ANNEX II

GD 2.1: PRESSURES AND IMPACTS

THESE PRBS SHOULD HAVE TESTED THIS GUIDANCE DOCUMENT:

SULDAL
JUCAR
OULOJOKY
MOSEL/SAAR
NEISSE
ODENSE
MARNE: ALSO SEE: TOR21_IMPRESS_30SEPT03.PDF
PINIOS
SHANNON
TEVERE
CECINA
SCALDIT

2.1-1 CRITERIA FOR (POTENTIAL) SIGNIFICANT PRESSURES

QUESTION: Is the list of "pressures" and the related "criteria" adequate as a basis to define those significant pressures at water body level that pose a risk of failing to meet the environmental objectives.

SULDAL: The lists of pressures in table 3.2, 3.3, 3.4, 3,5 and the pressure checklist in table 4.1 and 4.2 in the IMPRESS Guidance gives a very detailed review of potential significant pressures on surface water bodies from different human activities (driving forces). The criteria for potential significant pressures has a strong focus on pollution pressures (point sources and diffuse sources), while the morphological pressures, water flow regulation pressures and water abstraction pressures are less focused. In the river Suldalslågen the potential pressures from pollution sources are present, but the potential pressures from alteration of hydrologic regimes are fare more significant because of the intensive utilisation of the watercourse for hydropower production purposes. The described situation with the main potential pressures on hydrologic regime and morphology, is a common case for several Norwegian watercourses.

The pressures on river and lake morphology and hydrologic regime are specially focused in the HMWB criteria (in the separate HMWB-Guidance). For Norwegian water bodies a more distinct integration of the HMWB analysis in the analysis of potential significant pressures is recommended.

JUCAR: The Spanish Directorate General of Hydraulics Public Works & Water Quality from the Ministry of Environment, has elaborated a Manual for the Analysis of Pressures and Impacts on Surface Water Pollution. The criteria for significant pressures set out in this document is based on the classification by point and diffuse contamination sources. In the manual is also established which magnitude is to be measured, and how those magnitude can be defined by means of parameters and their thresholds, for a pressure to be included in the analysis.

1) POINT SOURCE		
TYPE	MAGNITUDE	
	THRESHOLD	PARAMETERS
Urban waste water	2.000 equiv.-inhabitants	- Flow (m3/year, m3/month , m3/day)

2.000 h-e		- Equivalent inhabitants - Biological Oxygen Demand DBO5 - Authorized pollutants (mg/L , g/year) - Urban runoff effect
Biodegradable Industrial discharge	4.000 equiv.-inhabitants	- Caudal (m3/year, m3/month , m3/day) - Authorized pollutants (mg/L , g/year)
Industrial discharge. IPPC activities.	IPPC activity	- Caudal (m3/year, m3/month , m3/day) - Authorized contaminants (mg/L , g/year) - Authorized hazardous substances (mg/L, g/year)
Industrial discharge. Hazardous substances	Spillage of hazardous substances	- Flow (m3/year, m3/month , m3/day) - Authorized hazardous substances (mg/L, g/year)
Aquaculture. Fish farming	flow >250 l/s	- Flow (m3/year, m3/month , m3/day) - Pollutants, especially nutrients and pesticides and herbicides (mg/L y g/year)
Mines	Drainage flow > 100 l/s	- Flow (m3/year, m3/month , m3/day) - Hazardous substances and pollutants which can infiltrate in soil.
salt spillage	100 T/day TSD1	- Flow (m3/year, m3/month , m3/day) - Pollutants y salts (mg/L , g/year)
Industrial refrigeration	Production 10 MW	- Caudal (m3/year, m3/month , m3/day) - Effluent Temperature (ºC) - Pollutants (mg/L , g/year)
Urban landfill sites	10.000 equiv.-inhabitants.	- Lixiviation - Hazardous substances and pollutants which can infiltrate in soil (mg/L , g/year)
Landfill sites of hazardous and toxic substances		- Lixiviation - Hazardous substances and pollutants which can infiltrate in soil (mg/L , g/year)
Landfill sites of non hazardous substances	Judgment of evidence impact	- Lixiviation - Hazardous substances and pollutants which can infiltrate in soil (mg/L , g/year)

Table 4 from the Manual: Threshold Values for identification of significant pressures from point sources.

2) DIFFUSE SOURCE		
TYPE	MAGNITUDE	
	SHOLD	PARAMETERS
Unirrigated Land	% of acreage	- % basin surface - Nutrients and pesticides
Irrigated Land	% of acreage	- % basin surface - Nutrients and pesticides
Cattle Production	% of used acreage or number of animals	- Type of production. - Number of animals
Polluted soils	soil surface	- % basin surface

	affected	- Hazard and pollutant substances
Highways/ Roads	used surface	- % basin surface - Pollutants: especially hydrocarbons, lead, herbicides.
Railroad	used surface	- % basin surface - Herbicides.
Gas stations	Population served	- Population served - Security measures for ground depots.
Mine zone	used surface	- % basin surface - Hazard substances and pollutants.

Table 5 from the Manual: Threshold Values for identification of significant pressures from point sources.

The criteria for the rest of water types and pressures has not yet been established but in principle will be considered those which produce significant:

- Abstractions and returns (for surface and ground waters).
- Disturbance of the natural flow and runoff.
- Hydro morphological Alterations of natural channels.
- Other Human activities with relevant effect.
- Land use.

OULOJOKY: A few pressures were added to the list of the guidance. The pressures could not be quantified for the surface water body level. At this stage, we had to use the boundaries of the sub-basins and sub-sub-basins. For the present, the criteria for defining significance of pressures have not been determined.

MOSEL/SAAR: La liste des **pressions** semble assez complète. Aucun manque n'a été décelé par rapport au guide français ou allemand.

Les **critères** sont utiles pour savoir s'il y a un risque de ne pas atteindre les objectifs environnementaux (ou RNAOE). Ces critères doivent concerner des seuils de rejet, de prélèvement, etc., mais aussi des comparaisons par rapport aux valeurs de débit dans les rivières, de recharge dans les nappes, etc. (donc des informations sur l'**état** –state- des masses d'eau).
La liste des pressions convient comme base de travail ; étant donné qu'elle est explicitement qualifiée de « liste incomplète », la prise en compte d'autres aspects n'est pas exclue.
Les critères sont également cités à titre d'exemples ; ils seront utiles pour appréhender la problématique, ce qui n'empêche cependant pas d'opter pour d'autres possibilités jugées comme étant sensées.
On peut regretter que le guide ne fournisse pas beaucoup de critères ; certes, la méthode LAWA pour les eaux de surface est présentée, mais aucun critère n'est retenu pour les eaux souterraines. On recommande que la liste des critères soit complétée.

Die Liste der **Belastungen** scheint relativ vollständig zu sein. Hinsichtlich des französischen oder deutschen Leitfadens konnte kein Mangel festgestellt werden.
Kriterien erweisen sich bei der Frage als nützlich, ob ein Risiko besteht, die Umweltziele nicht zu erreichen. Diese Kriterien sollten die Schwellenwerte für Einleitungen, Entnahmen usw. berücksichtigen, aber auch Vergleiche in Bezug auf die Abflusswerte in den Flüssen und in Bezug auf Grundwasseranreicherung usw. (also Informationen zum Ist-**Zustand** der Wasserkörper).
Die Liste der Belastungen ist als Grundlage geeignet ; da sie ausdrücklich als „unvollständige Liste" bezeichnet wird, ist die Berücksichtigung weiterer Gesichtspunkte nicht ausgeschlossen.

Auch die Kriterien sind als Beispiele aufgeführt ; sie sind grundsätzlich geeignet, sich der Fragestellung zu nähern, was die Wahl anderer als sinnvoll erachteter Möglichkeiten nicht ausschließt.
Es ist bedauernswert, dass das Guidance-Dokument nicht viele Kriterien liefert. Die Methode der LAWA zu den Oberflächengewässern wird zwar dargestellt, für Grundwasser wird jedoch kein Kriterium festgehalten.

NEISSE: Czech: Since any other monitoring will not be done within the Pilot Project of the Lužická Nisa, the available source data will be rather limited. If monitoring data are not available for the respective water formation, the state will have to be assessed with use of similar analogous locations, which such data are available for. The same applies to other input data required for the solution of the Pilot Project. That is why we consider the list of "pressures" and corresponding "criteria" too extensive for the first assessment and we will be made to focus on the most significant of them only, on the ones documented with sufficient source data. We will proceed similarly as in the German part of the river basin (using the criteria of the document published by LAWA), which narrows the scope of the assessed pressures and criteria given in the IMPRESS material. The criteria will be derived from the valid Czech legislation, amended in conformity with EU regulations.
We assume that in the Czech part of the basin of the Lužická Nisa the impact of stigmatic of pollution will prevail for the affected water formations in comparison with expanse sources.
German: The list of pressures in the IMPRESS guidance document is rather detailed. Using every parameter mentioned there would need a big data set. The German LAWA published a „criteria document" to identify significant pressures in a more easy way. This document is also mentioned in the IMPRESS paper as a possible tool, helping to do the pressure and impact analysis in time.
In the PRB Neisse we considered these LAWA criteria as well as some additional parameters important in this catchment: We assume, that non point sources of nutrient input will play an important role in the Neisse basin because of agriculture being the major land utilization there. Using results from an other research project, detailed data from water balance models are available. Combining these data with the results of nutrient wash out calculated by MONERIS we are able to estimate the relative load of non point sources. We will compare these results with the assessment of the LAWA „criteria document".

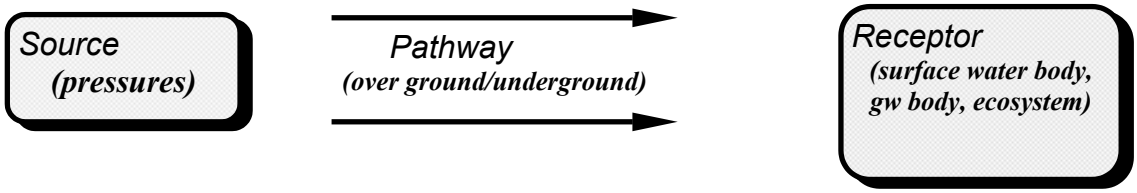
ODENSE: The list of pressures generally seems to be sufficient, but ought to be enlarged in some areas, e.g. agricultural pressures and driving forces. However, the number of water bodies - especially in the case of watercourses and lakes - will be so great as to preclude a complete analysis of significant pressures that pose a risk of failing to meet the environmental objectives for specific water bodies. The GD expresses awareness of this problem. No general criteria for significant pressures are listed in the GD. Examples are given from different countries.

MARNE: Qualifiers presented in table 4.3 (Impress, p. 58) are used to screen every individual pressure with absolute criteria (e.g. sewage-treatment plant > 2000 population equivalents). In the District characterisation V1 (c.f. part B), we preferred to integrate all pressures in terms of density
per water body and to translate global pressures into relative criteria with regard to dilution capacity (e.g. potential impact of pressures on substance)

PINIOS: The tables 3.1 – 3.6 and 4.1 – 4.3 are very useful for the analysis of pressures and impacts at general. The list of pressures seems sufficient.

SHANNON: The pressure checklist in Tables 4.1 and 4.2 of the IMPRESS guidance document do provide a reasonably complete list for screening potential pressures and their significance. The Irish *Characterisation and Reporting Working Group* have adopted a formal 'risk assessment' approach. This group is developing a Risk Assessment Methodology document, elements of which are presented here. A summary schematic of the Risk assessment methodology is presented in Appendix 2. This methodology proposes a framework that

should be applied to all categories of water (groundwater, rivers, lakes, transitional and coastal) in order to maintain consistency and linkages between water categories (e.g. downstream effects). It is largely a screening process using matrices and layers in a GIS, which are based on available data. Monitoring data where available is an important component of this methodology providing an indication of water body status and threshold values to validate the pressures and impact assessment.
The risk concept in essence is basic and simple:



The risk depends on all three elements. For example:

- If there are no pressures, there is no risk to receptors, even if they are 'susceptible' and/or 'sensitive'.
- If there is a significant thickness of low permeability subsoil (i.e. the vulnerability is low), even if there are significant pressures, the 'susceptibility' of groundwater is low and therefore the risk to groundwater is low.
- If the receptor is particularly resilient (i.e. is not sensitive), such as calcareous lakes with a buffering capacity to acidification, then the risk is diminished.

The IMPRESS guidance document correctly stresses the need for a detailed understanding of each water body and its catchment area, and the need to develop a good conceptual model of how water bodies interact with each other and their associated terrestrial ecosystems. This will require in particular detailed information on pathways.
Table 4.2 of the IMPRESS guidance document was used to carrying out an initial screening for significant pressures. Each of the pressures listed were examined by national experts from each of the water categories and scored from 1 (minimum relevance) to 5 (maximum relevance), see Table 1 of Appendix 2. In this way high relevance pressures were identified allowing focused assessment on priority pressures. The priority pressures comprised the following main groups:

- Nutrients (N & P)
- Acidification
- Organic loading
- Chemical pollutants
- Abstraction
- Morphological changes

These key pressures require information on sources (pressure magnitude), pathways (susceptibility) and receptors (sensitivity). Appropriate thresholds need to be developed for each of these elements to determine whether a given magnitude of these pressures put a given water body at risk.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Brussels: Cannot be answered yet

Flanders: The check list of pressures is a useful tool to start the analysis. The table with criteria for significant pressures (LAWA screening tool), gives you an idea in which way the work could be done, it is an uncompleted list and should be more developed and specified.
France: The list of pressures presented in the guidance is very interesting since it is quite exhaustive. Some of them might be very difficult to evaluate since 2004 but they can even be seen as objectives for the next step of WFD implementation.
Regarding the aim of defining the pressures that can lead to fail an objective of the WFD, the evaluation of these pressures will be useful.

The suggestion would be to give best definitions of the criteria and to propose common methods that could be used to evaluate these pressures (see D8).
Indeed, some of the pressures are already well known and evaluated, but some of them have hardly been taken into account since now, and the guidance is particularly light regarding their description (for example morphological and "other anthropogenic" pressures - see pp. 56-57).
These processes of pressures evaluation and risk assessment (that has to be related to the work on scenarios of evolution) will be facilitated by the common concepts presented in the guidance.
Yet, the definition of "significant pressures" at a water body scale will be the conclusion of these processes but it will not then be used as a screening procedure leading to study precisely, in a given water body, only these pressures.
Netherlands: Useful as a starting point
Wallonia: Is it the LAWA list on page 58 ?
The definition of significant pressure (i.e. a pressure that alone or in combination with others pose a risk of failing to meet the environmental objectives) induces a methodological problem since this risk of failing to meet the environmental objectives has to be assessed from the analyses of significant identified pressures and impacts!
The methodology using a list of "pressures" and the related "criteria" as a basis to define the significant pressures at water body level must be carefully applied. Indeed, the pressure will (or will not) be significant depending on the characteristics of the target on which the pressure is applied (and notably its vulnerability). Moreover, the identification of significant pressures has to take into account the cumulative, synergetic or antagonistic effects of different pressures.
Another problem is that numerical limits have not yet been set to define the boundaries in each of the elements defining the (good) status (and consequently the objectives).

2.1-2 IMPACT INDICATORS AND THEIR THRESHOLDS.

QUESTION: Is the list of "impact indicators" and "threshold sizes" adequate to asses the risk of failing to meet the environmental objectives.

SULDAL: The list in table 3.2, 3.3, 3.4 and 3.5 in the IMPRESS Guidance gives a broad, but not very specific, review of possible impacts from the different types pressures.
A relationship between the magnitude of a pressures and the actual impact on the water body is not possible to establish using one set of thresholds across Europe because of difference in vulnerability to the pressure in different water bodies. National or regional threshold values are not established. Therefore the assessment of impacts on a water body requires some quantitative information to describe the state of the water body.
In cases in which "state" data are available from the water body itself, it may be possible to make a direct assessment of the impact of a specific pressure. However most pressures do not create a clear-cut impact, but rather change the probability of adverse conditions. Clear-cut impacts are more common for pollution pressures compared to pressures from hydrological regime perturbations and changes in river morphology. Therefore monitoring data on chemical and physico-chemical quality elements from the water bodies are specially valuable for the impact assessment.

JUCAR: See the answer to the point 2.1-1

OULOJOKY: Not yet determined

MOSEL/SAAR: Pour savoir si une masse d'eau présente un RNAOE, les impacts ou les changements de son état sont utiles s'ils sont associés à des indicateurs (i.e. présence et abondance des éléments biologiques, des valeurs seuils pour les éléments physico-chimiques, une série

temporelle pour voir les tendances observées dans les eaux souterraines, etc.). Une partie de ces impacts peut être identifiée par les programmes de surveillance.
Si les indicateurs le permettent, on peut alors déterminer l'état actuel de la masse d'eau et, selon l'évaluation de l'évolution des pressions à venir, savoir si cette masse d'eau est clairement, soit à risque,soit sans risque ou si l'on doit analyser plus en détail la masse d'eau.
Le document guide fournit, à titre d'exemple, une liste d'indicateurs dont on ne connaît pas la valeur. Il convient d'établir une liste plus exhaustive des « indicateurs d'impact » et de leurs seuils comme cela a été fait pour les pressions. Par ailleurs, il y a lieu de mentionner que le statut des exemples cités en annexe V n'a pas été clarifié.

Dans le secteur pilote Moselle-Sarre, l'Allemagne se réfère au système LAWA figurant dans l'annexe V, n° 13 du document guide.
En Belgique, en France et au Luxembourg, on se réfère au système expérimental SEQ Eau qui est basé sur les 10 critères d'altération suivants :

1. Altération par les matières phosphorées
2. Altération par les matières organiques et oxydables
3. Altération par la minéralisation
4. Altération par les nitrates
5. Altération par les matières azotées
6. Altération par la coloration de l'eau
7. Altération par les effets de la prolifération végétale
8. Altération par les particules en suspension
9. Altération par la température
10. Altération par l'acidification

Bei der Frage, ob ein Wasserkörper Gefahr läuft, die Umweltziele nicht zu erreichen, sind die Auswirkungen oder die Änderung seines Zustandes nützlich, falls diese mit Indikatoren verknüpft sind (i.e. Existenz und Vielzahl von biologischen Elementen, Schwellenwerte für die physikalisch-chemischen Elemente, eine Zeitreihe zur Darstellung der im Grundwasser beobachteten Tendenzen, usw.). Ein Teil dieser Auswirkungen kann durch die Überwachungsprogramme ermittelt werden.
Falls die Indikatoren es zulassen, kann man somit den Ist-Zustand des Wasserkörpers bestimmen und in Abhängigkeit der zukünftigen Entwicklung der Belastungen herausfinden, ob dieser Wasserkörper eindeutig entweder als „risikobehaftet" oder als „risikolos" einzustufen ist, oder ob der Wasserkörper eingehender untersucht werden muss.
Das Guidance-Dokument beinhaltet als Beispiele eine Liste von Indikatoren, deren Wert unbekannt ist. Es sollte eine erschöpfendere Liste der „Wirkungsindikatoren" und ihrer Schwellenwerte aufgestellt werden, wie dies auch für die Belastungen getan wurde. Darüber hinaus sollte darauf hingewiesen werden, dass der Status der in Anhang V aufgeführten Beispiele nicht deutlich wurde.
Im Pilotgebiet Mosel-Saar bezieht Deutschland sich auf das in Anhang V, Nr. 13 des Guidance-Papiers aufgeführte LAWA-System.
In Belgien, Frankreich und Luxemburg bezieht man sich auf das experimentelle System SEQ-Eau, das auf den zehn folgenden Beeinträchtigungskriterien beruht:

1.Beeinträchtigung durch phosphorhaltige Stoffe
2.Beeinträchtigung durch organische u. oxidierbare Stoffe
3.Beeinträchtigung durch Mineralisierung
4.Beeinträchtigung durch Nitrat
5.Beeinträchtigung durch nitrathaltige Stoffe
6.Beeinträchtigung durch die Färbung des Wassers
7.Beeinträchtigung durch übermäßiges Pflanzenwachstum
8.Beeinträchtigung durch Schwebstoffpartikel
9.Beeinträchtigung durch die Temperatur
Beeinträchtigung durch Versauerung

NEISSE: Czech: At the moment we can use the threshold values embodied in the valid Czech legislation, amended in conformity with EU regulations (for example for dangerous substances in conformity with Directive 76/464/EEC). Regarding the aspects, which the

threshold values are not defined for, it will be necessary to use the threshold values determined based on a qualified estimate, which will be used within eco-regions or small geographical units. We consider suitable to use the experience gained in Germany in these cases as part of the unified approach to the solution of the Pilot Project of the Lužická Nisa (see the LAWA document again).
German: In the LAWA „criteria document" used (see 2.1-1), the way how to identify significant pressures as well as criteria for impact indicators for chemical pollution and corresponding thresholds are described there.

ODENSE: The list of impact indicators seems sufficient. Again no specific thresholds are defined/mentioned. The GD primarily focuses on pressures, and to a lesser extent on impacts.

MARNE: Some impact qualifiers are presented in Impress, annex IV, § 4 (e.g. French SEQ). The District characterisation V1 showed limits of such qualifiers with regard to biological impact (c.f. part C). But at the moment, there are no exhaustive sets of observations and no operational models to assess the impacts on the biology for every water bodies. So, it seems that using qualifiers is the only way to do the work systematically. Links with biology should be documented. Additional information should be provided whenever necessary: expert judgement, model results, biological indicators, data from investigative monitoring.

PINIOS: *NO ANSWER.*

SHANNON: The impact indicators listed in the IMPRESS guidance document are generally thorough and useful. However, guidance on thresholds needs to be developed further. Given the implications of identifying water bodies at risk and subsequent requisite program of measures it is likely that the thresholds will be derived on both a scientific and political basis. However, it is not clear how to proceed based on the current guidance. The acceptability of such thresholds will be particularly critical for stakeholders involved in implementing the program of measures.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Brussels: Cannot be answered yet,

Flanders: Useful as an example.
NOTE : Each country has already his own system to classify the water quality. The difficulty of the exercise is to gear all this methods
France: No. Though the list of criteria that can be used to assess the "impacts" or fairly the "quality" is quite complete (chapter 3.4.), the evaluation of impacts requires to establish a link between the pressures and the observed quality. The notion of susceptibility of the water bodies to the pressures is also not taken into account in the document.
It also requires being able to compare this quality with the thresholds of good ecological status for example (see D1)... The problem is that we will not know these thresholds until a few years and the IMPRESS guidance does not propose any of them.
You ask us about the appropriateness of the "thresholds sizes" but the Annex IV only present four different national tools but does not propose a common tool for impact assessment.
Netherlands: Useful as a starting point
Wallonia: Is it the list of Finland (table annex IV.3)?
A list of "impact indicators" and "threshold sizes" can provide a useful tool to determine an impact, but it doesn't help to decide whether the water body will reach or fail the good status, since numerical limits have not yet been set to define the boundaries in each of the elements defining the good status (and consequently the objectives to reach).
Another problem is that for the first pressure and impact analysis, we have to use only the available data, and these data are not always available for each of the defined water bodies.

2.1-3 DPSI(R) CONCEPT.

QUESTION: Is the DPSI(R) concept applicable in practice.

SULDAL: The DPSI (R) concept seems so far applicable as a framework for the analysis of pressures and impacts of human activities on water bodies.
The R component of the model has not been tested in the implementation study so far.

JUCAR: The manual set out two ways for developing the IMPRESS process: Quantitative and qualitative analysis, and the Drive, Pressure, State and Impact sequence is present in this process. The latter analysis is based on the identification of source pollutants and the register of the quality monitoring network for the water bodies. Then an assessment is done based on the quality status in order to make classification into three types: High, Medium and Low risk water bodies.
The quantitative analysis must be done by means of a mathematic model which order the water bodies accordingly to the risk of failing to achieve the environmental objectives. In this way a value for this risk is assigned to every water body so the water body set can be sorted out by their status.
For carrying out the quantitative assessment a number of formulas are proposed in order to evaluate the pressure, state and impact of a WB. For instance in the case of a direct spillage the pressure can be expressed as:

$$P = P(\text{Volume of spillage, Type of Industry, Pollutant level})$$

and the state of a surface water course originated by the spillage can be evaluated through its sensibility which depends mainly of the rate flow, so:

$$S = S(\text{flow rate})$$

and finally the impact is assessed as a function of the pressure and the sensibility:

$$I = I(P,S)$$

The idea is to a do parallel run of the two approaches (qualitative and quantitative analysis). Once the process is finished a comparison of the results must be carried out. The qualitative assessment must identify all water bodies with high and low risk. The quantitative one must put them in order for giving priority to the actions to be taken (measures). Moreover the reference condition sites can be chosen among the low risk water bodies as well as the identification of those between the borders of Very Good/Good and Good/Acceptable. This results will allow to design the intercalibration network.

OULUJOKY: Yes, the DPSI(R) framework systematisizes the different phases of the WFD implementation.

MOSEL/SAAR: Le concept pression-état-impact est directement utilisé lors de la modélisation de la qualité des eaux de surface avec PÉGASE. Notamment les pressions telles que les rejets urbains, industriels et agricoles sont prises en compte.
De même pour les métaux lourds, la méthode utilisée pour l'évaluation des apports (et donc des pressions) est celle validée et utilisée pour les inventaires 1996 et 2000 de la CIPR. L'impact de ces apports est encore à évaluer.
Pour d'autres substances, on utilise les valeurs limites ou seuils en vigueur au niveau national en tenant compte des directives européennes.
Les autres méthodes sont en cours de finalisation.

Das Konzept Belastung-Zustand-Auswirkung wird direkt bei der Modellierung der Qualität der Oberflächengewässer mittels PEGASE angewandt. Insbesondere werden Belastungen wie kommunale und industrielle Einleitungen sowie Einleitungen aus der Landwirtschaft berücksichtigt.
Für die Schwermetalle gilt die gleiche Methode zur Bewertung der Einträge (und damit der Belastungen) wie diejenige, die für die Bestandsaufnahmen 1996 und 2000 der IKSR validiert und angewandt wurde. Die Auswirkungen dieser Einträge sind noch zu bewerten.
Für andere Substanzen werden, unter Berücksichtigung der geltenden EU- Richtlinien, national geltende Grenz- oder Schwellenwerte angewendet.
An der Fertigstellung der anderen Methoden wird derzeit gearbeitet.

NEISSE: Czech: At the present time we are in the stage of data collecting for the relation of P(ressures) – S(tate) – I(mpact) and we do not have sufficient experience to be able to say unambiguously what extent the DPSI(R)-concept is practically usable to.
We consider the DPSI(R) system optimum for the assessment of large basins, in our opinion its use for relatively small water formations is limited, because it is difficult to collect the required input data. Alike in the German part of the basin it is possible to use the existing mathematical models (for example water balance, quality, etc.) in the Czech part. However, this method depends on or is affected by the quality of the input data as well.
German: The relation between pressures and state variables not assessed (following the DPSI-concept called „state", e.g. O2-concentration, HQ1, etc.) can be modelized rather easily. Models normally used are: precipitation-discharge-models or water balance models (e.g. NASIM), water quality models (e.g. ATV-FGSM) and models calculating the emission rate (emission model for urban areas e.g. MONERIS calculating the emission of non point sources, see 2.1-1).
We think that it is unlucky to use the word „state" (= not assessed) because it is easy mixed with the word „status" (e.g. ecological status) assessing the state. And it is not clear how to separate „status" from „impact".

ODENSE: DPSIR concept is applicable. However, the difference between Driving Force and Pressure and especially between State and Impact is not always clear. In this first phase the analyses will largely be based on expert judgment. However, some simple models are used, for example based on relationships between measured pressures and impacts (monitoring data). This goes for the impact of agriculture on diffuse nitrogen pollution, analyses of biological quality in streams and significant pressure variables, simple relationships between lake quality and nutrient loading (sensu Vollenweider approach). For near-coastal waters (Odense Fjord), a comprehensive dynamic eutrophication model has been established that allows the impact of excessive nutrient loading to be determined. Empirical modelling based on historical biological data has also been applied. The impact of groundwater abstraction on median minimum water discharge in streams has been calculated using simple models/calculations.

MARNE: Main interests of the DPSIR concept may be to clarify terminology and to organise the reporting (c.f. part B). In the District characterisation V1, simple indicators were calculated to evaluate impacts. Next step will be to integrate results from numerical modelling.

PINIOS: The DPSIR concept seems applicable in practice and is very useful.
Until now, we are using a concept more likely (D)riving Force – (P)ressures – (P)otential (I)mpact / (S)tate – (I)mpact. This concept is and will be also used for the hydromorphological changes. The expert judgements (mainly regional stakeholders) are used, until now, for the identification of a significant pressure and for the assessment of potential impacts and they are very useful and helpful. Even if there are enough data available, the expert judgements are used..

SHANNON: The Drivers-Pressures-State-Impact-Response concept is being adopted in the Risk Assessment Methodology outlined above, and is seen as a valid and applicable one.

Obviously the response element is yet to be implemented through the programme of measures.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Brussels: DPSI is applicable as a starting point, but our work stopped at the state, for the moment it is difficult to work with the 'impact'
Flanders: The DPSI-concept is applicable.
NOTE : the difference between state and impact is not always clear;
France: Till now a hard work was done to collect the information about the different pressures and the "state" at the water body scale.
The link between "state" and "impact" has not been done yet.
This work will come soon and a great place might be reserved to expert judgements.
Netherlands: Cannot be answered yet, work is still in progress
Wallonia: The DPSIR concept is an interesting approach that allows to ordinate the elements of the analysis and to group the pressures coming from different driving forces. Moreover, when pressures are not well known, the use of driving forces responsible for these pressures allows good assessments as well.
Finally, the links between driving forces and pressures allow to better know the origins of the pressures. This is important for the future management (to know where to act to preserve or improve the status).
Nevertheless, the clarification of the specific question 2.1-3 states that "I" (impact) means "can objectives be met?". The definition of "I" (impact) in the guidance document (p. 15 2.2; table 2.2) is: "the environmental effect of the pressure" without consideration to "objectives". If impact means "to meet the objectives", then the same remarks as for ToR 2.1-1 and 2.1-2 can be written here.
In some cases, the link between pressures and change of state (i.e. impact) is difficult to establish, especially when several important pressures are acting together or when links are not well known (e.g. between hydromorphological changes and biological or chemical state).
In case of hydromorphological changes, the first approach is the one adopted for the provisional identification of HMWB (for the first pressure and impact analyses, only available data have to be used).

2.1-4 HEAVILY MODIFIED WATER-BODIES (HMWB).

QUESTION: How was dealt with the provisional identification of HMWB and WB?

SULDAL: A screening for hydropower installations was carried out in the identification of water bodies. The list of possible HMWBs was passed directly to the step 2 on identification of HMWB.

JUCAR: HMWB are a particular case of pressure and as the first stage to a preliminary identification has to be set out. For doing this two requirements for a water body is needed at the same time in order to be considered as a HMWB:

- It must have significant hydro morphological alterations
- The hydro morphological alterations prevent it to achieved a good ecological status.
-

Since the definition of good ecological status will not be available until the end of 2006 the preliminary classification only can be made from the hydro morphological alteration.
Provisionally and by means of this criteria can be established as HMWB the following:

- Reservoirs with storage greater than 50 cubic hectometres.
- Urban river stretches
- Body Waters downstream of damns.
- Sheathed and artificial channels.

There is not a precise or clear criterion for the establishment of the distance or length of HMWBs downstream of damns, especially for the case of rivers. It looks reasonable to consider that stretch with disturbed flow by the hydrological regulation though this assessment should be done by experts on the subject.

OULUJOKY: *NO ANSWER.*

MOSEL/SAAR: La méthodologie d'identification des masses d'eau fortement modifiées est présentée dans HMWB.
Les masses d'eau fortement modifiées sont provisoirement caractérisées comme ayant un risque de non-atteinte du **bon état** (RNABE). On ne connaît pas encore le potentiel écologique, donc on ne peut pas encore évaluer le RNAOE.

Die Vorgehensweise zur Ermittlung der erheblich veränderten Wasserkörper ist im Guidance-Dokument « HMWB » dargestellt.
Die erheblich veränderten Wasserkörper werden vorläufig als solche gekennzeichnet, bei denen das Risiko besteht, den **guten Zustand** nicht zu erreichen. Da das ökologische Potenzial noch unbekannt ist, kann das Risiko, die Umweltziele zu verfehlen, noch nicht bewertet werden.

NEISSE: *NO ANSWER.*

ODENSE: *NO ANSWER.*

MARNE: IMPRESS suggests that "The first pressures and impacts analyses will therefore identify potential heavily modified water bodies" (Impress, §2.3.6, p.23). In the District characterisation V1 (c.f. summary in Marne PRB – IMPRESS guidance part B), preliminary designation of AWM and HMWB was reported independently from the analysis of pressures and impacts in chapter A.1 (i.e. surface water register). Designation was based on the existence of irreversible changes of the morphology of some water bodies which are assumed to have a big impact on the ecological status. Elements of justifications are given *a posteriori* with reference to Fish index distribution for modified and not modified water bodies (c.f. ToR HMWB). Chapter B.6 (i.e. morphological pressures and impacts) gives no information about morphological pressures on rivers. This chapter will be completed with the results of the "Reseau d'Observation du Milieu" (French Habitat Survey Network), it will therefore consolidate the preliminary designati on of AWM and HMWB.

PINIOS: In Pinios PRB, besides the groundwater bodies and Lake Karla, there are not many water bodies with heavy modifications. Some Water Bodies have been provisionally identified as WBs at risk.

SHANNON: Heavily modified water bodies have not yet been identified in the Shannon PRB.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Brussels: Identification of HMWB is dealt under P06 in coordination (common understanding) with P05. Till now, a list of significant morphological pressures has been made, on basis of pragmatic criteria. Change of hydromorphological quality elements (impacts) has not yet been dealt. See also P06
Flanders: Cannot be answered yet, work is still in progress

France: The link between the work on morphological pressures and the HMWB methodology was first discussed during a workshop organised in June 2003 by the project P06 (HMWB) of SCALDIT program.
At the moment, the links between the two projects are getting stronger and we hope to be able to find common procedures for the evaluation of morphological pressures. A new workshop will take place the 29 and 30 September.
At the moment only the WB concerned by navigation have been identified as HMWB but for the moment it is not possible to say if all of them will be identified "at risk" or not (most of them for sure).
Netherlands: Cannot be answered yet, work is still in progress
Wallonia: The risk assessment did not begin yet. We are in the data collection phase for pressures, and the delineation of HMWB is carried out at the present time.

2.1-5 BASE LINES

QUESTION: How was dealt with the impact of "autonomous developments" and "existing policies" in the impact assessments

SULDAL: In river Suldal the production of electricity in hydropower plants is the main user interest implementing a pressure on the watercourse. User interest producing pollution pressures (like municipal sewage treatment and agriculture activities) are less significant. Baseline trends in Norwegian energy sector and the national application of the HMWB category accordingly, will be decisive for the risk of failing to meet the objectives for water bodies in the Suldal river basin in 2015.No base-line study is performed in this region

JUCAR: The issues of *autonomous developments* and *existing policies* for the impact assessment is being studying at the moment.

OULUJOKY: We have not assessed baseline scenarios yet

MOSEL/SAAR: Il s'agit de prendre en compte au même titre, d'une part, l'application des directives « eaux urbaines résiduaires », « nitrates » et « produits phyto-pharmaceutiques » et d'autre part, les programmes d'action existants découlant des politiques nationales et locales ainsi que d'intégrer toutes les informations d'évolution que l'on connaît déjà (i.e. arrêt d'exploitation de mines, fermeture d'industries, évolutions démographiques déjà connues, etc.).

Hierbei müssen gleichermaßen sowohl die Anwendung der Richtlinien « kommunale Abwässer", „Nitrate" und „Pflanzenschutzmittel" als auch die laufenden, aus der nationalen bzw. lokalen Politik resultierenden Maßnahmen berücksichtigt werden, außerdem alle bereits bekannten Informationen zur Entwicklung (i.e. Stilllegung von Bergwerken und Industriebetrieben, bereits bekannte demographische Entwicklungen usw.).

NEISSE: *NO ANSWER.*

ODENSE: The base-line scenario is very uncertain for most of the pressures Known environmental policy measures have been dealt with. Some applied research is going on concerning the trend in agricultural production and expected trend in wastewater discharges in response to the improvements already decided.

MARNE: Future pressures are estimated from known tendencies (demographic data, pollution data,..) and measures that are planned for the next few years (c.f. ToR WATECO). Both expert judgement and numerical modelling will be used to forecast the corresponding evolutions of water quality in rivers. First results are expected for October 2003.

PINIOS: *NO ANSWER.*

SHANNON: Baseline scenarios (sum of the effects of "autonomous developments and existing water policies") have not yet been developed for the Shannon PRB.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Brussels: Cannot be answered yet

Flanders: Cannot be answered yet, work is still in progress
France: At the moment, the work on baseline scenarios is still ongoing.
When these models will be built, they will be applied on the driving forces / pressures and on the state of WB, in order to evaluate the WB at risk of failing the objectives in 2015.
A specific project (WG C - P02) is dealing with this topic among the program SCALDIT.
Netherlands: Cannot be answered yet, work is still in progress
Wallonia: The scenario study did not begin yet.

2.1-6 AGGREGATION FOR REPORTING

QUESTION: How is/will the gained information be synthesized to become the official art 5 WFD report for the Commission.

SULDAL: The information gathered on pressures and impacts can be linked to the NVE River Network System. From the River Network System data may be aggregated and presented on water body level as well as on river sub-basin level, river basin level and river district level. Other possible levels for presentation are REGINE-units, municipalities and counties.
No decision is taken on the reporting requirements in EU so far.

JUCAR: In principle the information will be supply in water body scale unless future results for a specific zone suggest a smaller level.

OULUJOKY: We have not assessed any aggregation. We are waiting for guidelines from the CIS-reporting group

MOSEL/SAAR: Le choix n'est pas encore défini mais il dépendra du degré d'agrégation des différentes données pour tenir compte notamment de la lisibilité des données.
L'information est synthétisée à l'échelle des masses d'eau, voire des zones hydrographiques, ou des zones de gestion comme le SAGE en France ou « Betrachtsraum » en Allemange.

Es wurde noch keine Auswahl getroffen; sie wird aber abhängen vom Aggregationsgrad der verschiedenen Daten, um so vor allem der Lesbarkeit der Daten Rechnung zu tragen.
Die Informationen werden auf der Ebene der Wasserkörper bzw. auf der Ebene der Einzugsgebiete oder der Bewirtschaftungseinheiten wie den französischen SAGE oder den deutschen „Betrachtungsräumen" zusammengefasst.

NEISSE: *NO ANSWER.*

ODENSE: GIS maps + technical reports and Appendix technical notes.

MARNE: See part B about the way information was aggregated in the first version of District characterisation (this will not be the official WFD report).

PINIOS: *NO ANSWER.*

SHANNON: The pressures and impact analysis will be carried out on a water body basis. The required scale of the GIS maps will dictate the degree of aggregation for reporting. There will also be a need to aggregate water bodies for practical water management purposes. This will particularly be the case for rivers and lakes. In both cases this will probably apply to water bodies of similar status and pressures. However, further guidance is needed on what the Commission requires in terms of reporting.

TEVERE: *NO ANSWER*.

CECINA: *NO ANSWER*.

SCALDIT: Brussels: Cannot be answered yet

Flanders: Cannot be answered yet, work is still in progress

France: At the moment it is not possible to say how the information will be aggregated for reporting.

The project "pressures and impacts" of SCALDIT has to propose some recommendations at the end of 2003 but the work is not yet enough advanced.

However, concerning the work that is done in the French part of the Scheldt river District, the data (georeferenced data in general) are gathered at WB scale. They are then aggregated by summing the pressures at the WB scale (for example, for a given driving force, all emissions of a given pollutant are summed within the WB).

Netherlands: Cannot be answered yet, work is still in progress

Wallonia: The aggregation for reporting did not begin yet. We are in the data collection phase for pressures.

2.1-7 SIGNIFICANT WATER MANAGEMENT ISSUES

QUESTION: How to identify significant water management issues (Art. 14.1 WFD)?

SULDAL: The most significant management issue arising from the IMPRESS-analysis is the demand of a data collection and data storage tool that can be used on all management levels. The NVE River Network should be the basis of this system.

It is necessary that all types of data can be linked to the River Network; both data directly from the water bodies and data from the drainage areas of the water bodies.

The analysis of pressures and impacts and will be coordinated with the economic analysis.

JUCAR: The significant water management issues are been studying at the moment

OULUJOKY: We have organized several stakeholder workshops dealing with this issue

MOSEL/SAAR: Plusieurs méthodes ont été (ou seront) employées pour déterminer l'impact des pressions et voir si elles sont significatives ou importantes (si elles compromettent l'atteinte des objectifs environnementaux).

Le type de pression exercée pour chaque masse d'eau (sous forme d'un tableau) sera déterminé à terme, ce qui permettra de savoir quelle mesure devrait améliorer l'état de cette masse d'eau si elle a un RNAOE.

Pour les pressions liées à l'émission de substances polluantes (matières organiques et oxydables, azote et phosphore) dans les eaux de surface, la méthode commune utilise le modèle PÉGASE et permet notamment d'estimer directement l'impact de mesures sur l'assainissement des rejets urbains et industriels.

Zur Bestimmung der Auswirkungen der Belastungen und zur Feststellung, ob diese als signifikant oder bedeutend einzustufen sind (ob sie das Erreichen der Umweltziele gefährden), wurden (oder werden) verschiedene Methoden angewandt.

Letztendlich wird die Art der Belastung bestimmt, die auf die einzelnen Wasserkörper einwirkt (in Form einer Tabelle). Damit wird man feststellen können, welche Maßnahme den Zustand dieses Wasserkörpers verbessern könnte, sofern er Gefahr läuft, die Umweltziele nicht zu erreichen.
Bei den Belastungen im Zusammenhang mit der Emission von Schadstoffen (organische und oxidierbare Stoffe, Stickstoff und Phosphor) ins Oberflächenwasser wird gemeinhin das PEGASE-Modell verwendet. Mit dieser Methode kann sofort eingeschätzt werden, wie sich die Maßnahmen auf die kommunale und industrielle Abwasserreinigung auswirken.

NEISSE: *NO ANSWER.*

ODENSE: This is - we believe - an outcome of the complete pressure analysis!

MARNE: Most of significant water management problems are already identified as far as they concern human life and activities. Some local or national organisations are in charge of those problems independently from the implementation of the WFD. Within the Seine-Normandie district, this task is dedicated to several Commissions géographiques" which are local extensions of the basin Committee and focus on sub-basin problems. The challenge is to organise top-down transfer of information about WFD objectives and to translate bottom-up feedback into WFD reporting (c.f. part C about Public participation).

PINIOS: *NO ANSWER.*

SHANNON: The risk assessment methodology described above will be the key tool used to identify the significant water management issues in the Shannon PRB. Several issues will be immediately recognised a priori as significant based on known impacts, media coverage, public awareness etc. (e.g. eutrophication, acidification, contamination of drinking water). However, the review of human impact required by Article 5 needs to confirm (a posteriori) actual significant water management issues in a consistent and transparent manner.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Brussels: Cannot be answered yet

Flanders: Cannot be answered yet, work is still in progress
France: At the moment, this task is not done, neither at the scale of the French part of the District, nor at the scale of the international coordination through SCALDIT program.
Netherlands: Cannot be answered yet, work is still in progress
Wallonia: This issue is coming too soon.

2.1-8 PM FOR GROUNDWATER ISSUES (IF ANY).

SULDAL: *NO ANSWER.*

JUCAR: *NO ANSWER.*

OULUJOKY: *NO ANSWER.*

MOSEL/SAAR: Pour mémoire –eaux souterraines (le moment venu)
PM für Grundwasserangelegenheiten (wenn überhaupt).

NEISSE: *NO ANSWER.*

ODENSE: *NO ANSWER.*

MARNE: *NO ANSWER.*

PINIOS: *NO ANSWER.*

SHANNON: *NO ANSWER.*

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: *NO ANSWER.*

GD 2.3: REFCOND

THESE PRBS SHOULD HAVE TESTED THIS GUIDANCE DOCUMENT:

SULDAL
JUCAR
OULOJOKY
NEISSE
ODENSE
PINIOS
SHANNON
GUADIANA
TEVERE
CECINA
SCALDIT

2.3-1 AVAILABILITY OF AN INFRASTRUTURE

QUESTION 1: Please give information on the availability of an infra structure consisting of:
Expertise
Databases
Models and other tools
Organisational structure

QUESTION 2: If the infrastructure was not (sufficiently) available, have you set up a group of experts for matters related to reference conditions and classification, ecological, chemical, hydrological, and statistical expertise as well as expertise on modelling, GIS and databases?

SULDAL: A combination of databases, expert judgements and models will be used in the classification of status, establishment of reference conditions and reference sites. For some river basins, a lot of data on biology are available, while in other river basins almost no data exists.

There is a potential for improvements of the infrastructure.

JUCAR: Currently three (3) networks for surface water monitoring are available in the Jucar PRB: quantitative, quality and biological. The first one is comprised of 138 permanent gauge stations and each of one provide a continuous measure of flow per unit of time. These stations are peppered all over the basin and placed in those strategic sections of rivers considered representatives of a catchment area. The second one accounts with 364 fixed sampling sites and is in charge of the monitoring of the water courses quality accordingly with the objectives set out by the currently in force Hydrological Jucar Plan. Finally the activity of the biological surface water network includes two annual investigations of macroinvertebrate communities as well as hydro morphological and physic-chemistry data, as well as the hydro morphological at 221 fixed sampling sites (which conform the network).The next figure shows a representation of the quantitative and bological network:

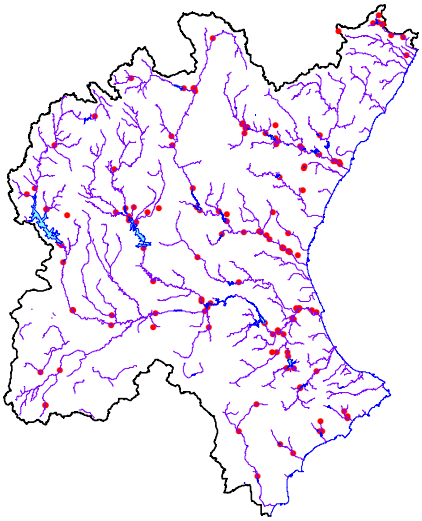


Figure-3. Jucar PRB Quantitative Surface Water Network.

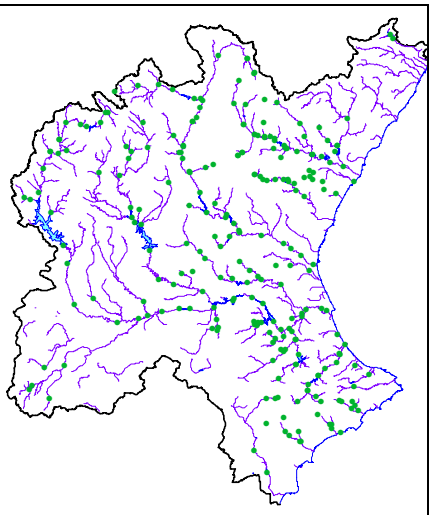


Figure-4. Jucar PRB Biological Surface Water Network.

For the hydromorphological data the following features are measured:

- Type of riverbed
- Width of water
- Depth of water
- Velocity of water
- Flow
-Slope

The following are some of the physic-chemistry parameters sampled:
- Temperature
- Dissolved Oxygen.
- Electric conductivity
- Redox
- Biochemical Oxygen Demand
- Suspended solids
- Chloride
- Sulphate
- Ammonium
- Nitrate
- Sodium
- Hardness CaCO3

With reference to the macroinvertebrate organisms the following are the more abundant taxons in the basin:

- Potamopyrgus antipodarum
- Chironomidae
- Gammaridae
- Baetis
- Caenis
- Oligoquetos
- Hydropsyche
- Simulidae
- Elmis
- Elmidae

OULOJOKY: The testing was made by persons well acquainted with water quality and biology monitoring and water management issues. Finnish Environment Institute (SYKE) has centralized data bases for water quality, hydrology, phytoplankton and pollution load. Diffuse source loads can be estimated with modeling tools. Regional environmental Centres (RECs) have good experitise in local water quality problems. RECs, SYKE, regional fisheries authorities, a local private water research firm, a local water protection association and the Fisheries and Game Research Institute participated in the testing..

NEISSE: Czech: A survey of the currently available data, relevant for processing the analysis of the characteristics of the basin areas and for the assessment of the impacts of human activity on the state of surface water as well as ground water as per Annex II to the general regulation:

SURFACE WATER		
Water formations	Water formations of running water (rivers) - definition and descriptive characteristics for the classification into the types (altitude, basin area, geology, eco-region, river system as per Strahler)	
	Water formations of stagnant water (rivers) - definition and descriptive characteristics for the classification into	

	the types (altitude, area, geology, eco-region, depth, time of delay)	
Stigmatic of pollution	Outlet into surface water - identification, location, purpose and quality (average annual concentration of BSK5, CHSK-Cr, P, oil substances, insoluble substances, soluble substances)	
	Industrial sources working with dangerous substances as per Directions 76/464/EEC and 86/280/EEC – location, quantity of dangerous substances, quality of released waste water	
	Communal sources of pollution (municipalities, parts of municipalities) over 1,000 inhabitants - location, use of sewerage and water treatment plants, number of connected inhabitants, number of EO	
Expanse sources of pollution		See ground water
Sampling	Sampling of surface water - identification, location, purpose, collected quantity per month	
Regulation of water outlet	Water works (reservoirs, weirs, transfers of water) – location and volumes of swollen, accumulated and transferred water	
Morphologic changes	Structure of banks, water works, buildings on rivers – location and technical parameters	
Quality monitoring	State monitoring network, monitoring of river administrators, monitoring of operators of drinking water sampling – location, values of quality indicators	
Quantity monitoring	State monitoring network, monitoring of river administrators – location, values of quality indicators	
Ground Water		
Water formations	Water formations – initial definition based on natural conditions	
	Natural characteristics of water formations - locations of natural drainage, types of hydro-geological structures, mineralization and chemical type of ground water, type of retardation, etc.	
Sampling	Ground water sampling - identification, location, purpose, collected quantity per month	
Nature of overlying layers	Vulnerability of rock environment	
Use of soil	CORINE	
Stigmatic of pollution	Old pressures (including old dumps) - location, pollutants, assessment of stress risk	
Expanse	Nitrates - excess nitrogen in soil	

sources of pollution		
	Atmospheric deposition (assessment in relation to acidification)	
	Pesticides – inputs and types of pesticides	
	Erosion – general assessment and assessment in relation to phosphorus	
Quality monitoring	State monitoring network, monitoring of operators of drinking water sampling – location, values of quality indicators	
Quantity monitoring	State monitoring network – location, values of quantity indicators	

Note: The mentioned data sources are nationwide, located in GIS databases.

German: see 2.0-13 and Meta-Database (not included but part of the progress report)

ODENSE: Lakes and coastal waters

The necessary expertise for all relevant items is available through cooperation between experts from Fyn County, the National Environmental Research Institute (NERI), the universities, and consultants.

During the past 15-25 years of monitoring we have obtained a reasonably fair knowledge of the environmental state in the larger lakes and main coastal stretches and fjords of our region. This knowledge includes parameters such as water chemistry and submerged macrophytes, and to a certain extent also phytoplankton, zooplankton, benthic macroinvertebrates and fish. All collected data (except for macroinvertebrates) are stored in databases.

Similar data from smaller lakes, ponds and smaller coastal waters such as small fjords, lagoons etc. are much sparser, which makes characterization and typologization rather difficult.

Data on input of nutrients are relatively sparse for all sizes of lakes except for a few especially well investigated large lakes.

Nutrient input to many lakes has therefore to be estimated using GIS techniques on models describing the relationship between catchment characteristics (soil type, topography, land use) and watercourse N and P concentration. Development of such models is in progress in Denmark.

For the coastal waters, nutrient input is well known for all major catchments, but not for small areas. Input of hazardous substances is less well known for lakes as well as for coastal waters.

Watercourses:

We generally have the expertise and also databases based on monitoring. We do not have any predicting models concerning reference conditions and classification of watercourses in relation to biology. Further, data for some of the small watercourses are few or missing.
The infrastructure is described in more detailed key issues of general nature and in 2.2-1.
Monitoring of water quality has provided information of the variation in water quality in the major streams in the catchment, (much less is known for small streams). This goes for nutrients, organic and suspended matter. Some information is also available for occurrence of pesticides and other harmful substances in streams.
Variations in water quality can be explained by over all variations in agricultural intensity (Nitrogen) in the different catchments. Less is known about the specific sources of diffuse phosphorus which is the major cause of phosphorus in streams.

Reference values for water quality are difficult to asses although monitoring data from small watercourses in small catchments without any agricultural activity and without any sewage outlets are available. Results from such watercourses might not be equal to 'reference water quality' because i.e. Nitrogen deposition is hugely increased due to anthropogenic sources outside the catchments, (agriculture, industry etc.) probably leading to increased nitrogen concentrations even in such streams. Moreover reference concentrations for phosphorus are believed to vary 'in nature'. At least in some areas, old marine deposits in under soil(!) can be the 'natural' source of increased phosphorus concentrations in streams.
Reference water quality will also vary in different catchments due to 'natural' variations in hydrology and retention of both nitrogen and phosphorus.

PINIOS: The availability of expertise and databases (for many aspects of the Project) is sufficient enough. The development of reference conditions, GIS models, etc. will be based on the experts judgement and expert groups have or will be se up.

SHANNON: Typologies for surface waters are being established on an Ecoregion basis. A Northern Ireland and Republic of Ireland Technical Advisory Group (NS-TAG) has been set up to progress typology and reference conditions for rivers and lakes in Ecoregion 17. For coastal and transitional waters the Shannon PRB lies in Ecoregion 1 for which typologies are being developed by UK and Republic of Ireland. The separately submitted Water Bodies Report presents the current stated of play regarding typologies.

Data availability is most extensive for rivers in Ireland, less so for lakes and least of all for transitional and coastal waters. Where suitable existing classification schemes will be modified to establish reference conditions when appropriate.

GUADIANA*: NO ANSWER.*

TEVERE*: NO ANSWER.*

CECINA*: NO ANSWER.*

SCALDIT: Flanders : Organisational structure on two levels: the ISC (ex-ICPS) treaty that the Flemish region signed in '99, and at the level of the Flemish Community, the 'Flemish Integral Water Consultation Committee (VIWC)' was founded in '96 to optimize the organisation of the Flemish water management.
This management committee set up a WFD working group, consisting of several sub working groups. Concerning the content of the WFD the combined sub working groups 'objectives surface water' and 'monitoring' are acting as a steering committee for studies on themes as typology, classification, intercalibration and monitoring. Concerning biological quality studies have been set up in cooperation with universities and other research units. The targeted research is focused on developing evaluation systems for the ecological assessment of water quality. Aims are the gathering of information about methodologies, gathering of useful data and eventually some monitoring for each biological element.The aim is to develop diversified assessment score systems for different types of Flemish surface water.
Walloon region : In the Walloon Region, expertise in Refcond is made by a consortium of labs and universities. The work is in progress.
Netherlands : See the "Regionale Watersysteem Rapportage" of the province of Zeeland.

2.3-2 DIFFERENTIATION OF A WATER BODY TYPE.

QUESTION : Did you use "system A" or "system B" in differentiating the surface water body types? Did you apply the obligatory factors of "system A" in case you chose "system B"?

SULDAL: System B was used in the differentiation into water types. The obligatory factors of system A were also used. Depth data are normally lacking for Norwegian lakes.

JUCAR: The differentiation of a water body type will be done accordingly to the ecotypes. For the definition of ecotypes the following parameters are being used:

- Altitud
- Latitud
- Longitude
- Flow energy (obtained by the product of flow by slope)
- Mean width and depth of the water flow
- Shape and configuration of the river channel
- Composition of the river bed

The combination of these features will produced a different ecotypes classification similar to that obtained by the system A of mandatory characteristics from Annex-II of the WFD (Altitude, geology and size of the catchment area). A methodology is being developed based on the application of techniques of spatial analysis (available functions on GIS) jointly with the statistical analysis (by means of clusters, principal components, correlations, etc) in order to determine which are the factors and classes that best characterize the ecotypes taking into account the definition of ecoregion previously done. In other words, the ecotypes will keep a strong link with the ecoregions. An aggregation analysis of the resultant ecotypes based on the geographical vicinity is to be done for avoiding physical discontinuities.

OULOJOKY: The system B was used. The obligatory factors in system A were applied, either as such or using factors indicating them (e.g water colour value indicating organic geology

NEISSE: German: See 2.0-6

ODENSE: Lakes and coastal waters:

Denmark has decided to use system B as a national standard.
For lakes, the NERI has therefore suggested a system based on the type characteristic variables alkalinity, colour, salinity and mean depth, with classes for each variable. This results in 16 lake types. The system is especially designed for lakes with an area >5 ha. However, as Funen County intends to classify every lake/pond with a surface area >100 m^2, we suggest that lake size (<0.1 ha, 0.1–1.0 ha, >1.0 ha) should be included as a type characteristic variable.
Moreover, we suggest a special type for saline lakes (>12 ‰).
Finally, the obligatory factors from system A will be used.

For coastal waters: see answer to 2.4-7.

Watercourses:

We have tested a typology proposed by the National Environmental Research Institute, Silkeborg. This system is a mix between A and B. It is chosen because our watercources are very small seen in an European perspective (96 % of total stream length is $<$ 10 m in width). We have used several parameters: position east/west of the Weichsel glaciation-front line, catchment area, stream width, distance from source, and stream order (sensu Strahler 1957). Most of our testing work is based on this typology.
One of our consultants, Hedeselskabet, have proposed and tested an alternative typology in one of our sub-catchments, using three parameters: catchment area, slope and median minimum discharge. The development of this system is not fully completed since testing in regard to biological parameters is not done yet.

PINIOS: ystem B is used with the obligatory factors of system A.

SHANNON: Typologies for surface waters are being developed centrally and are not yet fully developed.
System B is being used for all surface water body typologies.

GUADIANA*: NO ANSWER*.

TEVERE*: NO ANSWER*.

CECINA*: NO ANSWER*.

SCALDIT: Flanders : We used system B and applied the obligatory factors of system A for rivers. About lakes there has not yet been taken a decision in choosing system A or B; a system B will apply the obligatory factors of system A.
Walloon region : In principle system B has been used. Three descriptors are used : regional ecoregions (5 in the Walloon Region), river slope classes (3 classes: less than 5 ‰, between 5 and 7,5 ‰, more than 7,5 ‰) and size typology of the catchment area (4 sizes - system A).
Netherlands : System B, according to the report of Alterra.

2.3-3 PRACTICAL PRESSURE CRITERIA.

QUESTION 1: Did you use the "practical pressure criteria" as clues to agree on anthropogenic disturbance (REFCOND guidance, table 2 of par 3.4)?

QUESTION 2: Is the list sufficiently adequate to establish reference conditions and ecological quality class boundaries?

SULDAL: A list is developed as a tool to establish practical pressure criteria at high ecological status.

More than 200 water types are described, and the variation in the reference conditions are large. The list is a bit rough to use in establishing reference conditions and ecological quality class boundaries.

JUCAR: For the identification of the potential reference sites as a preliminary assessment the practical pressure criteria will be used. More concisely it will be carried out by means of the result of the preordination of the water bodies obtained by the quantitative analysis of IMPRESS process (see epigraph 5.1 of this document). In this way the pressure index for pristine water bodies adopted is cero (P=0), for heavily modified waters P could vary between 0.70-1.00, and so on. The potential reference sites should be selected among those with low or insignificant level of pressure. Nevertheless this process is being carrying out and no results are available yet.

In principle the provided list on the guidance (diffuse and point source pollution, morphological alterations, water abstraction, flow regulation, riparian zone vegetation, biological pressures, recreational pressures) covers all the possible spectrum that have a straight relationship to ecological impact and it will be suitable to establish the reference conditions.

OULOJOKY: The pressure criteria in Table 2 were used as a checking list when selecting lakes and rivers representing the reference conditions. The criteria were found to leave much space to subjective interpretations, which is also needed in various circumstances. Simultaneous assessment of pollution loads from point and diffuse sources, present water quality and trends was needed in addition to the criteria

NEISSE*: NO ANSWER*.

ODENSE: Lakes:

There are good empirical correlations between phosphorus load and in-lake phosphorus concentration. From the monitoring of Danish lakes we also have established quite good relationships between phosphorus concentration and several ecological parameters such as chlorophyll *a*, Secchi depth, composition of phytoplankton, zooplankton and fish, as well as the depth limit for submerged vegetation.

For many lakes, though, the ecological conditions in the lake are better known than the pressures. Consequently we did not use the pressure criteria to establish reference conditions and ecological quality class boundaries.

In the future process we will need to use pressure criteria (phosphorus and nitrogen) and models to establish correlations between pressure and ecological class boundaries.

Watercourses:

We do not have data to characterize all the quality elements mentioned in table 2. So far our knowledge is insufficient in several cases, eg. on fish fauna, connection to ground water, structure of riparian zone and so on. Further, the status of all elements is unknown for many small watercourses.

Coastal waters:

The relation between nutrient load and response in the marine ecosystem is well known for some biological variables and poorly known for others. Dynamic modeling as well as empirical modeling based on historical biological data has been used to establish reference conditions, but will still need further development. Impact on biological variables from harmful substances, man-made hydromorphological changes, fishery and other factors is not well known.

PINIOS*: NO ANSWER*.

SHANNON: The practical pressure criteria are seen as useful initial screening tool, but not a basis for reference condition establishment.

GUADIANA*: NO ANSWER*.

TEVERE*: NO ANSWER*.

CECINA*: NO ANSWER*.

SCALDIT: Flanders : This table hasn't been used yet.

Walloon region : This hasn't been used yet, but the list seems sufficiently adequate.

2.3-4 PRACTICAL PRESSURE CRITERIA AS A TOOL FOR RISK ASSESSMENT OR FAILING GES.

QUESTION: Did you use the "practical pressure criteria" as clues to agree on anthropogenic disturbance (REFCOND, table 2 of par 3.4) with as consequence a risk of failing GES?

SULDAL: The list of practical pressure criteria may be used to evaluate the risk of failing to meet the good water status.

A national set of criteria is developed and may be used in the characterisation process.

JUCAR: The practical pressure criteria will also be used as an indirect method to assess the risk of failing to achieve the Good Ecological State. At this moment it is being study how to put in practice this approach.

OULOJOKY: No

NEISSE*: NO ANSWER*.

ODENSE: Lakes and coastal waters:

We suggest that most of the lakes and all the coastal waters in Odense PRB will fail to obtain GES because of former and present loading from wastewater and nutrient runoff from cultivated areas. In the fjord, also the concentration of harmful substances will prevent fulfilling of GES.

Watercourses:

The quality elements are supposed to be useful, if data are at hand. However, our knowledge on reference conditions is insufficient for several quality elements.

PINIOS*: NO ANSWER*.

SHANNON*: NO ANSWER*.

GUADIANA*: NO ANSWER*.

TEVERE*: NO ANSWER*.

CECINA*: NO ANSWER*.

SCALDIT: Flanders : Not yet.

Walloon region : Not yet.

2.3-5 HOW ARE REFERENCES CONDITIONS SET.

QUESTION: How are reference-conditions established:
Spatially based (using existing survey data) or based on modelling or a combination of
Based on modelling, (distinguish between predictive an hind-casting models)
Expert judgement

SULDAL: Reference conditions for each water type are established by use of monitoring data and expert judgements.

JUCAR: The definition of the reference condition for each ecotype the monitoring network will be used (both quantitative and biological) and a set of sample station of these network will be selected. In the case that no station is available indirect methods (as RIVPACS, paleoreconstruction, assessments of experts on the issue, extrapolation or regionalization from reference conditions in ecotypes where are available stations, etc. This task will carry out a comparative analysis of these different techniques and it will determine which are the more proper predictive methods of the reference conditions for the ecotypes lying in the Jucar River Basin.

OULOJOKY: We used the spatially based approach. In the Oulujoki river basin some nearly pristine lakes and river stretches can still be found. In addition, data from lakes and rivers outside the Oulujoki river basin but in the same climatic and geographic area, were included in order to increase statistical confidence in the reference values.

A GIS-based hydrological model for hindcasting the reference water quality in rivers will be constructed using a tributary in the pilot river basins as the target area. The model is not yet in operation, and could not be used in this context

Expert judgement using all available information was also an essential part in the selection of suitable reference sites.

NEISSE*: NO ANSWER*.

ODENSE: Lakes:

In general, reference conditions have not yet been defined for the lakes in Odense PRB.

However, there are several possibilities for how this may be done. Thus, the NERI has evaluated the reference conditions for the most common lake types using available monitoring data from a rather large number of Danish lakes. In addition, palaeolimnological studies have been carried out in some Danish lakes (including some in our region), thereby describing the ecological state during the last several hundred years. For some of the rarer lake types, there are so few data that it may be necessary to depend on 'expert judgement'. This has, however, not been done yet.

Watercourses:

The reference-conditions are not well-described in the pilot basin because many watercourses are widely disturbed by man. Thus, historical and recent data on the regional reference-situation only exist for rather few localities and for only a few of the quality elements (especially aquatic macroinvertebrates). Use of data from other parts of Denmark and other countries are under consideration. Also the use of expert judgements is under consideration.

Coastal waters:

See answer to 2.4-10

PINIOS: Reference conditions have not yet been established. Due to the lack of biological monitoring data the establishment of reference conditions will be based mainly on expert judgement..

SHANNON: References conditions are planned to be established spatially using existing survey data. In certain circumstances paleolimnological studies will be employed to hind-cast reference conditions.

GUADIANA*: NO ANSWER*.

TEVERE*: NO ANSWER*.

CECINA*: NO ANSWER*.

SCALDIT: Flanders : Reference-conditions will be established partly based on existing survey data, but in most cases using expert judgement.

Walloon region : It is variable according to the considered element (for example : predictive modelling for diatoms; in progress).

Netherlands : Reference conditions are established at the national level.

2.3-6 VALIDATION

QUESTION: Are reference conditions and ecological class boundaries validated.

SULDAL: No

JUCAR: Since the final results are not still available, the validation process remains to be done.

OULOJOKY: The timetable and the financial resources did not allow validation using the method described in the Guidance

NEISSE: German: Reference conditions are describing the situation of water bodies not or only poor influenced by human activities. Though they are useful, more or less uninfluenced natural streams are rather rare and only a few of the 23 German stream types are represented by an existing reference stream. So in Germany reference conditions are mostly constructions of potential natural conditions. The reference conditions for every stream type are characterized by a checking list, with not always a really existing stream as example. These checking lists are actually revised. The final definition and description of the 5 quality classes (from „high" to „bad") for all biological quality elements isn't finished yet in Germany. But there are already some assessment methods proposed, basing on different research projects (e.g. AQEM (The development and testing of an integrated assessment system for the ecological quality of streams and rivers throughout Europe using benthic macroinvertebrates) = multimetric index, assessing the saprobic status and morphological degradation).
Conclusion: In Germany reference conditions as well as the 5 ecological quality classes are not finally defined and validated. Nevertheless it is possible to use these preliminary results without expecting a complete revision of the methods and results.

ODENSE: Lakes, coastal waters and watercourses:
No, not yet. The national working group on this specific topic has not finished its work either

PINIOS*: NO ANSWER*.

SHANNON: Not yet carried out.

GUADIANA*: NO ANSWER*.

TEVERE*: NO ANSWER*.

CECINA*: NO ANSWER*.

SCALDIT: Flanders : Validation hasn't been applied yet.
Walloon region : It is too early.
Netherlands : Validation takes place at the national level.

2.3-7 STATISTICAL EVALUATION OF USED DATA

QUESTION: What are the statistical considerations on:
Probability that a site is assigned to the wrong class·
Sufficient level of confidence and precision·
Sources of errors)
Final classification (e.g. "one out - all out" principle)?

SULDAL: No Considered

JUCAR: Likewise as the validation, the statistical evaluation has not been done yet.

OULOJOKY: See the previous answer

NEISSE*: NO ANSWER*.

ODENSE: Lakes:

We have not yet established the boundaries between the different ecological classes. However, the NERI is elaborating on a model whereby 80% of 28 criteria must be met in order to obtain e.g. good ecological state.

Watercourses:
These considerations are not done yet. As recent survey data generally do not contain all the mentioned quality elements, it may be appropriate to start with a few 'indicator-values', such as faunal class (Danish Stream Fauna Index, describing the biological status) and a regionally used physical index (describing the physical status).

Coastal waters:
Due to the generally rather scarce information on ecological systems in the coastal waters, it cannot be expected to stipulate many different criteria for the biological status of coastal waters. It is essential to ensure a robust definition of biological status, thus not omitting important biological variables, and to have all criteria fulfilled, i.e. a strict 'one-out, all-out' criteria.
See also answer to 2.4-12.

PINIOS*: NO ANSWER*.

SHANNON: This issue is premature until reference conditions are set, but its importance is acknowledged regarding setting confidence to EQS boundaries.

GUADIANA*: NO ANSWER*.

TEVERE*: NO ANSWER*.

CECINA*: NO ANSWER*.

SCALDIT: Flanders : Statistical considerations haven't been taken into account yet.
Walloon region : It is too early.
Netherlands : Not yet done.

2.3-8 WHICH QUALITY ELEMENTS ARE SELECTED AND WHICH ARE EXCLUDED ON ECOLOGICAL ASSESSMENT.

QUESTION: Classification of ecological status should be done at quality element level. Parameters most indicative of each relevant quality element should be used status?

SULDAL: Phytoplankton, macrovegetation, fish and water quality are used as quality elements for lakes.

Algae, benthos, fish and water quality are used as quality elements for rivers

JUCAR: To date this issue is been taking into consideration and no disregard of any quality elements have been made yet.

OULOJOKY: Biological data were available only for a small number of rivers and lakes. The preliminary assessment of ecological status was carried out using phytoplankton and macroinvertebrate data. Methods to assess the status of fish communities were also tested.

Phytoplankton biomass values together with expert judgement of the species composition were used in the testing. The status of macroinvertebrate communities in one lake and one river system were assessed using indicators and indices common in Nordic countries. Catch data from a few lakes in the pilot river basin was used to test the classification of ecological status by comparing them to data from a reference set of lakes. More testing is needed before the most indicative parameters can be selected.

NEISSE*: NO ANSWER*.

ODENSE: Lakes and coastal waters:
We have not excluded any biological quality elements since the natural variability is high (see Appendix II 1.3 (vi)), and many elements are needed to ensure a robust classification.

Watercourses:
The national work on quality element selection is not completed. So far we have primarily used monitoring data on macroinvertebrates (the faunal class) for description of the biological status. Further, the physical status is described by use of monitoring data and data from regulatives (made by local authorities for stream management).

PINIOS*: NO ANSWER*.

SHANNON: Not yet known.

GUADIANA*: NO ANSWER*.

TEVERE*: NO ANSWER*.

CECINA*: NO ANSWER*.

SCALDIT: Flanders : We're not in this phase yet.
Walloon region : It is too early.
Netherlands : This will be done at the national level.

2.3-9 A PRIORI OR A POSTERIORI.

QUESTION: How are class boundaries set: a priori or a posteriori?

SULDAL: Ecological class boundaries will be set by use of a national classification system in the first characterisation, awaiting the results from the intercalibration process.

JUCAR*: NO ANSWER*.

OULOJOKY: We used the a priori method. Only the phytoplankton data was sufficient enough to test the setting of class boundaries. The method presented in REFCOND Guidance Tool Box 3 was applied. The 90th percentile of the normalized reference lake biomasses was used to set boundary between high and good status.

NEISSE*: NO ANSWER*.

ODENSE: Lakes:

A priori!

Watercourses and coastal waters:
It is not possible to answer this question yet.

PINIOS*: NO ANSWER*.

SHANNON*: NO ANSWER*.

GUADIANA*: NO ANSWER*.

TEVERE*: NO ANSWER*.

CECINA*: NO ANSWER*.

SCALDIT: Flanders : We're not in this phase yet.
Walloon region : It is too early.
Netherlands : This will be done at the national level.

GD 2.4: TYPOLOGY CLASSIFICATION OF TRANSITIONAL AND COASTAL WATERS (COAST).

THESE PRBS SHOULD HAVE TESTED THIS GUIDANCE DOCUMENT:

JUCAR
OULUJOKY
ODENSE
PINIOS
SHANNON:
GUADIANA
TEVERE
SCALDIT

2.4-1 DEFINING SURFACE WATER BODIES

QUESTION: **How were surface water bodies defined?**

JUCAR: For the identification of coastal water the concept of straight base line defined by Decree 627/1976 has been used. This line defines the Spanish Territorial Waters by means of nautical charts. Coastal water are defined as surface water that stretch out 1 nautical mile from the baseline on the seaward side from the nearest point of the baseline from which the breadth of territorial waters is measured, extending where appropriate up to the outer limit of transitional waters. The following figure shows a representation of the result.

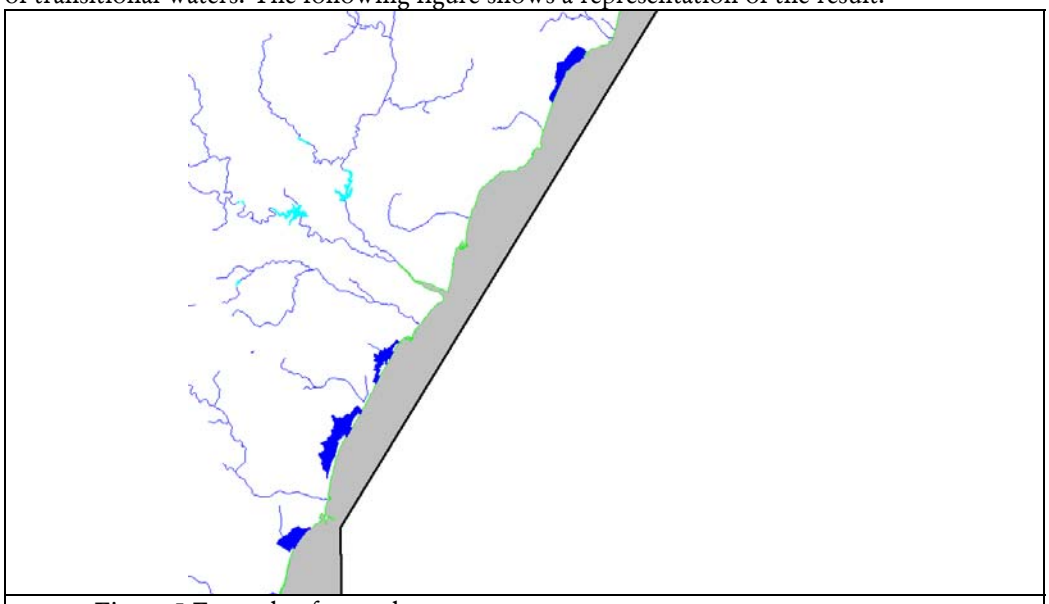


Figure-5 Example of coastal waters

OULOJOKY: Using available GIS-based data (e.g. shoreline data)

ODENSE: A national proposal for typologization based on system B was used for the first division into water bodies. A second subdivision into water bodies was made based on international and regional protection areas (see 2.0-1 on the water bodies GD).

PINIOS: In the coastal waters assigned to Pinios PRB, 3 water bodies have been identified, based on physical features.

SHANNON: For coastal and transitional waters the Shannon PRB lies in Ecoregion 1 for which typologies are being developed by UK and Republic of Ireland. At the moment preliminary coastal and transitional water bodies are based on physical characteristics.

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: It was not yet necessary to divide a water body type into two or more water bodies for management purposes.

2.4-2 ASSIGNING COASTAL WATERS WITHIN THE RIVER BASIN DISTRICT.

QUESTION: WERE THE PRINCIPLES SUGGESTED IN THE GUIDANCE PRACTICAL?

JUCAR: This assignment has not been finished yet though this issue is merely an administration decision between River Basins Districts. The Jucar PRB proposal to set the boundary for the assigning is to draw a straight line from the point (A) on the shore shared by the two River Basin District perpendicular to the Base Line to the point (B) which define the limit of the coastal waters. The following figure shows this idea.

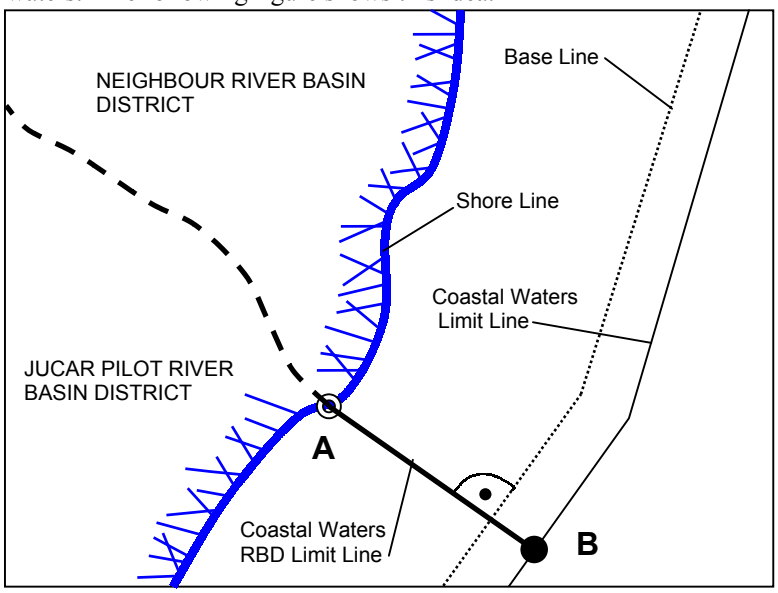


Figure-6 Proposal of assigning CW within River Basin Districts.

OULOJOKY: Yes they were. Coastal environment centres of North-Ostrobothnia, Lapland and West Finland have decided to assign Bothnian Bay in Oulujoki-Iijoki-Perämeri RBD.

ODENSE: The national definition of baseline areas (Danish EPA 1984) has been in use for regional planning in Denmark for several decades.

The existing management units defined by this system are intended to be used when assigning the open coastal waters in Water District Funen. Here the division will be based on existing management units designated from subcatchments and protected areas, as well as on management cooperation units designated together with the neighbouring Water Districts Sønderjylland and Vejle (the existing Little Belt Cooperation).

According to the existing regional planning system, the coastal water in Odense PRB, Odense Fjord, is assigned to the Odense Fjord catchment.

PINIOS: In Pinios PRB the assignment of coastal waters to the river basin has been made by using the existing administrative boundaries. At general, the principles suggested at this part of the guidance is useful but there is no need to be tested in Pinios PRB.

SHANNON: Extended land-based River Basin District boundaries are the main method for splitting coastal water bodies. Islands are attributed to the associated RBD from an administrative point of view.

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: *NO ANSWER*

2.4-3 LAGOONS.

QUESTION: Were there any coastal lagoons within the River Basin District? If yes, were these defined as transitional or coastal?

JUCAR: The identification of lagoons is being carrying out (jointly with transitional waters).

OULOJOKY: No lagoons in the area.

ODENSE: There are no coastal lagoons in Odense PRB.

PINIOS: In Pinios PRB there are just a few small and coastal lagoons near the river mouth, with no important role to the biodiversity at a national level.

SHANNON: Yet to be confirmed

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: No lagoons present in the Scheldt RB

2.4-4 COASTAL AND TRANSITIONAL WETLANDS.

QUESTION: How were wetlands associated with transitional and coastal waters dealt with?

JUCAR: The JRB Authority is conducting a group of wide-ranging purpose studies for wetlands that have been declared protected areas, either because are part of the Natura 2000 Network or because they are enclosed within the Wet Areas Catalogue passed by the Valencia Autonomous Region Government (though usually they belong to both). Each of these studies focus on a specific wetland. From these studies is being determined the relationship and interaction between a single wetland and its surroundings hydrological elements as streams, aquifers and sea border. Especially the evaluation of inflows and outflows due to natural and human activities is a key issue that will allow the knowledge of the current balance for each of them. The study about the wetland of Almenara located in the province of Castellón is finished and the study about the wetland of "La Albufera" located in Valencia is in course.

OULOJOKY: Wetlands were not included. Their role is unclear.

ODENSE: The national Danish legislation concerning wetlands ensures a high degree of registration of wetlands, and should be used as a basis for registration of protected areas in the WFD along with internationally protected areas as Natura 2000 sites, etc.

Wetlands associated with the coastal waters are registered in the same way as other wetlands. The historical development (i.e. the severe reduction in number and area of wetlands associated with coastal waters) has been mapped for Odense Fjord (dyked and drained former subfjords) as well as for the whole of Odense PRB (all types of wetlands). Restoration of former wetlands will be considered in the future water district management plans.

PINIOS: There are no important wetlands that can be associated with coastal waters.

SHANNON: Requires input from the register of protected areas.

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: *NO ANSWER*

2.4-5 DEFINING TRANSITIONAL WATERS.

QUESTION: Which methods suggested in the guidance document were used to identify transitional waters? Where any other methods used? If so please explain why.

JUCAR: Presently transitional waters domain is being identified, and this type makes up a portion of the river network around the junction with coastal waters. A specific study will determine this type according to tides and others terrestrial-marine features (TW are stretched between the maritime public domain and the Base Line).

OULOJOKY: Methods a, b and c were used. The salinity gradient is very small in Bothnian Bay. There is no tide.

ODENSE: As the GD does not specify what is meant by 'substantially influenced' and only gives qualitative rather than quantitative examples (e.g. Figs. 2.5 and 2.7, where the salinity gradients but no border limits are shown), we have chosen to define the whole of Odense Fjord as coastal, not transitional, although there is a strong salinity gradient in the fjord due to a significant freshwater outflow in the inner fjord. This is in coherence with the statements in 2.3-7 about the special salinity situation in the Baltic Sea.

The GD would benefit from concrete and quantitative examples rather than just qualitative examples of how to distinguish between 'transitional' and 'coastal'.

PINIOS: Due to the physiographic features of the river basin and the river mouth, transitional waters in Pinios PRB are limited and can not be identified (a definition of a seaward boundary of transitional waters can not be made). The methods suggested in the guidance document are useful and helpful for the identification of transitional waters.

SHANNON: The tidal limit was used to define the landward boundary. The seaward boundary of transitional waters was based on a salinity gradient.

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: Physiographic features and isohalines

2.4-6 SIZE OF TRANSITIONAL WATERS.

QUESTION: Was the suggested minimum size of transitional waters of 1 km2 considered to be realistic?

JUCAR: The size of TW has not been established yet

OULOJOKY: In Finland transitional waters are mostly very small and they can be handled otherwise.

ODENSE: No comments, cf. above.

PINIOS: This issue can not be tested in Pinios PRB.

SHANNON: The guidance document gives no minimum size for transitional waters. Based on the preliminary typology for transitional waters the minimum size is 0.1 km^2 and the maximum is 124 km^2.

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER.*

SCALDIT: *NO ANSWER*

2.4-7 TYPOLOGY.

QUESTION: Did you use the descriptors in the order suggested in the guidance? If no, in which order did you use the descriptors?

JUCAR*: NO ANSWER.*

OULOJOKY: Yes.

ODENSE: The Danish national typologization proposal, which was launched before the GDs were prepared, mainly follows the descriptors listed in the GD for system B. We have used the national proposal here as it is based on specific knowledge about the Danish coastal waters.

The descriptors used in the national proposal, and thus in the Odense PRB are as follows:

Obligatory:

1) Geomorphological division into main coastal regions
2) Tidal range
3) Salinity and non-obligatory:
4) Exposure
5) Mean depth
6) Geomorphological subdivision of fjords: inner fjords, threshold fjords, etc.

Based on this proposal, there are 16 types in Denmark, of which 3 occur in Odense PRB.

PINIOS: *NO ANSWER*

SHANNON: *NO ANSWER.*

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: Yes, although the order is not considered as a ranking

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2.4-8

QUESTION: Which optional descriptors did you use to produce a typology?

JUCAR: *NO ANSWER*

OULOJOKY: Exposure, substratum, depth, duration of ice-coverage

ODENSE: See above.

PINIOS: *NO ANSWER*

SHANNON: *NO ANSWER.*

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: In the process of reaching a common understanding most optional descriptors were used/taken into account (except ice cover). In the last step to finalize the typology we will have to look which optional factors can be left out.

2.4-9

QUESTION: Did you use the descriptors in the same way as proposed in the guidance?

JUCAR: *NO ANSWER*

OULOJOKY: salinity 3‰ was used in BB.

30 m depth is too far in shallow coastal area. 20 m was used.

ODENSE: Further splitting was considered necessary (e.g. salinity, depth, geomorphological characteristics of fjords).

PINIOS: *NO ANSWER*

SHANNON: *NO ANSWER.*

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: In the process of reaching a common understanding most optional descriptors were used/taken into account (except ice cover). In the last step to finalize the typology we will have to look which optional factors can be left out.

2.4-10 REFERENCE CONDITIONS.

QUESTION: Which methods were used to define reference conditions? Which of these methods were used the most widely? Were there any problems associated with any of these methods that were commonly encountered?

JUCAR: So far the RC for coastal and transitional waters have not been established. All studies have been focusing on inland waters.

OULOJOKY: a) not existing
b) not existing
c) no
d) yes
Lack of data is the biggest problem.

ODENSE: No undisturbed and only one very slightly disturbed type of coastal waters exists in Denmark at present.

Some historical data are available for the Odense PRB, and extensive dynamic and empirical modelling has been carried out, especially on nutrient concentrations and macrophyte vegetation in different scenarios (e.g. 'natural conditions'). For other variables, e.g. benthos, phytoplankton, hazardous substances etc., expert judgment will be needed due to a lack of historical data and modelling tools.

The same applies to the whole of Water District Funen, but here the historical data are more comprehensive than for Odense PRB and thus will be of great importance, for example in defining the reference situation for benthos.

PINIOS: Reference conditions have not been defined yet. The establishment of the reference conditions for the coastal waters will be based on expert judgement and the existing undisturbed type or type with only very minor disturbance.

SHANNON: Potential reference conditions are likely in the Shannon PRB but have yet to be confirmed.

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: *NO ANSWER*

2.4-11 CLASSIFICATION TOOLS

QUESTION: Were any of the classification tools suggested in the Annexes used? Did these have to be adapted for local use? Were any other existing tools which are not mentioned in the guidance document used?

Jucar: *NO ANSWER*

OULOJOKY: Because of highly different nature in Bothnian Bay examples presented in "tool kit" don't work.

ODENSE: The suggested tools are not applicable to Danish coastal waters, but some might be useful after adaption to local conditions.

The Swedish classification tool for angiosperms on soft bottoms (6.3.9) is useful, although not directly applicable, in Odense PRB.

The OSPAR comprehensive procedure for nutrients and phytoplankton defines an elevated level as a concentration more than 50% above background level. This limit cannot be used as the border between 'good' and moderate' status, however, as it would allow even higher concentrations of nutrients than already found in some of our coastal areas. As the WFD prohibits further deterioration of existing water bodies, this is not allowable. Furthermore, a 50% deviation will not fulfil the requirements for 'high' or 'good' status concerning nutrients stipulated in the WFD since the nutrient level at 'good' status only allows slight distortion of the biological parameters relative to the reference conditions.

PINIOS: *NO ANSWER.*

SHANNON: *NO ANSWER.*

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: *NO ANSWER*

2.4-12 CLASSIFICATION SCHEMES

QUESTION: How were the quality elements combined into a single score? An explanation of the relationship between ecological and chemical status. Which physicochemical determinants are included within the ecological status? What statistical methods were used for classification?

JUCAR: *NO ANSWER*

OULOJOKY: There are very few macroalgae in BB. In coastal area remains only phytoplankton and benthic invertebrate fauna as biological elements. Nowadays there is only a-chlorophyll data enough to statistical methods.

ODENSE: As the GD text is still being drafted, our comments are based on experiences of the existing regional planning system in Denmark. It is important to keep the 'one out - all out' concept since only a few variables can be expected to be well documented due to a lack of knowledge of many marine systems and the relations between physicochemical and biological variables. All defined parameters thus have to be fulfilled to avoid misinterpretation of the status or development in the water body. Furthermore, it is important to define a minimum period for fulfilling the elements so as to avoid the evaluation accidentally changing from year to year. Due to the planning period in Denmark, a criterion of 4 years out of 5, or a 5-year running mean has been used. A running 6-year mean might be useful for the WFD given that the EU reporting interval is every 6th year.

PINIOS: *NO ANSWER*

SHANNON: *NO ANSWER.*

GUADIANA: *NO ANSWER*

TEVERE: *NO ANSWER*

SCALDIT: *NO ANSWER*

GD 2.6: ECONOMIC ANALYSIS (WATECO).

THESE PRBS SHOULD HAVE TESTED THIS GUIDANCE DOCUMENT::

JUCAR
MOSEL/SARRE
SOMES/SZAMOS/SZAMOS
ODENSE
MARNE
PINIOS
TEVERE
SCALDIT

2.6-1 METHODOLOGY FOR COST RECOVERY

QUESTION: What methodology has been used to determine environmental and resource costs? Has Annex IV.I of the guidance been of sufficient help?

JUCAR: Firs at all it must be said that all the economical analysis have been focused on surface waters due to the especial treatment that groundwater requires (GW by itself meets the cost recovery principle). This is the reason why its study will be postponed until the completion of the surface water type.

Globally the guidance has been taken as a reference though the proposed method has not been follow to the letter. The total cost can be disaggregated into three components: financial, resource and environmental. To date is being designed a criterion on how to deal with the assessment of the financial cost. For the resource cost the methodology that is being carrying out is based on hydrological simulations which includes economic components. In this way a marginal cost of the resource is evaluated all along the river basin district. With relating to the environmental cost simulation models which includes economic components will be designed in order to assess the cost of preserve ecological flows. These minimum flows are set out by the Júcar Hydrological Plan passed in 1998. All the components of the total cost will be applied to the Demand Units within the Jucar River Basin.
Relating to the financial cost a major issue came up for the infrastructures that have been operating long ago. Accordingly to the amortization curve adopted the period for return the investment is finished but the infrastructure keeps functioning because its larger span life. This can be interpreted under different choices: The financial is assigned as cero for them or by the contrary, the users could be forced to pay a reposition prize as financial cost for fixing or building new infrastructure when the old one is ruined.

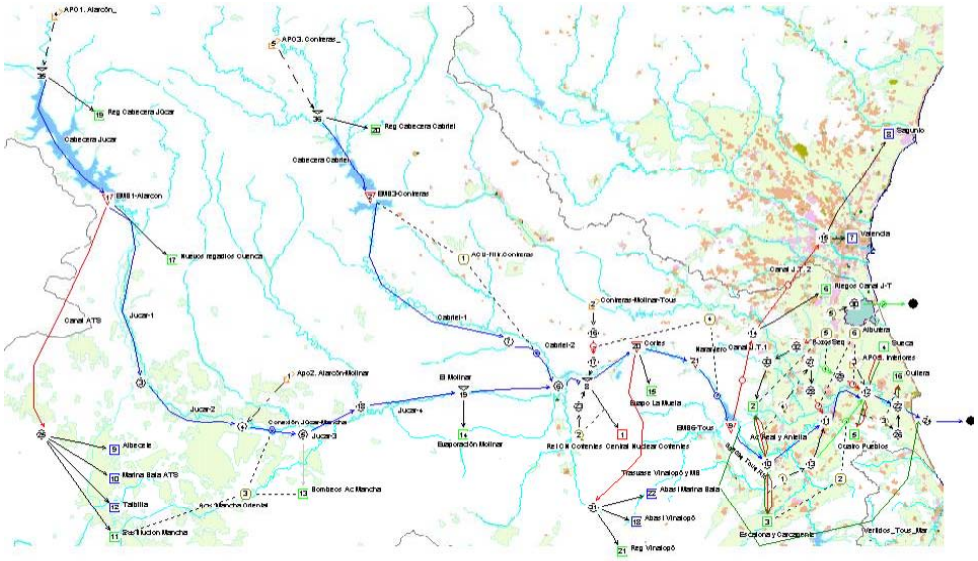

Figure-7 Hydrological Simulation Model of the Júcar River Basin which includes an Economical Analysis Package.

MOSEL/SAAR:

Synthèse des contributions nationales figurant ci-après : **Concernant le recouvrement des coûts, le Land de Sarre, la Rhénanie-Palatinat et la France sont actuellement au début de leur réflexion.** **Le Land de Sarre et la France se baseront sur l'annexe IV-1 du guide Wateco. Cependant la France précise que sa méthodologie n'est pas encore finalisée. La Rhénanie-Palatinat réfléchit sur la méthodologie qu'elle va adopter.**	**Synthese der nachstehend aufgeführten nationalen Beiträge:** **Beim Thema Kostendeckung befinden sich das Saarland, Rheinland-Pfalz und Frankreich zurzeit noch am Anfang ihrer Überlegungen. Das Saarland und Frankreich werden sich auf Anfang IV-1 des WATECO-Leitfadens stützen. Frankreich weist allerdings darauf hin, dass seine Methode noch nicht definitiv ist ; Rheinland-Pfalz überlegt noch, welches Verfahren es anwenden wird.**
FRANCE	**FRANKREICH**
Nous commençons seulement à travailler sur le recouvrement des coûts. Nous n'avons donc pas encore finalisé de méthodologie. Cependant, l'annexe IV.I du guide Wateco est très complète, à la fois pour la méthodologie mais également pour les nombreux exemples proposés. Nous nous inspirerons largement de cette annexe pour nos prochains travaux.	Wir beginnen erst, uns mit der Kostendeckung zu beschäftigen. Wir haben daher noch keine Methode fertiggestellt. Der Anhang IV.I des Guidance-Dokuments Wateco ist allerdings sowohl hinsichtlich der methodischen Vorgehensweise als auch hinsichtlich der zahlreichen vorgeschlagenen Beispiele ziemlich vollständig. Wir werden uns bei unseren nächsten Arbeiten an diesen Anhang weitestgehend anlehnen.
RHENANIE-PALATINAT	**RHEINLAND-PFALZ**
Dans une première phase, différentes approches pour calculer la récupération des coûts sont en cours d'examen. Ces examens ne sont pas encore achevés.	Zunächst werden Ansätze zur Berechnung der Kostendeckung untersucht. Die Ermittlungen sind noch nicht abgeschlossen.
LAND DE SARRE	**SAARLAND**
En Sarre, les redevances pour l'assainissement des eaux usées et les tarifs pour l'alimentation en eau sont calculés sur une base légale (loi relative aux redevances communales, loi sur le régime des eaux du Land de Sarre, loi relative aux syndicats d'assainissement). Une dérogation à ce calcul est admise lorsqu'il	Im Saarland werden die Gebühren und Beiträge für die Abwasserbeseitigung und die Wasserversorgung auf gesetzlicher Basis kalkuliert. (Kommunalabgabengesetz, Saarländisches Wassergesetz, Entsorgungverbändegesetz). Zur Ressourcenschonung kann von den

s'agit de préserver les ressources. En ce qui concerne les rejets d'eaux résiduaires dans les cours d'eau et dans les eaux souterraines, une redevance uniforme à l'échelle fédérale est perçue et ce, en fonction du pollueur, de la substance polluante et de la charge polluante. Des interventions durables dans la nature et le paysage doivent être compensées par des mesures appropriées. Si ceci n'est pas possible, il faut payer une taxe de compensation. Pour le reste, en termes de méthodologie et de contenu, nous nous orientons d'après l'annexe 1 du document-guide WATECO.	kalkulatorischen Bedingungen abgewichen werden. Für die Einleitung von Abwasser in Fließgewässer und das Grundwasser wird bundeseinheitlich eine verursacherbezogene, schadstoff- und schadstofffrachtabhängige Abwasserabgabe erhoben. Nachhaltige Eingriffe in Natur und Landschaft sind durch geeignete Maßnahmen auszugleichen. Ist dies nicht möglich, muss eine Ausgleichsabgabe bezahlt werden. Ansonsten orientieren wir uns methodisch und inhaltlich an Anhang IV, 1, des WATECO-guidance-documents.

SOMES/SZAMOS/SZAMOS: On the Hungarian part of the Szamos/Somes/Szamos River Basin, data for year 2000 have been investigated and collected on the following indicators

Institutional set-up
Key actors and structure of the water sector
(There are 5 Water Service Companies)

Description of the water pricing system/tariff system for water supply and wastewater

(The type of pricing system is linear for all waste water services, and 2 companies have linear and 3 companies have 2-component pricing system for water supply)

Current water price (a range of prices are required including minimum and maximum prices – furthermore the prices are distinguished between water supply and wastewater

Price level data have been collected for:

Households
Industry
Agriculture

Cross-subsidy between the different economic sectors (agriculture, industry and households) could not be defined.

Data on collection efficiency – i.e. gap/ratio between projected revenues and actual revenues (including an analysis of outstanding money, i.e. past water bills not being paid) – have been collected in form of individual interviews of Water Companies.

Information on governmental subsidies (information regarding subsidies is distinguished between investment subsidies and O&M subsidies) collected from statistical reports.

Information on Financial costs of water services collected according:

Investment costs
Operation and maintenance costs
Depreciation
Administrative costs

No information available on environmental and resource costs
Based on assessment of experts panel environmental costs have been identified.

On the Romanian part of Szamos/Somes/Szamos River Basin

During the first stage it has been assessed: *water managements tarrifs* and then spending elements on sources categories because of different water supply services, in order to stimulate sustainable water use; *the prices for fresh, water tariffs sewage and the costs structures.*

About costs it has been encountered some difficulties in data gathering because the encountering data is made only on the entire Water Division and on Water Management Systems.

The environments costs have not the determination methodology.

ODENSE: The methodology for assessing the cost recovery in the Odense Fjord River Basin has followed the approach suggested in Annex IV.I. We have through Denmark's Statistical Bureau collected data for costs related for water and wastewater service provision. These data are collected at the State level, the County level and the municipal level, as well as from the public and private water and wastewater service providers. These data have been supplemented with organisations which also have costs related with water and wastewater service provision, but not covered in the statistics from Denmark's Statistical Bureau. These have been extracted from various sources and have been grouped into the specified categories. Annex IV.I. provides an excellent methodology for calculating the cost recovery in the water sector. However, the Danish regulatory requirements stipulate that cost recovery is mandatory and has to be respected. There has been a long tradition for doing that. Hence the service providers have the right to incorporate all costs in the price of water. The main cost categories which each waterworks can include in the price are for:

- Abstraction and distribution of water;
- Wages and other operation and maintenance costs
- Administrative costs
- Depreciation
- The required return on foreign financing
- Investments costs
- Mapping of the water abstraction area
- Surveillance of the area
- Protection of the water source
- Preparation of action plans
- Environmental fees (e.g. the fee on wastewater discharge from treatment plants)

All the different cost elements are listed in the report on the economic analysis of water uses. A verification of whether the waterworks have actually applied these principles has been made for a number of the water companies. And they all apply fully the principle stipulated in the law.

The revenue the four (4) green taxes provide to the state from Odense Fjord River Basin has also been estimated. These green taxes are not earmarked for expenses related to water uses. However, comparing the revenues the green taxes generate with what has been spend by public authorities (at all three levels) reveal that the revenues from the green taxes paid by the water consumers exceed the expenses held by the public authorities. Hence the state actually gains on the green taxes from the Odense Fjord River Basin.

The green tax or environmental fee on wastewater discharge from wastewater treatment plants can be said to include some of the environmental costs of the discharged pollution.

In terms of assessing other costs than those of the main water service, water supply and wastewater collection and disposal, there is no available data on resource and environmental costs. Also, the costs of historical actions and measures to reduce pollution are difficult to estimate. There is no comprehensive environmental expenditure data collected in Denmark. The main reason is that costs of avoiding pollution in for example industry are often integrated in changes in production processes and therefore it is impossible to estimate the share related to environment.

Related to agriculture is the issue of how to include the impact of general production subsidies. Both the past and current EU policy on agriculture give incentives to farming practices that result in increased negative environmental impacts. It is not clear how this should be addressed and the Guidance document seems not to provide suggestions or examples on this issue.

MARNE: No methodology for resource cost.

Three methods to assess environmental cost :

- - transfers today from agriculture, industry and domestic activity towards environment;

- - willingness to pay;
- cost of restoration : restoration of river wetlands and river flow, estimated cost of treatment of residual pollution in rivers.

Pinios: *NO ANSWER*.

Tevere: *NO ANSWER.*

SCALDIT: The environmental costs model (information sheet) will be used in order to come to a more effecient environmental policy (by indicating how environmental objectives can be achieved at the lowest possible costs)

With regard to resource costs, we don't have enough information at the moment.

2.6-2 WATER USES, WATER SERVICES.

QUESTION: WATER USES, WATER SERVICES?

JUCAR: The evaluation of cost of water services is being done for the different water users (urban, industrial and irrigation). The methodological process will go through every step of the route for making possible the final use from the catchment to the return of the effluent to the environment (including storage, regulation, potabilization treatment, distribution, waste water treatment, return). For doing this a lot of information about data cost is needed and because much of it is not known by the Jucar River Basin Authority it is being requested and collected. We can distinguish between three levels of infrastructures/services:

- State
- Autonomous Region
- Municipal
- Private

Because the Jucar River Basin Authority is the organization to charge with taxes the state water services the cost of this level is concisely known. Geographical analysis is being done for the identification and georreferencing of the users served by each state infrastructure (mostly damns and distribution channels). Once users have been identified the total cost are fairly distributed among them (amortization, functioning, operational).

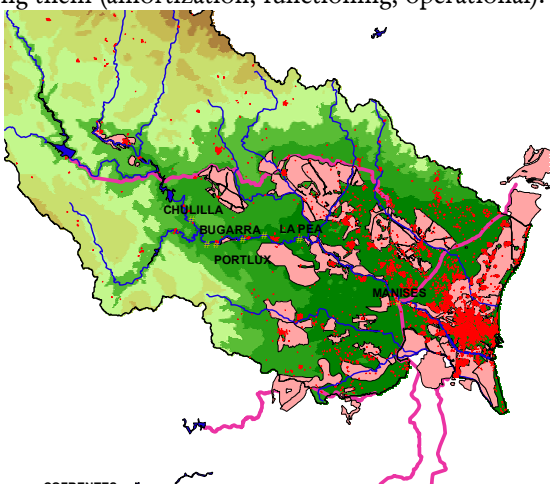

Figure-8. Dams of Benageber and Loriguilla, distribution channel and their users.

Nevertheless, since the information of the rest of levels is not still available the analysis of cost has not finished yet. The lack of information is mainly on private network distribution, drinking water treatment, waste water treatment.

MOSEL/SAAR:

Synthèse des contributions nationales figurant ci-après :	**Synthese der nachstehend aufgeführten nationalen Beiträge:**
La Rhénanie-Palatinat n'a pas encore commencé à aborder l'analyse tendancielle. **La France n'a pas encore listé tous les indicateurs mais précise qu'elle étudiera l'évolution de la population, de l'agriculture et de l'industrie.** **Le Land de Sarre étudiera les mêmes facteurs que la France en y ajoutant l'évolution environnementale. Il précise que les évolutions qui seront annoncées ne pourront qu'être très imprécises et que l'altération de la ressource en eau et du besoin en eau par ces indicateurs n'est pas prévisible.**	**Rheinland-Pfalz hat noch nicht mit der Trendanalyse begonnen.** **Frankreich hat noch nicht alle Indikatoren aufgelistet, gibt aber an, dass es die Entwicklung der Bevölkerung, der Landwirtschaft und der Industrie untersuchen wird.** **Das Saarland wird die gleichen Faktoren untersuchen wie Frankreich, darüber hinaus auch die Entwicklung der Umwelt. Es weist darauf hin, dass die Entwicklungsprognosen nur sehr ungenau sein können und dass nicht vorhersehbar ist, wie diese Indikatoren das Wasserdargebot und den Wasserbedarf beeinflussen werden.**
FRANCE	**FRANKREICH**
Pour construire notre scénario, nous nous appuierons sur les évolutions passées des indicateurs socio-économiques liés aux forces motrices. Ceci afin de mieux prévoir les tendances futures. La liste n'est pas définitive mais il s'agira notamment des indicateurs suivants : • La population : nous tiendrons compte de l'allongement de la durée de vie, de l'évolution du taux de natalité, des éventuelles migrations de la population liées aux bouleversements industriels. • L'agriculture : nous étudierons l'évolution des cultures et des techniques associées à ces cultures. Par exemple, si les cultures consommatrices d'eau diminuent au profit de cultures moins consommatrices, ou si les agriculteurs utilisent des techniques d'irrigation plus performantes. • L'industrie : nous analyserons les tendances de l'industrie Lorraine. Nous tiendrons compte dans notre analyse des fermetures des entreprises annoncées ainsi que des éventuelles créations d'entreprises.	Für die Erstellung unseres Szenarios werden wir uns auf die zurückliegende Entwicklung der sozioökonomischen Kenngrößen im Zusammenhang mit den „driving forces“ stützen. Der Zweck besteht darin, die zukünftigen Tendenzen besser vorherzusehen. Es handelt sich nicht um eine endgültige Liste, sondern insbesondere um folgende Kenngrößen: • Bevölkerung: wir werden die erhöhte Lebenserwartung, die Entwicklung der Geburtenrate und eventuelle Migrationsbewegungen infolge industrieller Umwälzungen berücksichtigen. • Landwirtschaft: wir werden die Entwicklung des Anbaus und der damit in Zusammenhang stehenden Techniken betrachten, z.B., ob der Anbau, der eine starke Bewässerung erfordert, zugunsten eines weniger bewässerungsintensiven Anbaus zurückgeht, oder ob die Landwirte leistungsfähigere Bewässerungstechniken nutzen. • Industrie: wir werden die Tendenzen in der lothringischen Industrie untersuchen. Wir werden dabei angekündigte Stilllegungen sowie eventuelle Neugründungen von Unternehmen berücksichtigen.
RHENANIE-PALATINAT	**RHEINLAND-PFALZ**
Nous venons seulement de commencer à aborder l'analyse tendancielle et ne sommes donc pas encore en mesure de fournir des informations.	Wir beginnen erst, uns mit der Trendanalyse zu beschäftigen und können damit noch keine Informationen liefern.
LAND DE SARRE	**SAARLAND**
Remarque d'ordre général : Le pronostic du changement climatique, de l'évolution	Allgemeine Feststellung: Klimawandel, technologische Entwicklung, sozialer

technologique, de l'évolution des valeurs sociales, de la mondialisation, etc. ne peut être que très imprécis. La dimension de l'altération de la ressource en eau et du besoin en eau par les paramètres cités ci-dessus n'est pas prévisible. Les paramètres de l'évolution démographique, de l'évolution agricole, industrielle et environnementale sont tirés des différents schémas de développement du Land ainsi que du rapport sur le développement structurel de l'agriculture édité par le Ministère de l'Environnement.	Wertewandel, Globalisierung etc. sind nur sehr ungenau zu prognostizieren. Das Ausmaß der Beeinflussung des Wasserdargebots und des Wasserbedarfs durch die o.g. Parameter ist jedoch nicht prognostizierbar. Kenngrößen für die Bevölkerungsentwicklung, die Entwicklung der Landwirtschaft, der Industrie und der Umwelt werden aus den verschiedenen Landesentwicklungsplänen und dem Agrarstrukturellen Entwicklungsbericht des Ministeriums für Umwelt entnommen.

SOMES/SZAMOS: The following data were collected for characteristics of water services on the **Hungarian part of the River Basin**:

Water production
From surface water
From groundwater

Water supply (water delivery)
Number of water supply companies/entities
Public water supply
Population connected to public water supply
Total public water supply
Water supply to the household sector
Water supply to the industry sector
Water supply to the agriculture sector
Self supply
Total water supply from self-supply
Population with self-supply
Industry with self-supply
Agriculture with self-supply

Water demand (only for water supply and not for self-supply) – based on water licences registered by water directorate
Per capita
Per household
Leakage rate - ratio between delivered and billed waters

Wastewater treatment
Population connected to public sewerage system
Population connected to wastewater treatment plant
Treatment plants
Total number and capacity
Number and capacity of mechanical treatment plants
Number and capacity of biological treatment plants
Number and capacity of advanced treatment plants
Public collected/treated wastewater
Total per year
Total from household sector
Per capita per year
Per household per year
Total from industrial sector
Total from agricultural sector

Irrigation water supply
Number of irrigation water companies/entities – none

Water is supplied for agriculture only by public water companies.

Other services
Storage capacity for multipurpose and for special ones
Number of water reservoirs
Volume of water reservoirs
Manageable / retentive volume of water reservoirs
Deposit volume of water reservoirs

In addition, it should be discussed whether water reservoirs have a multi-purpose function or are being used only for a special purpose (i.e. for drinking water only, for agriculture/irrigation only, for hydropower only).

The following ***water uses*** are present on the Hungarian part of Somes/Szamos RB and could be characterised with the following indicators:

Agriculture
Total arable area - Used pattern
Farm and farming systems types
Livestock
Number per type
Gross production
Total gross production
Average per hectare

Industry
Turnover
Total turnover
Turnover for key industrial sub-sectors
Services
Turnover
Total turnover
Turnover for key services

Gravel/Sand extraction from Somes/Szamos
Number of companies
Number of sites
Turnover
Total volume of gravel extracted per year

Flood control
Urban drainage and agricultural drainage
Overall length of conditioned water courses
Population protected
Turnover of protected economic activities
Potential loss of properties/economic activities

On the Romanian part, the followings were collected:
The Evaluation of economic importance of water users was made on the list developed by ECON concerning the water services characteristics and water users.

1. *General socio-economic indicators*

Data sources: Romania statistic Anuar for year 2001
Problems: majority data are available just (only) at administrative level (county); eg.: population engaged in main economic sectors, medium number of employees, unemployment rate

2. *Water services characteristic*

Analysed indicators :
- water supply used for human consumption,
- specific water supply,
- water requirement and waste water treatment.

Sources of data: economic contacts conclude with beneficiaries of Somes/Szamos Tisa Water Divisions (economic society with agriculture profile or industrial, specialized firms for potable water)

3. *Water users characteristics*

Problems:
lack of available data at sub-basin level (turnover for some specifically users). Whatever, the users can be classified in the main economic sectors according to the indications of ECON ESG in: industry (energy sector can be separated) agriculture and others for which data can be available at district level

ODENSE: The following main water users have been identified:

- Households (living in flats and houses, respectively),
- Industry,
- Public Institutions,
- Agriculture and nursery gardens,
- Leisure and tourist activities

The water use and the source i.e. whether ground water or surface water abstraction has been precisely identified as well as whether the water has been delivered through the public and private waterworks or has been abstracted on private wells.
The description and analysis of water uses more broadly than the main services has been difficult. In particular for the agricultural sector, there are few data that can support the analysis of the water uses and the historical and current expenditures and costs related to these uses. The Guidance Document does not give specific suggestions or examples on how to analyse the agricultural sector.
The description of the water uses and the assessment of the economic importance has been a difficult task. Here the Guidance Document seems to contain less precise recommendations and examples compared to other part of analysis.
In case of Odense Fjord river basin, there is few data available on production values, employment etc. for the various sectors such as services, industry and agriculture. It is also not clear to apply indicators that aim at measuring the economic importance. If one type of industry has a lower production value or employment than another, this in itself is of little interest.

MARNE: The WATECO guidance indicates that internal private cost of services should be taken in the analysis when necessary. In the Marne process, it was assessed that "when necessary" would apply to services that have a significant impact on water status. Thus, in coordination with IMPRESS inputs, mostly all industrial private expenses were taken into account.

<u>Economic significance of water uses</u>
- - industry
- - recreation
- - agriculture
- - demography

lacks :
- - for uses : hydropower and material extraction
- - for usage : fishing, hunting

Cost recovery

In compliance with the WFD,

- - agriculture
- - drinking water and sanitation industries
- - domestic

Then we found necessary to show all transfers to add

- - tax payer
- - small production activities (industrial activities that are included in domestic consumption)

Baseline scenario

- - agriculture (livestock and crop)
- - population growth
- - evolution of domestic sanitation

Pinios: *NO ANSWER*

Tevere: *NO ANSWER*

SCALDIT: The water uses and water services were identified on the basis of the Wateco guidance but it seems that some conceptual differences remains between the MS although everyone agree on the core list of the water services that will the base for the costrecovery analysis.

2.6-3 METHODOLOGY FOR TREND ANALYSIS.

QUESTION: With respect to socio-economic factors: which scenario has been used to describe the trend/development of pressures?

JUCAR: It is not foreseen to carry out a trend analysis of economical macro variables for future scenarios since this issue is not a priori competence of the water administration. Specifically, Ministry of Economy of Spain and Economy Departments of the Autonomous Governments have the competence for forecasting the tendency. Thus, such information will be requested to them as a regular basis when available.

MOSEL/SAAR:

Synthèse des contributions nationales figurant ci-après :	Synthese der nachstehend aufgeführten nationalen Beiträge:
Concernant l'échelle au niveau de l'analyse économique, la Rhénanie-Palatinat, le Land de Sarre et la France vont essayer de récupérer le plus d'information au niveau de la commune si cela est possible. Pour les mesures coût/avantage, aucun des participants n'a encore commencé ce travail. Pour le recouvrement des coûts, la France n'a pas encore de données disponibles. Dans le cadre du projet pilote « Rhin Moyen », la Rhénanie-Palatinat dispose de premières études concernant le recouvrement des coûts de l'alimentation en eau potable et de l'élimination des eaux usées. . Le Land de Sarre a également des données sur l'assainissement des eaux usées et sur l'alimentation en eau potable. Pour la ventilation des coûts des mesures entre zones/secteurs, aucun des participants n'a	Was die Maßstabsebene bei der ökonomischen Analyse anbetrifft, so werden Rheinland-Pfalz, das Saarland und Frankreich versuchen, die meisten Informationen auf kommunaler Ebene zusammenzutragen, falls dies möglich ist. Was das Kosten-/Nutzenverhältnis anbetrifft, hat noch keiner der Beteiligten mit der Arbeit begonnen. Zur Kostendeckung liegen in Frankreich noch keine Daten vor. In Rheinland-Pfalz gibt es erste Untersuchungen zur Kostendeckung der Trinkwasserversorgung und Abwasserentsorgung im Rahmen des Pilotprojektes Mittelrhein. Das Saarland besitzt Daten zur Abwasserbeseitigung und zur Trinkwasserversorgung. Über die Auflistung der Kosten der

encore réfléchi sur ce sujet.	Maßnahmen auf Gebiete/Sektoren hat noch keiner der Beteiligten nachgedacht.
FRANCE	**FRANKREICH**
Pour l'analyse économique : Nous cherchons actuellement à recueillir des données à l'échelle la plus fine possible, c'est à dire celle de la commune. Ceci afin d'être capable de réaliser des regroupements si nécessaire pour se positionner à une échelle plus large telle que la masse d'eau, le bassin versant, etc. Etant actuellement dans notre phase de collecte nous ne savons pas si l'ensemble des données recherchées est disponible. Des enquêtes supplémentaires seront peut-être à réaliser. Nous travaillons en étroite liaison avec l'équipe des pressions, ceci afin de pouvoir coordonner nos données économiques avec celles des pressions. Pour les mesures coût/avantage : Nous n'avons pas encore commencé ce travail. Pour le recouvrement des coûts : Nous n'avons pas encore commencé ce travail. Pour la ventilation des coûts des mesures entre zones/secteurs : Nous n'avons pas encore commencé ce travail. Pour le déplacement des pressions vers d'autres compartiments environnementaux ou d'autres zones : Nous n'avons pas encore commencé ce travail.	Für die ökonomische Analyse : Wir versuchen gegenwärtig Daten auf kleinstmöglicher Ebene zu sammeln, d.h. auf kommunaler Ebene, um in der Lage zu sein, Ausschnitte falls nötig zusammenzufassen, um auf eine höhere Ebene zu gelangen (z.B. Wasserkörper, Einzugsgebiet usw.). Angesichts der Tatsache, dass wir uns momentan in der Phase der Datenerhebung befinden, wissen wir nicht, ob alle gewünschten Daten vorhanden sind. Es werden zusätzliche Untersuchungen notwendig sein. Wir arbeiten eng mit der Expertengruppe „Impress“ zusammen, um unsere ökonomischen Daten mit den Daten dieser Gruppe aufeinander abstimmen zu können. Zum Kosten-/Nutzenverhältnis der Maßnahmen: Mit dieser Arbeit haben wir noch nicht begonnen. Zur Kostendeckung: Mit dieser Arbeit haben wir noch nicht begonnen. Zur Aufteilung der Kosten der Maßnahmen auf Gebiete/Sektoren: Mit dieser Arbeit haben wir noch nicht begonnen. Zur Verlagerung der Belastungen in andere Umweltkompartimente oder Gebiete: Mit dieser Arbeit haben wir noch nicht begonnen.
RHENANIE-PALATINAT	**RHEINLAND-PFALZ**
– **Analyse économique** Les données sont rassemblées au niveau territorial des communes. Si nécessaire, ces informations recensées à l’échelle communale peuvent être rapportées à des unités hydrogéographiques (p.ex. masses d’eau, bassin versant). A l’heure actuelle, nous sommes encore dans la phase de recensement des données. – **Relation coûts/efficacité** Nous n’avons pas encore démarré ces travaux. – **Récupération des coûts** A l’issue de l’étude conduite sur le Rhin Moyen, de premières analyses sont disponibles. – **Répartition des coûts des mesures entre les zones/secteurs :** Ces travaux vont démarrer ultérieurement.	- **Ökonomische Analyse :** Die Daten werden auf gemeindlicher Gebietsebene zusammengestellt. Falls erforderlich, können diese Informationen auf Gemeindebasis in Bezug zu hydrogeografischen Einheiten gesetzt werden (z.B. Wasserkörper, Einzugsgebiet). Wir befinden uns noch in der Phase der Datenerhebung. - **Kosten-/Nutzenverhältnis:** Wir haben mit den Arbeiten dazu noch nicht begonnen.. - **Kostendeckung:** Es liegen erste Untersuchungen aus der Mittelrheinstudie vor.

	- Aufteilung der Kosten der Maßnahmen auf Gebiete/Sektoren: Die Arbeiten laufen zum späteren Zeitpunkt an.
LAND DE SARRE	**SAARLAND**
Les données sont disponibles en partie au niveau communal, au niveau des districts voire du Land. On essaye de regrouper les données de manière à pouvoir les utiliser à l'échelle d'une unité de travail et/ou des masses d'eau. Il n'est pourtant pas possible, à l'heure actuelle, de répondre fermement à la question de savoir si les données seront complètes. Une analyse coûts-efficacité des mesures n'a pas encore été réalisée. Il n'a pas encore été possible d'examiner le recouvrement des coûts, la ventilation des coûts des mesures entre zones/secteurs et le déplacement des pressions vers d'autres compartiments environnementaux ou d'autres zones, exception faite des coûts de l'assainissement des eaux usées et de l'alimentation en eau potable.	Daten liegen teilweise auf kommunaler, auf Kreis- oder auf Landesebene vor. Es wird versucht, die Daten so zusammenzufassen bzw. aufzubereiten, dass sie auf der Ebene eines Betrachtungsraums oder/und der Wasserkörper genutzt werden können. *Inwieweit die Daten allerdings vollständig sein werden, kann zum kleineren Schriftart gegenwärtigen Zeitpunkt nicht mit Sicherheit gesagt werden.* Eine Kosten-Nutzen-Analyse der Maßnahmen wurde noch nicht durchgeführt. Die Kostendeckung, die Aufteilung der Kosten der Maßnahmen auf Gebiete/Sektoren und die Verlagerung der Belastungen auf andere Umweltkompartimente oder –bereiche konnten noch nicht geprüft werden. Ausnahme hiervon bilden die Kosten für die Abwasserbeseitigung und die Trinkwasserversorgung.

SOMES/SZAMOS: Hungarian methodology

For assessment trend an expert panel was established. The panel assessed the following drivers:

Socio-economic variables
Growth rate by sectors
Investment for
  Water supply
  Waste water collection and treatment
Investments to be implemented by governmental programmes

See attached *Table 1*.
In the final report a qualitative description will be given – hopefully agreed with Romanian colleagues – on the different drivers, with special regards to water quantity and quality issues.

Romanian methodology

1. *Tendencies in frame of water policies*

After year 1990 the water requirements decrease, as a result of activity reduction in some important industrial water users (mines activity, metallurgy)

In the last 2-3 years the economic activity increase and so we can appreciate that the evolution of water requirement on short and medium period to be between 2-3% per year.

The most important problem for short period in source assurance consist in water quality protection. Thus, for resolving this problem in conformity with European Union Directives are necessary the fallowing **investments:**

a) management of water resources concerning the development of actual integrated water monitoring network.

b) keeping the aquatic status at " good" and " very good" status (Directive 91/271/EEC – waste water treatment and Directive 76/464/EEC – reduction of surface water pollution against dangerous substances).

c) Assurance appropriate quality for water resources used for human consumption (D 75/440/EEC – surface water quality used for human consumption, D 98/83 and D80/923 – drinking water quality)

2. *Regional development tendencies in the main economical sectors in frame of N-W Development Region*

Sources of data: studies of N-W Development Agency constituted as a public utility.

In frame of this subchapter we take into account some projects with PHARE founds, public founds and N-W Development Agency Found and general objects for 2004-2006 year concerning modernization of agriculture and rural development, development of productive sector, growth in business competitiveness and promotion of private sector and development and modernization of transport infrastructure.

The methodology followed for developing the projection was based on key economic forces and complex interactions between economic sectors. The reliability of the projections made are not considered very good due to unexpected changes that might occur during the restructuring process of economy. The main conclusion is that the readjustment of the Romanian economy to the market conditions makes the policy projections more difficult and the information on parameters less reliable. Regional and global conditions evolutions for the next periods are considered with the projection of the economic growth.

ODENSE: Annex III.III has been of help in identifying the drivers or pressures for water demand. There was in the Annex a comprehensive list of potential drivers which have been evaluated one by one. If deemed important the driver has been included in the Business-As-Usual (BAU) scenario. This provided a good check-list.

The BAU scenario was developed along the following principles.

Population drivers

The Statistical Bureau in Denmark (Danmarks Statistik) has made a forecast of the population growth in the county of Funen as well as for each municipality. These statistical forecasts take due account of each municipality's spatial and development planning. The Odense River Basin constitutes only a part of Funen county. Some municipalities at the Funen County are not included in the Odense Fjord River Basin. Other municipalities are fully included while other municipalities are partly included in the Odense Fjord River Basin.

Population within the Odense Fjord River Basin

Based on a GIS record of the Odense Fjord River Basin and the municipalities we came up with the percentage each municipality constituted of the Odense Fjord River Basin. This percentage was rounded and subsequently used to calculate each municipality's share of the Odense Fjord River Basin. Hence we obtained a prognosis for each municipality population growth. The sum of those municipalities population growth constituted the Odense Fjord River Basin total population growth.

Water consumption drivers

From the Funen County we obtained water data on the water consumption for each sector for some municipalities where data where reliable based on reporting from each waterworks. Some municipalities have however not reported in a consistent manner. We had reliable figures for the total water consumption level in each municipality from the waterworks. However the distribution of the total water consumption between the sectors was not always available. For those municipalities where we had reliable divisions between the sectors, we calculated the average distribution for the sectors but excluding the large city of Odense. The remaining municipalities are more alike, and the average distribution is a reasonable assumption. These percentages are then multiplied with the total water consumption level, and we obtained the total water consumption level for each sector.

For the household sector the unit water consumption per person was calculated for each municipality.

The price elasticity was estimated to be -0.2, and the income elasticity was deemed insignificant. The drivers of the development in the water and wastewater price were the investments to be made in the water sector. These have been estimated for both the water sector and within the wastewater sector. The various investments proposed undertaken is described in the report. However given these investments the price continued slightly

upwards. This affected the unit water consumption level. The household's water consumption was then calculated for the projection period.
The same is done for each of the remaining sectors (industry, agriculture, institutions, and leisure, camping, etc.) and projections in the water development has been made for each sector. Hence this gives the forecast of the total water consumption level from the water works.
We have also calculated the losses in the pipes or the unaccounted for water. Given the relative high focus on reducing the unaccounted for water, the percentages reduction in water losses have been estimated as well as the reduction in water losses in the network. Similarly the water consumption at the waterworks has been calculated and the total amount of water extracted from the waterworks is calculated as the total amount of water consumption plus the water losses in the network as well as the water used in the waterworks.

MARNE: Three main activities

- 3 prospective expert meetings dealing with driving forces (agriculture, industry, population growth);
- One study about evolution of physico-chemical (BOD, P, N) point source pollution; expert forum about non-point source pollution, specific pollutants and ecosystems.

Pinios: *NO ANSWER*

Tevere: *NO ANSWER*

SCALDIT: The task of building a scenario is undertake by another specific working group.

With regard to resource costs, we don't have enough information at the moment.

2.6-4 SCALE.

QUESTION: At what scale has the economic analysis been assessed?

JUCAR: Two scale of analysis have been considered: Firstly the Jucar Pilot River Basin District as a whole, and secondly the individual application to each of the Agriculture and Urban Demand Units (there are 18 and 15 respectively within the Basin District). Once the results are available an aggregation and a later comparison will be done.

MOSEL/SAAR: *NO ANSWER*

SOMES/SZAMOS: For the Hungarian part of the Szamos/Somes/Szamos River Basin:
The scale issue has been interpreted as investigation on possibility for restructuring available information according hydrological boundary (river basin).
Restructuring of socio-economic indicators, as well as statistical information on water uses and water services according hydrological boundaries is possible, starting from settlements' data. This procedure provides excellent quality of information, but it is very costly and time consuming.
There is a proposed technique of assessment (that has been applied during this project for Hungarian part of Somes/Szamos RB) using the publicly available statistical information and calculation of weighted averages.
Three potential variations could occur:
1.If the hydrological unit is larger than micro-region, but smaller then county – the assessment can be made based on weighted average of micro-regional data.
2.If the hydrological unit is larger than county, but smaller then region – the assessment could be made based on weighted average of county data.
3.If the hydrological unit is larger than region, but smaller then country – the assessment could be made based on weighted average of regional data.

In case of Some RB the hydrological unit is larger than micro-region, but smaller than county.
The weighted averages were calculated in proportion of number of population or geographical territory. For example: GDP, income, employment, tourism are assessed based on weighted averages of population data, while agricultural water use considered according weighted averages of territorial data.
In Hungary the water directorates are organised based on hydrological principle. This hydrological unit differed from the scale, on which the economic analysis needs to be carried out in case of Somes/Szamos RB as well. In this case, the water services' indicators need to be recalculated starting from individual reports of service operators collected at WD. This has been conducted as well.
For the Romanian part of the Szamos/Somes/Szamos River Basin:
The scale issue has been interpretated as investigation on possibility for restructuring available information according hydrological boundary

The proposed technique of assessment (that has been applied during this project for Hungarian part of Somes/Szamos RB) using the publicly available statistical information and calculation of weighted averages.
There potential variations occurred:
4.If the hydrological unit is larger than micro-region, but smaller then county – the assessment can be made based on weighted average of micro-regional data.
5.If the hydrological unit is larger than county, but smaller then region – the assessment could be made based on weighted average of county data.
3 If the hydrological unit is larger than region, but smaller then country – the assessment could be made based on weighted average of regional data
It must be discussed for a common approach

ODENSE: The reporting on the economic analysis of water uses, both the description of the existing situation and the analysis of the trends/baseline in key indicators and variables, has been made at the Odense Fjord River Basin.
However, when collecting the data lower spatial scales have been investigated. For instance the projection of the water demand has for each of the 6 water use category been assessed at the municipal level (basically at the waterworks level), and subsequently aggregated to the Odense Fjord River Basin.
Conversely, the total cost at the administrative level at both the State and the Funen County level have been distributed to the Odense Fjord River Basin level by dividing the costs to those areas. Similarly the costs the municipalities within Odense Fjord River Basin have been determined for each municipality and the proportion of those costs related to the Odense Fjord River Basin have been estimated.
Hence various approaches have been adopted, but basically we have collected the data at the lowest level possible.

MARNE: Economic significance of water uses
District scale (100 000 km2)

Cost recovery
Data mainly aggregated at the District scale
Regional scale for taxes

Baseline scenario
6 sub-basin (15 000 km2) of the District for physico-chemical (BOD, P, N) point source pollution
District scale for non point source pollution, specific pollutants and ecosystems

Pinios: *NO ANSWER*

Tevere: *NO ANSWER*

SCALDIT: The economic analysis is assessed at the scale of river basin district and, where it's possible, some information can be provided at the sub-basin or region level (e.g. GPD).
In the perfect world, it could be really useful to have an assessment at **some** water bodies level (e.g. pressures per main industrial branches with information such as turnover or number of employees). In the real world, we will face problems of cost or confidentiality of such data.

GD 2.8: TOOLS ON ASSESMENT AND CLASSIFICATION OF GROUNDWATER.

THESE PRBS SHOULD HAVE TESTED THIS GUIDANCE DOCUMENT:

JUCAR:
OULOJOKY:
ODENSE:
MARNE:
PINIOS:
SHANNON:
TEVERE:
CECINA:
SCALDIT:

2.8-1 DESCRIPTION OF TOOLS.

QUESTION: is the description of the tools understandable?

JUCAR: *NO ANSWER.*

OULOJOKY: The statistical methods proposed in the guidance document is not tested in the pilot area. The commission proposal of Groundwater Directive do not include requirement to use such methods. The tool developed is too complicated and difficult to use.

ODENSE: The GD is generally understandable, although it would benefit from more illustrative examples. In addition, there is a conspicuous lack of good arguments for the selected methods, especially regarding the choice of AM rather than median. Furthermore, it is confusing that the tools are described several times in both the "Final Report" and in "Annex 4". It would have been desirable that these were collated.

As regards the accompanying software GwStat, it is difficult to convert data from other tools in such a way that they fit the programme format. This is particularly a problem with the matrix showing the groundwater body since Excel95 operates with a limited number of columns. When selecting a cell size of 100 metres the widest part of the groundwater body may not exceed 25.6 km. To select a better resolution or if the groundwater body is larger requires that one uses other programmes – for example SAS, Matlab or MapInfo –able to operate with a much greater number of rows. In these cases it will not be necessary to use GwStat, because the latter programmes can solve the described operations. In the present project it was decided not to use GwStat to calculate the representativity index and status, but only for determining trends. MapInfo and Excel were used to calculate the representativity index and status.

MARNE: Yes, language problem

PINIOS: The description of tools is understandable.

SHANNON: The tools are well laid out and presented however their applicability to the Shannon PRB or Ireland in general may be limited because homogenous aquifers with intergranular flow are not common. Most of our aquifers are fissured bedrock with karst aquifers at the extreme end of this spectrum. Sand and gravel aquifers do exist, but most are bedrock with secondary permeability dominating.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: *NO ANSWER.*

2.8-2 DISTRIBUTION OF MONITORING SITES.

QUESTION: IS THE SPATIAL DISTRIBUTION OF MONITORING SITES IN ACCORDANCE WITH THE PROPOSED PROCEDURE (SPATIAL REPRESENTATIVITY)?

JUCAR: A great effort is beeing done for the improvement of the assessment of the quantitative status of the Ground Water Units by upgrading the groundwater monitoring level network. This improvement has been promoted by the Ministry of Environment all over the country providing to all River Basin Authorities better measuring networks. Currently the JRB groundwater monitoring network includes 130 piezometers (measure-point) and the JRB Authority is in charge of taking the measures at least once a month. Nevertheless since more improvement will be needed in the future to meet the requirements of the WFD about the knowledge of the evolution of groundwater bodies, the JRB Authority has designed a new and more powerful network. This one is focusing in those representatives areas inside each GWU and intend to make full use of the historical data of the former network when possible. In this fashion the JRB Authority has issued a construction project for the new network which includes an overall of 287 measures points. Hopefully the construction of the new measure points will start before the end of 2003. In the following figure are shown the piezometers of both networks.

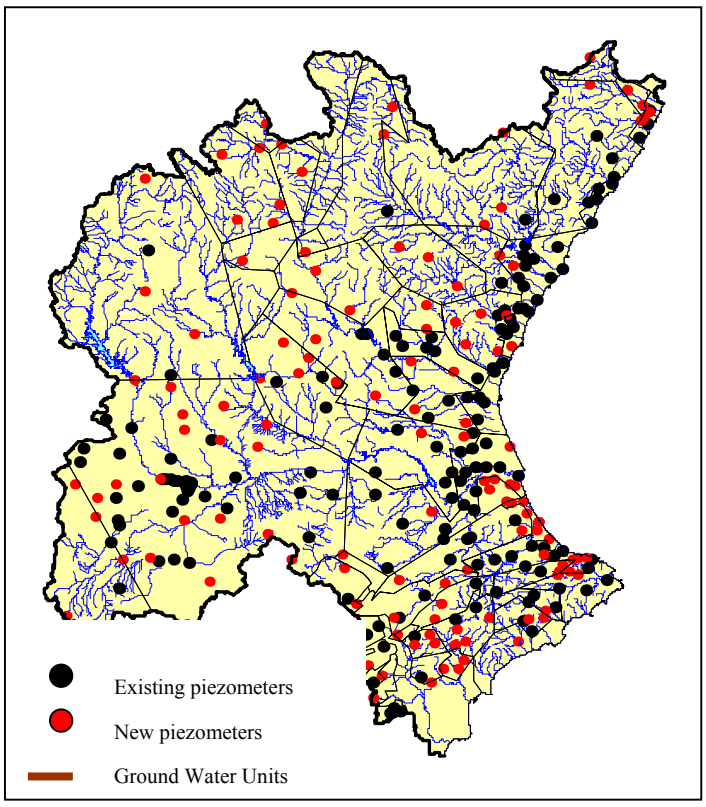

Figure-7 Proposal for upgrading the GW monitoring level network.

It has to be stressed out that in the design of the current network extension technical criteria according to the purposes of basic modern networks has been applied, especially in order to avoid some inconvenient of old networks since measure points used to be abstraction wells for irrigation or urban supply and thus provided disturbed measures because the groundwater regime, and the additional problem that most of them were located in private land.

OULOJOKY: The waterworks are mainly responsible for the monitoring of groundwater quality, especially in areas without any risk activities. In the pilot area monitoring issues reviewed in one of the esker chains, which consist of 28 groundwater areas and this chain is proposed to be one group of groundwater areas. The areas do not have any activities, which can cause risk to the quality or quantity of groundwater. The proposal is that the monitoring of this group of groundwater areas will be carried out by 2 waterworks and in one national monitoring station.

ODENSE: Based on the representativity index calculations for BAM data it is concluded that the monitoring network will not be able to fulfil the requirements stipulated in GD 2.8. The maximum representativity index for BAM is 0.56. This is therefore far below the value of 0.80 stipulated as a requirement in GD 2.8. This will also be the case for the other parameters (nitrate and conductivity).

MARNE: It has to be answered for each water body before using it. The tool does not help answering this question.

PINIOS: Yes it is. A detailed description of the spatial distribution will be available by the end of November.

SHANNON: Preliminary groundwater bodies have been delineated and are presented in Appendix 1. Currently there are 97 groundwater bodies delineated in the Shannon PRB. This number is likely change after the pressures and impact assessment. The national groundwater quality monitoring programme comprises a network of some 300 wells and springs which are monitored twice yearly for a range of water quality parameters. It has been operated by the Environmental Protection Agency since its establishment in 1995. Some 60 of these monitoring sites are located in the Shannon PRB. With the current configuration of groundwater bodies this results in many gaps in the network. However, there is an additional large network of potential monitoring locations from local authority groundwater abstraction sites. This additional network, which is currently being examined, will improve the resolution of the groundwater quality monitoring network.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: *NO ANSWER.*

2.8-3 QUALITY DATA.

QUESTION: do available monitoring data meet the needs for the assessment of GW chemical status (with particular emphasis on limit of detection and limit of quantificaton)?

JUCAR: *NO ANSWER.*

OULOJOKY: These areas which are included in the study do not have remarkable risks or pressures. That is one reason why the present monitoring is quite limited and primarily focused on most common problems or it is based on some other regulations. The monitoring of groundwater in those waterworks is not adequate for assess the chemical status.

ODENSE: Based on the description of the status of the individual groundwater bodies it is concluded that data availability and coverage are adequate to describe the status. This is not the conclusion reached if one examines the representativity index for each groundwater body, however. The reason why the representativity index does not comply with the requirement

of 0.8 is that borehole placement does not represent an ideal network with some monitoring wells being located in clusters. This means that one can artificially increase the representativity index by removing wells. If wells are removed in order to ensure that the representativity index complies with the requirement of 0.8 there will be considerably fewer wells in each groundwater body. It is considered that this far lower data coverage will not be adequate to describe the status satisfactorily.

In the Danish data, only the detection limit is given (LOD). According to the GD, the quantification limit ((LOQ) can be substituted with the LOD. The problem, especially with the older nitrate data, is that the detection limit is not stated. Instead a value of 0 is given. In these cases a value is stated below a real detection limit, and it is therefore incorrect to substitute the LOQ with the LOD. Consequently it is not possible to calculate AM ½ or AM0/AM100. In by far the majority of cases, though, newer data from the same monitoring point give a detection limit or a real value such that a real value is given for the monitoring point.

MARNE: Yes, the available data meet the minimum requirement of the tool. But for the last question, it is not possible through the tool to assess if available data are sufficient.

PINIOS: The available monitoring data meet the needs for the assessment of the chemical status in a great extend.

SHANNON: This data is currently being examined in the context of the pressures and impact assessment.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: *NO ANSWER.*

2.8-4 QUALITY DATA (TIME SERIES).

QUESTION: do available time series meet the needs for the assessment of trends, respectively trend reversal (with particular emphasis on limit of detection and limit of quantificaton)?

JUCAR: *NO ANSWER.*

OULOJOKY: In the pilot area water works have monitored some parameters, which can consider as pollutants like NO3, conductivity, Cl and NH4. In areas where a water work is situated a trend can be assess, but only for mentioned parameters.

ODENSE: As regards the assessment of trends on the basis of the method described, several problems have been identified. The first group of problems concerns the data used in the method, while the other group concerns the method itself.

In certain groundwater bodies there will not be sufficient data to describe a trend. Moreover, the data have not been sampled periodically. The data have not usually been sampled during a specific season of the year. If the data representing a specific season are selected, the time series one uses become fragmented or temporally limited. The GD does not describe how to deal with such fragmented time series. The data currently available will thus be of limited use for trend analysis, and often only for a number of specific parameters, e.g. nitrate and chloride, whereas it will not be possible to describe parameters such as pesticides, arsenic and nickel.

As it is the current data that are used to describe a trend, the magnitude of the LOQ is important. The lack of LOQ in the data set used can cause problems that could hinder compliance with the requirements stipulated concerning statistical correctness.

In addition, there are problems in complying with the requirement that AM0/AM100 must exceed 0.6. Since a large amount of data are below the LOD, AM0/AM100 will often be less than 0.6.

Another problem is to choose an average for the whole groundwater body, and not to look at time series for individual localities. Under the Danish national monitoring programme it has not even been possible to identify trends for individual localities. This is despite the fact that the monitoring programme has been in operation since 1989, when measures were introduced to reduce nitrogen loading from agricultural sources. Selecting a whole groundwater body does not make things easier as the localities selected will represent different land use, geology and hydrological conditions. Any trend present will thus be disturbed by data from other localities in the groundwater body. As the localities lie at different depths, there is the risk that a downward trend in one locality could even out an upward trend at another locality.

MARNE: Yes, the available data meet the minimum requirement of the tool. But for the last question, it is not possible through the tool to assess if available data are sufficient.

PINIOS: Yes, but this issue is under consideration.

SHANNON: The national groundwater quality monitoring network outlined above amounts to some nine years duration with two samples taken per monitoring location per year. It is likely that more detailed datasets such as they exist will be required to take account of seasonal effects when assessing trends in groundwater quality

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: *NO ANSWER.*

GD 2.9: PUBLIC PARTECIPATION.

THESE PRBS SHOULD HAVE TESTED THIS GUIDANCE DOCUMENT:

JUCAR:
OULOJOKY:
ODENSE: SEE: TOR_PUBPAR - ODENSE.PDF
MARNE:
PINIOS:
TEVERE:
CECINA:
SCALDIT:
RIBBLE:

2.9-3 SCALE ISSUES

QUESTION: At what scale did you apply PP?
a) stakeholder analysis in (large) basins; how was it carry out, at what level, by whom, how was it assured that no stakeholders were missed?
b) how were the interested parties in (large) basins contacted?
c) what tools showed to be effective at the 'used' level?
d) How was it ensured in the pilot basin that a common, co-ordinated approach to PP and the transmission of reactions from the local or the national scale to the international scale and vice versa took place?

JUCAR: Since the evaluation of the PP guidance is in the early stages and this process is still being designed, so far the scale adopted has been defined by the members of the current Water Council of the Jucar River Basin. The following list include the stakeholders by categories (public administration, urban water users, agriculture water users, hydropower generation users, agricultural and environmental organizations) which are members of the Water Council accordingly to the current Spanish Water Act and Júcar Hydrological Plan in force. This council has the task of endorsing and submit the future Management Plan to the Spanish Government for its approval and thus will necessarily have to be directly involved in the short run of the implementation.

- MINISTRY OF AGRICULTURE
- MINISTRY OF DEFENSE
- MINISTRY OF ECONOMY
- MINISTRY OF SCIENCE AND TECNOLOGY
- MINISTRY OF ENVIRONMENT
- MINISTRY OF PUBLIC WORKS
- MINISTRY OF HEALTH
- MINISTRY OF CRIME AND POLICING
- MINISTRY OF PUBLIC ADMINISTRATION
- AUTONOMOUS REGION ADMINISTRATION OF ARAGÓN
- AUTONOMOUS REGION ADMINISTRATION OF CASTILLA-LA MANCHA
- AUTONOMOUS REGION ADMINISTRATION OF CATALUÑA
- AUTONOMOUS REGION ADMINISTRATION OF VALENCIA

URBAN WATER USERS
- CITY HALL OF VALENCIA
- CITY HALL OF BENIDORM (ALICANTE)
- CITY HALL OF IBI (ALICANTE)
- CITY HALL OF ONDA (CASTELLÓN)
- CITY HALL OF CANALS (VALENCIA)

AGRICULTURE WATER USERS
- IRRIGATION WATER USER OF NOVELDA
- IWU OF JUCAR-TURIA CANAL
- IWU OF CANAL COTA 100
- IWU OF BURRIANA
- IWU OF SUECA
- IWU OF THE REAL ACEQUIA DE MONCADA
- IWU OF CAMPO DEL TURIA
- IWU OF SINDICATO CENTRAL DEL RIO MIJARES
- IWU OF SINDICATO DE REGULACIÓN DE LAS AGUAS DEL RÍO TURIA
- IWU OF JUNTA CENTRAL DE REGANTES DE LA MANCHA ORIENTAL
- IWU OF CALLOSA D'ENSARRIÁ

HYDROPOWER GENERATION USERS
- IBERDROLA, S.A.

OTHER USERS
- FISH FARM "EL ZARZALEJO, S.A."

AGRICULTURAL ORGANIZATIONS (ONGs)
- AVA-ASAJA
- UNIO DE LLAURADORS I RAMADERS-COAG

ENVIRONMENTAL ORGANIZATIONS (ONGs)
- ACCIÓ ECOLOGISTA AGRÓ
-OTUS ATENEO

This is the initial point that is necessarily to change with the developing of the testing process (due to different interest, expertise, involvement and means of the stakeholders), with new inputs and outputs into the list. Moreover, as it was mentioned in the epigraph 4 of this document there are a number of Environmental NGOs which have been selected to date by the Júcar River Authority to participate in this process.

OULOJOKY: PP was applied at RBD-level, at local level (municipalities) and in working groups established in the pilot project

a) Stakeholder analysis was made by project team and competent authority by arranging a brainstorm session in which interested parties were listed and analyzed as recommended in the guidance of public participation techniques.

b) Following techniques were used:
-letters of invitation to the seminars and other meetings
-personal contacts
-newsletter (distributed widely in the river basin)
-news and articles in the regional and local newspapers
-web-pages
-intranetsites

c) At local level: Meetings with local people and stakeholders seemed to be useful in order to find a common basis for a future work

d) –

ODENSE: SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: There is no specific provision in the Marne PRB. As we focus on real testing, we will implement public participation with the same means as elsewhere.

PINIOS: The interested parties, by this stage of the Project, have been contacted mainly through workshops, seminars and informational material (leaflets). During the workshops they have been informed about the aspects of the Project and they were asked to contact the project leaders, if they are interested or to transmit their contact details in order the project leaders to contact them.

It has not yet been assured that no stakeholders are missing (in fact, stakeholders who can contribute effectively to the implementation of the Project are missing). The way that we can be ensured that all stakeholders have been contacted is under consideration. The fully development of the related web site is a step forward to that.

The web site on the Pinios PRB testing and the organisation of more workshops and seminars will ensure the effective transmission of reactions.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Scale: international river basin-level

a) There is a database with 1159 persons involved in Water Management in the Scheldt River Basin District. They were categorised by target group. Stakeholders were defined by P04.

b) Some stakeholders were invited to the starting event of the Scaldit-project. They will be invited to a workshop on public participation techniques where other stakeholders can be defined. A targeted group of stakeholders will be invited to assist at the presentation of interim-results beginning of 2004.

c) Internet (website, communication via web with developers of guidance), presentation (evaluation of starting event)

By organising periodical meetings and discussion at the International Commission of the Scheldt, reactions on the site.

RIBBLE: *NO ANSWER.*

2.9-4 BROAD PUBLIC.

QUESTION: A) IN WHAT WAY WAS THE GENERAL PUBLIC INVOLVED?
B) WHAT WERE THE EFFECTS OF INVOLVING THE GENERAL PUBLIC?

JUCAR: Thanks to the means established for the information supply (presentation, meetings and the Web site), the broad public has been informed and will keep informed about the testing process in the Júcar PRB. Furthermore another options as press conferences or publication of notes for giving more diffusion to a particular events of the implementation (end of activities, opening period for comments,...,etc) are being considering. Nevertheless, to date the involvement of the public has not happen in a big scale and it is expected a greater involvement in the future.

OULOJOKY: a) Broad public has been involved by information supply. A few individuals have taken part in seminars and information afternoons. Wider consultation amongst general public has not been arranged.

b) Proposals concerning first steps of the planning process have been presented to the public, but time for comments is still going on. Therefore it is too early to analyse the effects of involving.

Awareness of the WFD has raised, which creates basis for collaborative planning in the future.

ODENSE: : SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: See part III

- Active involvement of basin committee (RBD level);
- Active consultation of interested parties (Sub-Basin level)

Information acces and passive consultation of public

PINIOS: By this stage, the general public was involved mainly through information exchange.
Specific inputs from the civil society and the general public concerning the assessment of some pressures were and will be very useful.
Some problems, such as the necessary time and money in order to achieve the best results through the participatory processes and the lack of public ability and willingness to participate, have been identified.
Possible solutions will be found during the implementation of the Project.
We should stress more, during the last months, the role of the general public to the implementation of the PRB testing. In this way, at least the willingness of the public to participate could be further ensured, considering the lack of participatory processes and public participation mechanisms in Greece, during the past and that the general public is not used to such participatory processes in the country

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: We interpret "general public" as everybody.
a) not till now (they can consult the website)
no effects till now

RIBBLE: *NO ANSWER.*

2.9-5 MANAGEMENT OF EXPECTATIONS.

QUESTION: a) how did you incorporate these aspects in the planning of the participatory process?

JUCAR: The role of the different groups of stakeholders is regulated by law. The process to be designed will communicate as clear as possible which are their rights and functions on a particular matter of the implementation and which are the procedures to participate in the process

OULOJOKY: A broad public has huge expectations on implementation of WFD. In order to prevent disappointments the participants have been informed of their role, of the content and meaning of WFD and of the frame in which changes in practices at local level can be waited.

ODENSE: : SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: *NO ANSWER.*

PINIOS: This procedure is under consideration.
Specific stakeholders groups and the help they can provide are being considered (e.g. Research Institutes can provide various models, the environmental NGOs could help in the assessment of impacts, etc.). A register of the key stakeholders and the inputs they could provide at different scales and time, in order to assess and to inform them of their role, function and rights. is on progress.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: The regulation of the International Commission of the Scheldt determines that representatives of NGO's can only be involved as observers. This involves that NGO's can make suggestions but that they can't vote nor make decisions. We will make this clear to them as soon as we involve them in the WFD-processes (workshop on public participation techniques)

RIBBLE: *NO ANSWER.*

2.9-6 TIMING (WHEN TO INVOLVE THE INTERESTED PARTIES).

QUESTION: a) taking into account the different implementation steps of the WFD: which interested parties at which scale should be targeted at in each step to benefit most from PP and which methods can be used best for this?

JUCAR: Once the scale of the process has been finally established (now it is only temporarily) the process designed will provide all the appropriate information on the implementation to the stakeholders with the maximum possible anticipation.

OULOJOKY: In order to improve social learning and create co-operation networks, every parties should be involved in the beginning of the process. Local actors at local level, regional actors at regional level etc.

Every parties which are needed in the successful implementation of WFD must be involved in the beginning of the planning process.

The methods and principals by which interested parties have been taken to the testing work will be reported by each working group of the pilot project later this autumn.

ODENSE: : SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: Yes to elaborate the list of participants of the sub basin committee.

PINIOS: See the above response.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Has to be further determined based on the action plan on public participation of communication group.
For a detailed overview we refer to the action plan on public participation (not yet available).
In general: in the beginning of the project only the directly involved public (administrations, NGO's) a determined group, once the project is developing informing a broader public.

RIBBLE: *NO ANSWER.*

2.9-7 MANAGEMENT OF COMMENTS.

QUESTION: A) HOW DID YOU COLLECT THE RESPONSES FROM THE CONSULTATION?

B) HOW DID YOU ANALYSES THOSE RESPONSES?
C) HOW MANY RESPONSES DID YOU COLLECT?
D) HOW DID YOU GIVE FEED-BACK TO THE RESPONDING PUBLIC?

JUCAR: To date the management of comments has been through the usual means: electronic mail, post mail, interviews, meetings and presentations. Those request that reached the Jucar Basin Authority have been individual and thoroughly responded by the staff of the Hydrological Planning Office. In the future additional means or methods may be considered depending on the number of requests, like the agglutination of request on the same subject could be answered in an only response,...,etc.

OULOJOKY: a) By feed-back forms,
by writing down the comments and suggestions given in face-to- face meetings or by phone

b) The methods and results will be reported by each working group of the pilot project later this autumn.

c) In two local meetings:
over 40 feed-back forms and several face-to-face comments;
in addition: dozens of comments in information meetings, in seminars, in expert meetings, in project team, by phone etc.

d) No systematic approach for giving feed-back has been established but responses have been taken into account e.g. by arranging meetings which have been wanted

ODENSE: : SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: See part III for all stages and annex 1 active consultation of interested parties through the participants of the Marne sub-basin committee.

PINIOS: *NO ANSWER.*

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT:
a)sheets for evaluation of the starting event, reactions by the site
b) make a summary/a comparison and discuss it during meeting of P04
c)depends on responses starting event
by newsletters and mails, by updating the site

RIBBLE: *NO ANSWER.*

2.9-8 INFORMATION SUPPLY.

QUESTION: a) how did you organize the information supply?
b) what were the investments (time and money) for the information supply?
c) how did you assure the information supply was 'sufficient'?

JUCAR: The information has been supplied by the means described in epigraph 4 of this document, namely: presentations, meetings and a web site.

OULOJOKY: a) Following techniques were used:

-seminars
-local meetings
-working groups (in which interest groups are involved)
-web-pages
-intranetsites
-news and articles in the regional and local newspapers
-newsletter (distributed widely in the river basin)
- letters of invitation to the seminars and other meetings
-corridor chats

b) about a month

c) No systematic approach has been established but comments have been gathered in the public meetings.

ODENSE: : SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: *NO ANSWER.*

PINIOS: The information supply is ensured by now through workshops, informational material and the web site. It is sufficient enough in terms of quality of information, but not sufficient enough in terms of reach effect. Details about the investments will be given by the end of November 03

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT:

- *meetings* ***on monthly basis were organised with all partners from Scheldt river Basin (within the structure of International Scheldt Commission)***
- **email** for diffusion of documents used at meetings or background information
- **presentation:** seminar to introduce the Scaldit project in Lille (France) on 01/07/03
- **website** of the International Scheldt Commission, website of the EU-commission and Interreg. Development of website of the Scaldit-project. **Links** to ask information to developers of Common Implementation Strategy (the so-called "PIE") and CIRCA (on European Commission and ISC-site) to search information regarding Common Implementation Strategy
- **diffusion of brochures:** production of a 16 pages brochure in Dutch, French and English to describe the Scaldit project
- **development of a database**: 1159 persons involved in Water Management in the Scheldt River Basin District categorised by target group and used as a basis for diffusion of invitations for seminars
- **events**
- **press**

b)
* budget: total: 158.950
- meetings: 10.000
- start event: 40.000
- newsletter: 15.000
- website: 4000

- graphic scale: 15.000
- fair stand: 12.500
- translation: 43.700
- brochure: 18.750

* time: 01/01/2002 till 31/12/2003

information supply based on proposals action programme. Discussion within meetings P04 (a kind of evaluation) about information diffusion

RIBBLE: *NO ANSWER.*

2.9-9 EVALUATION.

QUESTION: a) how did you organize this process? Was there continuous evaluation and adaptation? What went well, what could be done better?

JUCAR: *NO ANSWER.*

OULOJOKY: *NO ANSWER.*

ODENSE: : SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: *NO ANSWER.*

PINIOS: *NO ANSWER.*

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Evaluation is discussed during meetings P04. Adaptation will be provided as a result of these meetings.

RIBBLE: *NO ANSWER.*

2.9-10 KEYS TO SUCCESS

QUESTION: a) did you obtain new information that was important for management?
b) were any substantial changes in the plan or in the programme of measures made (more/fewer "heavily modified water bodies", new "additional measures", etc.)?
c) how many interested parties became actively involved and what are their experiences of the process?
e) did public acceptance of the resulting plan/ decisions increase and - if implementation has already started - did implementation problems decrease.
e) did you succeed to start a 'learning process'?

JUCAR: As it has been mentioned in last point of the epigraph 4 of this document, in the bilateral meeting held on September 11 for the reviewing of all the important subject of the WFD, two major issues stand out above the rest, as an important part of its development:

- The Ebro River Transfer (approved by The National Hydrological Plan)
- The Júcar-Vinalopó Transfer (approved by The Jucar River Basin Plan).

There was a common posture of the NGOs by which it was argued that these two project were opposed in nature to the principles of the WFD.

Anyway the general conclusion that the Jucar PRB staff draw from the meeting was that the PP is going to be a complex process because opposite interest and concerns are at stake (especially between users and environmental organizations).

OULOJOKY: a) ?

b) ?

c) ?

d) too early to analyze

f) ?

ODENSE: : SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: *NO ANSWER.*

PINIOS: New information, obtained from several stakeholders, has already contributed effectively to the implementation of the Project. Inputs, especially from Research Institutes and Environmental NGOs were very helpful

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT:

a)too soon to answer
b) too soon to answer, possibility to respond after the interim presentation of February 04
c)2 NGO's are member of the P04.
d) too early
too early

RIBBLE: *NO ANSWER.*

2.9-11 PROPORTIONALITY

QUESTION: a) how did you value the input for public participation, given the outcome? Why?

JUCAR: To date is soon for the evaluation of the response of general public and stakeholders but so far and relating to magnitude it has been quite profuse.

OULOJOKY: *NO ANSWER.*

ODENSE: : SEE: TOR_PUBPAR - ODENSE.PDF

MARNE: *NO ANSWER.*

PINIOS: By this stage, the input can be considered as valuable enough and helpful for the implementation of the Pinios PRB testing (new information, new methofdologies,

development of a collaboration that will contribute and affect the implementation of the WFD, etc.). The benefits were more than the problems encountered.

TEVERE: *NO ANSWER.*

CECINA: *NO ANSWER.*

SCALDIT: Waiting till presentation interim-results in February 04 to answer this question

RIBBLE: *NO ANSWER.*
