target the further development of the AquaMoney guidelines. The objective of this function was to find out how guidance material should be designed in order to develop useful and relevant support for decision makers working on the WFD implementation. In this context, the design of guidance documents includes both their focus (i.e. what issues should be addressed) and their structure (what elements should the guidance include).

To this end, decision makers were presented a choice of specific tasks within the implementation of the WFD economic elements, and asked for which of these guidance was most urgently needed, their wishes regarding the physical format, purpose and target audience of guidance documents were elicited, and a list of possible features and common elements of guidance documents was presented to them, with the request to rate their usefulness and desirability.

In this way, the idea was to accommodate expectations and needs of decision makers to the greatest extent possible, realising that these expectations may be conflicting or even mutually exclusive: e.g.:

- Guidance material that aims to be comprehensive and to cover all aspects exhaustively cannot be brief and concise at the same time;
- Guidance that places a strong emphasis on the scientific foundations and explains underlying theoretical concepts will be of less value to deal with real-world problems that arise during practical implementation;
- Guidance that is written so as to be understandable to laymen without any theoretic background may not contain much new information for theoretically versed experts.

6.1 Level of guidance needed for different aspects of the economic analyses of the WFD

As explained in the introductory chapter on economic elements of the WFD implementation (see chapter 2), there are several steps in the implementation process where economic information is required. Therefore, this question was intended to assess for which specific steps in the WFD implementation process guidance would be needed most urgently. To this end, a list of steps and elements was presented in the questionnaire, where economic information is expected to play a role. Respondents were asked to indicate the need for guidance on each of these. In addition, respondents could specify other elements for which they considered guidance necessary.

The question was answered by 40 respondents from 15 Member States (one respondent did not provide an answer to this question, whereas 7 respondents gave only partial answers) and was analysed at the level of individual responses only. For each of the various aspects of economic analysis presented, respondents were asked to specify whether guidance on each of these aspect was considered as ‘not needed’, ‘helpful’ or ‘urgently needed’.

The following aspects of economic analysis were presented in the questionnaire:

- Assessing the size of the population (users, households) affected by WFD-measures
- Conducting and commissioning monetary valuation studies
- Conducting benefits transfer
- Screening and prioritisation – how to identify complex cases where detailed analysis is needed
- Interpreting, presenting and communicating results of valuation studies
- Defining environmental and resource costs
- Calculating cost recovery for environmental and resource costs (Art. 9)
- Defining disproportionate costs
- Assessing and communicating disproportionality of costs
- Estimating cost-recovery of water services as a measure in the programme of measures

Respondents were invited to add aspects they considered as important. A summary is listed below under Comments. The following figure gives an overview of the elements for which guidance was considered as not needed (red), helpful (orange) or urgently needed (green).

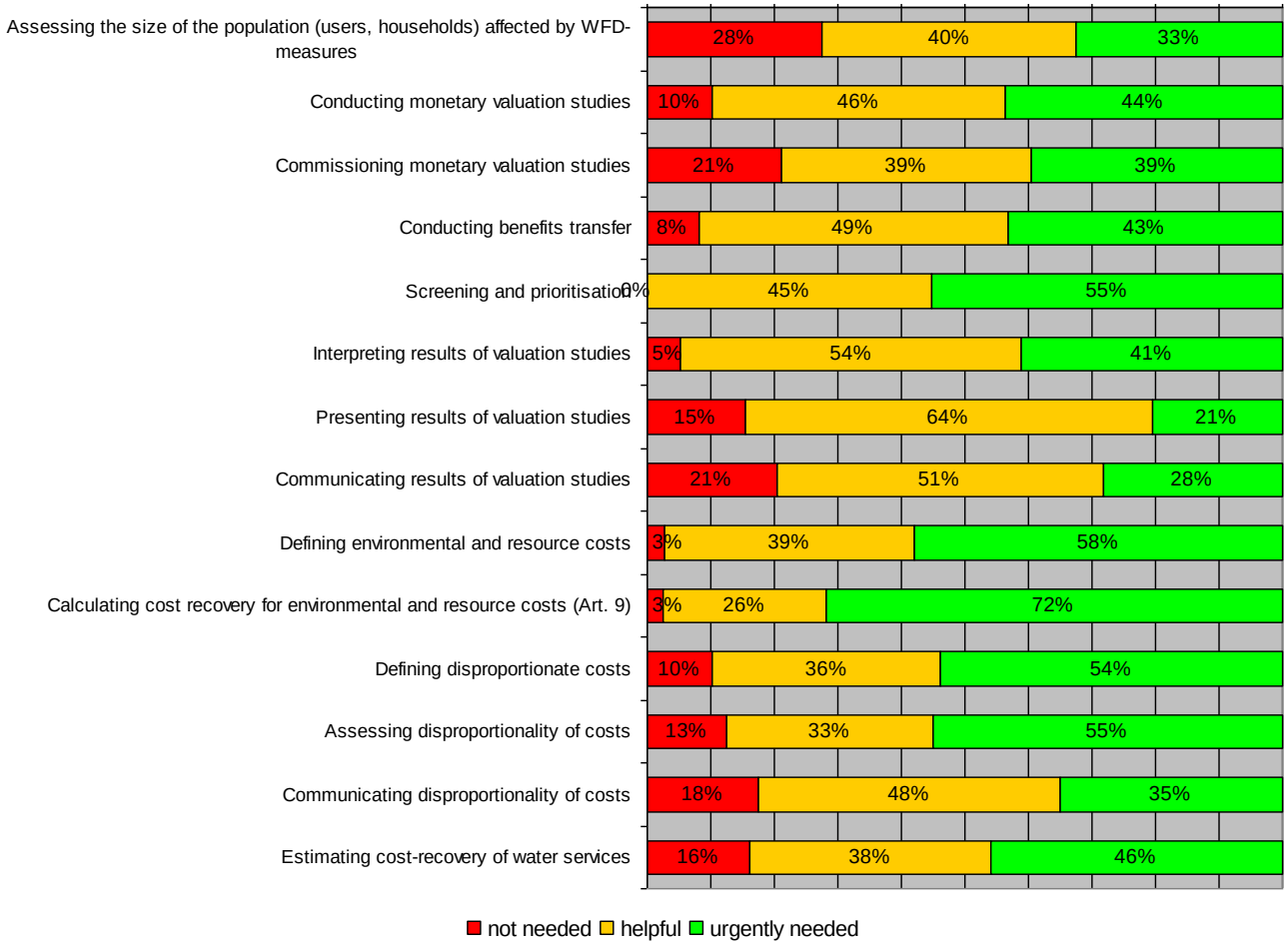

Figure 8 : need for guidance on economic elements of the WFD implementation

The responses were then aggregated in a weighted summation in order to produce a ranking of elements where guidance was most (least) needed. The three response options were counted as follows:

- 'Not needed' 0 point
- 'Helpful' 1 points
- 'Urgently needed' 2 points

In order to account for the fact that a different number of respondents answered the different questions, the aggregated scores for each aspect were then calculated as a percentage of the maximum amount of points available, i.e. the total number of respondents multiplied with the highest possible points. These percentages were then used to produce a ranking of the Top 5 aspects (for which guidance is most urgently needed) and the bottom 5 (for which guidance is least needed).

Top 5 (most needed):	*Pt.*	*% of max*
Calculating cost recovery for environmental and resource costs	66	85
Defining environmental and resource costs	59	78
Screening and prioritisation	59	78
Defining disproportionate costs	56	72
Assessing disproportionality of costs	57	71

Bottom 5 (least needed):	*Pt.*	*% of max*
Presenting results of valuation studies	41	53
Assessing the size of the population affected by WFD measures	42	53
Communicating results of valuation studies	42	54
Commissioning monetary valuation studies	45	59
Communicating disproportionality of costs	47	59

In order to determine if the choice of weights in the previous step had a significant impact on the ranking of the different aspects, a sensitivity analysis was conducted using different weights. In this step, the score type 'urgently needed' was weighted with 3 points (rather than 2) to see if the ranking would change. As a result, some aspects switched positions (the second and third in the top five, the second and third as well as the fourth and fifth in the bottom five.

Top 5 (most needed):	*Pt.*	*% of max*
Calculating cost recovery for environmental and resource costs	94	80
Defining environmental and resource costs	81	71
Screening and prioritisation	80	70
Assessing disproportionality of costs	79	66
Defining disproportionate costs	77	66

Bottom 5 (least needed):	*Pt.*	*% of max*
Presenting results of valuation studies	49	42
Communicating results of valuation studies	53	45
Assessing the size of the population affected by WFD measures	55	46
Communicating disproportionality of costs	61	51
Commissioning monetary valuation studies	60	53

Several respondents provided comments and ideas on other parts of the process where guidance could be useful. These included:

- How to define environmental and resource benefits (rather than environmental and resource costs)
- How to perform cost-benefit analysis
- How to use qualitative and quantitative information objectively to make consistent decisions in the absence of monetary data
- How to take distribution effects into account.
- How to take affordability (household, sector, societal etc.) into account

In addition, some suggestions were made on which illustrations and explanations should be given to policy makers involved in the assessment of environmental and resource costs and benefits . They include the following:

- Formulate baseline scenarios to which users can relate;
- Present a comparison of various valuation methods on one case study to show whether values are within the same range. Policy makers may be reluctant to certain types of valuation studies, but could perhaps be convinced through such evidence;
- Develop other methods than cost benefit analyses to support the decision on exemptions;
- Offer practical guidance on assessing and communicating benefits without monetary valuation;
- Build up a database on transfer values.

In a separate response, a French respondent listed three main areas where European guidance would be desirable in addition to the existing national-level valuation guidance. This includes the valuation of complex aquatic ecosystems which provide a wide range of benefits, from recreational benefits to biodiversity conservation. Most existing studies focus on certain benefits only, yet more holistic approaches are needed to assess the total value of these ecosystems.

Also, European guidance on the valuation of non-use values and corresponding benefits would be highly appreciated. One of the key methodological issue is to determine the population concerned by a given measure, a crucial step that is rarely considered in existing studies. Finally, the valuation of resource costs (opportunity cost) has not been addressed in existing French guidance documents; guidance on this issue would therefore be appreciated.

The picture that emerges is thus a fairly clear one. The aspects that respondents want to see covered in guidance material are essentially the 'bread and butter' of implementing the economic elements of the WFD:

- How to define environmental and resource costs and, to a lesser degree, how to calculate cost recovery levels for environmental and resource costs;
- How to define disproportionate costs in the context of exemptions, and how to assess disproportionality.

One more procedural aspect where guidance was requested is screening and prioritisation, i.e. the process of sorting which decisions require further in-depth analysis and which can be decided without such analysis, and the process of deciding which issues to work on first (also which measures to implement before others).

6.2 What makes guidance material useful?

Subsequently, respondents were asked to rank a number of possible qualities and characteristics of guidance material, in order to assess which of these would make guidance material useful for them. This is based on the observation that guidance material can take very different forms, depending on its purpose and target audience. Some qualities, however, may be difficult to reconcile: thus, for example, guidance can be comprehensive (or it can be brief); it can be detailed and specific for a particular policy decision (or it can be general); it can be rooted in solid science (or it can be hands-on and pragmatic), and it can be integrated or built-up in a modular way.

This question was answered by 37 respondents from 15 Member States (four respondents did not provide an answer to this question) and was analysed only at the level of individual responses. Respondents were presented with a set of qualities and characteristics, and asked to rank these according to their usefulness. Since the question was formulated as a choice between two attributes, most respondents replied according to the characteristics mentioned there:

Comprehensive	*versus*	Brief
Integrated	*versus*	Built up in a modular way
Specific as to the policy decision it regards	*versus*	General
Rooted in solid science	*versus*	Pragmatic

Other qualities of good guidance material that were mentioned by respondents can be found under Comments (below). According to the responses received, guidance should above all be:

Built up in a modular way	93 %	*rather than*	Integrated	7 %
Pragmatic	71 %	*rather than*	Rooted in solid science	29 %
Specific as to the policy decision it regards	69 %	*rather than*	General	31 %
Comprehensive	60 %	*rather than*	Brief	40 %

The percentages of respondents in favour of the four characteristics is visualised in the figure below:

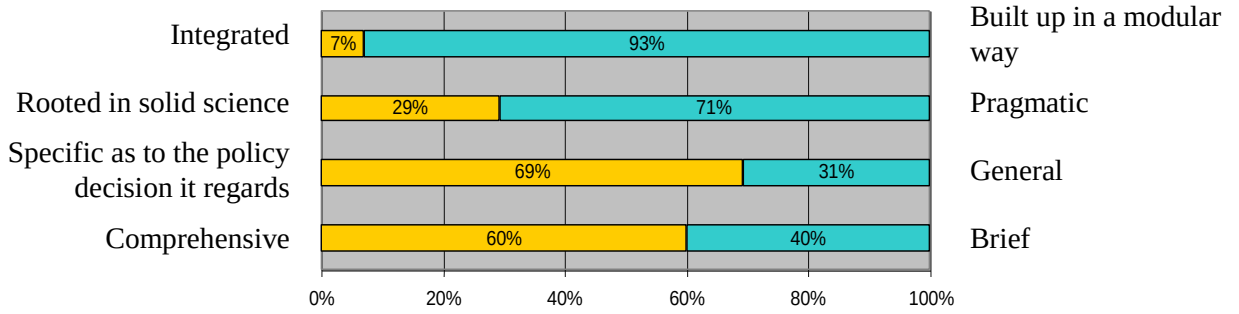

Figure 9: Division of preferences for different characteristics of future guidance material based on individual answers

All qualities and characteristics were then ranked based on a weighted summation of the responses, using the ranking in the returned questionnaires as a basis for the weights. Thus, qualities that were mentioned first received three points, two points if mentioned as second, and one point if mentioned in the third place. This resulted in a ranking of the qualities and characteristics that respondents perceived as most important. The four qualities identified above would then be ranked as follows:

	Above all, guidance material should be...	***Pt.***
1	Pragmatic	24
2	Comprehensive	15
3	Built up in a modular way	13
4	Specific as to the policy decision it regards	9

Some other identified qualities of good guidance material mentioned by respondents are:

- that guidance material should be simple, easy to read
- that it should be based on science but focused on the practical side
- that it should be autonomously usable, without too many other references in order to understand the material
- that it should assist in finding low-cost solutions, and
- that it should provide examples for the users to be inspired.

Thus, according to the surveyed decision makers, guidance should above all be pragmatic in its approach, as references to the underlying scientific discourse will not be of much use for a user that has to arrive at a decision. In addition, the guidance should be comprehensive, even at the expense of brevity. Also, guidance that is built up in a modular way was favoured, so that the needed information can be easily retrieved. Finally, the guidance should be specifically targeted at the decisions that need to be taken in the WFD implementation.

6.3 Key features desired in guidance materials for valuation of ERCB

The objective of this task was to get a better idea of the most useful features that the respondents would like to see addressed in guidance material on valuing environmental and resource costs and benefits. A list of possible key features was presented in the questionnaire, and respondents were asked to rate the usefulness of each as ‘not needed’, ‘helpful’ or ‘urgently needed’. They were also invited to add further features that they consider useful. This question was answered by 41 respondents from 15 Member States (six respondents gave only partial answers) and was analysed on the level of individual responses.

The following features were suggested in the question:

- Illustrative case studies
- Information on data sources
- References to academic discourse on economic valuation
- Basic information on economic methods and their theoretical background
- Practical explanation of specific valuation methods and their application
- "Do's and Don'ts"
- Frequently asked questions
- Common errors and difficulties
- Decision trees to structure decisions and determine level of analysis needed
- Allowable shortcuts and methodological simplifications

In addition, respondents were invited to add key features they considered as worth including in the guidance material. A summary of these extra features is listed in the Comments section below. The responses are summarised in the figure below:

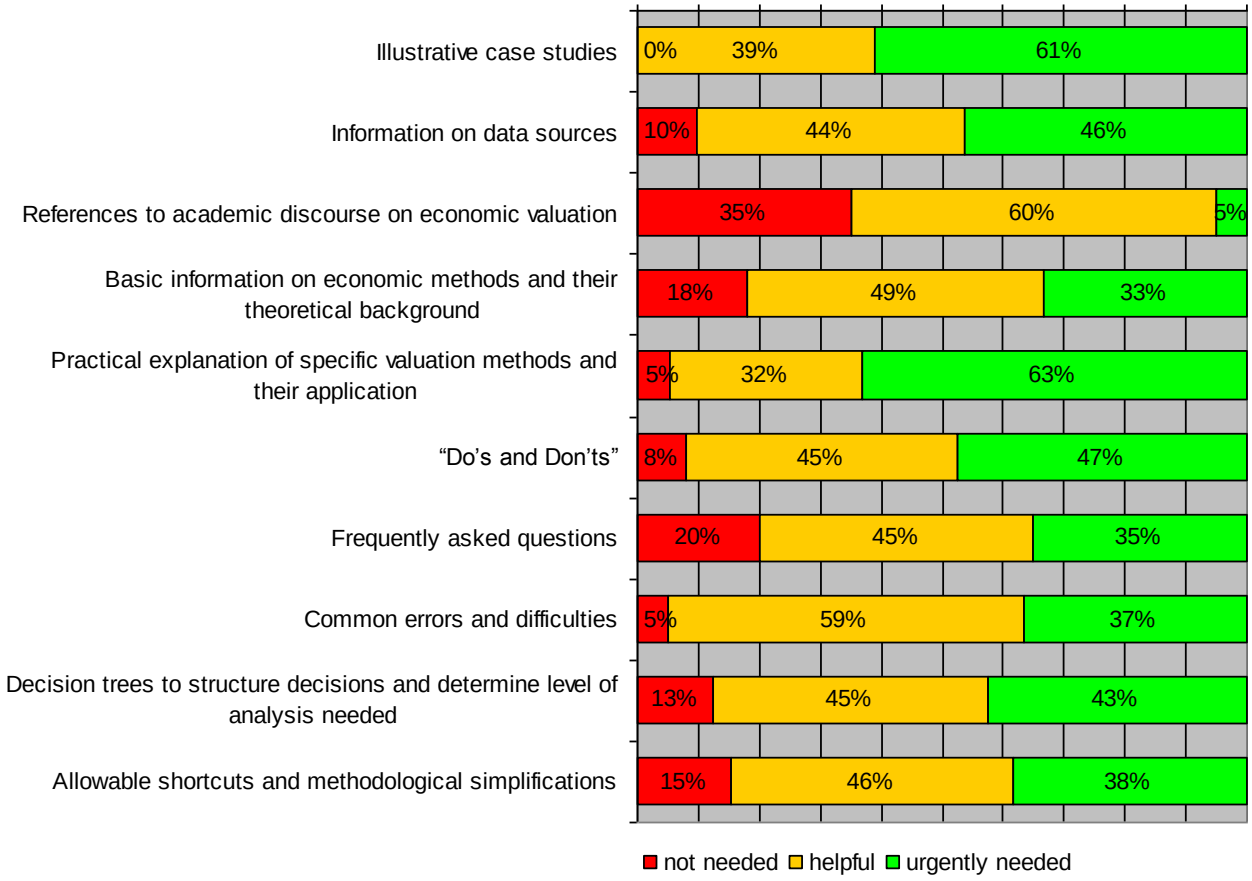

Figure 10 Preferred features of Guidance documents, based on individual responses

The features were then ranked based on the sum of the responses, with the three response options weighted zero for 'not needed', one point for 'helpful' and two points for 'urgently needed'. This resulted in two rankings for Top 3 (most needed) and Bottom 3 (least needed) aspects.

Top 3 (most needed):	*Pt.*	*% of max*
Practical explanation of valuation methods	62	82
Illustrative case studies	66	80
Dos and don'ts	53	70

Bottom 3 (least needed):	*Pt.*	*% of max*
References to academic valuation discourse	28	35
FAQ's	46	58
Basic information on economic methods	47	60

To account for differences in the number of responses, the sum of weights was divided by the number of responses received (between 38 and 41 per aspect). This resulted in some minor changes, e.g. 'information on data sources' would then rank third (rather than 'Do's and don'ts', which becomes fourth. For the bottom three 'Frequently asked questions' and 'basic information on economic methods' would switch ranks.

In order to determine if the choice of weights in the previous aggregation had an impact on the ranking of the different aspects, a sensitivity analysis was conducted using different weights. In this step, the score type 'urgently needed' was weighted with 3 points (rather than 2) to see if the ranking would change. There were only small changes in the ranking of aspects, with two pairs of features switching ranks. This includes the feature 'illustrative case studies', which becomes the most important feature ahead of 'practical explanation of valuation methods' if the different weights are used and if the results are adjusted for differences in the number of responses. The Bottom 3 aspects remain unchanged.

Thus, the results are rather robust in response to the choices made. The two features that are clearly rated as most useful by the respondents are practical explanations of valuation methods, closely followed by illustrative case studies. Further features that are also considered as highly useful are 'do's and don'ts' as well as 'information on data sources'. At the same time, references to the academic discourse on valuation are clearly not considered as helpful.

6.4 Overall summary

Overall, the need for guidance is most pronounced for those steps and stages that could be described as the "bread and butter" of WFD implementation: definitions and assessments of environmental and resource costs in the context of cost recovery, and definitions and assessment of disproportionate costs. The high relevance attached to definitions is somewhat surprising, as more than two thirds of the respondents stated their definition of environmental and resource costs in response to a previous question (see 5.2).

Also, definitions and ways to implement them in practice have been provided in the WATECO document – which is, as chapter 5 demonstrated, widely known and used. Nonetheless, there appears to be a need for different definitions, or further specification of existing definitions.

Regarding the qualities and features that guidance documents should have, the overarching message is that guidance should be simple and pragmatic, strongly focused on practical implementation problems, and supported by real-life illustrations. References to the academic discourse and the underlying theory, by contrast, are seen as dispensable.

7. Analysis Methods

As noted in chapter 2.5 above, different types of information are likely to be used to support the economic decisions in the WFD implementation process. Deciding on the economic elements of the WFD – such as cost-recovery, disproportionate costs or cost-effective measures – by no means requires that all impacts (costs and benefits) need to be expressed in monetary terms. To the contrary, where appropriate, economic considerations – such as efficiency or proportionality – can also be based on a verbal-qualitative weighing of different impacts, or a description of the effectiveness in physical terms. Also in those instances where monetary values for costs and benefits are used, different approaches are possible, requiring different input of time and analytical efforts.

The theoretical ideal would be to derive localised monetary values through original valuation studies. However, this is also one of the most labour-intensive, time-consuming and costly ways of collecting economic information. More pragmatic approaches would include the use of benefit transfer or the use of standardised, generic values for costs and / or benefits. However, using such information – may limit the accuracy and reliability of the economic information used. There is hence a choice to be made between costlier and more time-consuming approaches, or quicker and cheaper approaches that involve more uncertainty.

In each of the three questions in this sections, respondents were asked to specify what type of (economic) information they expect to be using in the different economic elements of the WFD. To this end, for a given set of six information categories (four monetary and two non-monetary), respondents were asked to indicate whether a certain information would be the main type of information used, whether it is used but not the main decision base, or whether a certain type of information will not be used at all.

The specific information categories presented in the questionnaire were:

- qualitative information,
- non-monetary quantitative information (kg N removed, km of river length restored),

and four different types of monetary information. These were:

- standard values,
- values based on benefit transfers,
- values derived from original valuation studies, and
- values involving economic modelling.

Respondents were also able to specify and evaluate other information sources.

7.1 What economic information will be used for exemptions based on disproportionate costs?

The aim of this question was to establish what kind of information decision makers intend to use when deciding on disproportionate cost issues in the context of exemptions (Art. 4.4 and 4.5 WFD), and to what extent they will resort to monetary (benefit) estimates.

Of the 41 received questionnaires, 34 indicated the usefulness for all information categories, and another three for the non-monetary information categories. Five respondents pointed also at other information sources, though only two clearly specified them. Austria and the UK as well as respondents from Romania and Denmark did not provide any answers in this section, in some cases as they considered the questions inappropriate / premature for the current state of implementation.

The overall results have been analysed both at the level of individual responses and at the level of aggregated country averages (Figures 9 and 10). In the latter case, where respondents from the same country replied differently, the country averages were rounded.[4] Through the aggregation procedure, some differences between individual and country-level results have emerged, which are in the range of -16.4 per cent (i.e. country aggregate is lower) up to 12.1 per cent (country aggregate is higher) for single evaluation categories. These differences are most pronounced for the information categories of 'quantitative non-monetary information', 'monetary information based on original valuation' and 'monetary information based on economic modelling'. The following graph provides an overview of the individual responses:

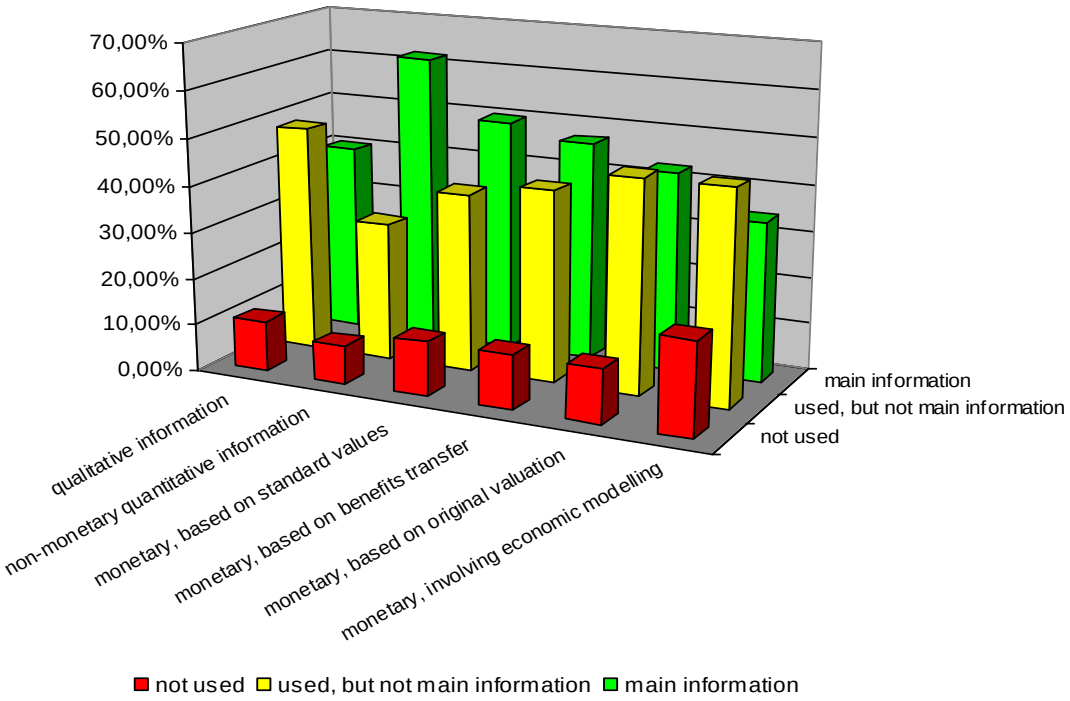

Figure 11Type of information used in decisions for exemptions on grounds of disproportionate costs as aggregates of individual responses

Based on the individual responses, quantitative non-monetary information is clearly the most important information type used in the decision on exemptions. This information type scores highest as the 'main information used', and lowest as the information type that will not be used. The information type 'monetary information involving modelling', on the contrary, scores lowest in the category of 'main information used' and as the information type that will not be used. Qualitative information will be used frequently, but will often not be the main information type used. In general, across the different types of information, there are few that will not be used. With the exception of modelling, for each category there were 3 or 4 (of 37) responses to the effect that a certain type of information will not be used.

When aggregating responses to the country level, the picture changes slightly. Here, again, quantitative non-monetary information is the most important information used while economic modelling receives the lowest scores as main information type used. However, there are fewer aggregated responses to the effect that information based on economic modelling will not be used at all. Likewise, the share of responses that qualitative information and non-monetary quantitative information will not be used drops to zero when aggregated at the country level (i.e. all countries intend to use such information).

[4] *It should be noted that the rounding procedure introduced an upward bias: in cases where two questionnaires were received from the same Member State, and one would indicate that a certain type of information is 'not used' and the other 'used, but not main information type', the aggregated country response would be the latter. This effect came into play in 11 of the 90 aggregated values (15 countries and six information types).*

While the category 'qualitative information' still ranks highest as the main source of information used, the difference is less pronounced when responses are aggregated to the country level. Another difference concerns the share of benefit transfer as the main source of information, which is somewhat lower for the national aggregates than it is for the individual responses.

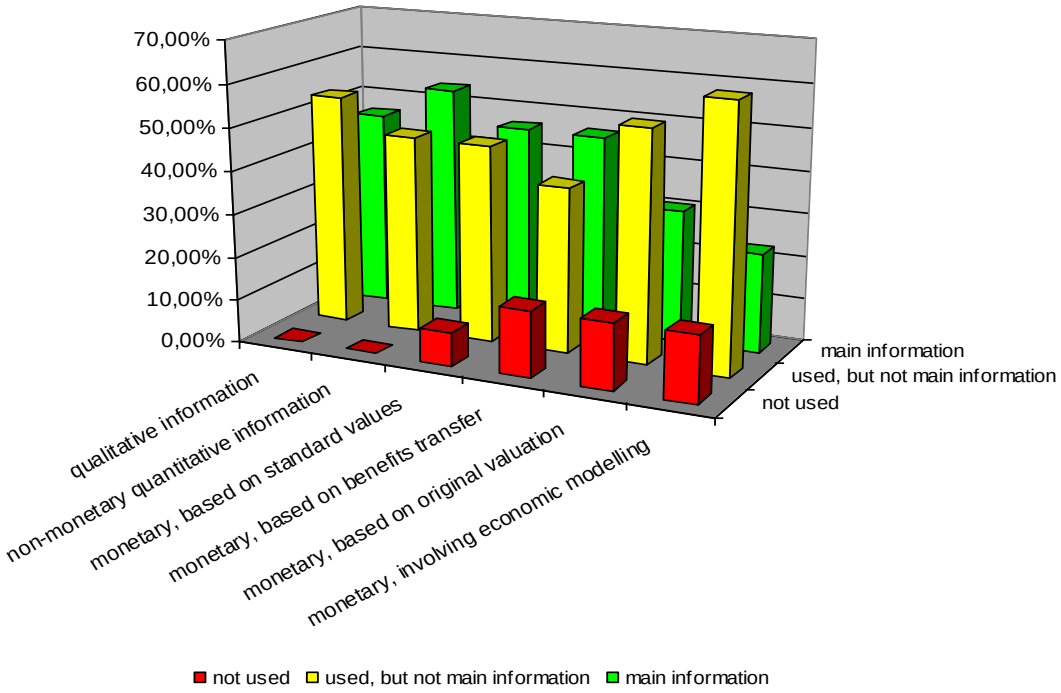

Figure 12 Type of information used in decisions for exemptions on grounds of disproportionate costs as aggregates of country averages

In order to produce a ranking of the different information types, a weighted sum was calculated for each information types (with 'not used' weighted 0, 'used, but not main information' weighted 1 and 'main information' receiving a weight of 2). In this way, the category 'non-monetary quantitative information is clearly ranked first (i.e. most important for the decision at hand). The category 'qualitative information' ranks second, and the category 'monetary, based on standard values' third. This ranking holds for the individual and the aggregated country-level responses. Yet the weighted sums for the categories 'qualitative information' and 'standard values' are almost equal. In fact, if the weight for the response 'main information type used' is changed from 2 to 3, the two categories switch positions.

In summary it can be concluded that all types of information investigated can provide important input for decisions about disproportionate costs. The data also suggests that above all, quantitative non-monetary information will be of importance. Qualitative information and simplified types of monetary information are expected to play an important role as well, whereas monetary information based on economic modelling (and, to some extent, also original valuation studies) will not be used widely to support decisions on disproportionate cost issues.

It should be noted that the overall relevance of monetary information may be higher than the numbers above seem to suggest, for the simple reason that the questionnaire distinguished between several types of monetary information, thereby allowing for a more differentiated response than is the case for the non-monetary categories. Also, it could be argued that qualitative information and non-monetary quantitative information underlie any type of monetary information, and are hence an essential precondition for using monetary information. In this sense, qualitative and non-monetary quantitative information would be comprised in the monetary information. Finally, as suggested by respondents, information on the affordability of measures may be useful to include in decision making on disproportionate costs.

7.2 What economic information will be used in the decision making on recovery of environmental and resource costs?

This question was asked in order to determine what kind of information will most likely be used for decisions on cost recovery, and in particular for the assessment of environmental and resource costs. As in the previous question, respondents were presented with six types of information – from qualitative to different types of monetary information – and were asked to state whether this type of information will be the main information used, whether it will be used, but not as the principal source of information, or whether it will not be used at all.

Of the 41 questionnaires received, 33 to 35 respondents provided an answer to the questions, with fewer responses on monetary information types. Four respondents pointed also at other information sources, of which three specified these information sources. Austria and the UK did not respond, as well as individual respondents from Belgium, Romania and Denmark.

The overall results are summarised based on the individual responses and also as aggregated country averages (Figure 13 and Figure 14). The country averages were rounded to produce an average score for each information type. For this reason, the results for the individual responses differ from the aggregated country-level results. These differences range from -15.8 per cent (country aggregate is lower) to 18.1 per cent (country aggregate is higher) for single evaluation categories. Thus, in particular cases like qualitative information or information from economic modelling they are substantial, whereas in the case of benefit transfers shifts are marginal.

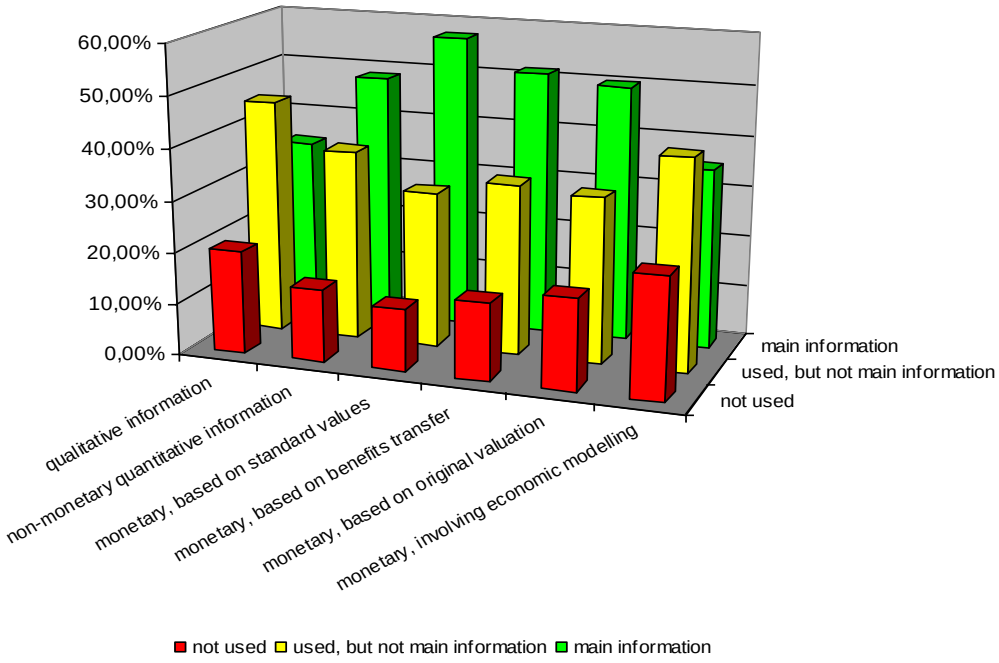

Figure 13 Type of information used in decision making for recovery of environmental and resource costs as aggregates of individual responses

Overall, based on individual responses, monetary information based on standard values is the most important type of information used. This information type scores highest in the category of 'main information used' (58% of all respondents) and lowest as an information type that will not be used (12% of respondents). By contrast, monetary information involving economic modelling and qualitative information on the contrary are scoring lowest in the category of main information used (35 and 34%, respectively). Economic modelling is the information source with the highest share of respondents indicating that the plan not to use this information (24%).

When aggregating responses to the country level, a somewhat different picture emerges. Here, monetary information based on benefit transfer becomes the information category named most often as the 'main information used', ahead of monetary information based on standard values.[5] By contrast, qualitative information ranked lowest as main information type used, with only four of thirteen countries (31%) considering qualitative information as a main source of information. Strikingly, only one country (Sweden) indicated that they will *not* use qualitative information in the assessment of environmental and resource costs.

Likewise, there are only two countries (Sweden and the Netherlands) that do not plan to use quantitative non-monetary information in this context. Similar to the individual responses, 'information based on economic modelling' receives the highest score as information that will not be used, with four of thirteen countries (31%) indicating that they will not use such information.

Germany is the only country that does not intend to use any type of monetary information whatsoever. In the Netherlands economic modelling represents the main type of information used.

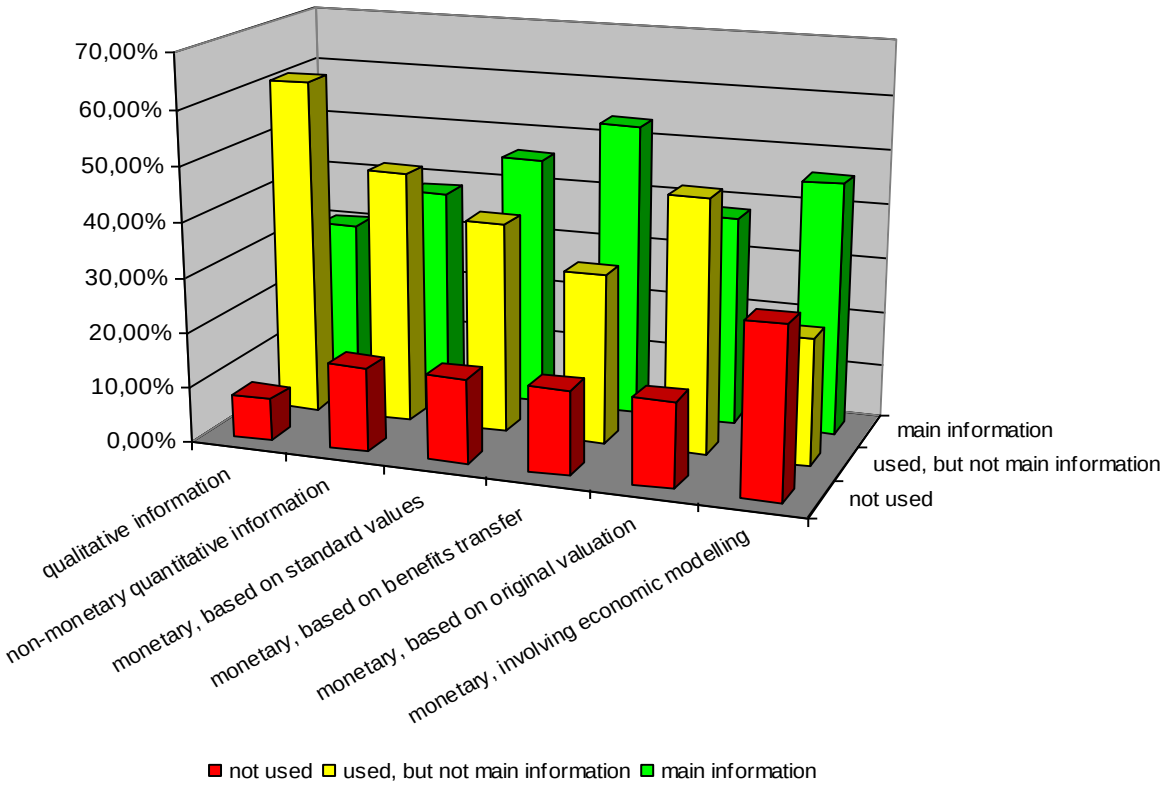

Figure 14: Type of information used in decision making for recovery of environmental and resource costs as aggregates of country averages

In general, thus, the step of aggregating results to country averages had an impact of the results. This becomes apparent when the different information categories are ranked in their relative importance, based on a weighted summation of the responses (with 'not used' receiving a weight of zero, 'used, but not main information' receiving a weight of one, and 'main information' weighted two).

[5] *This change is due to the rounding step in the aggregation procedure: in three of the thirteen countries that responded to the question, an equal number of respondents indicated that benefit transfer would be either the 'main information type used' or 'used, but not the principal source of information'. Due to the rounding, these responses were then counted as the 'main information type' at the country level. In this way, seven of the thirteen countries indicated that benefit transfer would be the main information type used.*

In this case, based on the individual responses, 'monetary valuation based on standard values' ranks first as the most important category, closely followed by 'non-monetary quantitative information' and 'monetary information based on benefit transfer'. If results are aggregated at the country level, this ranking changes: 'monetary information based on benefit transfer' then becomes the most important type of information, followed by standard values and non-monetary quantitative information. At the same time, the ranking is not sensitive to the choice of weights in the weighted summation: if the response type 'main information' receives a weight of three (rather than two), nothing changes for the ranking based on individual responses, and only one minor change occurs for the ranking based on country-level aggregate responses.

In summary, it can be concluded that all types of information investigated can provide some inputs for decisions in terms of recovery of environmental and resource costs. However, the results are less conclusive for which information types will be used as a main source of information.

When looking at individual responses only, monetised standard values score highest, while for country averages, benefit transfer appears at the single most relevant type of information. It could be argued that using standard values is quite similar to using benefit transfer – as a matter of fact, standard values can be seen as a very crude form of benefit transfer. Economic modelling is mentioned most often as an information not used. At the same time, strikingly, is the main and almost only information type in one Member State. Non-monetary information and in particular qualitative information appears to be of lesser relevance, and is likely to be used rather as a complementary source of information in the decision-making about recovery of environmental and resource costs.

7.3 What economic information will be used in the decision-making on assessing the cost-effectiveness of measures?

The aim of this question was to determine what type of information will most likely be used in the process of selecting cost-effective measures to achieve the WFD objectives. As in the previous questions, respondents were presented with six types of information – from qualitative to different types of monetary information – and were asked to state whether this type of information will be the main information used, whether it will be used, but not as the principal source of information, or whether it will not be used at all. Respondents were also able to specify other information sources and assess their relevance.

Of the 41 questionnaires received, between 34 and 38 responded to the questions, with fewer replies on monetary types of information. Four respondents pointed at other information sources, of which three specified them. The responses were analysed both as individual responses and as aggregated country averages, to account for the fact that different numbers of questionnaires were received from different countries (Figures 13 and 14).

The country averages were rounded to produce an average result, which lead to some differences in the results. These differences between individual and country aggregates range from -35.3 per cent (country aggregate is lower) to 22.2 per cent (country aggregate is higher) for single categories. For certain types of information like qualitative information and non-monetary quantitative information these shifts are substantial, while for the assessment of the other types of information like monetary information based on standards values to a lesser extent.

Based on the individual responses, monetary information based on standard values appears as the most important information category used, with 60% of respondents indicating that this will be the main information used, and only 9% indicating that this information will not be used. This is closely followed by 'non-monetary quantitative information' (main type of information for 58%, not used by 13%). Qualitative information, by contrast, scores lowest in importance, with only 30% of respondents stating that this will be the main type of information used. One interesting observation is that monetary information based on original valuation studies ranks both very high as 'main information type used' (51% of respondents), and as information type that will not be used (23%, which is the highest figure among all information types).

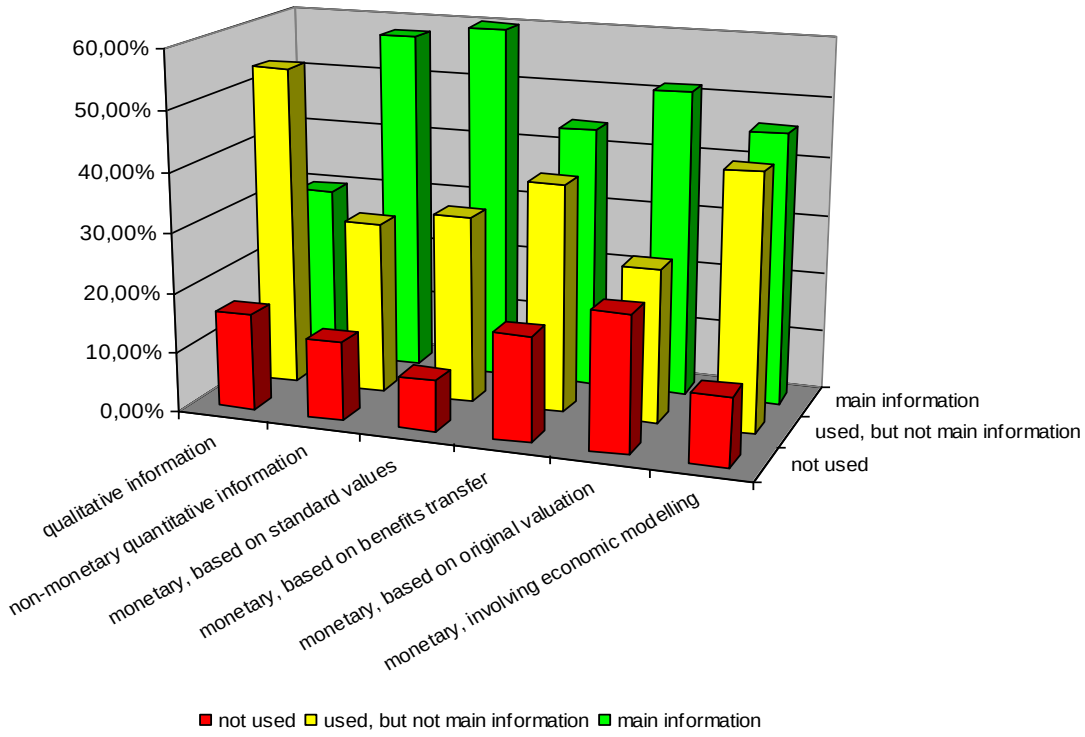

Figure 15: Type of information used in decision making for assessing the cost-effectiveness of measures as aggregates of individual responses

If responses are aggregated at the level of country averages, the pattern changes somewhat. Monetary information based on standard values remains the most important information type used, with almost two thirds (9 of 14 countries) indicating that this will be the main type of information used, and no country that will not use such information. The second most important type then becomes 'information based on economic modelling', which will be the main information type used in eight of the countries covered (58%). 'Non-monetary quantitative information', the second most important information type based on individual responses, is of lesser importance when aggregated at the country level, and will be the main source of information in five of the 14 countries considered.[6]

As in the individual responses, qualitative information received the lowest scores as main information type used. Strikingly, there are three types of information that will be used in all countries: qualitative information, non-monetary quantitative information, and monetary information based on standard values. Information based on benefits transfers and original information received the highest scores in the category of information not used. These patterns hold for both absolute figures and percentages.

In all responding countries, qualitative information, non-monetary quantitative information and monetary information based on standard values are never not used at all. All types of monetary information are never used in Germany and Austria. In addition, benefit transfers and original valuation is not used in the Netherlands. Across the individual types of information no more than three scores have been allocated to the "not used" category. The two other evaluation categories received much higher scores. These were ranging between two and twelve, but are biased towards higher scores.

[6] *The discrepancy between the individual and the aggregated results in this case are due to the fact that a large number of individual responses from Greece (six out of six Greek responses) and Bulgaria (five out of seven) indicated non-monetary quantitative values as the main source of information. This corresponds to almost 30% of the individual responses, but accounts for only two out of the 14 aggregated country-level responses.*

Country averages exist in equal amounts for all information types and are thus not skewed in terms of certain countries. In addition, individual countries had similar response rates.

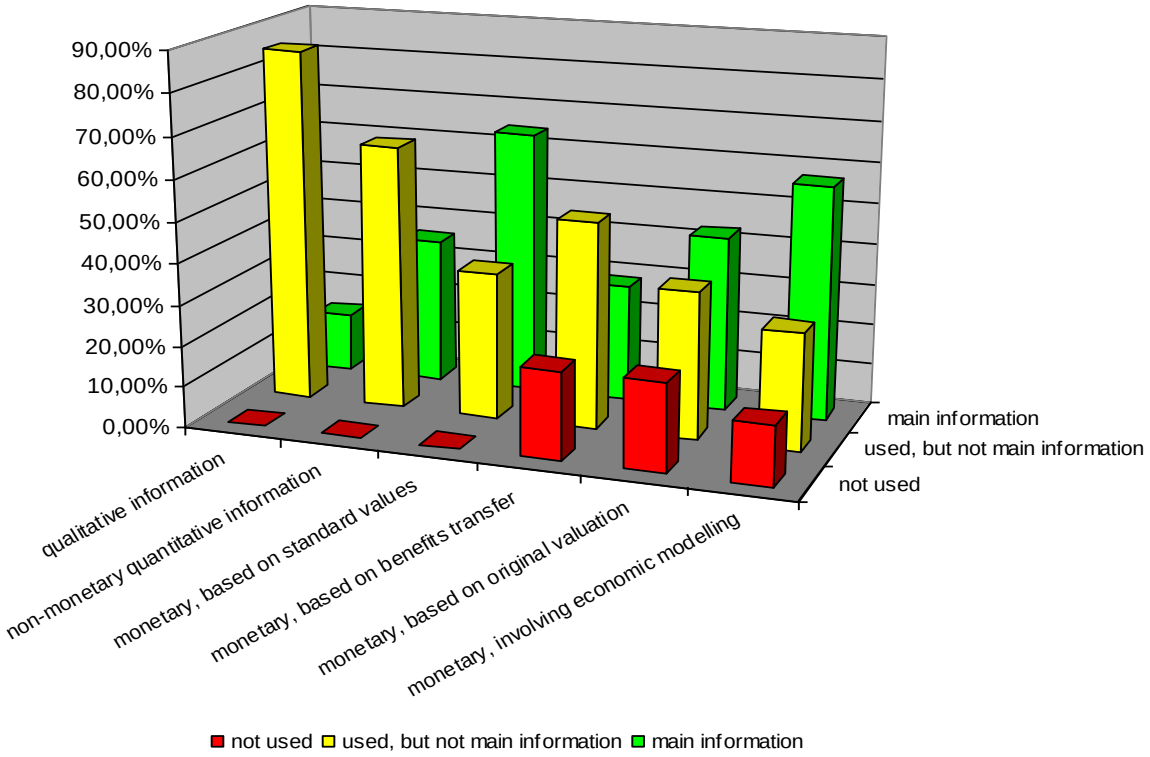

Figure 16: Type of information used in decision making for assessing the cost-effectiveness of measures as aggregates of country averages

Aggregated country averages show a slightly different pattern. Here, again information based on standard values is the most important information used, but contrary to individual averages it is closely followed by economic modelling as a main information source. Qualitative information received the lowest scores as main information type used. Yet it receives the highest scores as an information used not as a principal source. Contrary to the individual aggregates economic modelling in turn receives the lowest scores as an information used not as a principal source.

There are three types of information – qualitative information, non-monetary quantitative information and information based on standard values – that will be used in all of the 14 countries covered. At the same time, three countries – Austria, Germany and the Netherlands – intend to use neither benefits transfer nor original valuation.

These observations are supported if a ranking of the different information types is produced, based on a weighted summation of the responses for each information types (with 'not used' weighted zero, 'used, but not main information' weighted one and 'main information' receiving a weight of two). In this way, for the individual responses, the category 'monetary, based on standard values' is ranked first, followed by 'non-monetary quantitative information' and 'monetary, involving economic modelling'. For the aggregated country-level responses, the second and third rank – non-monetary quantitative information and model-based information – switch places. These rankings are consistent irrespective whether the 'main information' response type receives a weight of two or three.

Overall, the picture that emerges is that standard values and non-monetary quantitative information, as well as information based on economic modelling, will be the main types of information used in decisions on exemptions.

Notably, the cost-effectiveness analysis is the element of the WFD economic analysis where modelling will have the greatest role, with 46% of the respondents or 57% of the countries indicating that modelling will be one main type of information.

Regarding the use of benefit transfer and original valuation, a mixed picture emerges, with a large number of respondents stating that they do not intend to use such information, and (especially for original valuation) a large number of respondents indicating that this will be one main type of information. The latter position is somewhat surprising, since a traditional cost-effectiveness analysis would not resort to valuation of benefits in the first place, but measure the effects / effectiveness in physical units.

In this understanding, the selection of cost-effective measures should be achieved without the use of original valuation or benefit transfer methods. Possible explanations – apart from respondents having a different understanding of these concepts – is that respondents may have had an "extended" type of cost-effectiveness in mind, whereby the side-benefits of measures (i.e. beneficial side-effects that are not related to the main objective of a measure) are quantified in monetary terms; or that the choice of measures in the respective countries will be supported by a cost-benefit analysis rather than a cost-effectiveness analysis (which is not demanded by the WFD, but also not prohibited).

7.4 Overall summary

By way of a comparison, the results of the three questions (on exemptions / disproportionate costs, cost recovery and cost-effectiveness analysis) are represented in below. For the individual responses, and looking only at the monetary types of information, the following picture emerges:

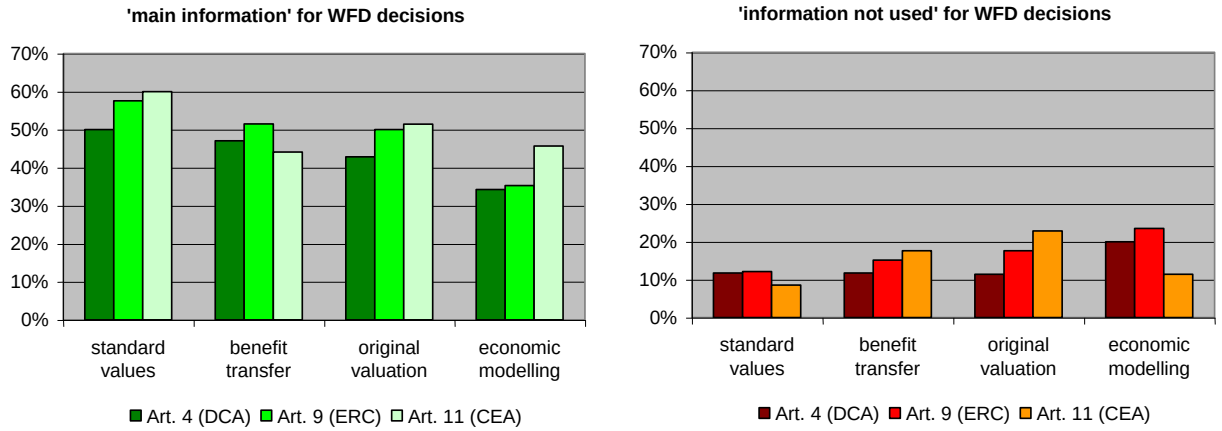

Figure 17 : Monetary information types used / not used in different WFD decisions (based on individual responses)

Across all three WFD decisions, there is thus a tendency to resort to standard values. Economic modelling generally plays a lesser role, except for the selection of cost-effective measures. Somewhat strikingly, the relevance of original valuation studies is seen as highest for the selection of cost-effective measures, and lowest for the assessment of disproportionate costs – which is contrary to what could have been expected, given that the disproportionate cost assessment could be interpreted as a form cost-benefit analysis, whereas the selection of measures could be seen as a cost-effectiveness analysis.

When considering the aggregated country-level responses to the same question, a similar pattern emerges. In this case, the general messages are quite similar, but the differences are more pronounced. E.g., the country-level analysis suggests that economic modelling will mostly be of use for the selection of measures (8 of 14 countries), but used less frequently to support other types of WFD-related decisions. Likewise, while around half of the countries intend to use benefit transfer as a main information type for decisions on disproportionate costs and cost recovery, this is true for less than 30% of the countries for the selection of cost-effective measures.

When considering the types of information that will *not* be used, one striking observation is the similarity across different information types and decisions. Indeed, there are often the same countries that oppose any type of monetary information for any type of decision. The opposition, though, is less pronounced for the use of standard values in disproportionate cost assessment and cost-effectiveness analysis, and more pronounced for modelling in the assessment of environmental and resource costs.

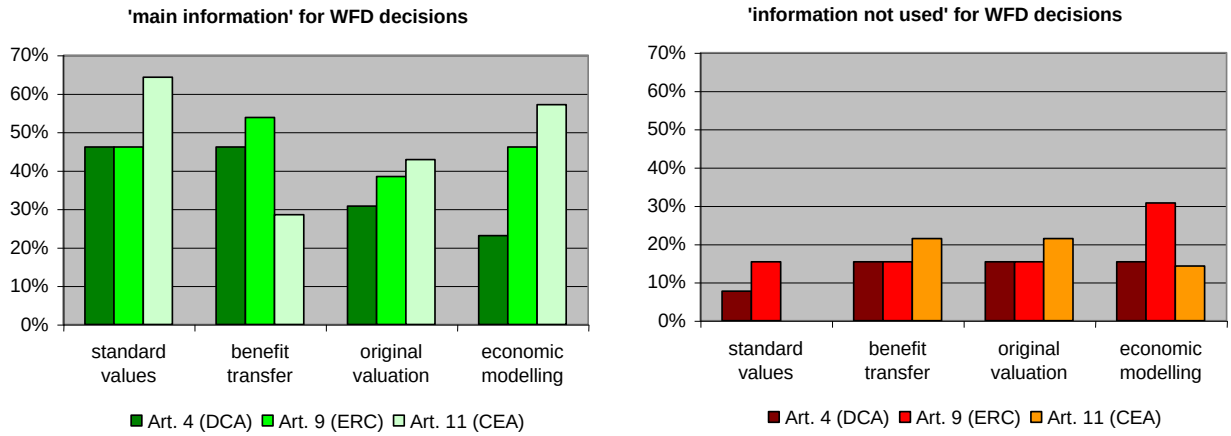

Figure 18: Monetary information types used / not used in different WFD decisions (based on aggregated country averages)

8. Relevance of economic valuation

The aim of this section was to offer a broader perspective on the relevance of economic valuation methods to WFD-related decision making, and to understand what function monetary estimates serves as decision support. To this end, respondents were asked to assess the relevance of such methods in different stages of a stylised decision-making procedure, and to express their agreement or disagreement with a set of statements on the role and relevance of economic valuation methods.

8.1 Relevance of economic valuation at different stages of decision-making

In order to determine the relevance of economic valuation at different stages of decision making, respondents were asked to assess whether valuation methods are (i) of little relevance, (ii) relevant or (iii) essential for particular stages of decision making. In contrast to the questions addressed in chapter 6.1 above, the stages of decision making did not relate to specific tasks required for the WFD implementation (such as calculating cost recovery levels), but rather represented typical steps in a stylised decision making procedure. These steps ranged from recognising the need for action over interim steps such as ranking different options and choosing one option, to implementation and monitoring of the chosen course of action. The respondents were also encouraged to add additional stages in the decision making process, and assess the usefulness of economic valuation for these.

Of the 41 questionnaires received, between 39 and 41 respondents assessed the relevance of economic valuation. In addition, several respondents provided additional comments. As the replies reflect the opinions of the respondents rather than agreed national approaches, the results of the assessments were only analysed at the level of individual responses, but not as country averages (Figure 15).

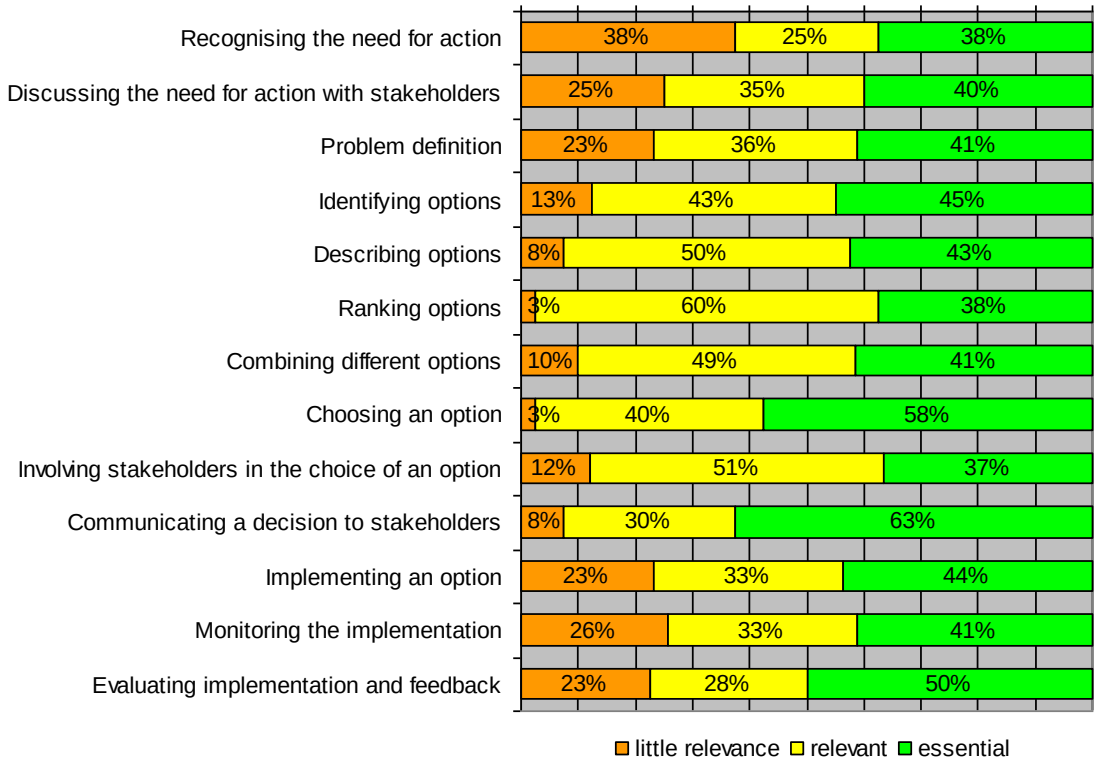

Figure 19 : Relevance of economic valuation at different stages of decision-making

Almost two thirds of respondents consider economic valuation methods as essential for communicating a decision to stakeholders. Somewhat less, 58% of respondents, consider economic valuation essential for choosing an option. In addition, only one respondent considered economic valuation methods to have little relevance in decision-making stage. Comparatively small shares of respondents (between a third and two fifths) considered economic valuation essential for recognising the need for action, ranking options and involving stakeholders in the choice of an option.

By contrast, economic valuation methods are seen as least useful for recognising the need for action – where almost two-fifths of respondents see little relevance for such methods. About a quarter of respondents see little relevance for discussing the need for action with stakeholders, problem definition, as well as implementation, monitoring and evaluation of a policy option. Generally, economic valuation is considered most relevant in the middle stages of decision making, from the identification of options to communicating a decision to stakeholders, where only between one and five of the 40 respondents consider economic valuation as having little relevance.

These observations are confirmed if a ranking of the relevance is produced, based on a weighted summation of the responses received. If the response "little relevance" receives a weight of one, the response "relevant" two, and the response "essential" three, the stages "choosing an option" and "communicating a decision to stakeholders" rank first as the stages where economic valuation is most relevant. They are followed by "describing an option" and "ranking options", which jointly rank third. The two lowest-ranking options are "recognising the need for action" and "discussing the need for action with stakeholders". These results show only little sensitivity to the weighting factors applied to the three response types.

When changing these weights to 0.5 (rather than 1) for "little relevance", and 4 (rather than 3) for "essential", the top two – communicating a decision to stakeholders and choosing an option – remain unchanged. Likewise, "describing options" and "identifying options" still rank third and fourth, whereas the bottom two also remain unchanged.

Generally economic valuation is seen as relevant, if not essential for decision making. Yet, in the context of the Water Framework Directive, economic valuation is considered as most relevant in the middle stages of decision making, i.e. from the identification of options to the communication of decisions. Economic valuation was considered as particularly relevant for the communication of a decision to stakeholders and for choosing an option. Few respondents saw economic valuation as relevant in the early decision stages of identifying or communicating the need for action, as this is basically done in other parts of the implementation process. Likewise, its relevance for monitoring implementation was seen as limited.

In addition, the question sparked off a number of comments. Overall, the comments suggest that the applicability of economic valuation methods is largely determined by the WFD and its provisions, and not so much by the methods themselves. Also, it was pointed out that technical and scientific considerations are as least as important for the decision making process as economic information, also as valuation partly builds on such information. Some respondents also pointed at the importance of stakeholder involvement in the different decision stages, where one main function of economic information is to inform the debate with stakeholders. As the joint respondents from the Netherlands suggest, valuation is very likely to provoke discussion.

8.2 General views on the usefulness of economic valuation

The use of economic valuation methods in environmental policy making continues to spark controversy. It is criticised both on practical grounds – including allegations that economic valuation methods are too costly and cumbersome, their results too uncertain and their coverage too patchy. There are also more fundamental criticisms – e.g. that the anthropocentric approach of economic valuation is at odds with the ecosystem-oriented approach of the WFD, or that monetary valuation functions as a black box and prescribes policies rather than informing them.

Against this background, the aim of this question was to elicit the respondents' attitude towards the use of economic valuation methods as decision support in the WFD implementation.

To this end, respondents were presented with six general statements on the role of economic valuation in decision support, and asked to state their agreement or disagreement with these statements. In detail respondents where asked to confirm or not, whether "Valuation methods...:

- are a valuable addition to the decision making process."
- help to improve the quality and accuracy of decisions."
- help to make decision making and the underlying trade-offs more transparent."
- could be useful in theory, but in reality they are not due to practical constraints, e.g. lack of time, resources, data, knowledge, skills or public acceptance."
- are useful to communicate the need for action, but are too imprecise to guide actual decisions."
- are necessary to meet reporting requirements, but not useful for supporting policy decisions."

Respondents were also invited to add other statements of their own choice.

Of the 41 questionnaires received, between 39 and 41 respondents stated their agreement or disagreement with the suggested statements. 15 respondents provided additional comments on at least one statement. Furthermore, three respondents (from Germany, Hungary and Norway) inserted four additional statements. As the replies in many cases reflect the opinions of the respondents, rather than agreed national approaches (with the exception of the Netherlands and the UK), the results of the assessments were only analysed at the level of individual responses, but not as country averages (Figure 20).

Overall, respondents were rather positive about the contribution that economic valuation methods can make to support decision making. Thus, three quarters of the respondents agree (and none disagree) that economic valuation methods 'help to improve the quality and accuracy of decisions', and that they 'are a valuable addition to the decision making process'. Even 90% agree that economic valuation 'helps to make decision making and the underlying trade-offs more transparent', while only one respondent disagreed with this statement.

A more nuanced picture emerged for the statement that 'valuation methods are useful to communicate the need for action, but are to imprecise to guide actual decisions': while 20% supported this view, almost 40% disagreed with this statement, the remainder being neutral. This was also the question with the largest number of 'neutral' replies (more than 40%). Likewise, a balanced picture emerged for the statement that 'valuation methods could be useful in theory, but in reality they aren't due to practical constraints'.

The number of respondents in agreement with this statement was equal to the number of disagreements (14 out of 40). Finally, a large majority of three quarters disagreed with the statement that 'economic valuation methods are necessary to meet reporting requirements, but not useful for supporting policy decisions'. Thus, overall, there is clear agreement with the (pro-valuation) statements a) to c), and clear disagreement with (anti-valuation) statement f). The results for the statements d) and e) are inconclusive.

This general observation is generally confirmed if the responses are aggregated, with disagreement weighed with a factor of minus one, neutral weighed zero, and agreement weighed one. In this case, Statement c) (valuation helps to make decision making and the underlying trade-offs more transparent) receives the highest score, i.e. most agreement, followed by statements a), c) and f). For the latter question, weights were reversed, as the question was asked inversely – so that disagreement with the statement would actually signal support for economic valuation methods.

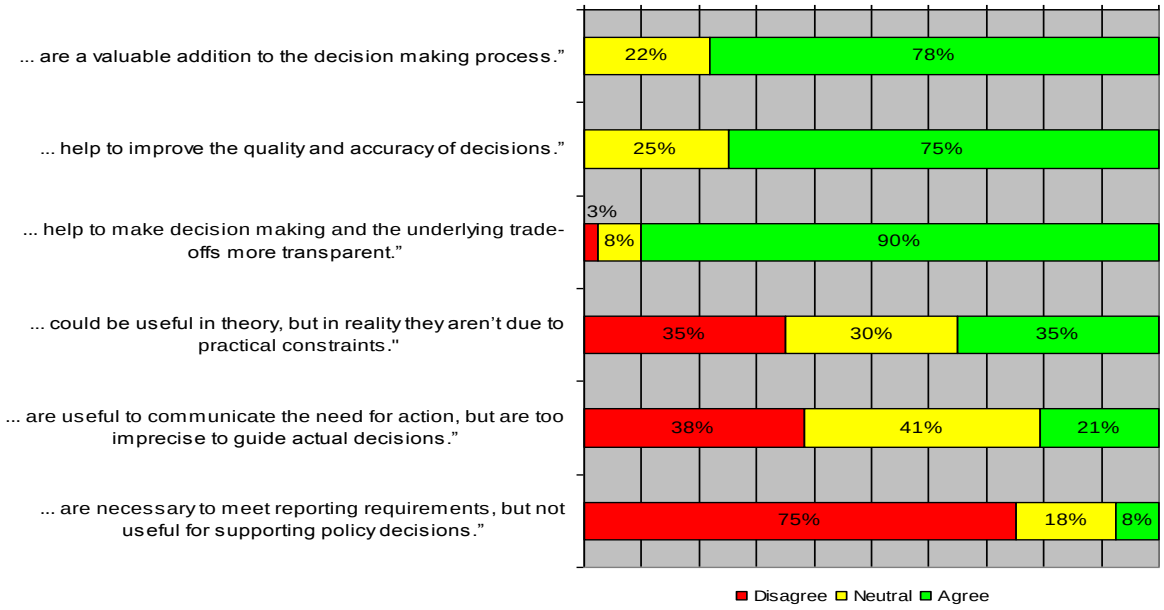

Figure 20: Attitudes towards the use of economic valuation methods as decision support, based on 41 individual responses.

By way of a conclusion, the picture that emerges is that the respondents are generally in favour of using valuation methods, and see them as a valuable addition for decision making related to the WFD. The only qualification that is made by some respondents is that practical limitations, and in particular budgetary limits, may limit the use and usefulness of economic valuation methods.

It could be criticised that many of the presented statements are difficult to disagree with. At least for a respondent with an economic background, some of the presented statements may appear basic, if not self-evident. At the same time, the widespread, almost unanimous support for the use of valuation methods to support policy decisions does come as a surprise. This is apparent e.g. when compared to the discussions in some drafting groups of the EU CIS process, where concerns about the practicability of widespread economic valuation are often raised. The support for economic valuation is also surprising when considering the actual use of such methods in policy support – which is, by and large, limited to a small number of Member States, whereas most Member States are still in the stage of determining what they want to do in this context.[7]

Two positive observations were that the statements were assessed by almost all respondents, and that the statements sparked a number of comments. For example, respondents for example pointed out that economic valuation is only a decision making tool used together with other information. Further, many suggest that it needs to be grounded on other scientific data, and that its use will inevitably be case specific. Some also point out that political pressures and interests will often outweigh the influence of economic analysis. Further, respondents cautioned that valuation methods will have different functions when used at different levels of decision making, and that this has implications for the acceptable level of uncertainty.

[7] *See e.g. De Nocker et al. (forthcoming): Costs and Benefits associated with the implementation of the Water Framework Directive, with a special focus on agriculture. Study commissioned by the European Commission, DG Environment. Final Report, June 2007. Mol: VITO*

References

De Nocker et al. (forthcoming): "Costs and Benefits associated with the implementation of the Water Framework Directive, with a special focus on agriculture. Study commissioned by the European Commission", DG Environment, Brussels, Belgium; (Final Report, June 2007, VITO, Mol, Belgium);

Drafting Group ECO2 CIS Working Group 2B (2004): " Assessment of Environmental and Resource Costs in the Water Framework Directive", Institute for Integrated Water Management and Waste Water Treatment (RIZA), Lelystad, The Netherlands;

Görlach, B., and E. Interwies (2004): "Assessing Environmental and Resource Costs in the Water Framework Directive: the Case of Germany", Ecologic, Berlin, Germany;

Interwies, E., R.A. Kraemer et al. (2004): "Basic principles for selecting the most cost-effective combinations of measures for inclusion in the programme of measures as described in Article 11 of the Water Framework Directive", Ecologic, Berlin, Germany;

Postle, M. et al. (2004): "CEA and Developing a Methodology for Assessing Disproportionate Costs", Risks & Policy Analysis Limited (RPA), Loddon, Norfolk, United Kingdom;

Working Group 2.6 – WATECO (2003): "Common Implementation Strategy for the Water Framework Directive (2000/60/EC), Guidance Document No 1: Economics and the Environment – The Implementation Challenge of the Water Framework Directive", Office for Official Publications of the European Communities, Luxembourg, Luxembourg;

Annex I: Summary of the Minutes of the Advisory Committee Meeting

Berlin 28th of March 2007

The following key issues were raised by and discussed with the Advisory Committee during the Committee's first meeting 28 March 2007 in Berlin.

- In terms of timing, the AquaMoney results may come too late to support the first round of River Basin Management Plans (RBMP), especially for those countries where economic work is already well underway. Yet the results can still make a very useful contribution for the assessment of cost recovery in 2010 and subsequent RBMP periods.

- Given the difficult timing, it is all the more important to have a flow of intermediate project outputs during the project lifetime, rather than one final report at the end of the project.

- The AquaMoney guidance is non-binding, which leaves flexibility to both the AquaMoney experts and the users of the AquaMoney output. In order accommodate the interests of different target groups (practitioners, policy advisors, policy makers), three different types of guidance will be developed: (i) a technical guidance document targeted at economic practitioners, (ii) a Terms of Reference (ToR) for policy advisors, and (iii) policy briefs for policy makers.

- The AquaMoney guidelines and case studies should cover the calculation of environmental and resource costs and benefits in the context of disproportionate costs and cost recovery. Cost-recovery issues should receive more attention. Also, it is important that a wide range of methods, environmental goods and services are considered in the different case studies.

- To strengthen the policy relevance of Aquamoney case studies, an overview of the case studies (type of water, goods and services considered, valuation method applied, etc) will be prepared and sent to the Advisory Committee by June 2007. This will provide the opportunity for feedback and comments.

- One important function of the AquaMoney project is to demonstrate the magnitude of benefits and benefit categories associated with the implementation of the WFD. There is currently a lack of proper definition of the goods and services provided by the WFD. The draft AquaMoney guidelines already include such a list.

- Another function of the guidelines will be to demonstrate the value added of using economic valuation methods (and economic approaches more broadly) in the WFD to support decision-making, and to explain the concept of economic valuation in an understandable way. There is a need to translate valuation results from economic jargon into terms understandable and relevant for decision makers.

- Linked to the identification of goods and services provided by the WFD, the AquaMoney guidelines should also provide information and guidance on which types of valuation are needed for which environmental goods and services and WFD issues, what the advantages and disadvantages of the different valuation methods are and what are the different biases and uncertainties attached to the different steps of the valuation process.

- Regarding the definition of environmental and resource costs, the necessity of their distinction was questioned based on legal and theoretical grounds. A plea was made on the other hand to maintain the distinction to explicit the importance of water scarcity costs in South-European Member States for communication purposes.

- Although originally planed at the time of the final Aquamoney conference, it is proposed to have the next meeting of the Advisory Committee in April 2008 in Budapest. The main objective of that meeting will be

to discuss the outcomes of the AquaMoney case studies and their relevance for the guidance documents. Before that meeting, the Advisory Committee members have been offered the option to attend the project meeting in Bologna late September 2007 at own cost.

Annex II: Remarks of the respondents

Listed by Chapter

Chapter 5

Definitions other than DG Eco2 or WATECO that were mentioned by the respondents are listed below:

- Some countries do not distinguish between 'environmental costs' and 'resource costs'. This is for instance the case in the Netherlands and Spain, where the one is included in the other ('environmental costs' in ' resource costs' or vice versa).
- One respondent from Denmark added that the division is not so much made between 'environmental costs' and 'resource costs', but rather between the externalities from given (economic) activity (measured by clean-up costs or prevention costs) and the maximisation of economic rent (which are defined as 'resource costs').
- In Norway, according to one respondent, the environmental costs are defined at country level as: the total financial cost arising from implementing all necessary measures (selected on the basis of cost-efficiency) towards reaching politically defined goals / criteria for an acceptable state of the environment, not encountering cross media effects.
- In France, a respondent pointed out that resource costs would be considered as opportunity costs, akin to the definition suggested by DG Eco2. However, given methodological uncertainties and problems of choosing the right scale of analysis, opportunity costs can only be assessed at the local level and not at the level of river districts. Resource costs will therefore not be assessed as part of the RBMP development.
- One respondent from Italy stated that it is hard to make a definite choice between either WATECO or the DG Eco2 documents when the scale of interest increases.

Chapter 7

Other sources of information for the decision about disproportional costs were suggested by five respondents:

- A German and a Hungarian respondent suggest data on affordability as an information used for their decision-making.
- According to a Norwegian respondent the information required will largely depend on the reason for claiming disproportionate costs. The use of individual types of monetary information (standard values, benefit transfer and original valuation) depends in the opinion of a Hungarian respondent on the availability of financing.
- An Italian respondent would use standard values at the basin level and benefit transfer based at local information, while original valuation studies should only be undertaken under an acknowledgement of data and methodology. In the case of economic modelling, a Italian respondent suggests that possibly all five types of information will be used, with the most detailed likely to be prevailing.
- The UK respondent points out, that the information used will be determined in relation to the decision to be made. Thus, if possible, a decision may be based on qualitative information alone. If this is not possible, more sophisticated information, including monetary valuation, will be used.
- A separate response, a French respondent pointed out that cost-benefit analyses will provide the main justification of exemptions. Some initial Cost Benefit Analyses carried out in the recent past were basically simple calculations based on benefit transfer, which are limited by the small number of existing valuation studies. For the future, it is expected that the justification of exemptions will be based more on primary valuation studies. For these, contingent valuation will most probably be the most widely used method, followed by transport cost studies for benefits related to leisure activities. By contrast, the use of hedonic pricing method is not considered as very promising, whereas the potential for choice experiments remains unclear.

Four respondents indicated that other sources of information would be used for decision making on the recovery of environmental and resource costs, of which three specified these information sources:

- A Hungarian respondent suggests that data on affordability would be used for decision-making.
- In the Netherlands, statistical data from the Dutch Central Bureau for Statistics may be used to support the decision.
- As one Hungarian respondent pointed out, the use of monetary information (be it standard values, benefit transfer or original valuation) is contingent on the availability of financing to produce such information.
- An Italian respondent noted that, possibly, all types of information would be used, with the most detailed likely to be prevailing.
- In a similar way, the UK responded, that they would use whatever information is available and appropriate to the decision to be made. Thus, if possible, a decision would be based on qualitative information alone. If this is not possible, it may be necessary to resort to more sophisticated types of information, including monetary valuation. The respondent also suggests that the inclusion of benefits in such assessments would help to create a more balanced picture.
- A French official indicated that a comprehensive assessment of all environmental and resource costs would not be feasible by conducting original valuation studies at the river district level. Likewise, benefit transfer is ruled out as an option due to the lack of existing valuation studies in France, which could serve as a basis for benefit transfer. Transferring values from other European countries is not considered as an alternative, as the contexts under which these were derived differs too much from the French context. At least for the first reporting cycle, the valuation of environmental costs should therefore be based on the avoidance cost method – basically assessing the cost of measures that have to be implemented to achieve the Directive's objectives by 2015, and using these as a proxy for environmental costs. Although this approach is recognised as imperfect, it is the only one considered as operational in the time available.

Four respondents suggested other sources of information for decisions on the costs-effectiveness of measures, of which three specified them:

- A Hungarian respondent suggests data from standard financial information based on cost benefit ratio to be used for their decision-making.
- According to a respondent from Spain an 'analysis of perceptions and willingness to pay' may be useful.
- An Italian respondent would use possibly all five types of information, with the most detailed likely to be prevailing.
- As suggested by a further Italian respondent, cost-effectiveness based on original valuation studies are more relevant for local decisions and projects.
- The UK respondent points out, that the information used will be appropriate to the decision to be made: where possible, a decision may be based on qualitative information only. If this is not possible, more sophisticated types of information, including monetary valuation, will be used.

Chapter 8

Eight respondents added comments on the use of economic valuation at different stages of decision making.

- A respondent from Belgium pointed out that, in the WFD context, a cost-effectiveness analysis would be used in the middle stages of decision making (i.e. from identifying options to choosing an option).
- A further respondent from Belgium pointed out that the need for action mainly concerns those water bodies for which achieving environmental objectives by 2015 is very unlikely. However, it is not only the need for action that needs to be discussed with stakeholders, but also the extent and the importance of potential measures to achieve environmental objectives. In terms of definition of problems the respondent points out that this is achieved through the analysis of pressures on water bodies. Further, the identification of options depends on the problems to be solved in water bodies at risk, and on the discussions with stakeholders. The respondent also suggested that an appropriate definition of measures is an important task as this will avoid mistakes in the assessment of costs and effectiveness. The ranking of

measures to achieve good status would then be based on cost and effectiveness. When combining measures the respondent considers a valuation of costs and effectiveness of the combination as important. Subsequently the selection of measures or combinations of measures to achieve good status has to follow cost-effectiveness criteria. The respondent also thinks that stakeholders have to be involved in the choice of measures, though taking into account that the environmental objectives have to be reached. Finally the respondent from Belgium considers implementing an option an important step, because implementing a measure and monitoring the implementation will give an important feedback in terms of difficulties to apply the measure and real effectiveness and costs.

- A Hungarian respondent points out that recognising the need for action varies from issue to issue, because in some cases like flood protection the need to act is clear while in others it is not. Another Hungarian respondent suggests that the relevance of economic valuation for the decision stages of ranking options, combining different options and choosing an option depends on the importance of the issues at stake.
- As pointed out by a respondent from the Netherlands, the need for action depends on the results of the risk analyses required by Article 5 WFD. The same applies to the decision stages of discussing the need for action with stakeholders and problem definition. According to the respondent the stages of identifying and describing option should include a technical analysis of potential measures. Instead of ranking options the respondent suggests that carrying out those measures that increase welfare may be more worthwhile. This should also apply to combinations of measures and choosing an option. In terms of involvement of stakeholders and communicating a decision to them the respondent argues that valuation provokes discussion. However, for the technical implementation of measures valuation is not required. In addition, as the respondent holds, valuation studies will not be used to estimate expected financial revenues. The respondent also claims that economic valuation will not be relevant for the stage of evaluating implementation and feedback as long as the valuation study was meant to measure potential welfare increases instead of estimating expected financial revenues.
- A Norwegian respondent points out that they would have considered economic had the methods been more sophisticated in measuring and documentation of benefits.
- According to the UK respondent recognising the need for action is often a politically driven process. Accordingly, collaborating with stakeholders to define the purpose of the valuation and the use of the values could be valuable. In terms of problem definition the respondent considers it critical to incorporate the science, scale, temporal aspects and policy drivers. This is because the ‘problem’ is largely driven by technical and scientific assessment. Thus valuation of associated environmental impacts in terms of costs and benefits will have to link into the scale, nature and significance of the problem. Further it is critical to incorporate the science, scale, temporal aspects and policy drivers into the stage of identifying options as the process will be driven by technical causes of problem and policy drivers. This also applies to the description of options, the stage of combining different options and the stage of choosing an option. For ranking options the respondent considers this useful, but not critical. In terms of involving stakeholders in the choice of an option, the respondent suggests that this may bias the valuation results. However, valuation needs to be focused on householders or a representative sample of those affected by the changes. Still, it needs to be ensured that stakeholder dialogue does not just lead to or exacerbate disputes over the valuations, which could otherwise just discredit the valuation techniques. The respondent does consider economic valuation essential for communicating a decision to stakeholders, though this has also caveats.
- A Danish respondent considers economic valuation relevant for the monetisation of side effects at the decision stages from identifying options to the stage of communication a decision to stakeholders.

A considerable number of respondents (fifteen in total) used the opportunity to provide additional comments on the role of economic valuation methods in decision support:

- In response to statement a), a Dutch respondent cautioned that while valuation should make non-priced items visible in a cost benefit analysis, their use may also result in protracted discussions on valuation methods. Therefore agreement on the methods is important, just as management of expectations on what the value of valuation is: mostly, the generated values represent utility, not money that can be turned into cash.

- Likewise, a further Hungarian respondent remarked that he could agree with statements a) and b) in theory, though not necessarily in practice. This was supported by two Lithuanian respondents, according to whom economic evaluation will be helpful in practice provided that a good practical methodology and relevant data are present. It was also supported by a Danish respondent, who argued that the statements a) to c) hold if a potential 'exemption case' and a good study or benefit transfer is available.
- Likewise, an Italian respondent pointed out in a comment to statement b) that it is not always the economic ideal that is chosen, as the political process leads elsewhere.
- Regarding statement c), a Dutch respondent points out that cost benefit analyses in general force decision makers to make trade-offs they were used to make implicitly more explicit and therefore transparent.
- Regarding the statement d) on practical limitations inhibiting the wider use of valuation studies, respondents from Belgium, Hungary and Romania suggested lack of time, resources (money), data, and knowledge as such limitations. In reference to the same statement, a Dutch respondent remarked that the minimum valuation does is provoking discussion. This in itself is important in a transparent decision making process.
- The UK respondent warns that any kind of valuation depends on robust science as well as good monitoring and understanding of cause and effect – all of which are highly variable in terms of the WFD. Relating to statement d) the respondent suggest that all the listed constraints appear in practice, although at varying degrees. The respondent holds that economic analysis should be considered as one input to a broader range of work and inputs informing a decision-making process. Also, economic analysis builds upon scientific analysis or information and is thus dependent on the work and advances made in the relevant science(s).
- In response to statement e), an Italian respondent suggested that the actual decision often does not depend on the outcome of the economic analysis, as the choice to be made is determined in the political process, while the economic analysis only informs the choice of an implementation mechanism to reach the objective. On the same statement, two Romanian respondents argued that an economic evaluation inevitably involves some errors and uncertainties, a fact of life which has to be accepted by all parties from the beginning.
- Several respondents questioned whether economic valuation is actually necessary to meet reporting requirements of the WFD, and hence whether the statement f) is phrased in the right way.
- A Norwegian respondent critically remarked that the statements were rather general. The usefulness of economic valuation will depend on the specific case and how the analysis is carried out.

Three respondents took the opportunity to insert further statements (with which they obviously agreed):

- A German respondent stated that the economic valuation methods are only a tool among others and cannot anticipate the outcome of a decision.
- According to a Hungarian respondent, they help to justify a decision, and are not an addition to a decision. Further they help to select the most cost-effective option.
- Finally, Norwegian respondent thinks that economic valuation methods help to define or visualise the size of a problem.